ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED ESTABLISHMENT OF THE MWALIMU JULIUS K. NYERERE UNIVERSITY OF AGRICULTURE AND TECHNOLOGY TABORA CAMPUS ON PLOT NO 2 BLOCK "A" ITONJANDA AREA IN TABORA MUNICIPALITY

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EXECUTIVE SUMMARY

INTRODUCTION.

The Government of the United Republic of Tanzania through the Ministry of Education, Science and Technology (MoEST) is implementing a Higher Education for Economic Transformation (HEET) Project. HEET is a five-year project through the World Bank loan to promote higher education as a catalytic force in the new Tanzanian Economy. The project is designed to revitalize and expand the capacity of universities to contribute key areas for innovation, economic development, and labour market relevance, by investing in requisite infrastructure for modern and effective teaching and research, and by training to the highest standard teachers, researchers and administrators needed by the universities to achieve their full potential.

MJNUAT is a new public institution which was formally established in 2012. It has its headquarters is in Butiama district, Mara region. The University main campus is located 38 km from Musoma Muniipal, adjacent to Musoma-Arusha highway, and 3.5 km from Butiama township. The university aims at being the centre stage of agricultural transformation in Tanzania. It also strives to be a regional and global player in innovative and societal responsive Agricultural Education and Training (AET). The University aims at achieving this through embracement of the concepts of the Third or Fourth Generation University which, in part, are in line with the views of the Father of the Nation and first President of the United Republic of Tanzania, the late Mwalimu Julius K. Nyerere that were expressed when inaugurating another agricultural University on 26th September 1984. The fourth phase Government therefore decided to establish this public university in honour of Mwalimu, who believed that agriculture in its broad sense to remains a reliable means of livelihood to many Tanzanians in the rural settings.

The main campus Butiama, MJNUAT constitutes a number of Colleges and Schools including; College of Agriculture, College of Engineering and Technology, School of Veterinary Sciences School of Business, Economics and Entrepreneurship Studies School of Renewable Energy Engineering and Technology, Others include the Institute of Strategic and Conflict Mitigation, and the Institute of Disaster Management and Climate Change as well as a number of centres.

Besides MJNUAT is designed to have other campuses/satellite centres in Mara region including.College of Natural Resource Management and Tourism (at an area contiguous to Serengeti National Park), College of Health and Allied Sciences (at the Mwalimu Nyerere Memorial Referral Hospital in Musoma municipal), School of Fisheries and Aquatic Sciences (at Kinesi area contiguous to Lake Victoria shore), and School of Science Education at the Oswald Mang'ombe Campus.

The proposed MJNUAT Tabora Campus must abide to the Environmental Management Act of 2004 of Tanzania which requires the project developers to

carry out Environmental and Social Impact Assessment prior to project implementation. Likewise, the World Bank's Environmental and Social Standards (ESS1) requires the borrower to identify, assess and manage potential environmental and social impacts and risks associated with the project. In view of the above, MJNUAT carried out this environmental and social impact assessment (ESIA) for the proposed establishment of MJNUAT Tabora Campus. Therefore, the Environmental Management Act, 2004, the Environmental Impact Assessment and Audit (Amendment) Regulations, 2018, and the World Bank Environment and Social Framework (ESF) as well as the HEET project's Environmental and Social Management Framework (ESMF) were observed in the study

Description of the HEET Project

MJNUAT through the support of HEET Projects intends to establish its Campus in Tabora Municipal for a School of ICT and Business Studies. The School will be constructed in Plot No 2, Block "A" Itonjanda in Tabora Municipality, Tabora Region. The project site is about 16km from Tabora Municipal, along the Tabora-Nzega Highway. MJNUAT has been granted Certificate of Land Occupancy No. 17471 MRLR dated 24 February 2023 for a period of 99 years with of Title deed No 17437TBR.

The proposed project will help to increase enrolment in priority disciplines, to improve the relevance and quality of programs to meet the conditions and standards of the current and future labour market, to strengthen system-level coordination, management, and regulations to ensure quantity, quality and relevance of higher education in Tanzania, and to increase the rate and extent of graduate employability through improving the relevance of curricula and create new and demand driven programs.

OBJECTIVE OF THE PROJECT

According to the HEET's Project Appraisal Document (PAD) of 2021, the main objective of the project is to strengthen the learning environment and labor market alignment of priority programs at beneficiary universities and improve the management of the higher education system

PROJECT LOCATION AND ACCESSIBILITY

As pointed out above, the Project is located in Plot No 2, Block "A" Itonjanda in Tabora Municipality, Tabora Region. It is located about 16km from Tabora Municipality along the Tabora-Nzega Highway.

LAND OWNERSHIP

The proposed project site is on land with Title deed No 17437TBR which is owned by the Mwalimu Julius K. Nyerere University of Agriculture and Technology of P.O Box 976 Musoma which has legal documents for ownership and the land has been surveyed and planned for educational purpose only of Use group "K", use class (d) as defined in the Urban Planning (Use Groups and Use Classes) Regulations, 2018. The whole land covers total area of 604,250m^2.

DESCRIPTION OF THE PROPOSED SITE

The proposed project will be constructed in an undeveloped land which covered by various vegetation such as mango trees, cashew nut trees, few palm trees, bushes and grasses. No endanger species observed at the project site during site visit done by consultants. The soil type is red loam soil in northern part of the plot, red sand soil in southern and central parts of the plot and clay soil in north-eastern part of the plot. Within project site about 5% of the area was previously used as a mining site for soils used for road construction and remain area about 95% is flat area with slope from western side to eastern side.

ADJACENT DEVELOPMENT

The project proposed site is bordered by TANESCO High Voltage Power Transmission Line about 30m and Tabora-Nzega Highway about 60m to the Southern side while to the Eastern is bordered by undeveloped farms to the Western and Northern sides. According to the Proponent's plan, the proposed project site will be surrounded by earth road to the Northern, Eastern and Western sides. In Eastern side about 18m there is one residential building while in North-East side about 260m there are residential buildings.

POLICY, ADMINISTRATIVE AND LEGAL FRAMEWORK

Carrying out the Environmental and Social Impact Assessment (ESIA) for the proposed development, various Policies relevant to this assignment were reviewed, namely; The National Environmental Policy (2021), The National Human Settlement Development Policy (2000), The National Water Policy (2002), The National Sustainable Industrial Development Policy (1996), The National Land Policy (1997), The National Energy Policy (2015), The National Investment Promotion Policy (1996), The National Employment Policy (2008), The National Policy on HIV/AIDS (2001), The Construction Industry Policy (2003), The National Health Policy (2008), The National Gender Policy (2000), The National Health Policy (2017), The Education and Training Policy (2014) and The National Transport Policy (2003).

Carrying out the Environmental and Social Impact Assessment for the proposed development, various Acts that are relevant to this assignment were reviewed, namely; The Environmental Management Act (2004), The Land Act (1999), The Occupational Health and Safety Authority Act (2003), The Standards Act (2009), The Water Resources Management Act (2009), The Environment Impact Assessment and Audit Regulations (2005) and its amendments of 2018, The Water Resource Management Act (2009), The Land Use Planning Act (2007), The Roads Act (2007), The HIV and AIDS (Prevention and Control) Act (2008), The Public Health Act (2009), The Employment and Labour Relations Act (2004), The Local Government Urban Authorities Act (Cap. 288 R.E 2002), The Engineers Registration Amendments Act (2007) and among others.

Furthermore, various World Bank Environmental and Social Standards (ESS) approved by the Board for addressing environmental and social issues within the Bank supported development projects will be applicable. The proposed project for establishment of MJNUAT Tabora Campus was assessed and may

have potential adverse environmental and social impacts but those impacts are site-specific, reversible and for which mitigation measures can be implemented easily. As per ESMF, to offset the anticipated social and environmental impacts for this project will use the new Environmental and Social Framework (ESF) by applying 5 relevant standards out of 10 Environmental and Social Standards (ESSs). The Environmental and Social Standards (ESS's) that apply to this ESIA report include:

i. ESS1- Assessment and Management of Environmental and Social Risks and Impacts;
ii. ESS2 - Labor and Working Conditions;
iii. ESS3 - Resource Efficiency and Pollution Prevention and Management;
iv. ESS5 - Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
v. ESS4 - Community Health and Safety;
vi. ESS10 - Stakeholder Engagement and Information Disclosure (ESS10).

STAKEHOLDER ENGAGEMENT

Stakeholder consultations were carried out during the preparation of scoping report to identify and respond to all issues of concerns raised by stakeholders during one-to-one session. The stakeholder consultation was done as per project SEP and ESMF, where it involved consultations with relevant government Ministries, Departments, Agencies and Authorities (MDAAs) and project neighbours. Details of the meetings and focused group discussions with individuals and groups of stakeholders are presented in this report. As per WB ESS10, stakeholder engagement is an inclusive process conducted throughout the project life cycle. Where properly designed and implemented, it supports the development of strong, constructive, and responsive relationships that are important for successful management of a project's environmental and social risks. Stakeholder engagement is most effective when initiated at an early stage of the project development process, and is an integral part of early project decisions and the assessment, management, and monitoring of the project's environmental and social risks and impacts. Stakeholders consulted 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 national, Municipal and local levels. The stakeholders consulted include; Tabora Municipal Office, Itonjanda Ward Office, Itonjanda Village Office, Neighbours, NGOs, Occupation Safety and Health Authority (OSHA), Lake Tanganyika Basin Water Board (LTBWB), Ministry of Education Science and Technology (MoEST), TCU, TANESCO, TUWASA, TANROADS and Fire and Rescue Force Tabora Region. The issues raised by each stakeholder are recorded and grouped into;

During public consultation, major issues of concern which were identified include:-

Loss of lives and property due to fire break out

During project operation, the facilities will be connected with electricity from the national grid, The Tanzania Electric Supply Company Limited (TANESCO). The use of improper wiring systems, electrical equipment which does not meet recommended standards and poor handling of diesel fuel for power plants as

alternative power may be a source of fire at the project site. This may result into loss of lives and properties around the project area.

Dust emission during construction phase
Air emissions due to release of particulate matters (dust) during construction and exhaust from vehicles and construction traffic (vehicular emissions) will be of high concern. It is noted that construction activities may contribute to the local PM_{10} concentrations (which can potentially impact upon human health), where this will be more critical in dry season. Regarding exhaust emissions from construction equipment/machines and vehicles, the operation of the construction vehicles and equipment powered by internal combustion engines will result in the emission of exhaust gases containing pollutants, including NOx and Volatile Organic Compounds (VOCs) and carbon monoxide. The quantities emitted depend on engine type, service history, usage pattern, and fuel composition. Dust and fumes are likely to deteriorate ambient air quality and will have a major impact to workers and neighbours.

Occupational health hazard and safety risks to workers
The labour force to be employed to carry out the construction activities will pose health and safety hazards if care is not considered. The occupational health and safety issues to be associated with the construction of the proposed project include physical, chemical, noise and health hazards. Many of the project construction activities will involve the handling of potentially harmful objects, working at heights, transporting of construction materials from point source to project site and lifting of heavy equipment, vehicular traffic, and contact with electrical conductors, exposure to dust and excessive noise. Thus, construction workers will be at risk of injuries such as falls, cuts, fractures and electrical shocks, and ailments from harsh ambient effects and unsanitary conditions. Workers will be prone to all sorts of safety and health risks during construction.

Proper Waste Management
They commented on the issue of proper solid waste management during the construction and operation of the proposed project. If not treated properly they will end up spreading diseases. Management of both solid and liquid wastes must be treated according to the municipal by-law.

Nuisance from noise and vibration impacts,
They recommend on the issue of noise and vibration nuisance to be generated from activities such as excavations, drilling, earthworks, processing of construction materials, haulage of construction materials or mixing of construction materials at site. The machines to be used in the construction works will be a source of noise pollution during extraction and processing of construction materials and transporting construction materials. The movement of heavy construction equipment will generate nuisance primarily to workers, neighbours and visitors at the project site. The machines/equipments to be used must be one with low noise emission and timely serviced

Water pollution due to domestic wastewater mismanagement
Generation of liquid waste in the form of sewage is inevitable in a community such as proposed development project. This calls for proper design and management of sewage systems to avoid water/soil and human health risks. The poor management of generated domestic waste at site like improper maintenance of damaged sanitary system for wastewater control and may cause direct contamination of such waste into water body. Contamination of water body with domestic wastewater may cause spread of disease like diarrhoea and typhoid

Enhanced income, employment opportunities and local business
Construction of the buildings will consider the use of local contractors as well as local building materials available in the country. This will contribute to the boosting of income among local suppliers of materials, labours and the economy of the country as a whole.

DESCRIPTION OF THE SIGNIFICANCE IMPACTS
The proposed project will generate a wide range of environmental and social impacts from site preparation stages, construction phase to operation phase to decommission phase. The impacts are of both positive and negative in nature. Most adverse impacts will be of a temporary nature during the construction phase and can be managed to the acceptable levels with implementation of the recommended mitigation measures for the project. Ways of enhancing positive impacts have been also suggested. Significant impacts are as shown below:-

IDENTIFIED IMPACTS
<u>Impact during Mobilization phase</u>

Potential Environmental Impact

Vegetation clearance to accommodate project development
The current status of the project proposed site is undeveloped open land and it is owned by MJNUAT. The site is not built-up area, its open area and covered by vegetation like Mango trees, Cashew nut trees, Palm trees, acacia trees, one baobab tree and short grasses. No species of the amphibians and reptiles that are included in the IUCN Red list of threatened species. During mobilization and project construction phase vegetation on the project site will be cleared to make the area clear for the proposed project implementation. This will affect the existing vegetation at the area and cause deforestation which contributes on climate change. This impact is negative, short term and of high significance.

Dust emission during site clearing
Dust will be generated at the proposed project site and along the access roads (internal access roads) at the project site due to site preparation activities like clearing and grubbing, offloading of construction materials etc. Further, the required construction materials will be sourced and transported to the site for the preparatory activities, where during offloading dust will be emitted. Also, movement of trucks delivering construction materials will be a source of dust

emission to community around the site. This impact is negative, short term and of high significance.

Occupational Health hazards to mobilization workers
For the whole activities of site clearance, workers will be exposed to situation that will affect their health like dust emission, noise pollution and injuries due to use of machines or cut of sharp objects. This will affect the general environmental health to workers. This impact is considered negative, short term and of high significance

Potential Social Impact
Employment Opportunities to local people
During mobilization phase, local people will be employed for site preparation activities as direct employment as both skilled and unskilled labours to perform various mobilization activities such as site clearance, construction of materials storage yard, mobilization of machinery and site preparation/setting. Also, food vendors and other local suppliers adjacent to the project (Itonjanda area) will have additional income generating opportunities. This impact will be positive, short term and of high significance.

<u>During Construction Phase</u>

Environmental Impacts

Nuisance from noise and vibration impacts during construction,
During construction phase, noise and vibration nuisance will be generated from activities such as excavations, drilling, earthworks, processing of construction materials, haulage of construction materials or mixing of construction materials at site. The machines to be used in the construction works will be a source of noise pollution during extraction and processing of construction materials and transporting construction materials. The movement of heavy construction equipment will generate nuisance primarily to workers, neighbours and visitors at the project site. This impact is negative, short term and of high significance

Disturbance to contractor due to effect of storm water flowing during rainy season
During the heavy rainfall, storm water runoff at the project is a normal situation. Storm water runoff could cause nuisance to contractor if construction material like cement and sand is not well kept. Contactor will make sure that all construction materials are well kept to mitigate the impacts of storm water runoff during the heavy rain. This impact is negative, short term and of high significance.

Occupational Health and Safety Hazards/Risk
The labour force to be employed to carry out the construction activities will pose several health and safety hazards if care not considered. The occupational health and safety issues to be associated with the construction of the proposed project include physical, chemical, noise and health hazards. Many of the

project construction activities will involve the handling of potentially harmful objects, working at heights, transporting of construction materials from point source to project site and lifting of heavy equipment, vehicular traffic, and contact with electrical conductors, exposure to dust and excessive noise. Thus, construction workers will be at risk of injuries such as falls, cuts, fractures and electrical shocks, and ailments from harsh ambient effects and unsanitary conditions. Workers will be prone to all sorts of safety and health risks during construction. This impact is negative, short term (during construction) and of high significance

Air pollution due to dust and gaseous emission during construction
Air emissions due to release of particulate matters (dust) during construction and exhaust from vehicles and construction traffic (vehicular emissions) will be of high concern. It is noted that construction activities may contribute to local PM_{10} concentrations (which can potentially impact upon human health), where this will be more critical in dry season. Regarding exhaust emissions from construction equipment/ machines and vehicles, the operation of the construction vehicles and equipment powered by internal combustion engines will result in the emission of exhaust gases containing pollutants, including NOx and Volatile Organic Compounds (VOCs) and carbon monoxide. The quantities emitted depend on engine type, service history, usage pattern, and fuel composition. Dust and fumes are likely to deteriorate ambient air quality and will have major impact to workers and neighbours. This impact is negative, short term and of high significance

Water Pollution and siltation effect due to generation of soil materials
For proposed project facilities implementation, soil materials will be from excavation of foundation, trenches. Poor management of generated soil materials will lead to water pollution in receiving water bodies and siltation issues which disturb depth of water bodies and affect aquatic organism due change of water pH. Also, the effect of water Turbidity may affect oxygen circulation in water bodies and this will lead to death of aquatic organism. This impact is negative, short term and of high significance.

Diseases due to wastewater mismanagement
During construction phase, local people will be employed to work in construction activities. Also, services providers like food vendors and supplier of construction materials will enter project site. The presence of high number of people at site will generate liquid waste from toilets/wash rooms. Mismanagement of such generated wastewater may be a source of communicable disease to community around. This impact is negative, short term and of high significance.

Health hazards due to mismanagement of hazardous waste
During construction activities various materials like iron sheets, iron bars, electrical wires, and wire mesh will be used. During fixing cut pieces of such materials will be generated, where such waste will be termed as hazardous wastes. Mismanagement of such waste may lead to injuries to workers as sharpness to be generated. This impact is negative, short term and of high significance.

Bad visual/ smell due to mismanagement of solid waste
During construction phase people to be employed will need food for survival, where food remain, empty water bottles, offices papers and alike will be generated at site but the rate will be minimum. Mismanagement of domestic solid waste may lead to bad smell and bad visual due to scattering of generated solid waste like water bottles and food remains. This impact is negative, short term of medium significance.

Social Impacts

Positive impacts
Knowledge and skill increase to local labour
Since the project will provide direct employment to local people to work during construction, so those who will get opportunity to work particularly unskilled and semi-skilled labour will get an opportunity for skills development. Skills to be acquired may include construction equipment, heavy machinery operation, materials preparation and mixing, construction standards, health and safety procedures at construction sites, laying drainage, laying pavements, and excavating trenches, building works etc. Apart from gaining working skills and knowledge qualified experts, the employed people will benefit from formal training opportunities, which contractors expect to offer during the construction phase. Consequently, would be employable in the construction industry projects, earn more income and improve their standard of living. This is positive impact that can be characterized as regional, high magnitude, long term and highly probable.

Revenue Generation to Local Governments and Agencies
The construction activities will generate additional revenues to the central, regional and local government in the form of taxes, fees, levies and other charges generated throughout construction activities. The project will contribute to local and central government revenue through corporate taxes, duties, levies, fees, contributions to the National Social Security Fund (NSSF), and monthly PAYE income tax of all full-time employees.

The Contractor will make sure that payment for various utilities providers such as TANESCO and TUWASA will be done per time to enhance for better service. This is a positive impact that can be characterized as regional, high magnitude, short-term and definite.

Benefit to local producers and suppliers of construction materials
Construction of project supporting facilities at the area will consider the use of local contractors as well as local building materials available in the country. This will contribute to the boosting of income among local suppliers of materials, labours and the economy of the country as a whole. This impact is considered positive, short term and of high significance.

Increase income to offsite services providers

Construction workers required will provide a ready market for various goods and services, leading to several business opportunities for small-scale traders such as shop owners, accommodation providers, and food vendors near the project proposed site. With the commencement of construction activities, workers' influx to the project site will attract small-scale business opportunities. These may include the growth of eateries and hawkers that may seek to market food and products to the project workers. Construction work will indirectly cause an increase of individuals from the informal sector and service providers come from different areas beyond the project's primary influence area. The increase in small vendors and businesses in the area will increase income and indirect employment opportunities. This will affect positively the life of those who provide offsite services and increase flow of cash in the area. This is a positive impact, short term and of high significance

Increased land values
Upon commencement of the construction activities for MJNUAT University at Tabora will change the land status at Itonjanda area as well as the land at surrounding villages. Land owners have the understanding that the introduction of the campus will cause their land to add value and therefore they have to plan for it and obtain title deeds. The title deeds will help them to obtain loans from financial institutions which will be used for different purposes like; improving their houses, paying for health services, education services etc, adding value to the land and the same will have a sustainable effect to the people in the local area.
This positive impact arising from this will be high and are likely to affect the project communities of Nyambele hamlet as well as other local communities surrounding Itonjanda ward for a long-term. Furthermore, the impact will be pilling up with cumulative effects not only to those directly involved but also the one associated with them in the local area. The important thing to note is that, after the end of this phase the impacts will never be reversible hence irreversible and will have a residual impact.

Negative impacts
Disrupted Traffic Flow and Public Safety/Accidents
The project site can be accessed using a single access route (Nzega-Tabora Road) from either direction. The main entrance/exit will be located adjacent to Nzega-Tabora Road, which is currently not experiencing traffic congestion. Traffic may be disrupted on all the roads and junctions under construction due to slow and interrupted traffic flow and potential diversions. The use of heavy moving construction vehicles and machinery in project site is generally known to cause traffic reducing movement and vehicle flow during construction, this may increase congestion, delays, road accidents (especially along Nzega-Tabora Road) and planned internal access roads (within construction project site), and reduce road safety, especially at peak hours. The impact can be further severe, particularly during morning and evening peak hours. The traffic disruption could potentially cause disruption, health and safety impacts, and economic impacts from delays for road users going to or from work and other destinations.

Further, accidents to the project site access road may increase due to additional movements generated by vehicle traffic during the transportation of construction materials to the project site and failure to observe safety rules in traffic movements and mobility. The likely sensitive receptors are project site staff, visitors, pedestrians and commuters along Nzega-Tabora Road at Itonjanda area. If drivers will not take due caution, haulage trucks might be an accident risk to workers and neighbours at the area. This is a negative impact that can be characterized as site-specific, high magnitude, short term and highly probable.

Spreading of HIV and other STIs in the project area and surrounding environs
Construction of all project supporting facilities in the area may cause an influx of people from various places in search for jobs and other opportunities that come with construction activities. The project may facilitate interaction of people of different sex which may lead to sexual relationships and eventually spreading of HIV and other Sexually Transmitted Infections.

Gender Inequity in Employment opportunities
During construction, it is likely that the population within and beyond the proposed project area will be subject to exclusion from formal employment opportunities offered within the project's construction phase due to common types that undermine their perceived occupational capabilities and productivity. Gender inequality might be perpetuated through unequal distribution of work, discrimination against women during recruitment, and unequal pay for women. Women are likely to be least favoured in the employment opportunities in the project area. This is because the nature of jobs available during construction is perceived to be done mainly by men. Sexual exploitation and immorality could result, especially with the young girls of the area, to gain favour for employment opportunities. This can result in the spread of sexually transmitted diseases such as HIV/AIDS and other sexually related diseases. This is a negative impact that can be characterized as local, medium magnitude, short term and probable.

High demand on social service due to population increase
Residences in the project area and surrounding communities have social and infrastructural services provided to them according to number of residents such as health services, education, accommodation and water infrastructure. Influx of people in the project area will increase pressure on the already limited social infrastructure and may without the taking of steps to alleviate this place a heavy additional burden on the existing service delivery system. During the construction phase it expected that more than 100 people will resides within these communities causing burden and pressure on the available limited social services.
This negative impact will be moderate and are likely to affect the entire surrounding the project area. Furthermore, the impact will be pilling up with cumulative effects not only to those directly involved but also the one associated with them in the area.

Increased in level of crimes

It is expected that the selection and design stage will recruit a considerable number of workers both skilled and non-skilled from the communities around and other from the nearby communities. In addition, the project will attract people from various areas to come and invest the provisions of goods and services. The increase in Population will stimulate the growth of the trading centres around the project site. Experience and sociological point of view show that where there is a big concentration of people from various backgrounds and behaviour, levels of crimes and changes in norms and behaviour are common. This is also is likely to be the case of the trading centers around the project site.

This impact will be negative in nature of moderate level and will cover the local areas surrounding the project.

Provision of child labour
During construction of the proposed buildings and other project infrastructures, the contractor will provide employment to local people around the project area for all works which not need high skills. The presence of employment opportunities at project site will attract even people at age of under 18 to go for job seek. If care not considered, this will affect the tendency of children to continue with school. This impact is negative, moderate term and of high significance

<u>During Operation Phase</u>

Social Impacts

Positive social impacts
Creation of Direct Employment Opportunities
The construction of proposed buildings and other supporting facilities will create demand for additional skilled and non-skilled labours, who will be employed directly by MJNUAT Tabora Campus. Operation and maintenance of the facilities will create employment as well. Increased employment opportunities will be created as more students enroll when facilities are improved and increased at MJNUAT Tabora Campus.

Enhanced Income to the Surrounding Local communities
The establishment of new MJNUAT Tabora Campus will translate to more opportunities for the local economy as demand for goods and services trickle down to the local businesses. The petty traders and various service providers at Itonjanda areas are likely to benefit from an increased market for various goods and services. The program will translate to overall measurable economic and employment growth for the country. This impact is positive, long term and of high concern

Increase Skills for all students graduate
The project will increase the likelihood of students' employment after graduation by producing graduates with high quality and relevant training aligned with the country's vision. There will be significant exchange

opportunities for trainers and management staff in the academic, given the high-quality training. The quality graduates from MJNUAT Tabora Campus will work across the borders in East Africa, where such skills are still inadequate. This impact is positive, long term and of high concern

Reduction of Gender Gap
The proposed establishment of new MJNUAT Tabora Campus is expected to increase capacity for gender-friendly and responsive learning environments due to the development of infrastructure and facilities with increased capacity to enrol women and attract them to enrol in various programmes. This impact is considered positive, long term and of high significance

Negative Social Impacts
Spreading of HIV/AIDS and other STIs
Establishment of new MJNUAT Tabora Campus in the area will add to the students from various places in search for learning vacancy and non-students for searching opportunities that come with project development. The project may facilitate interaction of people of different sex which may lead to sexual relationships and eventually spreading of HIV and other Sexually Transmitted Infections. This impact is considered negative, long term and of high significance

Gender-based Violence, Sexual Exploitation and Harassment
The project's operation may lead to sexual abuse and exploitation-related incidences. The majority of victims might be young female students and employees at the project site. Cases like this can be mostly between students, students and lecturer/trainers, staff and staff, students and neighbours communities. The common acts of sexual misconduct are groping, sexual rubbing, unwelcomed sexual touching, sexually suggestive or degrading remarks and sexually explicit or abusive language. Frequently, sexual abuse behaviours may include sexual bribery in connection to various favours or facilitations like promotions, allowances, examination performances/marks/grades and other personal benefits. This is a negative impact characterized as site-specific, high magnitude, long term and probable.

Demand of basic needs due to population influx
Upon completion of the project, will go with number of students enrolment due to introduced MJNUAT University at Tabora Campus. Population influx /growth will lead to high demand of basic needs like food, water, accommodation etc. The increase in demand for basic needs will affect the price of acquiring all basic needs at the area. This impact is considered negative, long term and of medium significance

Security imbalance due to population influx
The influx of people may lead to security challenges as well as altitudes and behavious changes to indigenous people, where this may lead to moral and ethics decay

Conflicts to community around due to population influx

The operation of project will lead to high number of students enrolment. The increase of students may lead to conflicts with local people around and this may be caused on how each student behaviour against local people. Bad behaviour of students to local people around may lead to conflicts with community around and this may affect the relation between university and community around. This is considered negative impact, long term and of medium significance

Environmental Impacts
Soil/water pollution due to solid waste mismanagement
Management of solid wastes especially from domestic sources needs to be well designed to avoid soil pollution and other associated health hazards. In regard to the proposed project development is concerned with increase number of students at the area, the issue of solid wastes disposal is particularly important as it is anticipated that there will be more number of students meet at a time. So mismanagement of generated solid waste may cause soil contamination due from leachate to be regenerated when such waste decompose, where this may change the soil pH and cause death of important micro-organism needed for soil decomposition to increase soil fertile. This impact is negative, long term and of high significance

Water and soil pollution due to domestic wastewater mismanagement
Generation of liquid waste in the form of sewage is inevitable in a community such as proposed development project. This calls for proper design and management of sewage systems to avoid water/soil and human health risks. The poor management of generated domestic waste at site like improper maintenance of damaged sanitary system for wastewater control and may cause direct contamination of such waste into soil and then to water body. This impact is considered negative, long term and of high significance

Soil Erosion due to Runoff Effects and Loosened Top Soil
Removal of soil cover will expose the remaining area to runoffs, which may in turn result in soil erosion. Inadequate backfilling and resurfacing may result into erosion which in turn may damage the built structures and may result in siltation of receiving water bodies. This impact is considered negative, long term and of high significance

Fire outbreak
During project operation, the facilities will be connected with electricity source from national grid (TANESCO). So improper wiring system, use of electrical equipment which not meets recommended standards may be a source of heat at project site. This may result into loss of lives and properties around project area. This impact is considered negative, long term and of high significance

Loss of properties due to Natural Disaster Risk
The natural disasters considered include flooding and earthquake impacts. Since the proposed project site is located at flat area, it means that during rainy season water runoff will be from northern area to southern area, if care not considered this will affect the use of the proposed project supporting facilities. Also, the historical of Tabora region on earth quake impact indicate

that it likely to occur but at low intensity. If care not considered during design, this will affect the proper use of the building and ultimate stage may cause death. This impact is negative, short term and of high significant

Generation of Hazardous waste during the operation phase
During the operation phase of the project, hazardous wastes will be generated from laboratory activities, involving the use of chemicals; oils, lubricants and containers, and contaminated rugs from the training workshop; cut materials (plastics, metals and similar) etc. Hazardous wastes will be generated from the health care facility (i.e. infection wastes, sharp objects, and chemicals).Health-care waste contains potentially harmful microorganisms that can ready infect any exposed person, where infectious medical waste can cause disease in humans either through direct contact or indirectly by contamination of soil, ground or surface water and air accidents: sharps-inflicted injuries and Health impacts associated with toxic exposure to pharmaceutical products, in particular, antibiotics and cytotoxic drugs. Further, haphazard burning of medical waste may cause air pollution and health problem associated with inhalation of toxic substances such as mercury gas or dioxins.

Also E-waste contains a list of chemicals that are harmful to people and the environment, like: mercury, lead, beryllium, brominated flame retardants, and cadmium. When electronics are mishandled during disposal, these chemicals may reach out and end up in soil, where it washed away with runoff, and contaminate soils, water, and air.
The open-air burning releases toxic fumes, while acid baths leaches toxic materials leaching into the environment.
The most dangerous property of heavy metals is their toxicity and tendency to accumulate in the environment. Highly toxic substances such as mercury, lead, beryllium, and cadmium can accumulate in water, in plants and animal tissues and pose a significant threat to the environment even in minute quantities Heavy metals.

Impacts on Climate Change:
Failing to recycle e-waste means more primary raw materials need to be extracted and refined, which might lead to an increase in greenhouse gas emissions.
The scale of this impact is regional. The duration of the impact is long term during the operation phase of the campus. The significance of the impact is high, requiring sophiscated mitigation measures, as provided in local and international guidelines i.e. the IFC. However, with application of the mitigation measures the impact revised.

Increased traffic flow and increased risks of road accidents
During the operation, some activities that may rise in endangering the lives of the community members living close to those activities. This in turn will likely to endanger the lives of the local communities in form of accidents if appropriate measures are not taken. On the transportation of raw materials and students as well as different individuals to the site, drivers may fail to observe safety measures along the road something that may result to accidents to other road users like pedestrian, motorcyclist, and bodaboda drivers. The

increased congestion of people and vehicles at the project site as stated above will cause multiple routes on the road. The multiple routes of vehicles will increase the chances of roads accidents. This may cause loss of people lives which can lead to misunderstanding between local people and their government.

Furthermore, the impact will not be pilling up and no cumulative effects may be witnessed at the end of this phase. The important thing to note is that, after the end of this phase the impacts will never be reversible hence irreversible and will have a residual impact.

<u>During Decommission Phase</u>

Environment Impacts
Loss of aesthetic value due to Abandonment of infrastructure
The proposed project is planned to run for a long time unless there happen unforeseeable events which may curtail the project life span of 100 years. The proponent may abandon buildings and other supporting facilities that may permanently render the project site unattractive.

Land pollution and loss of aesthetic
In the event that a major rehabilitation of a Campus involves demolition of structures, there is a risk that improper waste management could contaminate land (soils and water resources). In case demolition waste is left scattered, it will destroy the aesthetic values of the area, and its neighbouring environment. Abandoned waste management facilities (septic tanks, wetland could potentially become a breeding area for diesel causing vector, that could transmit infectious disease to the neighbouring community. *The significance of the impact is high. The spatial scale of the impact regional and its duration will be short term.*

Generation Demolition waste materials
The major rehabilitation of MJNUAT Tabora campus will generate demolition wastes that are heterogeneous mixtures of building materials such as aggregate, concrete, wood, paper, metal, insulation, and glass that are usually contaminated with paints, fasteners, adhesives, wall coverings, insulation, and dirt. Due to the complex composition of demolition waste, its haphazard disposal on the environment could have deleterious effects. For example, metals, paints when exposed to wet environment can potential release toxic ions (through leaching), thus altering the soils chemistry, and contaminating water resources and the food chain. Other components such plastics and glass are non-decomposable, thus can remain in the environment for years. The waste if improper placed will become a safety hazard. *The significance of this impact is high. The scale of impact is local, and short term. The impact is reversible, and will have cumulative and residual impacts.*

Air pollution resulting from demolition works
Demolition activities will potentially generate dusts and other air pollutants. Dust will emanate from gridding, drilling on concrete works, from moving,

loading and off-loading of construction materials. Dust will have impacts on the aesthetic value of the area, impair plants photosynthesis and possibly impair visibility. Inhalation of fine particulates (PM) may cause health hazards to receptors (demolition workers). *The significance of this impact is low, of local scale and short term.*

Noise pollution from demolishing works
Demolition activities are typically associated with noise levels above the standards. The main noise receptors will be the demolition force and neighboring community. Noise is nowadays considered a public health concern. Impacts of noise could be physical (such as hearing loss) and psychological (such as frustration and nuisance). *The impacts of noise is considered local, of medium significance, short term but could be irreversible.*

Environmental pollution due to hazardous waste mismanagement
During the major rehabilitation, hazardous wastes will be generated from the use of chemicals; oils, lubricants and containers, cut materials (plastics, metals and similar) and e-waste computer rooms. Health-care waste contains potentially harmful microorganisms that can ready infect any exposed person, where infectious medical waste can cause disease in humans either through direct contact or indirectly by contamination of soil, ground or surface water and air, accidents: sharps-inflicted injuries. Haphazard burning of medical waste may cause air pollution and health problem associated with inhalation of toxic substances such as mercury gas or dioxins.

Also E-waste contains a list of chemicals that are harmful to people and the environment, like: mercury, lead, beryllium, brominated flame retardants, and cadmium. When electronics are mishandled during disposal, these chemicals may reach out and end up in soil, where it washed away with runoff, and contaminate soils, water, and air.
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Wastewater Management problems
The types of wastewaters to be generated during rehabilitation activities include sewage, grey water and process water. Sewage effluent will be produced in the sanitary facilities provided and collected on site. Wastewater produced if not well disposed will also pose a problem to human health. This will be particularly severe if the waste is not collected directly and / or is released directly into the environment without any treatment. Wastewater if discharge in the natural environment can pollute environment and causing unhygienic sanitary conditions and nuisances to the human perceptions. *The significance of the impact is moderate as the impact is localized, short term and reversible.*

Social impacts

Loss of employment, student hostel and learning place
If for whatever reason the project is closed down, the people employed by the project will lose their jobs, students will loss hostel for sleeping and hall for learning. The offices will be affected during the project decommission. This will have significant impact to the people and their dependents. This impact is considered negative, long term and of high significance

ALTERNATIVE CONSIDERED
In ESIA process, consideration of project alternatives is critical for ensuring that the developer and decision-makers have a wider base from which they can choose the most appropriate option. In this ESIA study, the following alternatives were considered and examined.

Alternatives site
The proposed project site is currently planned for educational purposes and has available land space suitable for the proposed project. It is worth noting that it is very difficult for one to get land for investment wherever she/he wishes, thus limiting the flexibility for allocating and relocating project site. In that view, considering site relocation alternative based on the proposed project will entail negative financial and time implication to the client. The provided site is economic feasible for proposed project implementation since not require fund for purchasing extra land. Relocation may demand land acquisition and compensation which will add unnecessary costs to the proponent.

Alternative Power Supply
Currently the proposed site is not connected with any power source but TANESCO infrastructure is about 30m in southern side of the plot where it will be easy to connect as main power source. However, proponents plan to install a diesel generator to be used as an alternative source of power. High running cost, gaseous emission during operation and noise pollution hinder the smooth operation of diesel generator as alternative power source. The consideration of solar panel as alternative power is considered since it will be silence operating, no gaseous emission and low running cost. The use of solar panel will be considered as best option due to environmentally friendly of no gaseous emission and economically feasible for low running cost compared to diesel generator. Practically this source of energy is not feasible for such a project. Solar power could only be there as supplement but not as the only source of energy.

Alternative Water source
The project site is not connected with any water source but piped water infrastructure from TUWASA is passing near the proposed project site which will be easy to connect as main water source. Project implementation, means even rainy water generation surface will be increased and this will be easy to consider rainy water harvesting as alternative water source to replace relay on piped water from TUWASA during rainy season. Due to high number of

people expected at project site during operation, a drilled borehole will be used as alternative water source during dry season in steady of rainy water harvesting which is not feasible in dry season. This alternative will be economically feasible, due to low operation cost and will be best option.

Alternative construction materials

In considering alternative construction materials we consider ability of materials in heat reduction, cost of materials, time taken to get those materials (delivering time from supplier/ point source), and reuse of those materials after construction and colour of materials for sun ray reflection during summer period. The use of construction opted in this alternative may be hinder by other factors like availability of such materials and technology used to manufacture such materials. The construction materials opted in this project include sand, timber, iron sheets, aggregates, steel bar of 1" x 3mm for window and steel plates of 2mm thickness (4ft x 8ft) for door gate. All construction materials will be locally obtained from authorized suppliers

Alternative construction technology

Various technologies was considered such as use of concrete framework, use of steel framed, use of structural insulated panels and use of cob technology. Structural Insulated Panels (SIPs) is considered a best method as it provides a cost effective, environmentally friendly and labour-saving alternative to traditional timber framing and masonry construction methods. A method reduces energy consumption and CO_2 emissions.

Alternative solid waste management

Biodegradable materials will be collected and stored in specified places for temporary solid waste collection, awaiting delivery to permitted dump sites by Tabora Municipal trucks. This will improve solid waste segregation, encourage the reuse of other garbage, and attempt to reduce the amount of waste delivered to dump sites. Plastic waste, including plastic bottles, will be collected in a separate area before it is delivered to a recycling agent in Tabora region or nearby region.

Alternative liquid waste management

The project site does not have enough space for the wetland treatment plant and waste stabilization ponds (WSP); therefore, the project developer will opt for the construction of a septic tank with a soak-away pit for liquid waste management. Once it is full, wastewater will be transported using authorized dealers to the Mirambo Waste Stabilization Pond (WSP) for treatment. The WSP is operated and managed by the Tabora Water Supply and Sanitation Authority (TUWASA).

Hazardous waste management

Hazardous waste will be collected in a specific area designated for hazardous trash collection. The area will be paved and shaded to prevent soil contamination. Once the specified area is full, the registered agent will be called for proper disposal in line with country regulations and WB Standards

No-Project Alternative
This alternative is considered not feasible from the following facts:

a) The revenue envisaged from the project and other incomes for local people will not be realized;
b) Availability of new MJNUAT Tabora Campus at the area will not be realized hence enhance quality of students graduated and accommodation rooms for student will be thwarted.
c) It is against the Tanzania Development Vision 2025 to encourage developments of projects especially if there are no negative irreversible impacts associated to such project.

Based on the above, it is considered that No-Project alternative is not a plausible alternative.

MITIGATION MEASURES FOR POTENTIAL IMPACTS

The EIA identifies potential adverse environmental impacts and proposed mitigation measures to minimize or prevent any adverse impacts. The following potential impacts are identified with their mitigation measures as;

MOBILIZATION PHASE
Mitigation measures for Environmental Impacts

Noise pollution due to site clearance
To mitigate this impact, the following will be considered;

- regular maintenance of all used machines
- site mobilization works will be on day time only not otherwise
- The site will be fenced by iron sheet before levelling
- noise protective gear will be provided to workers

Vegetation clearance
To mitigate the impact during mobilization, the vegetation clearance shall be for those hinder project implementations and after construction trees planting program shall be initiated

Dust emission due to site clearance
To mitigate this impact, the following will be considered;

- Application of water spray for all area where dust emission is high
- Fence the area using iron sheets to minimize wind effects
- All cleared materials will be covered while at project site waiting for disposal

Occupational Health Hazards to workers
To mitigate this impact the following will be done;

- Apply water spray to all area where dust emission is high;
- All used trucks will be serviced regularly;
- Cover all stockpile found at site;
- Any trucks used for transporting waste from site will be covered;
- Provide safety gears to site clearance crews like safety boots, uniform etc.;
- Emergency assembly point shall be designed; and

- Induction training shall be given to mobilization crews

Enhancement measures for Social Impact

Promoting Local Employment and Income Generating Opportunities
Semi-skilled and unskilled labour will be sourced locally to provide communities with employment and the opportunity to earn an income during the construction phase of the proposed project. The contractor will engage nearby local communities and those offsite to perform various construction activities that do not require specialized skills. A special clause that requires residents to be employed as labourers during construction will be included in the contract.

Equal opportunities shall be provided for both females and males for all jobs that can do. Further, the project proponent/contractor will encourage/permit small businesses that support the construction, such as cafes, food vendors, kiosk etc. to provide services to the construction staff in consultation with the local government authority.

Vulnerable groups, particularly the disabled and elderly, have lower employment opportunities than youths and non-disabled. As part of an economic empowerment, the Contractor shall ensure vulnerable groups are given priorities to all works that can perform. For example, involving female-headed family/ poor households and women-widow groups to prepare food for his/her staff.

CONSTRUCTION PHASE
Mitigation Measures for Environmental Impacts

Noise pollution due to movement of construction equipment
To mitigate the impact, during construction the contractor and project owner shall ensure that proper maintenance of machines and vehicles is done to minimize the presence of noise and emissions from engines. Equipment and engines that are not serviced regularly are more likely to cause much noise than regularly serviced ones. Furthermore, the construction during the night will be avoided to ensure quietness in the neighborhoods at night.

Air pollution due to dust
In order to mitigate air pollution due to dust emission which is caused from earth moving equipment on site, water shall be sprayed on unpaved surfaces to suppress dusts followed by paving of surfaces at the project site. All construction materials at site will be covered for non-active hours. The area will be fenced by iron sheets to prevent wind effects

Generation of excess soil or spoil materials
To mitigate this impact, the contractor and the proponent shall:
- Resurface and level debris in the course of compaction and construction of the foundation for the structures,

- Ensure proper backfilling and resurfacing of the construction site. Light compaction will be necessary to stabilize the soil. Planting of grass on bare land to minimize soil erosion tendencies will be given a high priority.

Impacts associated with transportation of construction materials
To mitigate impacts associated with transportation of construction materials, the contractor shall cover well all trucks transporting construction materials

Occupational health and safety of construction workers
The following are the mitigation measures:

- The Contractor shall adopt and implement Health and Safety Management Plan (HSMP) attached in appendix 7. HSMP at the site will be strictly adhered by all construction workers and visitors at the site, See Appendix 7 for indicative HSMP for the proposed project at the project site;
- Before the commencement of any activity, Point of Work Risk Assessment shall be conducted by responsible personnel (activity-specific risk assessment and mitigation measures before actual commencement);
- The contractor will be fully responsible for the health and safety of workers on-site, including providing all workers with appropriate PPE and training on the use of protective equipment;
- Ensure provisions of first aid for staff, insurance, and access to ambulance service at all worksite, and arrangement to access local hospital/dispensary with qualified medical staff by workers;
- All construction workers must undergo HSE induction training before commencement of construction works;
- The HSE Officer shall conduct periodic workshops and training to create awareness amongst construction workers;
- Adequate PPE such as reflective vests, helmets, and hazard cones to demarcate the working area will be provided. This will improve the visibility of the construction work to drivers on nearby roads and thereby help prevent accidents;
- A well-stocked First Aid kit (administered by a trained first aider) shall be made available at active work site;
- Adequate access and egress shall be maintained; a fire-fighting system will be established;
- Effective safety and warning measures will be taken to reduce accidents. Safety signal devices and signage will be installed to ensure safety during construction;
- Minimizing pedestrians and vehicles interaction within construction site. The proposed project site shall be fenced off and provided with security at the access gates to reduce potential accidents and injuries to the public;
- Contractor shall adhere to construction guidelines and directives issued by Occupational Safety and Health Authority (OSHA),
- The contractor should employ a qualified health and safety officer at site

Vibration due to construction and installation activities

To mitigate this impact, the contractor shall do all high noise polluting works during daytime in order to avoid disturbance to the neighbours. Neighbours and workers will be informed the day of installation of machines which might cause vibration.

Health hazards due to mismanagement of hazardous waste.
In order to mitigate impacts; generated cut pieces of iron sheets, steel bars and a like shall be collected into a designed area for temporary hazardous waste storage while waiting to be collected by authorized dealers for disposal and the area for temporary hazardous waste storage will be roofed, paved its floor and has band wall. Contractor should prepare a waste management plan for hazardous waste

Pollution due to mismanagement of domestic solid waste
In order to mitigate this impact, the following are suggested mitigation measures:

- Ensuring proper design of systems for collection, transportation and disposal of solid wastes
- Ensuring availability of sufficient waste bins at appropriate locations
- Design and construct solid waste collection chambers for collecting waste before transported to dump site,
- Sorting of solid waste shall be done at source
- Constructed temporary solid waste collection chamber at project site shall be paved and roofed to ensure no contamination due to rainy water effect
- Contractor should prepare a waste management plan for domestic solid waste

Diseases due to mismanagement of wastewater
In order to mitigate this impact, the following shall be done:

- Installation of a movable toilet or construction of temporary toilets and bath to be used during construction.
- Emptying of provided toilets will be done to avoid overflow.
- Contractor should prepare a waste management plan for domestic wastewater

Mitigation Measures for Social Impacts

Gender inequity in Employment Opportunities
The proposed mitigation measures include:

- implementation of the Gender Action Plan (GAP);
- jobs will be equitably distributed to both women and men as long as they qualify rather than based on gender to allocate jobs. Employment records disaggregated by sex will be kept by the contractor and easily accessed by the monitoring and supervising team;
- livelihood support strategies will be extended to the vulnerable groups and their income levels monitored closely during the implementation process;

- human resource management training concerning equal opportunity, gender-inclusive recruitment and non-discriminative employment terms, and on-the-job capacity development for labours representing vulnerable groupings;
- establishing affirmative action involving the preparation of equal opportunity, gender-inclusive procurement plan; and
- Capacity-development opportunities (e.g. internships, training seminars) for women and minority employees and women

Impacts due to HIV/AIDS
In order to address and alleviate spreading of HIV/AIDS among construction crew, sensitization campaigns against the danger of HIV/AIDS shall be organized including voluntary Counselling and Testing programs in collaboration with agencies dealing with control of HIV/AIDS.

Increase income to offsite service providers
The project proponent/contractor will encourage/permit small businesses that support the team involved with construction activities. For instance, food vendors (mama Lishe), transport services including motorcycle and tricycle motorcycle (bodaboda and bajaj respectively), kiosks, etc., can provide the construction staff services. This will enhance internal money circulation and growth of business in the project area. The Contractor's procurement plan shall be required to incorporate affirmative actions involving the preparation of equal opportunity and gender-inclusive procurement.

Revenue generation to Government
The Contractor and all sub-contractors will be required to pay all the applicable corporate taxes, charges to appropriate local and central authorities or government agencies. On the other hand, the government is encouraged to develop a streamlined, efficient system for the clearance and monitoring and create a transparency system for computation and collection of all taxes, levies, customs duties, and revenues.

Knowledge and skill increase to local labour
Proposed enhancement measures include:

- use of locally registered and certified contractors and sub-contractors;
- provisions of on-job training for the workers (unskilled and semi-skilled) in various areas of construction. This could be achieved by deliberately placing unskilled workers with semi-skilled personnel and semi-skilled with skilled workers;
- offering capacity-development opportunities (e.g. internships, training seminars) for women and minority employees, and women and minorities pursuing education within the civil engineering sector;
- Contractors and sub-contractors will be encouraged to deliver skills and training to local staffs (both skilled and unskilled); and
- transfer of the skills into other livelihood activities, seek opportunities in other similar projects in the region and beyond.

Benefit to local supplier of construction materials
The Contractor will strive to source materials, equipment and other resources that can be provided by local suppliers adjacent to the project site and Tabora Municipal in general

Disrupted Traffic flow and public accidents
The mitigation measures for controlling and managing traffic flow and ensuring public safety at the proposed project site within in Tabora Municipal and along access routes are outlined below:

- Contractor to prepare and implement a Traffic Management Plan (TMP) for construction purposes for his work activities. The plan is intended to guide and specify traffic flow and adequate safety measures during construction. TMP will include a description of measures to be taken to protect pedestrians and community health and safety, proposed diversions, detours, traffic flow and scheduling in the key intersections, haulage routes, traffic signage and monitoring mechanism;
- Avoid delivering materials onsite during peak hours along Nzega-Tabora Road (morning and evening), and the peak operations. Ideally, materials will be delivered at night hours/less busy hours;
- Initiation of a safety program and measures by creating awareness and educational campaigns for drivers, workers and local communities, including observation of speed limits;
- Installation and maintenance of all signs, signals, markings, and other devices used to regulate traffic, including posted speed limits, warnings of sharp corners, or other special access road conditions;
- Establishment of the support mechanism for the movement of the vulnerable groups such as disabled people, including wheelchair users, children, students, and patients;
- Provision of safe corridors and crossings along internal access roads and construction areas within project site;
- Installation of barriers (e.g. fencing, plantings) to deter pedestrian access to the roadway except at designated crossing points; and
- Minimizing pedestrian interaction with construction vehicles especially inside project site.

High demand on social service due to population increase
The following shall be implemented;

- Limit the number of unskilled workers recruited from outside the direct vicinity as far as possible.
- Provide First Aid Facilities on site.
- Explore alternative sources of domestic water, such as rainwater harvesting.
- Link to mandated structures to support improvement of social and infrastructural services at the project site and communities surrounding project area.

Increased in level of crimes

The following shall be implemented;

- Tabora municipal to strengthen security services by provision of more police stations/posts.
- Establish community-based security in collaboration with village/ward leaders.
- The contractor shall establish his own security to protect his properties and should establish community police to support insufficient police force.
- The community should be encouraged to participate in security matters by providing information on suspects
- The cooperation of local people together will help to lessen criminal incidents and maintain security of people and their properties.

Children employment

The following shall be implemented;

- Proponent will conduct regular monitoring of project workers in relation to health, working conditions, hours of work, minimum age, and the other requirement of national law
- Work with local authorities and schools in the area to control school drop out
- Cooperate with relevant authorities like Ministry of Labour to control child labour
- Create awareness rising to the communities on the importance of education to the children,
- The local authorities should develop bylaws to control the engagement of children in petty business or work in project related activities

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

Several mitigation and enhancement measures have been proposed to address both major and minor negative and positive impacts identified during the study. These measures have been used to develop an ESMP for the proposed project. The ESMP is presented as a detailed plan and schedule of measures designed to mitigate, eliminate, offset, or reduce environmental and social impacts of the project. These measures/actions outlined in the ESMP will be conducted collaboratively and mainly coordinated by MJNUAT Tabora Campus. The Institute will be responsible for monitoring the implementation of the ESMP and preparing monthly, quarterly, semi-annual, and annual environmental monitoring reports. The total budget for implementing ESMP is estimated at Tshs 225,000,000/=, the cost will be covered by contractor as a part of project during tendering and other cost will be covered by developer direct

ENVIRONMENTAL AND SOCIAL MONITORING PLAN (ESMoP)

Environmental monitoring will be carried out to ensure that all operations comply and adhere to environmental provisions and standard specifications. The activities and indicators recommended for monitoring are presented in an Environmental Monitoring Plan (EMP) in Chapter 9 of this report. The EMP consists of mitigation measures, parameters to be monitored, (for dust emissions particulate matters of PM10 and PM2.5 will be monitored, for

gaseous emissions Carbon monoxide, Carbon dioxide, Nitrogen dioxide, Nitrogen monoxide (NO), Ozone (O_3), Sulfur dioxide (SO_2) and Hydrogen Sulphide (H_2S) will be monitored, for water quality pH, colour, Turbidity, faecal coliform bacteria, Total coliform bacteria, Electrical conductivity etc will be monitored and noise level sound emission will be monitored as presented in baseline measurement chapter four of this ESIA report), monitoring frequency, sampling area and desired target/standards level to be undertaken during monitoring and at different phases of the proposed project. MJNUAT Tabora Campus (Proponent) will be responsible for overall monitoring the implementation of the EMP during the mobilization, construction, operation, and decommissioning phases of the project. The monitoring programme also establishes effective feedback mechanisms to evaluate the performance and effectiveness of the various elements of the EMP. It is recommended that internal and external environmental monitoring will be done to determine the long-term effects of adopted mitigation and enhancement measures. The total budget for implementing EMP is estimated at TZS 330,000,000/=, the cost will be covered by the developer.

ENVIRONMENTAL COST BENEFIT ANALYSIS (ECBA)

The implementation of the proposed project at Itonjanda area in Tabora Municipal shall have costs to community, government and the environment. For instance, community shall have inherent costs associated with noise, impairment of air quality, and Safety and health risks. However, the introduction of mitigation measures will reduce the anticipated impacts. The government has secured the loan for this project; and there will be costs for mitigating environmental impacts. On the other hand, the proposed project has both direct and indirect benefits to MJNUAT as proponent, neighbours and the government as well. The benefits of the project will be experienced in all phases from mobilization, construction, operation to decommissioning phase. Several benefits to be associated with the proposed development at local and national level in terms of revenue generation and the multiplier effects associated with linkages with local and national economy. However, building construction projects may generate negative benefits though; they are usually minimal compared to the positive benefits. Some of those benefits are non- quantifiable thus cannot be used in the cost- benefit analysis estimations

MAJOR REHABILITATION

Major rehabilitation is not anticipated in the foreseeable future. In the event that the proposed project will undergo major rehabilitation, the primary activity is expected to be the removal of the infrastructure associated with the project and rehabilitation of the site. The main negative impacts during the major rehabilitation phase are the loss of the infrastructure associated with the proposed project hence change in aesthetic of the area, loss of employment to workers employed due to proposed project, loss of income for offsite service

providers, noise and dust emission due to demolition activities for other structures, injuries to demolition workers and contamination of environmental due to improper management of demolition wastes. About 120,000,000/= Tanzania Shillings is proposed to be used during project major rehabilitation, this will vary depend on money value on the time where a major rehabilitation start.

CONCLUSION

Given the above findings, it can be concluded that the proposed project activities from design, construction to operations stage will have manageable/ reversible negative impacts on the biophysical and social-economic environments, provided that if the proposed mitigation measures will be appropriately implemented. In this way, the project will have minimal environmental, socio-economic, and cultural concerns that would inhibit its implementation and development. It is anticipated that the project will potentially result in more positive than negative impacts in the long term.

As per ESMF the project will strength the capacity of key staffs and this will enhance their capacity in future to address environmental and social issues appropriately. Training will be conducted to key staff involved in decision making, screening, reviewing, monitoring and approvals at the implementing institution. Thus, the project will entail minimal adverse environmental impacts if adequate mitigation measures are proposed and incorporated in the project design. In that regard, the project is expected to have enormous socio-economic benefits in education sector for Tanzania. The major issues of concern are land degradation, pollution, Stormwater generation and overflows, increased pressure on Social Services and Utilities and Occupational health and safety during construction.

The project implementers will ensure compliance of all requirements of the ESMF. The ESMF outlines all key processes and procedures to be followed so that the project risks and impacts are adequately and timely mitigated. Proponent will be committed in implementing all the recommendations given in this ESIA report and further carrying out the environmental auditing and monitoring schedules

This ESIA report recommends that the proposed project be allowed to proceed on condition that the proponent implements the ESMP and EMP proposed in this report as appropriate and any other conditions imposed by NEMC, WB and other relevant authorities.

Further, it is recommended that MJNUAT will develop, implement and periodically review an operative Environmental and Social Management System (ESMS) for the project life cycle and other operations at new MJNUAT Tabora Campus in Tabora Municipal.

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ACKNOWLEDGEMENT

Mwalimu Julius K. Nyerere University of Agriculture and Technology [MJNUAT] (the Project Proponent) would like to express sincere appreciation to all individuals, agencies, and institutions who contributed to the completion of this ESIA study. Special thanks to the Tabora Municipal Council, Itonjanda Ward Office and Nyambele Hamlet community for their valuable support and collaboration throughout the study.

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In addition, appreciation should go to COLBA Consulting Ltd for conducting this study and completed it successfully. In conclusion, several other persons were involved in one way or another during the course of execution MJNUAT is grateful to all.

LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
AQS	Air Quality Standards
BoQ	Bill of Quantities
CAPP	Child Abuse and Protection Plan
CBA	Cost Benefit Analysis
CEF	Community Engagement Framework
CRB	Contractor Registration Board
CSMP	Construction Safety Management Plan
CSR	Community Social Responsibility
DoS	Dean of Student
DTC	District Training Centre
EA	Environmental Audit
EHS	Environmental Health and Safety
EHSG	Environmental Health and Safety Guidelines
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMA	Environmental Management Act
EMO	Environmental Management Officer
EMP	Environmental Monitoring Plan
ERB	Engineer Registration Board
ESCP	Environmental and Social Commitment Plan
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESSs	Environmental and Social Standards
EWURA	Energy and Water Utilities Regulatory Authority
FGD	Focus Group Discussion
GBV	Gender Based Violence
GRM	Grievance Redress Mechanism
GN	Government Notice
GPS	Geographical Positioning System
HEET	Higher Education for Economic Transformation
HIV	Human Immunodeficiency Virus
HPD	Hearing Protection Devices
HSMP	Health and Safety Management Plan
IAP	Interested and Affected Part
ICD	Institute of Co-operative Development
iCHF	Improved Community Health Fund
ICT	Information Communication Technology
ILO	International Labour Organization
ISO	International Standards Organization
KIIs	Key Informant Interviews
MCDO	Municipal Community Development Officer
MoEST	Ministry of Education Science and Technology
NEMC	National Environment Management Council
NEP	National Environmental Policy
NGO	Non-Government Organization

NHIF	National Health Insurance Fund
NSSF	National Social Security Fund
OSHA	Occupational Safety and Health Agency
PAPs	Project Affected Persons
PGDO	Police Gender Desk Officer
PM	Particulate Matter
PPE	Personal Protective Equipment
ppm	parts per million
PTW	Permit to Work
RPF	Resettlement Policy Framework
SEP	Stakeholder Engagement Plan
STD	Sexual Transmitted Disease
TAC	Technical Advisory Committee
TANESCO	Tanzania Electric Supply Company
TBS	Tanzania Bureau of Standards
TCU	Tanzania Commission for Universities
TDV	Tanzania Development Vision
TGNP	Tanzania Gender Networking Programme
TMP	Traffic Management Plan
ToR	Terms of Reference
TTCL	Tanzania Telecommunication Limited
TUWASA	Tabora Urban Water Supply and Sanitation Authority
TZS	Tanzania Standards
URT	United Republic of Tanzania
VEO	Village Executive Officer
VMTP	Village Management Training Programme
WBG	World Bank Group
WEO	Ward Executive Officer
WHO	World Health Organization
WSP	Waste Stabilization Pond

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CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND INFORMATION

The Government of the United Republic of Tanzania through the Ministry of Education Science and Technology (MoEST) is preparing Higher Education for Economic Transformation (HEET) project. HEET is a five-year project through the World Bank support to promote higher education as a catalytic force in the new Tanzanian Economy. The project is designed to revitalize and expand the capacity of universities to contribute key areas for innovation, economic development, and labour market relevance, by investing in requisite infrastructure for modern and effective teaching and research, and by training to the highest standard teachers, researchers and administrators needed by universities to achieve their full potential

Mwalimu Julius K. Nyerere University of Agriculture and Technology [MJNUAT] is a new public institution which was formally established in 2012. It has its headquarters in Butiama district, Mara region. The University main campus is located 38 km from Musoma town adjacent Musoman-Arusha highway, and 15 km from Kiabakari off Musoma –Mwanza highway and 5 km from Butiama District headquarters. The university aims at being the centre stage of agricultural transformation in Tanzania. It also strives to be a regional and global player in innovative and societal responsive Agricultural Education and Training (AET). The University aims at achieving this through embracement of the concepts of the Third or Fourth Generation University which, in part, are in line with the views of late Father of the Nation, Mwalimu Julius K. Nyerere that were expressed when inaugurating another agricultural University on 26th September 1984. The fourth phase Government therefore decided to establish this public university in honour of Mwalimu, the first President of the United Republic of Tanzania who believed that agriculture in its broad sense remains a reliable means of livelihood to many Tanzanians in the rural settings.

Besides the main campus this university is designed to have other campuses/satellite centres in Mara region. MJNUAT constitutes a number of Colleges and Schools including; College of Agriculture, College of Natural Resource Management and Tourism (at area contiguous to Serengeti National Park), College of Engineering and Technology; College of Health and Allied Sciences (at Mwalimu Nyerere Memorial Referral Hospital in Musoma district); School of Business, Economics and Entrepreneurship Studies, School of Renewable Energy Engineering and Technology, School of Veterinary Sciences, School of Fisheries and Aquatic Sciences (at Kinesi area contiguous to Lake Victoria shore), and School of Education. Others include the Institute of Strategic and Conflict Mitigation, and the Institute of Disaster Management and Climate Change as well as number of centers.

Description of the HEET Project
MJNUAT through the support of World Bank intends to establish a new Tabora Campus for the School of ICT and Business Studies to be located on Plot No 2,

Block “A” Itonjanda area at Nyambele Hamlet, Itonjanda Village, Itonjanda Ward, Tabora Municipality in Tabora Region. The project site is about 16km from Tabora CBD, along the Tabora-Nzega Highway. MJNUAT has been granted Certificate of Land Occupancy No. 17471 MRLR dated 24 February 2023 for a period of 99 years with of Title deed No 17437TBR

The proposed project will help to increase enrolment in priority disciplines, to improve the relevance and quality of programs to meet the conditions and standards of the current and future labour market, to strengthen system-level coordination, management, and regulations to ensure quantity, quality and relevance of higher education in Tanzania, and to increase the rate and extent of graduate employability through improving the relevance of curricula and create new and demand driven programs.

The construction of the proposed MJNUAT Campus in Tabora must abide to the Environmental Management Act of 2004 of Tanzania which requires the project developers to carry out Environmental and Social Impact Assessment prior to project implementation. Likewise, the World Bank’s Environmental and Social Standards (ESS1) requires the borrower to identify, assess and manage potential environmental and social impacts and risks associated with the project. In view of the above, MJNUAT carried out this environmental and social impact assessment (ESIA) for the proposed athe project area. Therefore, the Environmental Management Act, 2004, the Environmental Impact Assessment and Audit (Amendment) Regulations, 2018, and the World Bank Environment and Social Framework (ESF) as well as the HEET project’s Environmental and Social Management Framework (ESMF) were observed in the study.

1.2 PROJECT OBJECTIVES AND RATIONALE

1.2.1 Project Objective

According to the HEET’s Project Appraisal Document (PAD) of 2021, the main objective of the project is to strengthen the learning environment and labor market alignment of priority programs at beneficiary universities and improve the management of the higher education system

In addressing the overall objective of the project, MJNUAT who is also the beneficiary of the HEET project had the following specific objectives;

i. Increasing enrolment capacity in degree programmes in priority disciplines,
ii. Upgrading Learning Resources and Equipment,
iii. Building functional linkages with private sector/industry,
iv. Strengthening use of digital technology,
v. Building capacity of academic staff and university leadership

1.2.2 Rationale

Tanzania has experiencing high enrolment for basic education in primary level for increase of 24.5% for the year of 2015 to 2018. Similarly, the enrolment trend in secondary education in the year 13/14 was positive increase in the number of students transitioning to post-primary education. While the country

has recorded expansion in basic education, there is widespread acknowledgement among policy makers that the overall outcome of the successful performance in basic education is the demand for subsequent levels of education and especially higher education. In this regard, the main challenge is inability of the system to absorb the expanding number of graduates in basic education inspiring and capable of joining the higher education subsector. Of immediate need is the expansion of investment in infrastructure, facilities and quality assurance system in priority programs. According to the HEET's Environmental and Social Management Framework (ESMF) of 2021, only 35% of the higher education students in Tanzania are female. To address these issues, the World Bank has launched the Higher Education for Economic Transformation (HEET) project. The HEET project will finance the development of infrastructure, faculties, and quality assurance systems in higher education to facilitate rapid economic transformation in the country. Through HEET project, the Government of the United Republic of Tanzania seeks to build requisite operational capacities of public universities in order to empower them to be dependable drivers for economic transformation by building on respective institutional visions, missions, objectives and core values.

The proposed project demonstrates Tanzania's Development Vision 2025 that embraces the development of high-quality education at all levels. The emphasis goes hand in hand with the education system's transformation by enhancing scientific and technological programmes to increase productivity. More specifically, the focus must be to increase the number of student's enrolment, produce graduates who meet the need of the employers, improve teaching environment with upgraded facilities and learning equipment, strengthen access to a network of specialized trainers, develop a framework of core curricular competencies, quality assurance standards, and state-of-the-art facilities for up-to-date training of the workforce in the region's priority sectors.

Also, it is clearly stated in various documents of the Governments' development agenda that, all development initiative that aims to promote good quality of life, employment and other sustainable economic investments are highly needed and encouraged. The proposed project development is therefore, in line with the national development agenda and its operation will potentially enhance economic and employment gains as it will add the chance for business opportunities, tax and revenue availability.

1.3 NATURE OF THE PROJECT

The Third Schedule of the Environmental Management Act 2004 and First Schedule to the Environmental Impact Assessment and Audit Regulations 2005 and its amendment of 2018 are the Environmental and Social Impact Assessment (ESIA) mandatory project list. The First Schedule of the Environmental Management (EIA and Audit) (Amendment) Regulations, 2018, made under Regulation 5 (1), categorizes this project as a Type B1 - Project requiring a mandatory ESIA. That is, the project is likely to have medium adverse environmental impacts. Thus, in-depth study is required to determine

the scale, extent and significance of the impacts and to identify appropriate mitigation measures.

According to the "List of Type B1 Projects in the First Schedule, Item 13 "Building and Civil Engineering Industry" sub-items (a), (b) and (c) particularly (a) are the most relevant to this undertaking. Further, under World Bank's Environmental and Social Standard (ESS) 1 – Assessment and Management of Environmental and Social Risks and Impacts, the proposed project may be categorized as a 'Moderate' risk project requiring detailed environmental study.

The proposed project has been registered to National Environment Management Council (NEMC). The Scoping Study was undertaken and approved by the NEMC, with the Terms of Reference (ToR) through letter of reference No HE. 145/88/138/1 of 1st November 2023 as attached in Appendix 2 of this report.

According to ESMF, the project implementing unit undertake an initial screening of the proposed project for decides on the level of environmental and social impact carried out with reference to the national legislative requirements (Environmental Management Act, 2004; EIA and Audit (Amendment) Regulations, 2018 as well as WB's ESF. Once the project activity is defined and the location selected, the proponent will compile project conceptual and/or preliminary design details and fill the Screening Form. The screening form will allow for identification of potential environmental and social impacts associated with the proposed activity. All projects implemented under HEET shall comply with relevant national environmental and social management requirements as well as the World Bank ESS applicable to the project. The following are considered during preparation of this ESIA report as per ESMF requirement: (1) analysis of project activities which determines the likely potential environmental and social impacts caused by the project: (2) identification of impacts, mitigation measures and monitoring procedures; (3) provision of guidance to proponent on how to overcome the specific and cumulative impacts arising from implementation of individual or clusters of the investments; and (4) identification of relevant stakeholder for the preparation of ESIA

1.4 OBJECTIVES OF THE ESIA STUDY

1.4.1 General Objective

The general objective of this study was to identify, predict and evaluate potential impacts of the proposed established of new Mwalimu Julius Nyerere University of Agriculture and Technology at Tabora Campus for the School of ICT and Business Studies to be located on Plot No 2, Block "A" Itonjanda area at Nyambele Hamlet, Itonjanda Village, Itonjanda Ward, Tabora Municipality in Tabora Region. Thus, this ESIA study integrates mitigations and enhancement measures in all phases of the proposed project, i.e. planning, mobilization, construction, operation to the decommissioning phase, aimed at having a sustainable project with minimal negative impacts on biophysical, socio-economic and ecological environment.

1.4.2 Specific Activities

The following were the specific activities of this ESIA study:-

i. To ensure that environmental considerations are explicitly addressed and incorporated into the development decision making process;
ii. To anticipate and avoid, minimize or offset the adverse significant effects of on biophysical, social and ecological environment;
iii. To provide mitigation measures for all potential negative impacts and enhancement of positive impacts;
iv. To promote development that is sustainable and optimizes resources use and management opportunities;
v. To analyze environmental cost and benefits of the proposed project; and
vi. To enable information exchange, notification and consultations between stakeholders.

1.5 APPROACH AND METHODOLOGY OF THE STUDY

Recommended standard methods for conducting EIA studies (in compliance with EIA and Audit Regulations (2005); EIA and Audit (Amendment) Regulations 2018 and World Bank ESSs were used in this study. Both qualitative and quantitative methodologies were employed in collecting and analysing data for this ESIA.

1.5.1 Kick-off Meeting and Scoping Exercise

The initial stage of the ESIA was to undertake the Scoping exercise and project registration. The Scoping commenced with a kick-off meeting with the Proponent and key team members on 23rd October 2023. The meeting served as an introductory session, revisiting the objective, scope and logistical coordination and proposed work plan was presented and discussed. This activity followed by site reconnaissance survey to collect pertinent site-based data (information is the processed data) for developing the Scoping report. The Scoping exercise results reinforce the drafting of the Terms of Reference (ToR) before their finalization. The scoping exercise identified key stakeholders for the project and main issues of concern.

1.5.2 Site Visits and Inspections

The Consultant undertook detailed visits at the proposed project area to observe, record and analyse the pertinent socio-economic and biophysical characteristics within area and adjacent. The field visits were essential to fully realize the project's scope and understanding the existing biophysical and socio-economic conditions within the project area of influence. In compliance with the World Bank ESS1 (Assessment and Management of Environmental and Social Risks and Impacts), site visits at project proposed site and adjacent areas were carried out by the Consultant's team. The ESS1 recommends fieldwork to be conducted to ensure that ecological variations and/or season-specific issues are fully captured and taken into consideration.

Site observation, inspection, recording and photographing focused on systematic investigations of conditions on the ground, recording findings for

later comparative analysis, prediction and recommendations for mitigating the negative impacts of the project and risks. These details were supplemented by secondary data collected through other techniques.

Overall, the fieldwork involved physical observation and recording of the pertinent biodiversity (i.e., flora, habitats, fauna, and avifauna), landscape, physical features, infrastructures, utilities, accessibility, land use and cover patterns, livelihood activities, heritage and other specialized baseline assessments. Field visits were extended beyond project proposed site to the surrounding areas (Itonjanda area). The ESIA team used the fieldwork to conduct stakeholder consultations, specialized baseline studies, and secondary information data collection and review other documents/reports available from different institutions.

1.5.3 Stakeholder Consultations

Different stakeholders from different levels were identified and consulted to solicit the concerns, views, opinions and suggestions of the Interested and Affected Parties (IAPs). Consultations were done to various Government agencies, Tabora Municipal Council, Ward and Village leaders and communities around.

Consultative meetings, Focus Group Discussions (FGDs), Key-Informant Interviews (KIIs) and in-depth discussions were held with various groups, key informants, relevant personnel, and representatives. Both from public and private sectors as mandated by the EIA and Audit Regulations 2005 and its amendment of 2018, World Bank ESS1 and ESS10 (Stakeholder Engagement and Information Disclosure). The Consultant adopted recommendations from the IFC Performance Standard 1 (Social and Environmental Assessment and Management Systems) paragraph 30 and World Bank ESS1 to ensure an inclusive and transparent consultation process and public involvement. A guiding question and/or issues were prepared before holding meetings with stakeholders. During consultations, the key issues were reviewed and analyzed for their significance before being incorporated in this report. Stakeholders' engagement and key issues of concern are presented in Chapter 5.

The consultations were held to ensure that stakeholder was informed about the proposed project for establishment of new MJNUAT in Tabora Campus, where their views were incorporated accordingly. The discussions allowed the stakeholders to present their views concerning the proposed project. Their views and preferences were useful in the identification of impacts and drawing effective mitigation measures that are presented in chapter five of this ESIA report.

The Consultant used both snowball and purposive sampling techniques in identifying the relevant stakeholders. The methods for consultation, information sharing, and gathering were highly participatory in nature. The stakeholders were involved significantly in the ESIA study. Their involvement in decision-making process through dialogue and discussions on various issues and concerns related to the proposed project formulation, design, construction and operation were important.

1.5.4 Desk Study

A desk study was done by collecting documents and other relevant information about the project. The information gathered during the study included project area background information, socio-economic and investment profiles, ESMF, development plans and project's preliminary report. The secondary data included various national policies and legislation, national strategies and plans, which apply to the World Bank ESSs, international Conventions and agreements related to ESIA reports.

1.5.5 Socio-Economic Baseline Survey

A socio-economic survey was undertaken with the overall objective of assessing the socio-economic impact of the project on people's lives and their properties. This involved an assessment of the living conditions of people, with the likelihood of being affected by the project in terms of income earnings and expenditures as well as occupation. This study captured the insights of different stakeholders about the potential positive and negative impacts once the project is implemented. In terms of data collection procedure, the study uses both quantitative and qualitative methods. The qualitative method involves collecting and analyzing non-numerical data (e.g., text, video, or audio) to understand concepts, opinions, or experiences. It can be used to gather in-depth insights into a problem or generate new ideas for research. While the **quantitative method** is the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations. Quantitative method is widely used in the natural and social sciences: biology, chemistry, psychology, economics, sociology, marketing, etc. The study therefore combines the advantages of both approaches of research to enable a detailed understanding of the socio-economic context and impacts of the project.

The sampling for the qualitative data was purposive, inclusive and participatory. A range of approved data collection tools were used during interviews. Secondary data were used to document the legal framework underpinning the implementation of the project. Secondary sources of inform action include desk review of relevant documents, review of laws and regulations on land and other existing policies regarding constructions in Tanzania.

1.5.6 Observation and Expertise Judgment

Observation method was used by the team to gather data on physical characteristics and human activities in the project host community. Field observations formed an integral part of the study as experts gathered considerable information through observations. This involved site visits and recording the situation on the ground. Observation was a key to establish the exactly location of the project site, shape, size, terrain and soil type. Also, the neighborhood characteristics were assessed in terms of the nature of properties dominating the area, their sizes and type, tenure, dominant owners,

uses, and others. Observations were used as a tool for validating the facts that were gathered through interviews and questionnaires.

1.5.7 Baseline data on measured Air quality, Vibration and Noise

(a) Selection of measured air quality, noise and vibration stations

The measured four (4) stations were established/selected based on the norms prescribed by local standards (Environmental Management (Air Quality Standard) Regulations, 2007) and international guidelines. The norms include: predominant wind direction (leeward and windward) at the area during the study, direction to the nearest local communities as possible receptors, size of the area to be covered, the areas where generated air pollutants, noise and vibrations were expected, as well as areas that pollutants from proposed project are likely to disperse to.

(b) Methodology for measured Parameters

The measured parameters include: (i) Dust as particulate matter in terms of TSP, PM10 and PM2.5; (ii) Ambient pollutant gases i.e., Sulphur dioxide (SO_2), Nitrogen dioxide (NO_2), Carbon monoxide (CO), Hydrogen Sulphide (H_2S), Methane (CH_4) and Volatile Organic Compounds (VOCs); (iii) ambient noise, and (iv) ground vibrations.

(i) Dust as particulate matter in terms of TSP, PM10 and PM2.5

Dust levels were measured by using Aeroqual series 500 monitor (S-500). Particulate matter (PM_{10} and $PM_{2.5}$) were monitored in accordance with manufactured procedure that meets ISO 9835:1993 and ISO 9835:1993 Protocols for TSP, PM10 and PM2.5 respectively. During measurements, the device was fixed at a breathing height of about 1.5 meters from the ground, which is assumed to be the breathing zone of people at their respective locality or working environment. Dust levels were monitored periodically at each monitoring station to capture daytime and night-time hours. The recorded data at each station were then averaged and compared with National Environmental (TBS) and WHO/IFC guidelines to check for their compliance.

(ii) Ambient pollutant gases

Ambient gases concentrations (i.e. CO, NO_2, SO_2, H_2S, CH_4 and VOC) were measured using "Aeroqual series 500 monitors (S-500)" at four stations. The ambient gases were measured in accordance with the manufacturer's procedure that meets ISO 9001:2008 protocol. The device was elevated at a height of 1.5 meters above the ground; once the device is switched ON, it performs an automatic calibration for three minutes by pumping in fresh air into the sensors so as set the toxic sensors to zero. Ambient pollutant gases were measured at each station during the day and night hours. The measured gases levels were then compared with their respective TBS-NES limits and World Health Organization (WHO) guidelines to check their compliance.

(iii) Noise levels

Baseline noise data were recorded at four stations established during the daytime (Lday) and night-time (Lnight) in accordance to ISO 1996 -1:2003 using a digital sound level meter. On taking measurements, the meter was set to the "A" weighed measurement scale, which enables the meter to respond in the same manner as the human ear. The meter was held approximately 1.5 m above the ground and at least 0.5 m away from hard reflecting surfaces such as walls. Periodic measurements were taken to grasp the mean daytime and night-time hours noise values for each station. The averaged Lday and Lnight values were calculated and compared with their respective local standards and international guidelines.

(iv) Ground vibrations

Ground vibrations were monitored using a vibrometer data logger, which is designed to measure ground vibrations according to European standard EN 14253:2003. On taking measurements, the accelerometer transducer was mounted on the ground vibrations to record vibrations. To produce accurate results, the transducer was secured in direct contact with the ground. The levels of vibrations were recorded in terms of Peak Particle Velocity (PPV) in millimeters per second in the vertical direction to secure data associated with proposed project. At each station, periodic measurements were taken during the day and night hours. The mean value of all recorded data at each station was calculated and used to represent that particular station. The average value for each station was then compared with National Environmental (TBS), Human detection level for vibration, British vibration standard and WHO/IFC guidelines to check for their compliance.

1.5.8 Flora and Fauna Survey

The site analysis was undertaken on study area to collect data on flora, vegetation communities and fauna and their habitats. Reconnaissance of the survey was conducted on Oct 23, 2023 with two key functions, (I) locating site boundaries and (II) primary assessment of vegetation cover.

Formal survey was conducted from Oct 24, 2023 to Oct 26, 2023 for flora and fauna analysis on site. Total survey effort was approximately 20 person hours. The survey focuses on two crucial functions,

- To records flora and fauna species composition and distribution observed on study site
- To study the vegetation communities and habitats of ecological significance surrounding the study area.

Table 1.2. below details the flora and fauna field survey effort undertaken for the subject site.

FLORA		
Flora survey	Survey technique(s)	Dates
Vegetation communities	Survey of the boundaries of all communities – field check	Oct 23, 2023
Stratified sampling	20x20m / 50x20m transect plots in all existing bushland	Oct 24, 2023
Target searches	Target searches in known habitats	Oct 24, 2023

FAUNA		
Diurnal birds	Diurnal opportunistic	Oct 25, 2023
Invertebrates	Habitat search, opportunistic	Oct 25, 2023
Arboreal Reptiles	Habitat search, opportunistic	Oct 26, 2023
Terrestrial Reptiles	Habitat search, opportunistic	Oct 26, 2023
Mammals	Direct observation, Identification of dung, tracks and other signs	Oct 26, 2023

1.6 Flora and Vegetation Communities

Flora species were recorded for each of the vegetation communities surveyed using random meander method (cropper 1993) rather than quadrats to maximize the opportunity of detecting significant or sparsely distributed flora species. Flora species were identified to species level in the field and those found difficult to identify in the field, specimen was collected, pressed and taken to the National Herbarium of Tanzania, Arusha Tanzania. For identification by matching with the preserved herbarium specimen. The nomenclature of flora followed guideline by Turril and Milne Redhead (1952).

1.7 Fauna and their habitats

Given the small area of project proposed, no detailed fauna survey was completed within the study area. Rather a general survey comprising a diurnal birds survey, reptile survey, and mammal survey. The survey of fauna habitat was completed by traversing the site and identifying habitat resources that could be used by fauna known from the locality that may use the habitats of the study area. Any fauna species or signs of their past presence such as fallen feathers and fur, footprints and dung were observed opportunistically during the site analysis and records were taken.

1.8 Nomenclature

- For flora identification and nomenclature follows standard guideline by Turril and Milne Redhead (1952).
- For birds' identification and nomenclature follows standard guidelines by Stevenson and Fanshawe (2002) and William and Arlott (1992) assisted by (8X40) Binocular.
- For small mammals' identification and nomenclature follows standard guidelines by Kingdom (1974) and Wilson and Reeder (2005).
- For reptiles' identification and nomenclature follows standard guideline by spawls et al. (2018)

1.9 STRUCTURE OF THE REPORT

This report is presented in accordance to the format of Section 18 (1 and 2) of the Environmental Impact Assessment and Audit Regulations, 2005 and its amendment of 2018 and the World Bank's ESS1 – Assessment and Management of Environmental and Social Risks and Impacts on the Content of an Environmental Assessment Report.

Where the contents of this report include acknowledgement, executive summary, table of Contents, list of Figures, list of Tables, list of Abbreviations

and Acronyms, Project Background, Project Description, Legal and Institutional Framework, Baseline Information, Stakeholder's Consultation and Participation, Assessment of Impacts and Identification of Alternatives, Impact Mitigation and Enhancement Measures, Environmental and Social Management Plan, Environmental Monitoring Plan, Cost Benefit Analysis, Decommissioning and Closure, Summary and Conclusions, References and Appendices.

CHAPTER TWO: PROJECT DESCRIPTION

2.1 INTRODUCTION

The project description includes information about project location and accessibility, land ownership and land use, the MJNUAT Campus description, the major adjacent land use, waste management system within project site, description of project proposed site, project activities and among others.

2.2 PROJECT SITE DESCRIPTION

2.2.1 Location and accessibility

The proposed establishment of new Tabora Campus of Mwalimu Julius Nyerere University of Agriculture and Technology (MJNUAT) in school of ICT and Business Studies will be located on Plot No 2, Block "A" Itonjanda area at Nyambele Hamlet, Itonjanda Village, Itonjanda Ward, Tabora Municipal in Tabora Region. The project proposed site is about 16km from Tabora CBD, along the Tabora Nzega Highway.

The proposed project site is accessible through tarmac road of Kigoma road about 600m then turn right following Dar es Salaam Road about 3200m then turn left following Nzega road about 16000m at Itonjanda area on left side as one drive from Tabora Bus Terminal.

Table 2.1 GPS Coordinates of proposed site

Point	Latitude (S)	Longitude (E)
1	-04.96764^0	32.94814^0
2	-04.96762^0	32.94813^0
3	-04.97011^0	32.94278^0
4	-04.95919^0	32.94289^0
5	-04.95937^0	32.94822^0
6	-04.95957^0	32.94814^0

Source; COLBA Consulting Ltd on 23rd October 2023

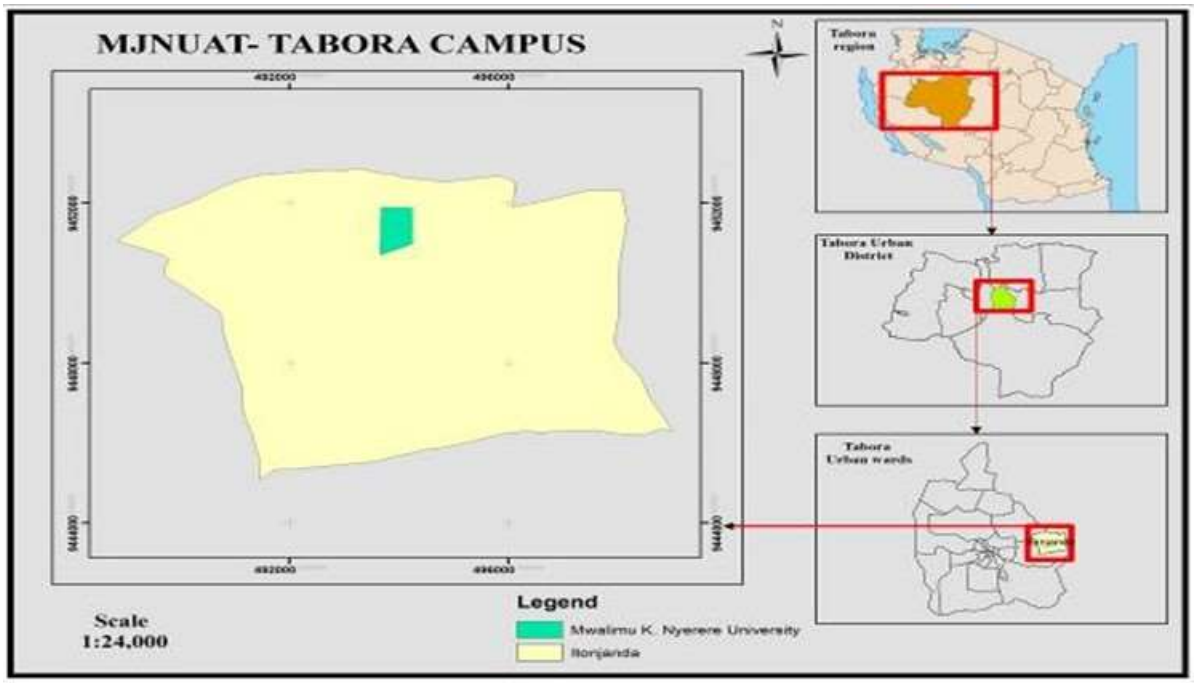

Figure 2.1 Project site location map

Source; COLBA Consulting Ltd on October 2023.

2.2.2 Land Ownership

The proposed project site is on land with Title deed No 17437TBR which is owned by Mwalimu Julius Nyerere University of Agriculture and Technology (MJNUAT) of P.O Box 976 Musoma which has legal documents for ownership and the land has been surveyed and planned for educational purpose only of Use group "K", use class (d) as defined in the Urban Planning (Use Groups and Use Classes) Regulations, 2018. The whole land covers total area of 604,250m^2.

2.2.3 Major adjacent developments

The project proposed site is bordered by TANESCO High Voltage Power Transmission Line about 30m and Tabora-Nzega Highway about 60m in Southern side while it bordered by undeveloped farm about 1m in Eastern, Western and Northern sides. According to the proponent plan, the proposed project site will be surrounded by earth road to the Northern, Eastern and Western sides. In Eastern side about 18m there is one residential building while in North-East side about 260m there are residential buildings.

2.3 DESCRIPTION OF PROPOSED PROJECT SITE

The proposed project site is undeveloped land which covered by various vegetation like mango trees, 10 cashew nut trees, few palm trees, bushes and grasses. No endanger species observed at project site during site visit done by consultants. The soil type within project site is red loam soil in northern part of the plot, red sand soil in southern and central parts of the plot and clay soil in north-eastern part of the plot. Within project site about 10% of the area was previously used as a mining site for soil mining for road construction and

remain area about 90% is flat area with slope from western side to eastern side. The proposed site is open area which is not fenced.

Figure 2.2 Vegetation cover found at proposed project site
Source; COLBA Consulting Ltd on 23rd October 2023

Figure 2.3 Undeveloped mining area found at proposed project
Source; COLBA Consulting Ltd on 23rd October 2023

2.3.1 The proposed buildings to be constructed

The proposed establishment of new Tabora Campus of Mwalimu Julius Nyerere University of Agriculture and Technology (MJNUAT) in school of ICT and Business Studies will involve construction of various infrastructures including 3 buildings for administration offices, each building will be of 2 storey and all building will cover total area of 1,737m^2, 2 buildings for Lecture Theatre, each building will be of ground and semi basement and will cover total

area of 1,157m^2, one Laboratory building of total area 874m^2, 2 buildings for Lecture halls, each building will be of one storey and will cover total area of 1,623m^2, 4 buildings for students hostels where each building will be of 3 storey and will cover total area of 3,187m^2, one building for Cafeteria where it will cover area of 625m^2, one building for Senior main house where it cover area of 250m^2 and one library building of 2 storey.

The campus will also include solar energy and rainwater harvesting systems as well as construction of facilities to accommodate gender interests and people with special needs; The Project will further procure and install computers, furniture and facilities for ICT, learning and video conferencing. The University Campus will be established in an area of 604,250m^2 and is expected to accommodate 2800 students and 350 staff members.

2.4 PROJECT DESIGN

During the implementation of the proposed project there will be some project activities that will be done in designing phase, Mobilization and construction, Operation and Decommissioning Phase. All project activities will be implemented in according to HEET Project Operation Manual (POM), 2021. The project activities in both phases are summarized in the sections below.

Buildings are constantly subject to several climatic and environmental elements (wind, sunlight, temperature, rain, earthquakes, and other factors). During the preparatory phase of the project design, MJNUAT engage experts in assessing and understanding risk and integrating risk management in development planning of the proposed project as per Environmental and Social Standards (ESS1: Assessment and Management of Environmental and Social Risks and Impacts). Several studies were conducted during the preparatory phase of the project, as part of Risk Hazard Assessment (RHA). The studies include geotechnical investigation, topographical surveys and environmental and social impacts assessment. Furthermore, with inputs from these studies, the project design took into consideration aspects of climate change risks, disaster risk management, gender, and occupation health and safety

2.4.1 Climate Change risks mitigation and adaptation in the Project Design.

To mitigate and adapt the climate change risks (such as heat, drought, floods, water scarcity, earth quakes, etc.), the design of the proposed project shall accommodate the infrastructures to enhance low energy use, rainwater harvesting, storm water management systems, adequate natural ventilation and lighting, and maintaining a significant green space, as described hereunder.

- *Open space*: In the open spaces, native plants were recommended to add the benefit of being useful for storm water treatment and infiltration. Open spaces are planned to maximize the tree canopy cover and shade provided by trees in the area and more provision of ecosystem services.

- *Greenery walkways:* The design maximizes pedestrian movement and minimizes motorized transport within the site to reduce air emissions (greenhouse gasses (GHGs)) and maximizing Carbon sequestration. Walkways are provided to restrict free movement that causes vegetation destruction in the site and reducing land cover important for carbon sequestration. Trees are proposed to be planted along the vehicular access road and footpaths to improve landscape and reduce effects of sun radiation during the day.

- *Green areas:* Green area was distributed to allow cross fresh air into academic building. Due to the topographical nature and natural vegetation cover, green belt and conservation zone intend to preserve the ecosystem and control land degradation and enhance mountainous scenery. Native and artificial trees and grasses will reduce soil erosion in all areas prone to soil erosion.

- *The building with low energy use*; Provisions for adequate openings for cross ventilation, will ensure easy flow of clean air and reduce energy use (thus reducing emissions); provisions for motion sensors in public areas, to enable auto switch ON/OFF of lights; installation of *presence sensors* in offices, class rooms; proper orientation to reduce indoor discomfort and capture natural air as much as possible and minimization of the sun effects (installation of fans; and provisions for solar lights along the pathways for sun shading); maximizing the potential of utilization of renewable energy options such as solar and wind; buildings to be oriented and constructed to take advantage of natural lighting and cross ventilation as a means of minimizing energy consumption during operation.

- *The buildings with low footprint.* This increases green spaces; and accommodation of rainwater harvesting, storm water and waste management systems and embracing water-efficient processes.

2.4.2 Disaster risk Management

The proposed project shall have provisions for fire prevention and firefighting facilities. Also, the building shall have provisions for solid waste and liquid waste management for diseases prevention. MJNUAT campus shall have an emergency management plan that assigns the responsibilities for various emergency tasks, specifically to WHO does, WHAT, WHEN AND HOW.

2.4.3 Gender Inclusivity

The proposed project shall be developed to be smart and friendly to gender, including considerations of persons with special needs (e.g. physical, learning impairment, emotional and behavioural). These include provisions of lamps, toilets, etc.

2.4.4 Occupation health and Safety (OHS)

MJNUAT will protect workers throughout the project lifetime as per Environmental and Social Standards, ESS2 (Labor Working Conditions) and ESS4 (Community Health and Safety).

2.4.5 Project Design Components/infrastructures

The project will involve the construction of 3 buildings for administration offices, each building will be of 2 storey and all building will cover total area of 1,737m^2, 2 buildings for Lecture Theatre, each building will be of ground and semi basement and will cover total area of 1,157m^2, one Laboratory building of total area 874m^2, 2 buildings for Lecture halls, each building will be of one storey and will cover total area of 1,623m^2, 4 buildings for students hostels where each building will be of 3 storey and will cover total area of 3,187m^2, one building for Cafeteria where it will cover area of 625m^2, one building for Senior main house where it cover area of 250m^2 and building for external works which it will cover area of 425m^2. The proposed buildings will cover total area of 7,817m^2

The proposed buildings have taken into account of the basic architectural principles, such as orientation of the sun, placement of building so as to complete the west and east sun, larger opening to allow enough natural ventilation in the building, facades that not function well but also create an inviting element to passer-by, high quality materials, large terraces and car parking space. The design components for each building are presented in table 2.2. Also storm water channel will be constructed for management of rainy water and sewer pipe network will be constructed for management of wastewater from toilets and wash room to septic tank with soak away pit.

Table 2.2 Project Design Components/infrastructures

Building type	Design Components	Designed Use	Area Coverage m^2
2 building for lectur halls of on storey each	Ground floor	The ground floor will contain five rooms for seminars (where four rooms o 7.16m x 9.095m each and one room of 7.16m x 11.125m), one lecture room o 7.16m x 12.885m, 4 service duct, 2 rooms for disable toilets, one room which i portioned into 3 rooms for female toilets and one room which is portioned int 3 rooms for male toilets and urinal area	799m^2
	First floor	The ground floor will contain five rooms for lectures (where three rooms of 7.16m x 9.095m each, one room of 7.16m x 12.885m and one room of 7.16m x 11.125m), one seminar room of 7.16m x 9.095m, 4 service duct, 2 rooms fo disable toilets, one room which is portioned into 3 rooms for female toilets an one room which is portioned into 3 rooms for male toilets and urinal area	824m^2
Total floor area for a single lecture hall building of one storey			1,623m^2
3 building for colleg administra tion (storey building each)	Ground floor	Ground floor will contain 8 rooms for staff offices, one room of 4.125m x 5.0m for head of department office, one room of 2.4m x 3.0m for PS office, waitin area of 2.53m x 2.0m, one room of 2.7m x 3.15m for pantry, 5 service duct, on room for fire, one room which divided into 3 rooms for female toilets, one roon which divided into 3 rooms for male toilets and urinal area, one room for disabl toilet, one room of 5.085m x 4.2m for printing office, one room of 5.085m x 3.995m for planning office, one room of 5.085m x 4.215m for record office, on board room of 5.085m x 8.45m and one room of 5.085m x 3.975m fo accountant office	617m^2

Building type	Design Components	Designed Use	Area Coverage m^2
	First floor	First floor will 10 rooms for academic offices, 5 rooms for technical staff offices 5 service duct, one room for fire, one room for disable toilet, one room which divided into 3 rooms for female toilets, one room which divided into 3 rooms fo male toilets and urinal area, one room of 3.15m x 2.835m for pantry, 2 rooms for PS offices (where one room of 3.0m x 2.53m and second room of 2.68m x 3.0m), two waiting areas (one area of 2.0m x 2.53m and second area of 2.0m x 2.68) and 2 rooms for head of department offices (one room of 3.975m x 5.0m and second room of 4.125m x 5.0m)	560m^2
	Second floor	Second floor will 6 rooms for academic offices, 7 rooms for technical offices, 5 service duct, one room for fire, one room for disable toilet, one room which divided into 3 rooms for female toilets, one room which divided into 3 rooms fo male toilets and urinal area, one room of 3.15m x 2.835m for pantry, 3 rooms for PS offices (where one room of 3.0m x 3.0m, second room of 2.49m x 3.0m and third room of 2.64m x 3.0m), three waiting areas (one area of 3.0m x 2.0m second area of 2.49m x 2.0m and third area of 2.0m x 2.64) and 3 rooms fo head of department offices (one room of 4.085m x 5.0m, second room of 3.975m	560m^2
Total floor area for a single administration building of 2 storey			1,737m^2
Laboratories and standalone center building	Floor plan	A laboratory building will has 3 rooms where each room will be portioned into 3 rooms such as one room of 12.185m x 9.725m for ICT Laboratory which accommodate 50 students per time, one room of 2.7m x 3.855m for technica office and one room of 2.7m x 8.18m for preparation, one room which portioned into 3 rooms for female toilets, one room which portioned into 3 rooms for mal toilets and urinal area, one room of 5.425m x 5.995m for board room, one room of 3.345m x 2.665m for public secretary, one room of 3.795m x 5.995m fo director office, one room which portioned into 2 rooms for staff toilets, 2 rooms of 3.6m x 4.28m each for technology transfer center and one room of 4.685m x 4.28m for technology transfer center	874m^2

Building type	Design Components	Designed Use	Area Coverage m^2
Senior main house building	Floor plan	A senior house building will has one room of 2.35m x 2.4m for kitchen store one room of 4.05m x 4.0m for kitchen, dining area of 3.6m x 3.0m which accommodate 6 people per time, one sitting room, 2 bed rooms where each bed room is of 3.6m x 3.6m, one room for public toilet and one master bed room	250m^2
Cafeteria building	Floor plan	A cafeteria building will has one room of 10.714m x 4.855m for kitchen, 0ne room of 9.375m^2 for chief cooker's office, one room of 4.5m x 3.205m for cold store, one room of 5.217m x 3.205m for dry store, one room for male changing 2 in 1 room for male toilets, one room for female changing, 2 in 1 room for female toilets, area for hand washing, area for food saver and dining area of 360m which accommodate 346 people per time.	625m^2
2 Lectur theatre buildings	Floor plan	Lecture theatre building will has 2 rooms for PG study where each room will b of 4.055m x 8.25m, 2 rooms for lecture theatre with a stage area for each, 2 rooms where each room is divided into 3 rooms for female toilets and 2 rooms where each room is divided into 3 rooms for male toilets with urinal area	1,157m^2
3 building for studen hostels (each building will be of 3 storey)	Ground floor	The ground floor will has one room which divided into 7 rooms for students bath rooms, one room which divided into 7 rooms for students toilets, one room o 4.7m x 2.97m for warden office, 6 service duct and 25 rooms for hostels where each room accommodate 4 students. The ground floor will accommodate 100 students per time	877m^2
	First floor	First floor will has one room which divided into 7 rooms for students bath rooms one room which divided into 7 rooms for students toilets, 8 service duct and 26 rooms for hostels where each room accommodate 4 students. The ground floo will accommodate 104 students per time	800m^2
	Second floor	Second floor will has one room which divided into 7 rooms for students bath rooms, one room which divided into 7 rooms for students toilets, 8 service duc and 26 rooms for hostels where each room accommodate 4 students. The ground floor will accommodate 104 students per time	800m^2

Building type	Design Components	Designed Use	Area Coverage m^2
	Third floor	Third floor will has one room which divided into 7 rooms for students bath rooms, one room which divided into 7 rooms for students toilets, 8 service duc and 26 rooms for hostels where each room accommodate 4 students. The ground floor will accommodate 104 students per time	800m^2
Total floor area for a single student hostel building			3,277m^2
One student hostel building o 3 storey	Ground floor	The ground floor will has 2 rooms where each room is divided into 7 rooms fo students bath rooms, 2 rooms where each room is divided into 7 rooms fo students toilets, one room of 2.77m x 3.77m for warden office, 6 service duc and 52 rooms for hostels where each room accommodate 2 students. The ground floor will accommodate 104 students per time	1,315m^2
	First floor	The first floor will has 2 rooms where each room is divided into 7 rooms fo students bath rooms, 2 rooms where each room is divided into 7 rooms fo students toilets, 6 service duct and 53 rooms for hostels where each roon accommodate 2 students. The ground floor will accommodate 106 students pe time	1,263m^2
	Second floor	Second floor will has 2 rooms where each room is divided into 7 rooms fo students bath rooms, 2 rooms where each room is divided into 7 rooms fo students toilets, 6 service duct and 53 rooms for hostels where each roon accommodate 2 students. The ground floor will accommodate 106 students pe time	1,263m^2
	Third floor	Third floor will has 2 rooms where each room is divided into 7 rooms fo students bath rooms, 2 rooms where each room is divided into 7 rooms fo students toilets, 6 service duct and 53 rooms for hostels where each roon accommodate 2 students. The ground floor will accommodate 106 students pe time	1,263m^2
Total floor area for student hostel			5,104m^2

Building type	Design Components	Designed Use	Area Coverage m^2
Library building o 2 storey	Ground floor	The ground floor will contain 2 rooms for reading area which accommodate 49 people per time, 2 rooms/areas for books stack, 2 rooms/area for compute which accommodate 120 people per time, one room of 23.45m x 22.808m fo conference where it accommodate 500 people per time, 2 rooms for court yard 2 rooms where each room has 6 rooms for female toilets, 2 rooms where eac room has 6 rooms for male toilets and urinal area and 2 rooms for seminar which accommodate 100 people	3,539m^2
	First floor	The first floor will contain 4 rooms for library reading which accommodate 66 people per time, 2 rooms for reference books, 2 rooms for librarian offices, 2 rooms for computer area where accommodate 120 people per time, one boar room of 8.77m x 8.77m which accommodate 30 people per time, 2 rooms fo books stack, 2 rooms where each room has 6 in 1 room for female toilets and 2 rooms where each room has 6 in 1 room for male toilets and urinal area	3,126m^2
	Second floor	The second floor will contain 4 rooms for library reading which accommodat 840 people per time, 2 rooms for reference books, 2 rooms for librarian offices 2 rooms for computer area where accommodate 120 people per time, one boar room of 8.77m x 8.77m which accommodate 30 people per time, 2 rooms fo books stack, 2 rooms where each room has 6 in 1 room for female toilets and 2 rooms where each room has 6 in 1 room for male toilets and urinal area	3,520m^2
Total floor area for library building			10,185m^2

2.4.6 Project Activities

The project activities will be guided Environmental Impact Assessment Regulations 2005, amended 2018 and other relevant National Regulations. The World Bank Standards will also be inline during project implementation whereby HEET Project Operation Manual (POM), 2021, World Bank ESF and HEET Project ESMF will be applied.

2.4.6.1 Mobilization Activities

This is the initial phase of project implementation; this phase commences when all necessary permits like building permit and environmental certificate and processes have been accomplished. During this phase the contractor shall recruit all necessary administrative and engineering staff for the project including transportation of construction equipment to the site. Mobilization phase also entails the construction materials storage yard and construction of two temporary buildings for workers offices which include one building of two rooms where one room is for site manager office and one room is for staff office and one temporary building at entrance for security office on site, assembling equipment, as well as workforce recruitment. The temporary buildings will be established within a proposed site

2.4.6.2 Construction Activities

The major construction activities include excavation of foundation, transportation of the construction materials from point source to the site, concrete work, vertical construction, structural work, installation of electrical and water conduits, finishing work, painting and other minor associated civil works. The World Bank ESS3: Resource Efficiency and Pollution Prevention and Management will be applicable during construction and rehabilitation. Where construction materials such as wood, sand, gravel and water are expected to be supplied by authorized vendors. Mitigation measures will be put in place to ensure that methods of extraction of the materials and transportation do not lead to soil erosion, pollution of water bodies, air. Site specific environmental and social assessments will determine the significance of the likely impacts and risks and mitigation measures will be included in the ESMPs. It is anticipated that e-waste will be collected separately and later on taken to the designated registered vendor by the National Environmental Management Council (NEMC) for recycling and proper disposal.

Main activities of the proposed project during construction will include but not limited to the following:

Earthworks: This entails excavation of soil / earth to required foundation level, hauling away excavated material and depositing at the designated site for disposal, dewatering of excavated area, protection of excavated sites from falling, backfilling with the excavated material around the foundations and walls, hard-core filling. Acquisition and transportation of construction materials from tendered suppliers.

Concrete works; Steel reinforcement, cutting, bending and fixing, concrete mixing, transportation, vibrating, curing, masonry walling and plastering.

Roofing of the main structure and other supporting structures like power house, pump house and others.
Metal and Glass works for the entire structure. Electrical installation works; laying of PVC conduits in structural members, electrical wiring and such other related works. Plumbing and drainage works; installation of drain pipes, water distribution pipes, water tanks and general plumbing.

2.4.6.3 Materials to be used for construction phase

The materials that will be used for the construction of the proposed MJNUAT Tabora campus includes cement, sand, aggregates, steel reinforcement bars, timber, bricks, roofing sheets, water and sanitary ware; some components like power from TANESCO and water supply systems from TUWASA are near to proposed project site and will be easy to connect after application to be done by proponent. Most of materials to be used during construction for the proposed buildings will be sourced within the country. The exact quantities of materials needed will be specified in the later stages during detailed design and development of the Bill of Quantities (BoQ).

Table 2.3 Estimated Materials needed for construction of proposed project

Type of materials	Quantity	Potential Source
Aggregates	500m^3	Nyambele borrow pits about 2km to project site
Cement	1500bags	Locally available in Tabora Municipal
Sand	800m^3	Manoleo borrow pits about 4.5km to project site
Water	9.0m^3 per day	TUWASA
Steel bars	40tones	Local supplier in Tabora Municipal
Iron sheets	400pieces	Local supplier in Tabora Municipal
Electrical cables	1500m	Locally available
Timbers	200tons	Local supplier in Tabora Municipal

Source: Proponent Preliminary information on October 2023

2.4.6.4 Storage Facilities and Materials Yard

There will be a store for building materials to be used during the construction phase. Bulky materials such as aggregates, sand, steel bars, cement, etc. will be properly stored at the proposed project sites. The project Proponent will provide proper methods for construction materials storage to safeguard human health for construction workers, students, staff, visitors, and communities/local vendors around the construction sites (all stockpiles at site be covered during non-loading hours, all cements at site stored in dry place).. The project proponent will order construction materials when the need arises in each stage of the project construction to prevent stockpiling of building materials and ease good storage at the site.

The materials from the borrow pits will be transported by trucks to the construction site. The trucks will be covered to avoid side effect to other road users during transportation of construction materials Some of the materials will be used immediately after delivery and others such as gravel, stones and

sand will be piled up on the back yards to be established at the site. Storage of construction materials will be done in the designated yard/facility within the Campus. At this stage, the exact location for establishing laydown areas for construction is not yet identified. Potential site locations will largely depend on the required land's size, available space, especially within proposed site, accessibility, haulage distances for transferring construction equipment, and sensitive environmental and social receptors within and adjacent.

2.4.6.5 Machinery and Equipment

Various equipment and machines will be used during construction activities as detailed table 2.4 below

Table 2.4 Equipment and machines to be used during construction

SN	Machinery/Equipment	Activity required
	Construction Equipment: Type and Characteristics	
1.	Backhoe excavator	General earthworks (excavation of drains)
2.	Bulldozer with ripper	General earthworks
3.	Wheel loader	General transport of concrete
4.	Motor grader	General grading works, including earth works
5.	Vibrating/sheep foot roller compactor	Compaction works
6.	Truck-mounted crane	Lifting of construction materials e.g., pre-cast culverts, paving blocks e.t.c
	Construction Machines	
1.	Concrete mixer	Preparation of concrete (batch concrete mixing)
2.	Concrete truck mixer (mobile concrete mixer)	Concrete mixing
3.	Small site dumper	Transport construction and waste materials
4.	Quarry dump trucks	Transport of stones and aggregates
5.	Dump trucks	Transport of construction materials and wastes
6.	Concrete batch plant	Concrete mixing in a concentrated way
7.	Equipment for geotechnical investigations	Geotechnical investigation works
8.	Concrete vibrator /poker	Vibrating concrete
9.	Dewatering pump	Dewatering to allow for waterless construction
10.	Generator, mobile workshop, welding facilities	Repair and maintenance of machinery and equipment
	Transport Facilities	
1.	Light duty vehicles	Transport of light construction materials and machines
2.	Water tanker truck	Dewatering of earth surfaces to attain effective compaction, minimizing generation of dust
3.	Dump trucks	Transport of construction materials (sand, gravel, aggregated, cement etc.)

Source: COLBA Consulting Ltd, October 2023

2.4.6.6 Demobilization of construction phase

This phase involves activities related to the completion of the construction phase of the proposed project. Activities to be conducted during this phase include demolition of temporal structures that will be installed to support the construction phase, removal of installations and equipment from the workshop and transportation of all remain construction materials from site back to contractor office. Also, all machines used during construction phase will be removed from site and transport back to contractor office.

2.4.6.7 Trees planting program

This phase will involve the planting of indigenous trees to replace the removed one during construction stage and garden with aid for beautification of the areas. The trees expected to be removed are eight *Azadirachta indica trees* (Miarubaini), one cashew nut tree, six *SennaSiamea* (Mijohoro), four *acacia shrubs* and some short grass The program will be mainly for re-planting trees in all areas where during construction are disturbed and modern garden are designed to cover open space after construction to ensure in future the site will be green as it was before construction. The program will help to reduce wind effect in future and soil erosion effects.

2.4.6.8 Waste to be generated during construction Phase

Major wastes generation associated with the project construction and their treatment/ disposal methods are described in the Table 2.5 below.

Table 2.5 Equipment and machines to be used during construction

Type of waste	Sources	Disposal / Management procedure
Debris and Rubble (overburden)	-Site clearance -Excavation fo foundation an storm wate channel	Collected and stockpiled near constructio site and to be used as a base material i other construction works. Also, shall b used for site recovery after construction
Biodegradable materials mainl domestic wast (food, paper wood etc.)	-Construction crev - offices	Collected into area designed for temporar solid waste collection while waiting to b taken to authorized dump site (engage private company)
Non-biodegradable materials (Plastic, glass paint remain, cu piece o reinforcement bar)	-Construction crev	Collected into special area designed fo hazardous waste temporary storage whil waiting to be taken by authorized dealer for hazardous waste disposal
Domestic wastewater	Toilets and floo cleaning	Collected into septic tank with soak awa pit and once full cesspit emptier truck wi be employed to empty for disposal to Wast Stabilization Ponds (WSP) for treatment
Gaseous emission	Trucks deliverin construction materials an machines use during compactio	All used machines will be regular service its engine for avoiding incomplete fue burning and used fuel will be one accepte by EWURA of low sulphur contents
Dust emission	Excavation, truck passing o unpaved road an construction materials at site	Water spray practice shall be employe twice a day for all area where dust emissio expected, All stockpiles found at site shall be covere

Source; COLBA Consulting Ltd on October 2023

2.4.7 Operation Phase

The activities that are expected to be done during the operation phase will include:

(a) daily lecture and training operations;
(b) daily cleanliness of all buildings;
(c) operation and maintenance of the buildings and ancillaries;
(d) health and safety management;
(e) waste management; and
(f) storage and management of maintenance materials and equipment.

2.4.8 Wastes to be generated during Operation Phase

Solid Wastes

Solid wastes such as waste papers, packaging materials, plastic bottles and organic waste (food waste) are expected during the operation phase. The project will ensure that all solid wastes are sorted at the source for proper solid waste management. Collected recyclables will be sorted out by type such as papers, plastic bottles, food and general waste, office waste, paper and cardboard. All decomposable waste will be taken into separate chamber before collected by private company to dump site while plastic bottles will be collected into separate chamber and taken by authorized dealer for disposal.

Liquid waste

Generated liquid waste will include domestic wastewater to be generated from washrooms and toilets. Domestic wastewater will be directed into septic tank with soak away pit for management and once it become full cesspit emptier truck will be employed to empty it for disposal at Waste Stabilization Pond (WSP) for treatment.

Hazardous waste

During project operation hazardous waste will include electrical equipment like bulb, damaged parts of computers, printer cartridges/ribbons and other metal waste. Generated hazardous waste shall be collected into special dustbin named for hazardous waste collection into area designed for hazardous waste storage while waiting to be disposed by authorized dealer (registered e-waste collector).

2.4.9 Major rehabilitation phase

Since the buildings for proposed university its lifespan is expected more than 50 years with proper maintenance and service, therefore the activities that will be undertaken are to demolish all damaged structures and propose new structures with aim to support the same development project.

Demolition works: Upon major rehabilitation, the project components including all damaged buildings pavements, drainage systems, building foundation, etc will be removed and a lot of solid waste will be produced. Some of the waste will be reused for other construction works or if not reusable will be disposed appropriately by authorized licensed waste disposal companies available.

Dismantling of equipment and fixtures; all equipment including electrical installations, finishing fixtures partitions among others will be dismantled and removed from all damaged buildings where major rehabilitation will be to demolish it. Priority will be given to reuse of this equipment in other projects.

Site restoration: Once all the waste resulting from demolition and dismantling works is removed from the site, the site will be restored accordingly through replenishment of the topsoil and re-vegetation using indigenous plant species.

Whenever required, the major rehabilitation plan will be prepared using guiding procedures and implemented by the client upon approval by NEMC. However, bearing in mind that this project will have a long-life span of more than 100 years, the client will invest in the appropriate technology and materials that will ensure quality and durability of the structure.

2.4.10 Wastes to be generated during Major rehabilitation phase

In the major rehabilitation phase, much of demolition waste will be generated, these will be demolished concrete from foundations, mild steels from piping network, electrical and firefighting equipment and some paint remains. The anticipated types of wastes to be generated at this phase are presented in Table 2.6.

Table 2.6 Expected wastes to be generated during *Rehabilitation* Phase

S/N	Types of Waste	Quantity	Management
1	Hazardous waste	300kg	To be sold to authorized dealers registered by NEMC
2	Concrete	200m^3	Reuse for street road maintenance
3	Electrical wastes	1200kg	To be sold to authorized dealers registered by NEMC
4	Timber	5000kg	Reused as fire wood
5	Plastics	1400kg	Collected by authorized dealers for recycling
6	Scrap metal	3,500kg	To be collected and sold to authorized dealers for scrap waste management (with permits for scrap wastes collection and disposal)
7	Domestic solid wastes (office paper, food waste, plastic bottles, bags)	2000kg	Will be sorted according to types such as plastic waste and other decomposable waste. All decomposable waste will be taken into separate chamber before collected by private company to dump site while plastic bottles will be collected into separate chamber and taken by authorized dealer for disposal.

Source; COLBA Consulting Ltd on October 2023

2.4.11 Summary of proposed project schedule

The project schedule will include activities to be done for proposed project implementation and time to be used for each activity. In this report the proposed time frame may change depending on client financial status and other uncontrolled factors

Table 2.7 Summary of proposed project Schedule

SN	PROJECT PHASE	NUMBER OF WORKERS	TIME FRAME
1	Project Design and Environmental study	10	4 months
2	Project Mobilization	25	1 month
3	Project Construction	70	10 months
4	Project Demobilization	25	1 month
5	Project Operation	350	50 years
6	Project Major Rehabilitation	40	6 months

Source; Project developer preliminary information on October 2023

2.5 PROJECT SUPPORTING FACILITIES

2.5.1 Labour Force

The proposed project is expected to employ about 70 people, both skilled and unskilled in the entire period of construction including labours senior managers, middle and junior managers, and support staff/hiring staff (part time) and technicians.

The Priority of employment to unskilled labour will be given local communities found within and nearby the project site. However, skilled staffs to be recruited from different parts while implementing the project include:
Engineers for general supervising of construction works, Surveyors, Technicians to supervise artisans; and other skilled labourers include artisans specialized in woodwork, steel fixing, concrete works, metalwork, operators and drivers for operations of construction machinery, equipment, heavy-duty trucks and light-duty vehicles, and construction machines, and support staff such as accountants etc.); and

All permanent staff will be on contracts, enrolled in the National Social Security Fund (NSSF) and received several benefits, including healthcare and a performance bonus. They will be paid under minimum wage regulations of Tanzania and all will receive more than the minimum wage. Women will be hired to perform some of the duties they are qualified for. Seasonal staff will not be on contracts. They will be paid based on performance. No underage labour will be employed to prevent child labour during project construction. This will be part and parcel of the Child Abuse and Protection Plan (CAPP) developed by the Contractor.

During operation phase, the building will accommodate about 3,150 people whereby 350 will be staffs and 2800 will be students enrolled to undertake various programs initiated. All permanent staff will be on contracts, enrolled in the Pension Social Security Fund (PSSF) and received several benefits, including healthcare and a performance bonus. They will be paid under minimum wage regulations of Tanzania and all will receive more than the minimum wage.

2.5.2 Sources of Water

The main source of water to facilitate all activities during construction and operation of the project will be from Tabora Urban Water Supply and Sanitation Authority (TUWASA) pipeline. It is estimated that, about 9,000 liters per day will be used during construction phase (where about 3,150litres (70capital x 45litres consumption rate per capital, according to water design manual of 2009 from Ministry of Water) per day will be used by construction workers and 5,850litres per day will be for other uses including construction activities).

During operation water demand at project site will depend on numbers of students and staffs to be occupied by proposed project, approximated total water of 252,000litres per day will be used (3,150 staffs & students x 80litres consumption rate per capital per day, according to water design manual of 2009 from Ministry of Water) per day will be used for domestic uses.

If the proposed project will depend on existing water source for all project activities during construction, where about 9.0m^3 per day will be used and during operation where about 252m^3 per day will be used. The amount of water will impact on existing TUWASA water source which may cause water shortage to residents who will share water source on that time. To overcome such impacts ; proponent will consult TUWASA for connecting with new system which will have enough water according to project demand, proponent during construction will install rainy water harvesting system to be used as alternative water source at project site which will help to reduce water shortage for residents around who rely on water supplied by TUWASA, the use of water storage tanks at project site which will be filled during non-peak hours to reduce water shortage to nearby residents.

2.5.3 Sources of Energy

The proposed site is not yet connected with TANESCO power system but proponent plan to connect the site with TANESCO power service soon before construction commence and a diesel generator will be installed to be used as alternative source in case of emergency

2.5.4 Storm water management

Storm water channel will be among of facility for project supporting, where during construction phase storm water channel will be constructed for managing rainy water at project site. After the construction phase, the proponents must ensure that the roof top of building are equipped with gutter for rainy water collection and linked to storm water channel for easy

management. Also constructed area will be paved by concrete to allow rainy water flows to the drainage systems more easily.

2.5.5 Occupational Health and Safety Management

2.5.5.1 Health and Safety

Before starting the construction, the Contractor must be given Health and Safety Management Plan (HSMP) from client (it will be prepared by client or experts hired by client). HSMP describes the measures to be taken to achieve a safe working environment, good housekeeping, and occupational health and safety standards at the workplace. The Contractor shall frequently provide training of occupational safety and health to workers and disseminate important information about health risk (including toolbox meeting, proper use of First Aid Kit, Personal Protective Equipment (PPE) and designated location for assembly point. During the construction, the Contractor shall provide, equip and maintain adequate first-aid stations for case of emergency. Further, the civil works contract shall include the Contractor's requirement to conduct environmental, Social, Health and Safety awareness programme around project site using audio-visual presentation, questions and answers session and provide handouts (pamphlets and reflective stickers).

2.5.5.2 HIV/AIDS and STDs Issues

MJNUAT supports the Government's efforts to alleviate HIV/AIDS diseases and STDs. Thus, the Contractor shall develop and implement the HIV/AIDS prevention and awareness programme mechanisms within the construction site. Further, during the mobilization phase, the following measures shall be observed;

(a) Raise awareness to all site staff and labour of the danger and impacts of unprotected sexual interactions, including the spread of STDs and HIV/AIDS in particular. The sub-Contractor (NGO, local health facilities HIV/AIDS experts) will be nominated to educate and conduct public awareness-raising campaigns on HIV/AIDS preventions at least every two (2) months, including supplies of educational materials;
(b) Awareness campaigns and training will be raised to the immediate local communities and project staff;
(c) Supply of adequate protective gears such as condoms for each site staff and labour;
(d) Contacting NGOs experienced in the field of HIV/AIDS and STD alleviation program; and
(e) Evaluate and explore other opportunities for enhancing HIV/AIDS and STD related behavioural change

2.5.5.3 Traffic Management

As part of road safety management, the Traffic Management Plan (TMP) will be prepared by Contractor and supervised by the Client. Temporary traffic-control facilities within project site will be used to manage traffic during construction. The Contractor may designate the access road and alternative entry/exit gates around the project site to ensure the traffic's smooth during the construction phase. The adequate number of flag-persons, traffic control sign boards and warning devices will be deployed. The access road will be maintained regularly.

The existing internal access roads, a safe trafficable condition for continued smooth operations of the Campus activities will be maintained and used as a back-up where necessary. The Contractor will always arrange sufficient resources to carry out repairs, provide a smooth riding surface, and ensure that the road is safe for traffic at all times.

2.6 OFFSITE FACILITIES

During the project construction there are some offsite facilities that will be required to enhance project construction as follows:

2.6.1.1 Sand and Stone Borrow Sites

MJNUAT in Tabora Campus has not own borrow site for sand, aggregates and stone mining, during construction contractor will receive the materials from a registered supplier who have all permits to provide such service in Tabora Municipality.

2.6.1.2 Other Construction Materials

The contractor for the proposed buildings will be required to outsource construction materials such as cement, iron bars, nails, timbers, and paints from licensed shops in Tabora Municipal to overcome transport cost and other impacts associated with transportation of construction materials to the project site for construction activities.

2.7 DESCRIPTION OF INSTITUTIONAL, SPATIAL AND TEMPORAL BOUNDARIES

2.7.1 Institutional boundaries

Institutional boundaries refer to those institutions and sectoral boundaries in which the project rests. These can be determined from political boundaries, Acts, regulations and institutional mandates and administrative structures. At the national level, the key institutions that will oversee the implementation of the project activities include the Ministry of Land and Human Settlements, Ministry of Education, Vice President's Office - Department of Environment. Other Government agencies like National Environment Management Council (NEMC), Tanzania occupational health and safety (OSHA), Contractor Registration Board (CRB), Engineers Registration Board (ERB) and others will also have responsibilities on the management of the Project. At the Municipal level; Tabora Municipal Council has mandates on monitoring the project.

2.7.2 Temporal boundaries

Temporal boundaries are referring to project life span and the reversibility of impacts. The project under consideration is envisaged to last for more than 100 years from the date of construction to the date when the concrete structures need replacement or refurbishment works on it.

Furthermore, the environmental and socio-economic influence of the project is anticipated to extend beyond the project area. Bio-physical parameters and

socio-economic aspects such as employment dynamics, number of students to be registered, markets of graduated students and diseases prevalence i.e. HIV/AIDS etc. have been used in assessing the temporal boundary.

2.7.3 Spatial boundaries

The spatial dimension encompasses the geographical spread of the impacts regardless of whether they are short term or long term. The spatial scale considers the receptor environmental component and can be local or broader. Following this, two zones of impacts have been considered;

The Core Impact Zone: This includes the area immediately bordering the project (local). In the case of this project local impacts will include the site of the construction and the immediate surrounding areas.

The Zone of Influence: This includes the wider geographical areas that are influenced by the proposed project.

CHAPTER THREE: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

The proposed development is related to several laws and national policies; hence this section of the environmental study addresses relevant policies and legislations to the proposed project. The policies and legislations emphasize on both planning and implementation of this particular project. Furthermore, the study addresses administrative framework which are relevant to the proposed project.

3.1 RELEVANT POLICIES

Clarifying spectral policies which relate to the proposed project is highly important when considering institutional and national boundaries currently and in the future. In this respect, the following national policies are addressed.

3.1.1 The National Environmental Policy, 2021

Paragraph 1.1 of the Policy say; Environment and natural resources are valuable national assets that have to be sustainably managed for the present and future generations. They offer a range of benefits and opportunities for local and national levels for socio - economic growth such as improved livelihoods and provision of environmental goods and services. Despite being the foundation on which sustainable development is anchored, the national analysis of the state of the environment identified six (6) environmental challenges that needed urgent actions to address the deterioration of the environment in the country. These challenges are: land degradation; lack of accessible good quality water for rural and urban inhabitants; loss of wildlife habitats and biodiversity; deterioration of aquatic systems; deforestation; and environmental pollution. These challenges not only threatened livelihoods of the people and the national economy, but also state of the environment which is crucial in supporting all forms of life.

Paragraph 2.2.3 was about the policy objective, where the overall objective was to provide a national framework for guiding harmonized and coordinated environmental management for the improvement of the welfare of present and future generations.

The specific policy objectives are:

- To strengthen coordination of environmental management in sectors at all levels;
- To enhance environmentally sound management of land resource for socio-economic development;
- To promote environmental management of water sources;
- To strengthen conservation of wildlife habitats and biodiversity;
- To enhance conservation of forest ecosystems for sustainable provision of environmental goods and services;
- To manage pollution for safe and healthy environment;

- To strengthen the national capacity for addressing climate change impacts;
- To enhance conservation of aquatic system for sustained natural ecosystem;
- To ensure safety at all levels of application of modern biotechnology;
- To promote gender consideration in environmental management;
- To promote good governance in environmental management at all levels; and
- To ensure predictable, accessible, adequate and sustainable financial resources for environmental management

To be in line with the policy objectives, the Proponents will institute an efficient waste management system both solid and liquid, where the liquid waste will be managed by septic tank system and solid waste to be well managed by sorting at the source before collected by the authorized entities for disposal.

3.1.2 The National Land Policy, 1997

The policy recognizes the need for protecting the environment. It stresses protecting the environment and natural ecosystem from pollution; degradation and physical destruction. Important paragraphs of the policy relevant to the proposed project are paragraph 2.4 (on use of land to promote socio-economic development; paragraph 2.8 (on the protection of land resources), paragraph 3 and paragraph 4 (on land tenure). These paragraphs are relevant and guides the proponents in terms of occupancy, land use and land-use change at the project site.

To be in line with the policy requirement, the proposed project implementation shall use existing land which planned for education use and generated waste (solid and liquid) will be managed properly at project site where septic tanks will be used for management of domestic wastewater while generated solid waste will be collected into dustbins and taken by authorized dealer for disposal at dumpsite located Lwanzali.

3.1.3 The National Policy on HIV/AIDS, 2001

The Policy provides the framework for leadership and coordination of the national multi-Sectoral response to the HIV/AIDS epidemic. This includes the formulation by all sectors of appropriate interventions that are effective in preventing transmission of HIV/AIDS and other sexually transmitted infections, protecting and supporting vulnerable groups and mitigating the social and economic impacts of HIV/AIDS.

The project proponent shall observe this policy by introducing awareness raising programmes, to protect workers and communities around the project area against HIV/AIDS; the project contractor will coordinate with the HIV/ AIDs ant-activists.

3.1.4 The Construction Industry Policy, 2003

The policy promotes among other issues, application of cost effective and innovative technologies and practices to support social economic development including utilities and ensure application of practices, technologies and products which are not harmful to both the environment and human health, therefore the proposed development will comply with the requirement of this policy by ensure that the materials to be used are those with less negative impacts to the environment and will be supplied by authorized dealers and each material its quality testing data will be provided. The materials will be certified for construction as per TBS guidelines.

3.1.5 The National Gender Policy, 2000

The key objective of this policy is to provide guides to 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 equality and equal opportunity for both men and women to participate in development undertakings and values the role played by each member of society. The project proponent shall ensure equal opportunities at all levels during project implementation including number of employment opportunities will consider gender issues.

3.1.6 The Education and Training Policy, 2014

The main Objective of the Policy is to have educated and knowledgeable Tanzanians able to quickly contribute to national development and competitiveness. One of its specific objective states that, the policy will ensure provided education and training will have standards of quality that recognized nationally, regionally and internationally. The proposed project for establishment of new MJNUAT Tabora Campus is relevant to the policy objectives as will improve the quality and standards of education and training provided as the project will construct and enhance learning facilities.

3.1.7 The National Occupational Health and Safety Policy, 2009

Occupational health and safety services are important for sustainable development of a country, as they reduce occupational accidents and diseases which can have huge economic burden to individuals, enterprises and the nation as whole. Improving health and safety of workers will significantly increase productivity at the workplaces to encourage more investments, increase job creation, higher morale, and job satisfaction hence industrial harmony.

Paragraph 2.3 is about objectives of the policy, where the main objectives of OHS Policy are to reduce the number of work-related accidents and diseases. This required the adoption and implementation of a culture to prevent OHS hazards by Employers and Employees. The effective prevention of work - related accidents will have enormous social and economic benefits including improvements in productivity and competitiveness and the quality of life of the working population. The effective management of many safety hazards will contribute to improved levels of public health and safety and minimize environmental pollution.

The Objectives of the Policy will accomplish the following specific objectives; Appropriate Institutional arrangements for efficient and effective OHS services delivery developed,

- A clear and comprehensive legal and regulatory framework in place,
- Reliable system for collection, recording, notification and reporting and dissemination of OHS information in place,
- Adequate funding arrangements to fund OHS activities established,
- Existing research capacity most effectively used and in addition capacity developed,
- Occupational health and safety skills and resources in public and private sector improved,
- Education and training on occupational health and safety at all levels enhanced
- Paragraph 3.1 is about enhancement of stakeholder's commitment where due to multi-sectoral nature of occupational health and safety issues, full participation of all stakeholders is important and therefore there is need to have an institutional framework.
- Paragraph 3.5 is for enhance awareness, education and training programmes on occupational health and safety at all levels
- Paragraph 3.8.1 was to ensure measure for management of hazardous wastes and emissions from the production processes and work activities with aid for pollution control.
- Paragraph 3.8.2 was to give appropriate consideration to gender dimensions as far as occupational health and safety matters are concerned
- Paragraph 3.8.3 was to enhance HIV and AIDS preventive and rehabilitative programmes at workplaces and 3.8.4 was to place and maintain workers with special needs in an occupational environment which is adapted to their physical and mental needs and capability.

Proponent shall observe the presence of the policy vision, mission and objectives.

3.2 RELEVANT LEGISLATIONS FRAMEWORK

This section addresses the legal conditions which are relevant to the proposed project. This study has been conducted in general compliance of the project proponent with the following legislations.

3.2.1 The Environment Management Act No.20, 2004

The Environmental Management Act, 2004, cap 191 seeks to provide for legal and institutional framework for sustainable management of the environment in the implementation of the National Environmental Policy. Under this Act NEMC is mandated to undertake enforcement, compliance, review and monitoring of environmental impact assessment and has a role of facilitating public participation in environmental decision making, exercise general supervision and coordinating over all matters relating to the environment.

Section 82 makes EIA mandatory to all projects that fall under the EIA mandatory list (Schedule 3).

This Act also provides a legal framework necessary for coordinating harmonious and conflicting activities with a view to integrating such activities into an overall sustainable environmental management system by providing key technical support to sector Ministries. This is a cross-sectoral piece of legislation and supersedes all other written laws relating to environmental management. Specifically, section 232 stipulates that where the provision of this Act is in conflict or is otherwise inconsistent with a provision of any other written law relating to environmental management the provision of this Act shall prevail to the extent of such inconsistency.

NEMC is currently the designated authority to carry out the review of EIA, EA, monitoring and auditing of environmental performance of the project (periodic and independent reassessment of the undertaking). Environmental Impact Statement (EIS) will be submitted to the Technical Advisory Committee (TAC) for evaluation.

- As per the EMA Cap 191, among others, the following obligations on the project Proponent have been imposed:
- As land user and occupier to protect, improve and nourish the land and using it in an environmentally sustainable manner (S. 72)
- To abstain from discharging any hazardous substances, chemicals, oils or their mixture into waters or into any segment of the environment (S. 110)
- To comply with environmental quality standards (S. 141)
- As a corporate body to comply with license conditions including the EIA certificate (S. 201)
- To control, manage and dispose in a sound manner waste including litter, liquid, gaseous and hazardous waste (Part IX)

The new MJNUAT at Tabora Campus operation will face waste management and pollution problems as one of the main environmental challenges. However, the Proponent will have effective waste management system in place. Solid wastes generated will be collected, sorted and sent to a collection point at the site waiting for removal by municipal truck

Also, within project site there shall be a network for collecting all domestic liquid waste through pipeline network which will be collected and linked to septic tanks for management at site.

3.2.2 The Land Act (Cap 113. R.E. 2019)

The fundamental principles of the National Land Policy which is the objective of this Act to promote and to which all persons exercising powers under, applying or interpreting this Act are to have regard to,

a) recognize that all land in Tanzania is public and vested in the President, as trustee on behalf of all citizens;
b) ensure that existing rights in and recognized long-standing occupation or use of land are clarified and secured by the law;

c) facilitate an equitable distribution of and access to land by all citizens;
d) regulate the amount of land that any one person or corporate body may occupy or use;
e) ensure that land is used productively and that any such use complies with the principles of sustainable development;
f) take into account that an interest in land has value and that value is taken into consideration in any transaction affecting that interest;
g) pay full, fair and prompt compensation to any person whose right of occupancy or recognized long-standing occupation or customary use of land is revoked or otherwise interfered with to their detriment by the State under this Act or is acquired under the Land Acquisition Act;

Provided that, in assessing compensation of land acquired in the manner provided for in this Act, the concept of opportunity shall be based on the following-

i. market value of the real property;
ii. disturbance allowance;
iii. transport allowance;
iv. loss of profits or accommodation;
v. cost of acquiring or getting the subject land;

Section 4(1), all land in Tanzania shall continue to be public land and remain vested in the President as trustee for and on behalf of all the citizens of Tanzania.
(2) The President and every person to whom the President may delegate any of his functions under this Act, and any person exercising powers under this Act, shall at all times exercise those functions powers and discharge duties as a trustee of all the land in Tanzania so as to advance the economic and social welfare of the citizens

Project proponent shall observe the Act, and to be in line with the Act, she continues using the existing land for economic development by planning to establish a new MJNUAT Tabora Campus for Education purposes

3.2.3 The Land Use Planning Act, (Cap 116 2007)

The Act provides procedures for: preparation; administration and enforcement of the Land Use Plans to facilitate an orderly management of land use. It empowers land occupiers and users to make better and more productive use of lands, to enhance security and equity in accessing land and its resources, by developing the plot.

Section 4, is about the objectives of land use planning to which all persons and authorities exercising powers under, applying or interpreting this Act shall be to: (a) facilitate efficient and orderly management of land use; (b) empower landholders and users to make better and more productive use of their land; (c) promote sustainable land use practices; (d) ensure security and equity in access to land resources, (e) facilitate the establishment of a framework for the prevention of land use conflicts; (f) facilitate overall macro-level planning while taking into account regional and sectoral considerations; (g) provide for inter-sectoral co-ordination at all levels; (h) ensure the use of political and

administrative structures and resources available at national, regional, district and village levels; and (i) provide a framework for the incorporation of such relevant principles contained in national and structural development policies as may be defined by the Government.

Section 21(1), District Council shall be a land use planning authority in the district. (2) A district land use planning authority shall, in consultation with all relevant stakeholders: (a) prepare district land use framework plans incorporating relevant aspects of plans prepared under relevant urban planning law, that includes: - (i) small islands; (ii) coastline and beaches; (iii) planning for vertical development; and (iv) urban boundaries. (b) ensure co-ordination and systematic physical development at the district level; (c) ensure inter-sectoral co-ordination; and (d) co-ordinate village land use plans.

Section 22(1), every village council shall be a village land use planning authority for the respective village. (3) Subject to approval by respective Village Assembly, the village land use planning authority shall, in that capacity- (a) prepare detailed land use plans for implementation in its respective area of jurisdiction; (b) ensure that the objectives of the Village Land Act, are achieved; (c) secure the orderly and environmental sustainable development in the village; (d) ensure productive use of village land; (e) preserve village land resources including forests and wildlife; and (f) review or evaluate all applications for land within the village to determine the extent of its conformity with approved land use plans and to advice the Village Assembly accordingly. 47(1) Any landholder or occupier of land shall take all steps necessary to ensure voluntary compliance with the aspects of an approved plan that are relevant to activities carried out on the land he holds or occupies.

Implementation of proposed project for establishment of new MJNUAT Tabora Campus will be on the land which is surveyed and planned for education purpose of Use group "K", use class (d) as defined in the Urban Planning (Use Groups and Use Classes) Regulations, 2018. The whole land covers total area of 604,250m^2, where proposed project is compatible with land use plan as per attached title deed.

3.2.4 The Urban Planning Act, 2007 and its Amendment Cap 355, 2017

The Act provides the guidance on orderly and sustainable development of land urban areas, to preserve and improve amenities, to provide for grant and consent to develop land and powers of control over the use of land. Moreover, Section 29(3) of the Act requires conducting EIA for development that need planning consent. It stresses on matters related to land acquisition and compensation. Furthermore, the Act provides for procedures for enforcement of urban planning, address issues related to urban planning and to enhance conservation and environmental protection to enhance social justice in acquisition of land for planning purposes, the proposed project its implementation will comply with the land use of the area according to town plan act.

3.2.5 The Occupational Health and Safety Act No. 5, 2003.

This Act provide for the protection of human health from occupational hazards. It requires the employer to ensure the safety of workers by providing personal protecting gears at work place. It specifically demands: the provision of regular medical examination of employees, safe means of access and safe working place; prevention of fire; supply of clean and safe water to workers; sanitary convenience; washing facilities, first aid kit with recommended facilities and trained first aider will be provided at the site. Proponent ensure that he will observe the requirement of the Act, where firstly he will register a working place at OSHA and procedures for acquiring a compliance certificate will be followed during project operation. Basic requirement like safe and clean water will be provided to workers, toilets and changing rooms will be at project site, medical examination to workers will be done on time, induction training will be provided to workers in all phase, area for emergency assembly point will be at project site, enough warning sign shall be at project site and posted at all strategic area and water spray will be used at project site for dust management.

3.2.6 The HIV and AIDS (Prevention and Control) Act, 2008.

The Act provides for prevention, treatment, care, support and control of HIV and AIDS for promotion of public health in relation to HIV and AIDS. The Act also requires, provisions for appropriate treatment, care and support to people living with or at risk of HIV and AIDS. It requires the employer in consultation with the Ministry of health to establish and coordinate a workplace program on HIV and AIDS for employees under his control and such program to include provision of gender responsive HIV and AIDS education, distribution of condoms and support people living with HIV and AIDS. The project proponent / contractor will adhere with this Act by ensure that construction workers will be aware of HIV /AIDs and other STDs, where special reminding programmes about HIV will be provided per month.

3.2.7 The Water Supply and Sanitation Act (Cap 272, 2019);

Section 2, is about application of the Act, where it shall apply to Mainland Tanzania.

Section 4(1), is about objective of the Act which is to promote and ensure the right of every person in Tanzania to have access to efficient, effective and sustainable water supply and sanitation services for all purposes by taking into account the fundamental principles of; (a) creation of an enabling environment and appropriate incentives for the delivery of reliable, sustainable and affordable water supply and sanitation services; (b) delegation of management functions of water supply and sanitation services to the lowest appropriate levels; (c) ensuring that water supply and sanitation authorities are financially and administratively autonomous and sustainable; (d) transferring ownership of water supply schemes in rural areas to the respective communities and enabling all the beneficiaries and stakeholders to participate effectively in the management of community water supply schemes; (e) establish mechanisms to ensure that communities meet the costs of operation and maintenance of their water supply systems and contribute to the capital costs thereof; (f) promotion of public sector and private sector partnership in provision of water supply and sanitation services; (g) establishment and

enforcement of standards of service in water supply and sanitation services; (h) regulation of suppliers of water supply and sanitation services; (i) protection and conservation of water resources and development and promotion of public health and sanitation; and (j) protection of the interests of customers. (2) All person exercising powers under this Act or under any written law having a bearing on provision of water supply and sanitation services shall strive to promote and have regard to the National Water Policy, 2002, in respect of urban water supply and sanitation and rural water supply.

Section 61, any person who damages, hinders, disrupts, diverts or interferes with water works or sanitation works or other assets owned or vested in a water authority or community organization commits an offence and shall, upon conviction, be liable to a fine of not less than five hundred thousand shillings but not exceeding fifty million shillings or to imprisonment for a term of not less than two years but not exceeding five years to both. Section 63, any person who misuses or wastes, or causes or allows to be misused or wasted any water passing into, through or upon or near any premises from the waterworks, commits an offence and shall on conviction be liable to a fine of not less than five hundred thousand shillings but not exceeding ten million shillings or to imprisonment for a term of not less than six months but not exceeding two years or to both.

Section 67(1), any person who deposits or allows or causes to be deposited any earth material or liquid in such manner or place that it may be washed, fall or be carried into the waterworks commits an offence and shall be liable on conviction to a fine of not less than one million shillings but not exceeding five million shillings or to imprisonment for a term of not less than twelve months but not exceeding three years or to both.

Section 68(1), a person shall not dump, discharge or cause to be dumped or discharged any unauthorized waste into the sanitation works. (2) A person who contravenes subsection (1) commits an offence and shall, upon conviction, be liable to a fine of not less than one million shillings but not exceeding three million shillings or to imprisonment for a term of not less than six months but not exceeding two years or to both. Any generated domestic wastewater at project area will be managed by septic tanks and once full municipal trucks will be employed to empty it for disposal at Mirambo WSP.

3.2.8 The Standards Act No. 2, 2009

The Act provides for the promotion of the standardization and specifications of commodities and services re-establish the Tanzania Bureau of Standards (TBS) and provisions for the functions, management and control of the Bureau. This act is relevant to this project as it controls the quality of materials to be used for constructions of the proposed project. The proponent shall ensure that all the construction materials to be used will be those recommended by TBS and sourced from authorized dealers.

3.2.9 The Public Health Act (Cap 242, 2009)

The Act stresses on Solid and Liquid Waste Management and recommends management of solid and liquid wastes generated in accordance with sustainable plans prepared by respective Authority; and ensure sorting of wastes are made at the source, and that it is in accordance with standards or specifications prescribed by the authority. It further requires solid and liquid wastes to be classified and appropriately stored depending on whether they are organic, plastic, glass or metal waste; and prescribe appropriate methods for storage of different categories of solid and liquid wastes. The Proponent shall adhere with all guidelines and requirements of this Act to ensure all generated wastes shall be properly collected, managed and finally disposed of accordingly where sorting of solid waste shall be done at project site and temporary solid waste collection point where it taken by Municipal truck to Itetemia dumpsite.

3.2.10 The Local Government (Urban Authorities) Act (Cap. 288 R.E 2002).

Tanzania is implementing the Local Government Reform Programme which has instituted "Decentralization by Devolution". District and Urban councils have extensive powers under the two acts, both in governance aspects and in the management of natural resources and land in their respective jurisdictions. The administrative aspects of valuation and payment of compensation are assigned to local government authorities' and regional administration. It is on the basis of this Act that, the proponent will ensure continuous conservation of the project site while maintaining environmental and public health safety.

3.2.11 The Contractors Registration Act No. 17 of 1997

The act provides for registration of contractors and establishes a board to regulate the conduct of contractors. The act provides for the contractors' registration board to enter and inspect any site for construction, installation, erection or alteration works for the purpose of verifying and ensuring that the works are being undertaken by registered contractors and that all works comply with all governing regulations and laws of the country. The act stipulates that no body of persons whether corporate or unincorporated is allowed to practice unless is registered as a contractor or one of the shareholders in a firm is registered as a contractor. The board has the power to take legal action to the contrary. This act is in force and in complying with it; the proponent shall engage registered contractor to undertake all the construction activities at site not otherwise.

3.2.12 The Workers Compensation Act (Cap 263), 2015

This Act shall apply to Mainland Tanzania; it shall apply to all employers and employees including those in the public service of the Government of Tanzania in Mainland Tanzania;

Sect 3, is about the objectives of this Act, which is to-

a) provide for adequate and equitable compensation for employees who suffer occupational injuries or contract occupational diseases arising out of, and in the course of their employment, and in the case of death, for their dependants;

b) provide for the rehabilitation of employees who have suffered occupational injuries or contracted occupational diseases in order to assist in restoring their health, independence and participation in society;
c) provide a framework for the effective, prompt and empathetic consideration, settlement and payment of compensation benefits to employees and their dependants;
d) provide for the establishment, control and administration of the workers compensation fund, and the legal framework for the workers compensation fund, and the legal frame work for contributions to and payments from the Fund;
e) give effect to the international obligations with respect to workers; compensation; and
f) promote prevention of occupational accidents and occupational diseases.

Sect 19 (1), where an employee has an accident resulting in the employee's disablement or death, the employee or the dependants of the employee shall, subject to the provisions of this Act, be entitled to the compensation provided under this Act.

(2) Where an accident is attributable to the serious or willful misconduct of the employee, no compensation shall be payable unless-
a) the accident results in permanent total disablement;
b) the employee dies as a result of the accident leaving a dependent wholly financially dependent upon the employee

Sect 22(1), where an employee contracts a disease set out in the Third Schedule to this Act, or any other disease, and the disease has arisen out of, and in the course of the employee's employment, the employee shall, subject to the provisions of this Act, be entitled to the compensation.
(2) Where an employee dies as a result of a disease referred to under subsection (I), the dependants of the employee shall, subject to the provisions of this Act, be entitled to the compensation.

The proponent is aware of the provisions of this Act and shall adhere to them accordingly, where in case of injury to his workers medical expenses will be covered by proponent. Also, if compensation is needed, it will be provided as recommended by the Act.

3.2.13 The Fire and Rescue Force Act, R.E 2007

The Act established a national fire brigade known as the Fire and Rescue Force for Tanzania Mainland. The Force is responsible for promoting safety and the prevention of fires and providing firefighting services (Section 6, 7). The Act empowers the Commissioner General of the force or his agent to enter premises to ascertain any contravention of the provisions of the Act and obtain information required for firefighting purposes. A court may issue an order for a closure or prohibit the use of any premises for human habitation or storage in case there is a failure to comply with fire prevention regulations. The

proponent shall be abiding by the relevant provisions of the Act to ensure the safety and security of its work place and the general public where all construction crew will be trained on fire emergency response and firefighting equipment shall be at project site located at strategic area which can be easily accessible and seen. Fire emergency area shall be at project site. During operation fire inspection shall be done and all installed firefighting equipment shall timely test its durability.

3.2.14 The Finance Act, 2019

Section 43 "(5) Where a person is registered and issued with a Taxpayer Identification Number for the first time, for the purposes of carrying on a business or investment, the requirement to pay instalment tax under the Income Tax Act shall be deferred for a period of six months from the date when the Tax Identification Number was issued.

(6) A person referred in subsection (5) shall pay the whole of the deferred tax in the respective year in three equal instalments, in the remaining period. (7) Where the deferment granted under subsection (5) has the effect of deferring the tax payable beyond the year of income to which the tax relates, the whole of the tax payable shall be paid in the last instalment period of the year of income. (8) Nothing in this section shall be taken to preclude the person granted deferment under this section to pay the assessed tax during the deferment period.

The project proponent shall observe the presence of the Act and its requirement for tax payment as recommended.

3.2.15 Social Security (Regulatory Authority) Act (Cap. 135 R.E 2015)

The functions and duties of the Authority shall be to;

a) register all manager, custodians and schemes,
b) regulate and supervise the performance of all managers, custodians and schemes,
c) issue guidelines for the efficient and effective operation of the social security sector,
d) protect and safeguard the interests of members

Section 18, the Authority may, subject to the provisions of this Act, register and issue the applicant with a Certificate of registration

Proponent shall observe the Act, and ensure his workers will be registered with social security registered by Regulatory Authority.

3.2.16 The Persons with Disability Act Cap 183, 2010

Section 4, is about the principle of the Act, where the basic principles of this Act are:

- Respect for human dignity, individual's freedom to make their own choices and independency of persons with disabilities,

- Non-discrimination,
- Full and effective participation and inclusion of persons with disabilities in all aspects of society,
- Equality of opportunity,
- Accessibility,
- Equality between men and women with disabilities and recognition of their rights and needs, and
- Provide basic standard of living and social protection.

Section 6, is about equality and prohibition of discrimination, where the Government shall

- ensure that all persons with disabilities are equal, and are fully entitled without any discrimination to the equal protection and benefits of this Act;
- prohibit all forms of discrimination on the basis of disability and guarantee the persons with disabilities equal and effective legal protection against discrimination on all grounds; and
- for purposes of promoting equality and elimination of all forms of discrimination, take all appropriate measures to ensure that reasonable changes are provided to persons with disabilities of all ages and gender.

Section 7, is about awareness raising where The Minister shall, in collaboration with civil societies undertake appropriate measures to - (a) raise public awareness throughout the society regarding the potential, contributions and rights of persons with disabilities and to foster for their rights and dignity; (b) combat stereotypes, prejudices and handful practices relating to persons with disabilities in all aspects of life; and (c) promote awareness of the abilities, talents and contributions of persons with disabilities in order to enhance the level of awareness in the society about persons with disabilities.

26.-(1) Every person with a disability shall have the right to enjoy the attainable standard of health care services without any discrimination. (2) Every health facility whether public or private shall not deprive a person with disability the right to health care service and shall take all reasonable and necessary measures to ensure access for such person to health services. (3) Every health facility, public or private shall- (a) provide persons with disabilities with the same level and standard of health and rehabilitation services as provided to other citizens, including health counselling, reproductive health, family planning, prenatal and postnatal child care and other general public health services; (b) make available basic facilities essential for health and rehabilitation services needed by persons with disabilities in their respective locations; and (c) provide all health and rehabilitation personnel, with an appropriate education and training to increase their knowledge, disability sensitive awareness and respect for the rights, dignity and needs of persons with disabilities, in accordance with the provisions of this Act.

27 (1) Persons with disabilities in all ages and gender shall have same rights to education, training in inclusive settings and the benefits of research as other citizens. (2) Every child with a disability shall have equal rights in relation to admission to the public or private schools.

28.-(1) Every learning institution shall be under the general obligation not to discriminate against persons with disabilities.

29.-(1) Every manager or owner of a learning institution shall, in respect of admission, take into account the special needs of persons with disabilities. (2) Any person who owns or establishes a special school for persons with disabilities shall provide adequate facilities for such purpose
33.-(1) An employer shall not treat a person with disability different from a persons with non-disabilities in relation to- (a) advertisement of employment; (b) recruitment of persons for employment; (c) offering terms or conditions of employment; (d) creation, classification or abolition of jobs or posts; (e) determination or allocation of wages, salaries, leave or accommodation, and any other similar benefits; (f) training, advancement, apprenticeship, transfer, promotion or retrenchment; (g) provision of facilities related to or connected with employment; and (h) provision of any other benefits or other matters related to employment. (2) A public or private organization which advertises any employment shall encourage persons with disabilities to apply. (3) Any employer who discriminates against any person with a disability in relation to employment commits an offence and shall, on conviction, be liable to a fine of two million shillings or imprisonment for a term of two years or both.

34.-(1) It shall be a duty of every employer to- (a) take all necessary measures to improve work environment to prevent injuries and impairment; (b) provide job accommodation and provision of working tools; (c) ensure safe and healthy working conditions for all employees with disabilities; (d) protect employees with disabilities from harassment; (e) permit employees with disabilities to exercise their labour and trade union rights in accordance with any relevant laws; and (f) enable employed persons with disabilities to have effective access to general technical and vocational guidance and continuing training for their carrier and advancement. (2) The Minister shall ensure- (a) the promotion of employment for persons with disabilities by applying affirmative action treatment; (b) job retention and return to work for any employee who has obtained disability in a workplace; and (c) reasonable changes is provided to persons with disabilities in the work place.

51.-(1) Every person with disability who has attained the age of eighteen years and above shall be entitled to enjoy and exercise political rights and opportunity as any other citizen without any form of discrimination.
53.-(1) A person with disability shall be entitled to take part like any other citizen in cultural life in the society without discrimination. Therefore, the proposed project will fulfil this legal requirement; by consider people with disability during project design, construction and operation. Employment opportunities will consider people with disabilities and any kind of discrimination will be prohibited. Training awareness will be given for all people without discrimination.

3.2.17 The Child Act Cap 13 of 2019

4.-(1) A person below the age of eighteen years shall be known as a child.

(2) The best interests of a child shall be a primary consideration in all actions concerning children whether undertaken by public or private social welfare institutions, courts or administrative bodies.

5.-(1) A child shall have a right to live free from any discrimination.
(2) A person shall not discriminate against a child on the grounds of gender, race, age, religion, language, political opinion, disability, health status, custom, ethnic origin, rural or urban background, birth, socio-economic status, being a refugee or other status. 12. A person shall not employ or engage a child in any activity that may be harmful to his health, education, mental, physical or moral development

17.-(1) A person, being an owner or occupier who runs or is in-charge of a discotheque, bar or night club, shall not allow a child to enter into the premises. (2) A person shall not sell cigarettes, alcohol, any spirit, drugs or any intoxicating substance to a child. (3) A person who contravenes the provisions of this section, commits an offence and shall on conviction be liable to a fine of not less than one million shillings but not exceeding five million shillings or to imprisonment for a term not exceeding twelve months or to both.

77.-(1) A child shall have a right to light work. (2) For the purposes of subsection (1), the minimum age for employment or engagement of a child shall be fourteen years. (3) Subject to subsection (1), "light work" shall constitute work which is not likely to be harmful to the health or development of the child and does not prevent or affect the child's attendance at school, participation in vocational orientation or training programmes or the capacity of the child to benefit from school work 78.-(1) A person shall not employ or engage a child in any kind of exploitative labour. (2) Without prejudice to the provisions of this section, every employer shall ensure that every child lawfully employed or engaged in accordance with the provisions of this Act is protected against any discrimination or acts which may have negative effect on him taking into consideration his age and evolving capacities.

82.-(1) It shall be unlawful to employ or engage a child in any hazardous work. (2) Work shall be construed as or considered to be hazardous when it poses a danger to the health, safety or morals of a person. 83.-(1) A child shall not be engaged in any work or trade that exposes the child to activities of sexual nature, whether paid for or not. 87. A child shall have a right to acquire vocational skills and training in the form of apprenticeship 88. The minimum age at which a child may commence an apprenticeship with a craftsman shall be fourteen years or after completion of primary school education.

Proponent shall observe the presence of sections of this Act, where no children shall be employed at site during construction phase. Any kind of children discrimination at site will be prohibited, where workers shall be insisted to respect children right at their homes.

3.2.18 The Universities Act, 2005

This Act shall apply to Mainland Tanzania as well as to Tanzania Zanzibar.

Section4, is about establishment of Tanzania Commissioner for Universities (TCU)
Section 5 is about the function of TCU. Where the functions of the Commission shall be;

- to advise the Minister on any aspect or matter of university education;
- to audit on a regular basis the quality assurance mechanisms of universities;
- to provide guidance and monitor the criteria for student admission to universities in the United Republic, the proposals of outlines of academic programmes or syllabus and general regulations of curriculum submitted to the Commission by universities, the long-term planning, staff development, scholarship and physical development strategies and programmes of universities and the recurrent and development budgets for public universities;
- to collect, examine, store in data-base or data-bank and publish information relating to higher education, research and consultancy;
- to consider and make recommendations to the Minister regarding the upgrading or downgrading of the status of a university;
- to establish transfer procedures for university students who wish to be transferred from one university to another and from one programme to another;
- to levy fees or any other form of charge for specific services, facilities and documents rendered or supplied to institutions;
- to monitor and regulate general management and performance of universities;
- to promote (i) the objectives of higher education, in particular, the development, processing, storage and dissemination of knowledge for the benefit of humanity and the harnessing of knowledge for the production of usable goods and services; (ii) quality assurance in higher education; (iii) noble ideals of national unity and identity in universities; (iv) gender equality, balance and equity; and (v) cooperation and net-working among universities within and outside the United Republic;

21: No person shall provide university education unless that person has been granted a charter or approval of a charter in accordance with the provisions of this Act. 22(l): Any person wishing to establish a university in the United Republic of Tanzania shall submit an application in the prescribed form to the Commission for a grant of a charter 51(1): No staff association or students' organization in an institution shall engage in any political party's activities on campus, conduct its affairs or have a constitution which in any way or manner whatsoever offends or conflicts with the provisions of this Act or of any other written law.

52.-(1) Subject to the provisions of this Act, every institution shall enunciate and publish in the Prospectus of the institution the students admission regulations of the institution, including qualifications required for the institutions various programmes and awards. (2) No applicant shall be admitted to pursue a programme of study in an institution unless he meets

the admission qualifications spelt out in the enunciated admission regulations governing the institution in accordance with sub-section (1).

Proponent (MJNUAT) is aware with the act and before start operation of new MJNUAT Tabora Campus he will acquire recommended approval from TCU regarding operation of university in Tanzania, all admitted students will have recommended qualifications regarding programme admitted for and MJNUAT will has by laws which govern all students and staff in case of misbehavior.

3.2.19 The Architects and Quantity Surveyors (Registration) Act, 2010

Section 3 is about establishment of the Architects and Quantity Surveyors Registration Board and the Board shall be corporate and shall;

- have perpetual succession and common seal in its corporate name be capable of; suing and being sued; acquiring, holding and disposing of movable and immovable property: and entering into contracts or other transactions and doing all other acts and things which a body corporate may lawfully perform;
- have power to borrow such sums as it may require for its purpose: and exercise the powers and perform the functions conferred upon it by this Act

Section 5 is about function of the Board such as shall be to;

- Register and maintain registers and sub-registers of architects, quantity surveyors and their firm, graduate architects, graduate quantity surveyors, architectural technicians, architectural draughtsmen, both local and foreign and to make decisions on applications for their registration Annually;
- Regulate the activities and conducts of architects, quantity surveyors and their firms, graduate architects, graduate quantity surveyor architectural technicians, and architectural draughtsmen;
- Enter building sites and inspect building or construction works for the purpose of verifying and ensuring that the works are being undertaken by a registered architectural or quantity surveying firms and that the works complying with all governing regulations and laws of the country including requirement for safety, an erection of sign board which shows the title of the project, names, addresses, phones and e-mails of the client, architect, quantity surveyor, protect registration sticker and to take legal action against defaulter thereof;
- Promote, monitor and provide continuing professional development opportunities and facilities for the study and training in architecture, quantity surveying and allied subjects;
- Register construction works or projects;
- Promote and enforce professional conduct ethics and integrity of architect, quantity surveyor and firms practising or operating in Tanzania;
- Promote awareness and educate the public on the professions of architecture and quantity surveying as well as the duties and responsibilities of architects and quantity surveyors:

20. A client who undertakes design building or construction works shall ensure that an architectural or quantity surveying firm is registered prior to the execution of the design or construction works. 35(I) A person, whether corporate or unincorporated. shall not carryon the business of architecture or quantity surveying unless the principal 'is registered: Provided that, where one or more of the principals of the firm is an architect, the remaining being quantity surveyors then that firm may lawfully practise both as architects and quantity surveyors.(2) Where a principal of a firm whether corporate or unincorporated, carrying on business as architects or quantity surveyors dies that firm may be allowed to complete the projects or connects in hand if the legal representative were architects or quantity surveyors. (3) Where a firm undertakes any work on design and build method of procurement the architectural and quantity surveying components shall be handled by an architectural firm and quantity surveying firm.

During construction, proponent will commissioner a registered firm as recommended by the Act and all other requirements of the Act including posting of sign board will be adhered

3.3 RELEVANT REGULATIONS FRAMEWORK

3.3.1 The Environment Impact Assessment and Audit Regulation, G.N No. 349, 2005 and its amendment of 2018.

The EIA and Audit Regulation (G.N. No. 349) 2005 and its amendment of 2018, provides guidance on how the Environmental Impact Assessment should be carried out. It prescribes the procedure to be followed in carrying out the environmental assessment and provides the format for the preparation of the environmental impact statement. The Regulations prohibit the project proponent (including MJNUAT Tabora Campus) from undertaking any construction project without carrying out an EIA study required under the Environmental Management Act. This study has been prepared in line with EIA and Audit Regulations of 2005 and its amendment of 2018.

3.3.2 Environmental Management (Solid Waste Management) Regulations 2009 as amended in 2016

This Act has been made to control a facility or premises which generates waste to minimize the waste generated by adopting the following cleaner production principles: -

(a) Improvement of production process through conserving raw materials and energy by:
(i) Eliminating the use of toxic construction materials within such times as may be prescribed by the Minister; and
(ii) Reducing toxic emissions and wastes to a level prescribed in the applicable national environmental quality standards.

(b) Monitoring the product cycle from beginning to end by-
(i) Identifying and eliminating potential negative impacts of the product,

(ii) Enabling the recovery and re-use of the product where possible; and
(iii) Reclamation and recycling.
The Act requires any person intending to operate a hazardous waste treatment plant or disposal site or facility to apply to the Director of Environment for a license. The Project proponent will comply with this regulation by ensuring proper environmental management system within the project site during construction activities and operations of a project, where any generated hazardous waste shall be collected at a temporary storage area before disposed by authorized dealer.

3.3.3 Environmental Management Act (Air Quality Standards) Regulations, 2021

These regulations have been made under sections 140, 145 and 230 (2) (s) of the Environmental Management Act, 2004. They are aimed at setting minimum standard of air quality as well as prohibit emission of hazardous substances, chemicals and materials or gas. They provide for emission limits, highest permissible quantity (emission), and special tolerance limits of emissions from special project which exhaust emissions.
The project proponent will be abiding by these regulations including adhering to permissible weight concentration (Emission limits) to the atmosphere as set out in the first schedule of the regulations.

3.3.4 The Environmental Management (Soil Quality Standards) Regulations, 2007

These regulations have been made under Section 143, 144 and 230 (2) (s) of the Environmental Management Act, 2004. They are aimed at, among other things, prescribe minimum standard of soil quality to maintain, restore and enhance the inherent productivity of soil in the long term.
Section 21(1) stipulates that no person is allowed to discharge effluent from industrial, commercial or any other trade into soil without a consent duly granted by the National Environment Management Council or any other person designated by the council for that purpose.

Project proponent shall abide by the regulation by ensure that the area is paved by concrete / blocks and all generated domestic liquid waste shall be managed properly using septic tank

3.3.5 The Environmental Management (Water Quality Standards) Regulations, 2007.

These regulations have been made under Section 143, 144 and 230 (2) (s) of the Environmental Management Act, 2004. They are aimed among other things: setting permissible limits for municipal and industrial effluents, special permissible limits for chrome tanning industries, special tolerance limits for vegetable industry, special tolerance limits for fertilizer industry, taste, color and smell of potable water and Chemical and physical limits for quality of Drinking Water Supplies.

Project proponent shall adhere to the regulation by ensuring that waste water from premises shall properly be managed to avoid environmental degradation/pollution.

3.3.6 The Environment Management (Registration and Practice of Environmental Experts) Regulations, 2021.

Regulation 2; these regulations shall apply to registration, categorization, practicing and conduct of environmental experts and firms of environmental experts registered and certified under these Regulations to conduct-

a) environmental impact assessment;
b) environmental audit; or
c) any other environmental study that may be required to be undertaken under the Act or its Regulations

Regulation 4; the objectives of these Regulations are to-

a) establish a system of registration, categorization and practicing of environmental experts;
b) provide for qualifications for persons who may conduct environmental studies;
c) provide for a system of nurturing competence, knowledge and consistence of environmental experts in the carrying out of environmental impact assessment and environmental audits; and
d) provide for a code of conduct, discipline and control of environmental experts

Regulation 24 (1) a registered environmental expert in any category shall not conduct any environmental study without a practicing certificate issued under these Regulations.
(2) A foreign environmental expert or a foreign firm of environmental experts shall not conduct any environmental study without a practicing permit issued under these Regulations.
(3) A certified environmental expert shall provide professional expertise in the area indicated in his practicing certificate.

This Environmental study is conducted by a registered firm for environmental impact assessment and has experience in the field for eight years.

3.3.7 The Environmental Management (Fee and Charges) Regulations, 2021.

These Regulations shall apply in relation to an act or service in respect of which fees and charges are payable under the Act and the regulations made there under.

4.-(1) Any person intending to carry on business related to-
(a) Environmental Impact Assessment; (b) environmental compliance monitoring and audit; (c) registration of environmental experts; (d) environmental quality standards; (e) ozone depleting substances; (f) management of waste; (g) noise and vibrations; or other activities related to the

environment, shall be required to pay fees and charges prescribed in the Schedule to these Regulations.
(2) The annual fees for environmental compliance monitoring and audit shall be payable on 1st day of July of each financial year.
(3) The annual fees for environmental compliance monitoring and audit paid after 31st day of December of every financial year shall attract a penalty of five per centum per month.

6.-(1) The fees and charges payable under these Regulations shall be collected and appropriated by the Council or an appropriate authority
8. Any person who contravenes or aids another person to contravene these Regulations commits an offence and shall on conviction be liable to a fine of not less than fifty thousand Tanzanian shillings but not exceeding one billion Tanzanian shillings or to imprisonment for a term not less than three months but not exceeding seven years.

The proponent is supposed to know different Fees and Charges. Fees and Charges which are supposed to be known by Proponent are Fees and Charges for Review of Environmental Impact Assessment and Audit, Annual Charges for Environmental Monitoring and Audit, fees for environmental quality standards. The proponent is aware of these Fees and Charges and he is ready to pay when needed.

3.3.8 The Environmental Management (Standards for Control of Noise and Vibrations Pollution) Regulations, 2015.

The objectives of these Regulations shall be to;

- Ensure the maintenance of a healthy environment for all the people in Mainland Tanzania by regulating noise and vibration levels,

- Prescribe the maximum permissible noise and vibration levels from a facility or activity to which a person may be exposed ensure protection of human health and the environment from various sources of noise and vibration pollution

Regulation 7 (1); no person shall made or cause to make any loud, unreasonable, unnecessary or unusual noise that annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and that of the environment.

The proponent will observe the requirements of this regulation during the course of this project, where during construction a site will be fenced by iron sheet to minimize noise impact to community around and all equipment to be used shall be serviced regularly its engine and installed with muffle.

3.3.9 The Environmental Management (Prohibition of Plastic Carrier Bags) Regulations, 2019.

These Regulations shall apply to the import, export, manufacturing, sale, supply, storage and use of Plastic carrier bags within Mainland Tanzania.

The objectives of these Regulations are to;-

a) impose a total ban on the import, export, manufacturing, sale and use of plastic carrier bags regardless of their thickness;
b) protect human and animal health as well as the environment from the likely adverse effects of utilization of plastic carrier bags; and
c) provide economic and financial incentives for the production and importation of alternative carrier bags.

Regulation 8, any person who import, export, manufactures, sells, stores, distributes, supplies, possesses and uses plastic bags and plastic wrappings in contravention of this part commits an offence and shall be liable to a fine of not less than twenty million shillings but not exceeding one billion or imprisonment for a term not exceeding two years or to both.

Proponent is aware with the regulation, where his project is for education purposes. Plastic carrier bags will not be used at project site in any way.

3.3.10 The HIV and AIDS (Counselling and Testing, Use of ARVs and Disclosure) Regulations, 2010.

This Regulation is about Counselling and Testing, where all persons shall be counselled and tested where testing shall be in accordance with the National HIV Counselling and Testing Guidelines and no test results shall be given by any means to a person other than those authorized

9(1). No medical practitioner, health practitioner or any other person shall discriminate against any person due to his HIV positive status or has declined to take HIV test.

(2): The Ministry shall develop educational materials to discourage stigma and discrimination against people living with HIV and AIDS

40(1): Any person who intends to conduct HIV anonymous testing or campaign or outreach services shall in writing inform relevant authority to have a representative.

(2): A person who conduct HIV anonymous testing or campaign or outreach services, all the times shall ensure proper management of health care waste

(3): Health care waste shall managed by person undertaking HIV anonymous testing or campaign or outreach services and shall be disposed of in compliance with the regulations

During construction of a proposed project, Proponent shall encourage workers to undergo voluntary HIV and AIDS counselling and testing regarding their health status. Awareness training regarding HIV/AIDS will be given to workers on every Friday of a month. No any kind of discrimination will be tolerated from any one regarding health status of workers.

3.3.11 The Environmental Management (Hazardous Waste control and Management) Regulations, 2021

These Regulations shall apply to all categories of hazardous waste and to the generation, collection, storage, transportation, treatment, recycling, reuse, recovery and disposal of hazardous waste and their movements in, into and

out of Mainland Tanzania. Without prejudice to sub-regulation (1), these Regulations shall also apply to all other wastes destined for transboundary movement.

4.-(1) Any person generating, collecting, storing, transporting, treating, recycling, reusing, recovering and disposing of hazardous waste or any person exercising jurisdiction under these Regulations shall, in relation to any decision, order, exercise of any power or performance of any function, be guided by the following principles of environment and sustainable development relevant to hazardous waste management-
(a) the precautionary principle; (b) polluter pays principle; and (c) the producer extended responsibility.
(2) For the purpose of this regulation "producer extended responsibility" means a policy approach which requires that any person producing or importing a product should internalize environmental costs in the production of the products and in whole life cycle of such product.

5. A person who owns or operates a facility or premises which generate hazardous and toxic waste shall minimize the waste generated by adopting the following cleaner production principles-

a) improvement of production process through conserving raw materials and energy by; eliminating the use of hazardous and toxic raw materials within such times as may be prescribed by the Minister; and reducing toxic emissions and hazardous wastes to a level prescribed in the applicable national environmental quality standards.
b) monitoring the product cycle from beginning to end by; identifying and eliminating potential negative impacts of the product; enabling the recovery and re-use of the product where possible; and reclamation and recycling.

6.-(1) every person living in Tanzania shall have a right to clean, safe and healthy environment; and have a stake and a duty to safeguard the environment from adverse effects of hazardous wastes and to inform the relevant authority on any activity or phenomenon resulting from hazardous waste that is likely to adversely affect the environment and human health.

(2) A generator of hazardous waste shall be responsible for the sound management and disposal of such waste and shall be liable for damage to the environment and injury to human health arising thereby. 10. An Environmental Inspector may, stop and inspect any vehicle used for the transportation of hazardous waste; and enter upon any premises where hazardous waste is stored, processed or disposed of. 11.-(1) each local government authority, with respect to its area of jurisdiction-shall; (a) receive and scrutinize the applications for a permit to collect and transport up to five tones or up to one thousand litres of hazardous waste; (b) inspect and monitor hazardous waste management facilities; and (c) establish and maintain information register and data related to the control and management of hazardous waste.

(2) Without prejudice to the provisions of sub regulation (1), each local government authority shall, with respect to its area of jurisdiction, ensure that-

a) standards prescribed for the hazardous waste management are in place and operational at all the time;
b) premises producing hazardous wastes are adequately ventilated and fitted with air polluting control facilities and are in compliance with prescribed standards;
c) waste effluents are treated or are so modified as to comply with prescribed standards before final disposal; and
d) hazardous standards at factory or on site before their discharge into public sewers or municipal oxidation ponds or in an open land or into receiving water bodies.

(3) Any standards, bylaws and guidelines set by the local government authority for the purpose of these Regulations, shall conform to standards set under these Regulations and the Act. 13.-(1) A person shall not pack or store hazardous waste in a container or package, unless the container or package in which that waste is to be contained, packed or stored meets international requirements approved by the Council. (2) A container or packaging material provided for under sub-regulation (1) shall be suitable for storage of hazardous waste for which an application for storage has been made and shall; not be reactive with the waste in question; be free from the possibility of leakage; and be capable of protecting the health of persons involved in handling the waste, the neighbouring community and the environment in general.

(3) A container or packaging materials provided for under this regulation shall be; labelled, punctured after its lifespan or after use, and disposed of in accordance with these Regulations. (4) A person who; packs or stores wastes contrary to these Regulations; or sells or offers for sale a container which has been used for the storage of hazardous wastes to be used for any purpose other than storage of wastes, commits an offence and shall be liable to a fine of not less than five million shillings but not exceeding ten billion or to imprisonment for a term not exceeding twelve years or to both.

14.-(1) A person shall not sell, offer for sale, use, pack, store or transport hazardous waste in a container or package, unless the container has been affixed with labels written in English or Kiswahili language specifying the following:

a) identity of the hazardous waste;
b) name and address of the generator of waste;
c) net contents;
d) normal storage stability and methods for safe storage;
e) name and percentage by weight of other ingredients or half-life of radioactive material
f) a statement of First Aid measures to be taken when hazardous waste is inhaled or ingested to including the antidote be taken and direction that a physician must be contacted immediately;

g) adequate directions for handling should be included in accompanying leaflets including safety precautions in transporting, storage, and disposal of hazardous waste and measures for cleaning any equipment used; and directions for the disposal of the container and hazardous waste in accordance with the Act and these Regulations.

(4) A person shall not use a vehicle or other conveyance as means for carrying hazardous waste unless such vehicle or conveyance is labelled.

The proponent shall observe the Act in all phases of his project and in case of generated hazardous waste it will be collected and stored in recommended labelled vessel for onsite hazardous waste storage while waiting to be collected by authorized person for disposal.

3.3.12 Fire and Rescue (Fire Precautions in Buildings) Regulations, 2015

The provisions of this Part shall apply in determining the design, construction, protection, location, arrangement and maintenance of exit facilities to provide safe means of escape for occupants from all buildings hereafter erected, altered or changed in occupancy.

Regulation 4 (1), the areas which are designated as means of escape shall include-

a) exit staircase;
b) firefighting lobby;
c) smoke stop lobby;
d) exit passageway; and
e) escape corridors.

(2) The areas which are designated as means of escape shall not be turned into other usage

Regulation 17; all exits and access facilities shall be required to comply with the following:

a) exits and access facilities shall be clearly visible or their locations shall be clearly indicated and shall be kept readily accessible and unobstructed at all times;
b) every occupant or tenant within a building or storey of a building shall have direct access to the required exit or exits without the need to pass through the spaces or rooms occupied by other occupants or tenants; and
c) when more than one exit is required from any room or space or a storey of a building, each exit shall be placed as remote as possible from the other as permitted under Regulation 247.

Regulation 18 (1), entry at every storey level to an exit staircase of any building or part of a building of more than four storey above ground level shall be through:

a) an external exit passageway or external corridor that has openings for natural lighting and ventilation which are located to face and open upon-

i. external space;
ii. street, service road or other public space which is open to the sky; or
iii. an air-well which opens vertically to the sky and having a minimum width of 6 m and a superficial plan area of not less than 93m^2, except that for residential occupancy, the external corridors for smoke free.

The proponent shall observe the regulation and ensure that any space planned for emergency exit will be well identified, labelled and not change its use in all project phases.

3.3.13 The Urban Planning (Use Groups and Use Classes), Regulations 2018

For the purposes of planning and the control of land use development, all uses of land and buildings are categorized in the use groups and use classes in the First Schedule.
4.-(1) the planning authority may, under special permissible circumstances (Second Schedule); permit any use not classified under a separate use class in these regulations provided that such use is in the public interest.
5.-(1) the making of any change of use of any land or buildings from a purpose within any use class prescribed under Part I of these Regulations to the use thereof for any other purpose within the same use class shall not be deemed to be "development" as defined in section 2 of the Act
6.-(1) Change of land uses shall aim the following:-

a) to maximize use of land and the existing infrastructure;
b) to control urban sprawl;
c) to allow for new investment;
d) to create employment and income opportunities;
e) to increase the number of good shelter; and
f) to improve the environment.

For the proposed project site, the area is planned for Educational Purposes of use Use group “K” use class (d) as defined in the Urban Planning (Use Groups and Use Classes) Regulations, 2018. The whole land covers total area of 604,250m^2 as per title dead provided as appended in this EIS report which is in line with the requirement of the regulation.

3.3.14 The Urban Planning (Planning and Space Standards) Regulations, 2018

These regulations shall apply to all planning areas declared by the Minister under section 8 of the Act
Regulation 3 (vi), provide the minimum planning and space standards of education facilities in a college of number of students range from 500 to 1000 shall be in area of range from 4ha to 8ha, where a proposed project shall be in area of 62.214hectares (604,250m^2). The project site its area is reasonable and complies with requirement of regulations on area size.

3.3.15 The Urban Planning (Application for Planning Consent) Regulations, 2018.

Regulation 5, where a scheme has been approved by the Director as required by regulation 17(1-3) and where the Director is satisfied that it is in the public interest that planning consent should be granted, so long as

a) it does not conflict with the general intentions of the scheme
b) it does not involve a substantial departure from the provisions of the scheme
c) it does not injuriously affect the amenities of any adjoining land

Regulation 6, an application to be granted planning consent referred to under regulation 4 shall be made in writing by the Planning Authority to the Director for approval

Regulation 8, the Director shall consider an application under regulation 6 within thirty (30) days of the receipt thereof and may approve the modification as submitted or may modify it. Thereafter, within thirty (30) days of granting approval thereof the Planning Authority shall announce in any local newspaper circulating in the area and any other means to the effect that such modification has been approved

In regard to project proposed site, the area is planned for educational land uses which is according to the proposed project, so no any application consent will be made.

3.3.16 The Environmental Management (Control and Management of Electrical and Electronic Waste) Regulations, 2021

Regulation 2; is about application of the Regulations which is to all categories of electrical and electronic equipment wastes with respect to generation, collection, storage, transportation, importation, exportation, distribution, selling, purchasing, recycling, refurbishing, assembling, dismantling and disposal of electrical and electronic equipment waste or components, and their movement into or outside Mainland Tanzania

Regulation 7(1) is about main objective of Regulations which is to provide for and promote proper management of e-waste to protect human health, and environment while ensuring sustainable development

(2) The specific objectives of these regulations shall be to-

a) control the importation, exportation, transportation of e-waste;
b) institute mechanisms for technology selection for guiding importation and use of electrical and electronic equipment that are friendly to human health and environment;
c) facilitate generation of sufficient and reliable data on Electrical and Electronic Equipment and their waste;
d) promote environmentally sound management practices and technologies on design, sorting, handling and use of Electrical and Electronic Equipment and their waste that will provide for on-site and off-site recovery and recycling, treatment, dismantling, storage (temporarily and permanent) and disposal means;

e) strengthen regulatory regime and institutional capacity of the e-waste management;
f) promote proper environmentally sound management of e-waste including handling, transportation, reuse, dismantling, refurbishing, recycling, treatment and disposal of such waste;
g) promote public and private investment in environmentally sound management practices for electrical and electronic equipment and their waste in handling, storage, use, recovery, recycling and cleanup of the hazardous substances in their waste streams, treatment and disposal;
h) institute mechanisms that prevent the importation of electrical and electronic equipment with short end of life and set standards for management and minimization of environmental pollution;

16-(1) a person shall not pack or store e-wastes in a container or package, unless the container or package in which that e-waste is to be contained, packed or stored meets international requirements approved by the Council.
(2) A container or packaging material provided for under sub-regulation (1) shall-
a) be suitable for the particular e-waste applied for;
b) not reactive with the e-waste; and
c) capable of protecting human health and the environment.
(3) A container used in the storage of e-waste shall, after the life span of the container, be disposed of in accordance with these Regulations (4) A person shall not sell or offer for sale a container which has been used for the carriage or storage of e-waste to any person other than a dealer in e-waste or a licensed person under these Regulations. (5) A person who packs or stores e-waste contrary to these Regulations; or obtains or buys a container which has been used for the carriage or storage of e-waste to be used for any purpose other than carriage or storage of e-waste, disposes of or sells a container which has been used for the carriage or storage of e-waste to a person who is not licensed to handle-e-waste, commits an offence and shall on conviction be liable to a fine of not less than five million shillings but not exceeding ten billion shillings or to imprisonment for a term not exceeding twelve years or to both.

17 (1) A person shall not sell or offer for sale, use, pack, store or transport e-waste in a container or package, unless the container or package has been affixed with labels written in English or Kiswahili language specifying the following-
a) identity of the e-waste;
b) name and address of the generator of e-waste;
c) net contents;
d) normal storage stability and methods for safe storage;
e) name and percentage by weight of other ingredients or half-life of e-waste material;
f) warning or caution statements which may include some or all of the following as appropriate-
i. the word “WARNING” or “CAUTION” or “ONYO” or “TAHADHARI”;
ii. the word “DANGER! “KEEP AWAY” and “HATARI! KAA MBALI”; and
iii. a pictogram of skull and crossbones

19.-(1) A person who intends to collect and transport e-waste up to one tone shall apply for a permit to the Minister by filling Form No. 1 prescribed in the Second Schedule to these Regulations and submit it to the city, municipal, district or town council environmental officer for scrutiny.
(2) A person who intends to collect or store or transport e-waste shall apply for a permit to the Minister by filling Form No. 1 prescribed in the Second Schedule to these Regulations and submit it to the Council for consideration.
(3) A person who intends to own or operate a plant or facility or site for treatment or recovery or recycling or refurbishing or dismantling or assembling or disposal of e-waste shall apply for a permit to the Minister by filling Form No. 3 prescribed in the Second Schedule and submit it to the Council for consideration

The Proponents will observe the presence of the regulation for managing e-wastes to be generated from project operation by ensuring that electrical and electronic equipment to be installed at project site will have long working life and in case of damaged e-wastes recommended labelled vessels for e-waste collection will be at site to enable for collection and area for temporary handling e-waste will be paved, roofed and has band wall to avoid contamination with rainy water. Also recommended authorized dealer is the one who will collect e-waste from project premise to re-use or for export.

3.3.17 The Universities (General) Regulations, 2013

4(1): Any person who wants to establish a university in Tanzania shall apply to the Commission for a Provisional Licence, and shall comply with the Minimum Guidelines and Norms for Governance Units issued by the Commission. 9(1): The Commission shall issue Provisional Licence under the following conditions- (a) the applicant must be a Tanzanian; (b) if the applicant is not a Tanzanian, must have complied with the requirement to establish himself in Tanzania and submit evidence to that effect; and (c) the applicant must not have a criminal record, especially in aspects of Money Laundering and similar offences. (2): The applicant shall complete TCU Form No. 4 as in the First schedule to these regulations on compliance with conditions stated under sub-regulation (1).

47(1): No person or institution, whether local or foreign, shall without the express approval of the Commission- (a) offer university education at any level in the United Republic; (b) if it is a local university, enter into an agreement or similar arrangement with a foreign university to offer university education in the United Republic; (c) advertise to offer any university level award, including honorary degrees, to any person in the United Republic of Tanzania; (d) advertise any university awards of a foreign university institution in the United Republic; (e) organise exhibitions on university education in the United Republic; (f) recruit students in the United Republic to join foreign university institution; or (g) use a foreign award in the United Republic without such award having been first submitted to the Commission for recognition.

(2): Any person who violates the provisions of subsection (1) commits an offence. 52(1): Any person who intends to establish an autonomous teaching Institute, Centre or Directorate shall be required to follow the same procedures as prescribed for the establishment of a university. (2): Every University which intends to establish an Institute, Centre or Directorate within the University shall follow the procedure as prescribed in the Charter of that university.

(3): Every proposed Institute, Centre or Directorate shall be required to meet minimum requirement and be subject to evaluation in accordance with the provision of these Regulations. 56: Each university shall ensure that students continuously- (a) exercise their right to contribute to the making of institutional policy and other instruments generally affecting their social or academic affairs; (b) exercise the right to participate in the formation of standards of student conduct and the student disciplinary procedures by serving as members of appropriate committees such as the Student Affairs Committee; and (c) enjoy the right to be represented by a student government in all decision making bodies of the university.

57: Any student or staff of a university who involves himself in political party activities within the university's premises shall be issued with a disciplinary charge for violation of section 51 of the Act; shall be suspended from the university, pending the completion of disciplinary inquiry (which shall be completed within one month since the charge was served on the student or staff and shall be suspended from studies for a period not exceeding two years and in the case of staff, he shall be dealt with in accordance with the provisions of the code of conduct and discipline of members staff.

MJNUAT was registered by TCU, where certificate was appended in this ESIA report and annually contribution is done and the proposed establishment of new MJNUAT Tabora Campus its operation will be done after being registered by TCU.

3.3.18 The Standards (Certification) regulations, 2009

3(1) No person shall apply any standards mark to any commodity or process unless he is the holder of a licence granted in accordance with the standards framed by the Bureau. (2) Any person who contravenes, or fails to comply with the provisions of this Regulation is guilty of an offence and shall be liable on conviction to be punished in accordance with section 27 of the Act.
4(1) Every application for a licence shall be made to the Director General, and he may in his discretion grant or refuse any application. (2) Every application for a licence shall be made in duplicate using FORM A specified in the First Schedule to these Regulations, and shall be accompanied with the prescribed fees.

(3) There shall be attached to every application a statement explaining in detail the scheme of inspection and testing which the applicant maintains or has in use or purposes to maintain or put into use for the purpose or regulating or

securing the appropriate quality of the articles of the process in respect of which the licence is sought.

During construction, proponent shall ensure all construction materials supplied by contractor are tested by TBS and result should be available for any one during quality monitoring.

3.4 NATIONAL DEVELOPMENT PLANS AND RELATED STRATEGIES

3.4.1 Tanzania Development Vision (TDV) 2025

The National Development Vision is intended to guide economic and social development efforts in Tanzania up to 2025. For the country to undergo unprecedented economic transformation and development to achieve middle income status, characterized by high levels of industrialization, competitiveness, quality livelihood, rule of law; and an educated and pro-learning society. The TDV 2025 has identified enabling environment essential for the country to flourish economically, socially, politically and culturally. The Vision clearly states that the 21st Century will be dominated by those with advanced technological capacity, high productivity, modern and efficient transport and communication infrastructure. Establishment of new MJNUAT Tabora Campus will support the Vision by unlocking the country's socio-economic growth potentials in the learning environment and facilities.

3.4.2 National Plan Action to End Violence against Women and Children in Tanzania 2017/18 – 2021/22

The plan's mission is to prevent and respond to all forms of violence against women and children through comprehensive multi-sectoral collaboration at all levels. The mission aims to eliminate violence against women and children in Tanzania and improve their welfare. The proposed project has to comply with the plan by preventing all forms of gender-based violence, sexual harassment and abuse, promoting more women involvement in learning institution, employment, and avoiding the employment of children.

3.4.3 The National five-year Development Plan2021/22 - 2025/26

The FYDP III, therefore, will seek to enable the country to more effectively use her geographical opportunities and resources for production and economic growth, while, ensuring that the outcomes benefit all citizens in line with the Vision production and economic growth, while Paragraph 1.2 is about objective of the FYDP III, where the main objective is to contribute to realization of the National Development Vision 2025 goals. These goals include Tanzania becoming a middle-income country status and continue with transformation of becoming an industrial country with a high human development or a high standard of living. Upon reaching its vision, the Tanzania is envisioned to have the following attributes: peace, stability and unity; good governance; an educated and learning society; and a strong economy that can withstand competition and benefit many people.

The specific objectives of the FYDP III are:

i. To build on achievements realised towards attainment of TDV 2025 to make Tanzania a semi-industrialised, middle-income country by 2025;
ii. To strengthen capacity building in the areas of science, technology and innovation to enhance competitiveness and productivity in all sectors especially the productive, manufacturing and services sectors to enable Tanzanians to benefit from the opportunities available within the country;
iii. To strengthen the industrial economy as a basis for export-driven growth including investing in new products and markets and enabling Tanzania to become a production hub in the countries of the East, Central and Southern Africa and thus increasing the country production hub in the country trade;
iv. To enhance the scope of Tanzania increasing the country production hub in the country trade; in new improved business environments and strengthening the country production hub in the country production, trade, supply and transportation;
v. To facilitate increased business start-up and private sector involvement to find the best way to promote the growth of the sector in tandem with job creation and make the sector a strong and reliable partner in development;

Establishment of new MJNUAT Tabora Campus will support the objectives of the FYDP III by capacity building to students according to demand and during construction local people will be employed to work at site, where this enhances socio-economic growth to those people and their families.

3.5 APPLICABLE INTERNATIONAL STANDARDS AND CONVENTIONS

3.5.1 World Bank Environmental and Social Standards (ESF), 2018

As per ESMF, the World Bank's Environmental and Social Framework sets out the Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social standards that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity. The E&S Framework comprises of: (1) Vision for Sustainable Development, which sets out the Bank's aspirations regarding environmental and social sustainability; (2) The World Bank Environmental and Social Policy for Investment Project Financing, which sets out the mandatory requirements that apply to the Bank; and (3) The Environmental and Social Standards, together with their Annexes, which set out the mandatory requirements that apply to the Borrower and projects. The applicability of each ESS is summarized in Table 3.1

Table 3.1 World Bank ESSs applicable and applicability

Environmental and Social Standards	Applicability Yes/No	Key Requirements and Applicability to the HEET project Operations at MJNUAT Tabora Campus.
ESS1 Assessment and Management of Environmental and Social Risks and Impacts	YES	The ESS1 calls for MJNUAT to undertake EIA study for the proposed project to establish a mechanism to determine and assess future potential environmental and social risks. Also, the impacts during the implementation of the project. Set out mitigation, monitoring and institutional measures to be taken during operations of project. It also eliminates adverse environmental and social impacts, offset them, or reduces them to acceptable levels. The structure and contents of this ESIA study comply with the requirements of the ESS1. Application of the relevant requirements of the Environmental Health and Safety Guidelines (EHSGs). Avoid performing any activities result from material adverse environmental or social risks or impacts until completion of relevant plans, measures or actions according to the Environmental and Social Commitment Plan (ESCP).
ESS2 Labor and Working Conditions	YES	Develop and implement written labour management procedures applicable to the proposed project. Project workers to be involved in the construction works to be paid as required by national laws and labour management procedures. Written notice of termination of employment and details of severance payments to be given promptly. Ensure equal opportunity and fair treatment to workers. Provision of appropriate protection measures and vulnerable groups of project workers, such as women, people with disabilities, migrant workers, and children (of working age according to the ESS2). Forced and child labour must not be used in the project.

Environmental and Social Standards	Applicability Yes/No	Key Requirements and Applicability to the HEET project Operations at MJNUAT Tabora Campus.
ESS3 Resource Efficiency and Pollution Prevention	YES	Construction and operation activities implement measures for improving efficient consumption of energy, water and raw materials. Adopting measures that avoid or minimize water usage so that the project's water use does not have significant adverse impacts on communities, other users, and the environment. Project to assess the potential cumulative impacts of water use upon communities and apply proper mitigation measures. Construction and operation activities to avoid, minimize, and control pollutants' release by applying measures in EHSGs or in national laws. Project to address potential adverse project impacts on human health and the environment and Generation of hazardous wastes should be avoided /minimized.
ESS4 Community Health and Safety	YES	Identification, evaluation and monitoring of the potential traffic and road safety risks to workers, affected communities and road users throughout the project life cycle. Enforcement of the procedures such as driver training to improve driver and vehicle safety. To enforce safety measures to avoid occurring of incidents and injuries to members of the public. Consider risks associated with the exposure of the public to operational accidents or natural hazards, including extreme weather events. Identification and implementation of measures to address emergency event. Implementation of measures to avoid or minimize transmission of communicable diseases. Any direct or contracted workers hired to provide security to safeguard its personnel and property should assess risks brought to those within and outside the project site.

Environmental and Social Standards	Applicability Yes/No	Key Requirements and Applicability to the HEET project Operations at MJNUAT Tabora Campus.
ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement.	NO	The proposed new MJNUAT Tabora Campus does not trigger land acquisition and involuntary resettlement. The proposed land was surveyed and planned for Education purposes and proponent has right of occupancy as appended in this ESIA report. MJNUAT bought the land that was already surveyed from Tabora Municipal. Raw materials such as aggregates will be sourced from existing and licences quarries to avoid further resettlement issues.
ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources	NO	The ESMF ToR does not include this and the area already have been disturbed by human activities
ESS7 Indigenous People/Sub-Saharan African Historically Underserved Traditional Local communities	NO	It was not applicable by the proposed project.
ESS8 Cultural Heritage	YES	Applicable through Chance Finds Procedures to be followed if unknown cultural heritage is encountered during the project construction.
ESS9 Financial Intermediaries (FIs)	NO	MJNUAT is not a Financial Institution
ESS10 Stakeholder Engagement and Information Disclosure	YES	Undertake relevant consultations with all stakeholders throughout the project. Keep a documented record of stakeholder engagement. Develop and implement a Stakeholder Engagement Plan (SEP), which describes the

Environmental and Social Standards	Applicability Yes/No	Key Requirements and Applicability to the HEET project Operations at MJNUAT Tabora Campus.
		timing and methods of engagement with stakeholders throughout the project. Disclose project information to allow stakeholders to understand the risks and impacts of the project.

3.5.2 World Bank EHS Guidelines

The project proponent shall comply with the relevant requirement of environment, health and safety (EHS) of the World Bank Group (WBG). The World Bank Environmental Health and Safety General Guidelines containing quantitative limits and good international management practice to manage potential impacts.

Table 3.2 World Bank EHS Guidelines applicable

EHS Guideline	Content & Relevance to MJNUAT Project
General EHS Guidelines (2007)	These guide performance levels and measures that are generally considered in the achievement of new facilities by existing technology at reasonable costs. Application of the EHS guidelines to existing facilities may involve establishing site-specific targets, with an appropriate timetable for achieving them.
EHS Guidelines for - Air Emissions and Ambient Air Quality, 2021	Requirements of the guidelines have been incorporated in the analysis and management measures for emissions management during construction and operation phases of the proposed new MJNUAT Tabora Campus. This provides guiding approach to managing significant sources of emissions, including specific guidance for assessment and monitoring of impacts.
General EHS Guidelines 3 Community Health and Safety (2007)	These address project activities implemented outside of the traditional project boundaries but that are nonetheless related to the project operations, including water quality and availability, traffic safety, transport of hazardous materials, disease prevention, and emergency preparedness and response.
EHS Guidelines: Waste Management Facilities (2007)	If significant waste management activity such as incineration is included in the project scope/design basis, leading to creating a separate waste management facility, the World Bank guidelines for dedicated waste management facilities could apply.
General EHS Guidelines 1 Environmental (2007)	It covers a range of environmental aspects that apply to most industrial development projects. The subsections are air emissions and ambient air quality, energy conservation, wastewater and ambient water quality, water conservation, hazardous materials management, waste management, noise and contaminated land.
WHO Ambient Air Standards	The ambient air quality guidelines specified in the Standard have been incorporated in the analysis and development of management measures to avoid or minimize human health risks.

3.6 SAFEGUARDS WORKING TOOLS.

3.6.1 ESMF (Environmental and Social Management Framework)

Given the nature of the activities to be supported under the project (particularly the buildings to be financed under the project), the World Bank environmental and social safeguard (ESS1) has been applicable. Specific project activities (such as the types of buildings, the scope of civil works, solid waste, water and waste water management process, among others) and site locations have not been clearly identified at the project preparation stage; hence the need for an ESMF that provides a general impact identification framework to assist project implementers to screen the projects and institute measures to address adverse environmental and social impacts. The ESMF documented all key potential environmental and social issues related to project implementation as per WB requirements. Preparation of this Environmental and Social Impact Assessment (ESIA) study report for proposed establishment of new MJNUAT Tabora Campus may trigger World Bank environmental and social safeguards on environmental and risk assessment (ESS1) and ESMF.

According to the ESMF, the HEET project will support projects and activities that are likely to generate unfavorable and site-specific environmental and social impacts. The activities will include site clearance, excavation, construction as well as institutions strengthening and infrastructure upgrading. The exact nature of the project activities, their location, and core areas of impacts, extent, magnitude, and duration of impacts caused by the various types of investments are yet to be specified. Thus, ESIAs and / or ESMPs could not be conducted prior to project appraisal. In this regard, this ESMF establishes a mechanism to conduct environmental and social screening for potential risks and impacts. In addition, the ESMF provides guidance to preparation of tools in the form of ESIAs and ESMPs to ensure that the ESSs and national obligations and will be complied with

3.6.2 RPF (Resettlement Policy Framework)

RPF establishes the resettlement and compensation principles and objectives, organization arrangements and mechanism that will guide any resettlement operation and implementations to execute a fair compensation to Project Affected Persons (PAPs), should the need for resettlement arise. The principles are based on the both the WB ESS5 and Tanzanian National Laws and Regulation guiding compensation and resettlement. In case requirement in WB ESS5 and the Tanzanian laws are not in full agreement, the WB ESS5 standard will apply but for the proposed project for new MJNUAT Tabora Campus, resettlement policy framework does not trigger.

3.7 INTERNATIONAL AGREEMENTS AND CONVENTIONS

ILO Convention; C148 Working environment (Air pollution, Noise and Vibration) Convention, 1977 (Ratified by United Republic of Tanzania on 30:05:1983) which protects workers against Occupational hazards in the working Environment due to Air pollution, Noise and Vibration.

East African Treaty, 1999. Articles 111 and 112 of the EA Treaty provide for the conservation and management of environmental and natural resources. They require member states to take measures to control transboundary air, land, and water pollution arising from development activities and take necessary disaster preparedness, management, protection, and mitigation measures, especially for the control of natural and manmade disasters.

ILO Convention; C182 Worst Forms of Child labour Convention, 1999 (Ratified by United Republic of Tanzania on 12:09:2001)

The Basel Convention on control of Trans-boundary Movements of hazardous wastes and their disposal of 1989.The objective is to protect human health and the environment against the adverse effects of hazardous wastes. Under article 4, it requires each state to take the appropriate measures to ensure that the generation of hazardous wastes and other wastes within it is reduced to a minimum, taking into account social, technological, and economic aspects among other requirements.

The United Nations Framework Convention on Climate Change, 1992. Under Article 3 (3) parties are required to take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Proposed project activities will generate GHG. Key sources of emissions include the operation of diesel generator as alternative power source, vehicles, equipment, etc. The proponent should act appropriately to mitigate the causes of climate change when developing the proposed project

The United Nations Convention on Biological Diversity, 1992. Its objectives are to conserve biological diversity, promote the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and technologies, and by appropriate funding (Article 1). Project activities will lead to vegetation removal. Project planning should be ensured that the project acts appropriately to minimize potential impacts on biodiversity

The 1991, Bamako Convention on the ban of the Import in Africa and Control of Trans boundary Movement and Management of Hazardous wastes within Africa was ratified in 1993 Tanzania is a party to the convention on climate change of 1992. All signatories to the convention are required to impose strict, unlimited liability as well as joint and several liabilities on hazardous waste generators; ensure that environmentally sound treatment and disposal facilities for hazardous waste are located, to the extent possible, within its jurisdiction; and ensure that persons managing hazardous waste take all actions necessary to prevent pollution arising from the management of such wastes.

The 1977 Geneva Convention concerning the protection of workers against occupational hazards.

The Vienna convention on the ozone layer prevention of 1985.
The Protection of World Cultural and Natural Heritage, 1972 (Ratified bu United Republic of Tanzania on 1977). Requires each State Party to recognize the duty of ensuring the identification, protection, conservation, presentation, and transmission to future generations of the cultural and natural heritage, and to ensure that effective and active measures are taken for the protection, conservation, and presentation of the cultural and natural heritage situated on its territory

The African Charter on Human and Peoples' Rights on the Rights of Women in Africa, 2005 (Ratified by United Republic of Tanzania on March 2007). It guarantees comprehensive rights to women including the right to take part in the political process, social and political equality with men, improved autonomy in their reproductive health decisions, and an end to female genital mutilation. Where Project Proponent will ensure the rights of women to be affected by the project will be protected in line with Tanzania's commitment to this convention.

The African Convention on the Conservation of Nature and Natural Resources, 2003. This convention focuses on living resources, the creation of protected areas, and specific conservation measures for threatened species. The objective of this convention is to enhance environmental protection, foster the conservation and sustainable use of natural resources, to harmonize and coordinate policies in the field.

3.8 INSTITUTIONAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT.

The Tanzania ESIA practice gives different functions and responsibilities to all parties involved in the ESIA process of any proposed development undertaking to which ESIA is obligatory. The Environmental Management Act (EMA, Cap 191) give mandate NEMC to undertake enforcement, compliance, review and monitoring of environmental impact assessment and has a role of facilitating public participation in environmental decision making, exercise general supervision and coordinating over all matters relating to environment.

The Act empowers NEMC to determine whether the proposed project should be subjected to an ESIA, approves consultants to undertake the ESIA study, invites public comments and has the statutory authority to issue the certificates of approval via Minister responsible for environment. NEMC is currently the designated authority to carry out the review of ESIA including site visit and handling TAC meeting, monitoring and auditing of environmental performance of the project.

MJNUAT also established University level-Project Implementation Unit (PIU) for the proposed project. The team has fourteen members. Out of this, there is one Gender and Social expert and one Environmentalist named ESS team. The contractors and a consultant have been guided in the contracts of the proposed project to employ experts in environment, social and gender. The ESS team will make sure that all ToR and Consultant and Contractor adhere to Social and Environmental Issues including development of GRM which is operational for the sustainability of the proposed project. Other PIU Members that will be responsible to oversee project implementation are Coordinator, Assistant Coordinator, Monitoring and evaluation expert, Capacity building expert, Curriculum expert, Accountant expert, Assistant Accountant expert, Internal Auditor expert, Estate expert, Procurement expert, ICT expert and Industrial linkage expert. Supervision Engineer/Consultant will be supposed to review and approve Code of Conduct and the contractor among the mentioned will be supposed to prepare code of conduct.

Table 3.3 Legal and Institutional arrangement

Level	Institution	Role and responsibility
National Level	Vice President's Office Division of Environment	Approval and signing of EIA certificate, To co-ordinate Environmental Management Policy, Environment Management Act and EIA guidelines. To approve, sign and issue an Environmental Certificate. To advise Government on all environmental matters. To enforces and ensures compliance with the national environmental quality standards. To provide policy direction and leadership in all matters, particularly those about hazardous waste management under the Environmental Management Act
	National Environment Management Council (NEMC)	Project registration, approval of ToR, and ESIA review; Environmental Monitoring and Compliance Auditing; and Advise Government on all environmental matters.
	Ministry of lands, housing and human settlements development	Authority over the national land including the project area, Enforce law and regulations in the area of influence of the project
	Ministry of Education, Science	To develop and implement Policies on Education, Research, Library Services, Science, Technology, Innovation, Skills,

Level	Institution	Role and responsibility
	and Technology (MoEST).	Training Development and their implementation; To improve Basic Education Development through Teachers Training Accreditation and Professional Development; Teachers' Professional Standards Development; Schools Accreditation and Quality Assurance; Development of Local Expertise in Science, Technology and Innovation; Coordinates roles of Departments, Parastatal Organizations, Agencies, Programmes and Projects under the Ministry.
	Laka Tanganyika Basin Water Board	Issuing water use permit for drilled borehole, Water quality monitoring for surface and ground water
	Tabora Urban Water Supply and Sanitation Authority	Potable water supply and sanitation (sewerage) within the project area Owner of the water supply and sewerage utility in the project site
	Occupational Safety and Health Authority (OSHA) under Prime minister office	Issuing certificates of compliance, Designated Authority for occupational safety issues Registration of workplace
Project Proponent - MJNUAT	MJNUAT HEET Project has established a Project. Project Implementation Unit (PIU) as stipulated in POM 2021 which states that Each PIU should have Project Coordinator that will be led by a Project Coordinator/Leader and have staff responsible for FM, procurement, environmental and	Overall, PIU main task is oversee Project implementation involving development of ToR for consultants and contractors, developing specifications and performing procurement process for equipment and facilities, procurement of consultant and contractors, meeting regularly for assessment of project development, providing specifications for ICT procurement and related facilities, overseeing and implementing capacity development, developing curricula, establishing and working with Industrial Advisory Committee conducting capacity building for its members and undertaking M&E of the project. Roles and responsibilities of ESS Team will include:

Level	Institution	Role and responsibility
	social safeguards, and M&E. However, according to MoEST letter of 2021 14 specialists were required to be appointed to form a PIU Team. Accordingly, at MJNUAT 14 staff have been appointed by the Rector letters of appointments including their roles and responsibilities. The Environmentalist, Social and Gender specialists, referred to as ESS Team, are part of the PIU Team. PIU Team has competence in performing the implementation of the project and ESIA duties through ESS Team acquired both through learning and practical experiences. PIU Members have attended several capacity buildings conducted by MoEST and WB.	● Liaise with the DoE and the NEMC on matters involving the environment and all matters with respect to which cooperation or shared responsibility is desirable or required. ● Oversee the preparation of and implementation of all ESIAs including ESMP required for the project ● Monitoring the implementation of HEET Project as per POM and PAD. ● The ESS Team coordinates the preparation of ESIA and environmental and social management plans (ESMPs) done by consultant and site-specific C-ESMPs (SSESMP). ● Capacity building for GRM focal persons and members of the Grievance Redress Integrity includes ● Oversee project implementation including mitigation measures through contractors ● Ensure environmental compliance by the environmental standards. ● Attend meetings and provide guidance in the bid documents developed by PMU to ascertain that the different challenges identified and duly covered from risk for each sub-project/activity ● The ESS Team also supports the procurement officer in making sure that the bidding documents clearly cover the health, safety and environmental component with appropriate provisions of the same for the contractors to bid. ● They ensure that contractors have an Environmental Health and Safety Officer (EHS), is familiar with the compliance requirements, including WB EHS guidelines. ● To review progress reports by the supervision engineer/consultant during civil works and conduct inspection of the sites regularly

Level	Institution	Role and responsibility
		● To make sure the Contractor complies with the WB guidance on Community Health and Safety and Gender-Based Violence ● Review and approve the contractor's site-specific ESMP (C-ESMP) ● Ensure contractor's compliance of the C-ESMP ● Regular monitoring and reporting on the progress on the implementation of the ESMP. ● Ensure Code of Conduct is in place and adhered
Project Financial	World Bank	Project financing
Regional Level	Tabora Region	Oversee and advice on implementation of national policies at regional level Oversee enforcement of laws & regulations Advice on implementation of development projects and activities at regional level
Local Government Authorities &Communities	Tabora Municipal Council	Oversee and advice on implementation of national policies at Municipal level, Oversee enforcement of laws & regulations Advice on implementation of development projects and activities at Municipal level
	Itonjanda Ward Office and Nyambele Hamlet Office	Project monitoring (as watchdogs for the environment, ensure the well-being of residents) and participate in project activities To extend administrative assistance and advice on the implementation of the project, Managing the community's relations
	Local communities, NGOs, CSOs, FBOs	Project monitoring (as watchdogs) Provides assistance and advice on the implementation of the project, Part of the project beneficiaries through employment opportunities, income generation and CSR projects

3.9 INDICATIVE PERMITS, LICENSES AND AUTHORIZATIONS

In compliance with the legal and regulatory framework described in the previous sections, MJNUAT will be required to apply the following pertinent certificates, licenses and permits summarized in Table 3.4, if this arrangement has not been initiated. However, the list may not be exhaustive; hence, MJNUAT is responsible to apply any other relevant permits from the responsible authorities.

Table 3.4 Legal certificates, permits to be secured

SN.	Required Certificate, Licence or Permit	Relevant Act/Regulation	Responsible authority	Remarks
	EIA Certificate	EMA No. 20, of 2004	VPO-DoE through NEMC	This report is part of the application
	Building permit: Obtain permission to commence construction works	Local Government Act (District Authorities), 1982	Tabora Municipal Council	Obtained before commencing construction
	Fire and Rescue Certificate	Fire and Rescue Act, No. 14 of 2007	Commissioner General of Fire and Rescue Force, Ministry of Home Affairs	To be acquired during operation phase
	Certificate of Registration of Workplace	Occupational Health and Safety Act, 2003, S. 15-17	Occupational Safety and Health Authority (OSHA)	To be acquired before commencing construction
	Workplace Compliance Certificate	Occupational Health and Safety Act, 2003, S. 15-17	Occupational Safety and Health Authority (OSHA)	To be acquired during operation phase

Source: COLBA Consulting Limited on October 2023

CHAPTER FOUR: SOCIO-ECONOMIC PROFILE AT THE PROJECT AREA

4.1 INTRODUCTION

This Chapter describes relevant environmental and socio-economic characteristics of the project area as well as the area of influence that is Tabora Municipality and Tabora Region. The level of details in various sections depends on the interaction between the project activities and the particular environment or socio-economic aspect. Information in this chapter provides the platform for impact identification, evaluation and recommendation on mitigation measures. The understanding of the environment within the proposed project site is based on: - preliminary site inspection; review of project write-up reports and other project reports of similar nature; and information from internet and library services.

4.1.1 Administrative Unit

Tabora Municipal Council administratively is divided into 2 Divisions, 29 wards, 136 "Mitaa", 41 Villages and 159 hamlets. Also, the Council has one constituency which is Tabora Urban. There are 36 Councillors out of which 29 are elected ones and 10 are appointed as special seat representatives. The proposed project site is located within Itonjanda Village at Nyambele hamlet along Nzega to Tabora road.

4.1.2 Geographical Location

Itonjanda Village is bordered by Uyui and Upuge to the Northern side, Magiri and Nsimbo to the Eastern side and Ifucha to the Southern and Western side as shown in Figure 4.2.

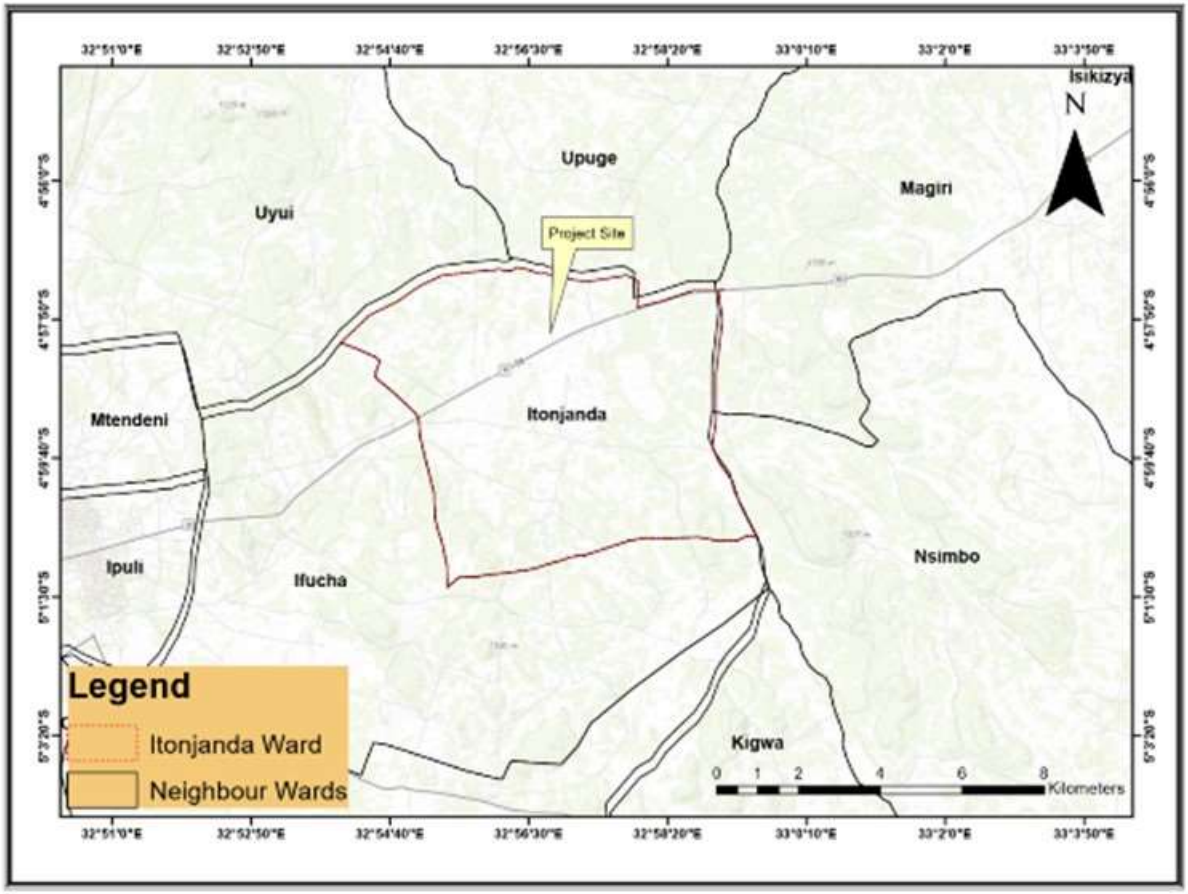

Figure 4.1 Map of Itonjanda Ward showing neighboring Wards

Source: Arc Map and Google Earth October 2023

The proposed project Mwalimu Julius Nyerere University of Agriculture and Technology will located at Nyambele Hemlet, Itonjanda Village, Itonjanda Ward, Tabora Municipal Council in Tabora Region. The proposed project site lies between latitude -4.968351° South of the Equator and longitude 32.946189° East of the Greenwich Meridian. The proposed site is bordered by Farm in both side except on southern side it's bordered by Electrical transmission line and Nzega to Tabora Road.

4.2 PHYSICAL CHARACTERISTICS

4.2.1 Climate and Topography

Tabora Municipal lies at an altitude of 1000 meters above the sea level with mean temperature ranging between 22oC to 26oC. Highest temperature occurs in October prior to the start of rainy season and falls gradually in December and remains relatively constant until May. Between May and August temperatures are at the lowest levels. Average annual rainfall is between 800mm and 1000mm per year. The rains starts at mid-November and end at early May. Normally there is usually a long dry spell towards the end of January or early February every year. The topography of Tabora Municipal is characterized by five soil groups which occur in association within the various

individual types of the terrain, variations characterized by slope positions. The main soil groups are: Lugulu, Isenga, Kikungu, Ipwisi and Mbuga soils (Source; Tabora Municipal Council Strategic Plan 2021/2022-2025/2026).

In regard to project proposed site, the area is flat one with gentle slope toward Northern side of the plot and the area located within Tabora Municipal where it experiences the same climatic conditions and the soil type at proposed site is loam red soil at northern part of the site, sand red soil at the western and southern parts of the site and clay soil at the eastern side of the plot where water table is high

4.2.2 Hydrology

The proposed site the area is not close to any surface water source and during construction proponent will construct storm water channel for rainy water management at project site. The area will be levelled and paved to allow free flow of water from Western/Northern side to Southern side of the plot where there is public drainage channel

4.2.2.1 Dust Level Measurements

The highest daily average concentrations of 0.017 mg/m^3 for TSP, 0.012 mg/m^3 for PM_{10} and 0.007 mg/m^3 for $PM_{2.5}$ were measured at SP1 (Table 4-1). The noted higher air particulates at SP1 might be associated with wheel generated dust and tail piece emissions from vehicular movement along Tabora Nzega Highway. However, none of the stations found with value above the assessment TBS limits and/or WHO guideline criteria for TSP, PM_{10} and $PM_{2.5}$ concentrations (Table 4-1).

Table 4.1 Average ambient Particulate Matter measured at four stations

Code	LOCATION		Particulate Matter		
	GPS Readings		TSP	PM_{10}	$PM_{2.5}$
	Latitudes	Longitudes	mg/m^3	mg/m^3	mg/m^3
SP1	-4.968949	32.946918	0.017	0.012	0.007
SP2	-4.965549	32.946200	0.012	0.009	0.005
SP3	-4.963337	32.943455	0.015	0.011	0.006
SP4	-4.959730	32.946210	0.013	0.010	0.005
Environmental Management (Air Quality Standards), 2007			0.5	0.15	0.075
WHO/IFC (2007) and WB AQG 2006			0.23	0.05	0.025

Source: COLBA Consulting Field Measurements on January 2024

4.2.2.2 Ambient Pollutant Gases

The measured Sulphur dioxide (SO_2), Volatile Organic Compounds (VOCs), Ozone (O_3), Nitrogen dioxide (NO_2) and hydrogen sulphide (H_2S) concentrations were minimal and in conformity with their respective prescribed TBS and WHO/IFC limits at all stations (Table 4-2). Similarly, the recorded CO concentrations found complying with both TBS limit of 15 mg/m^3 and WHO/IFC guideline value of 30 mg/m^3 (Table 4-2). However,

methane (CH_4) concentrations were very low with its impacts considered insignificant, taking into account that CH_4 has no limit specified in both the TBS standards and/or international guidelines. Generally, the ambient air quality in the area can generally be characterized as good most of the time, with no exceedance recorded against the provincial ambient air quality standards or WHO/IFC-wide objectives (Table 4-2).

Table 4.2 Average values of measured ambient pollutant gases

Code	LOCATION		Ambient Pollutant Gases						
	GPS Readings		CO	NO_2	SO_2	H_2S	O_3	CH_4	VOCs
	Latitudes	Longitudes	mg/m^3	mg/m^3	mg/m^3	mg/m^3	mg/m^3	mg/m^3	mg/m^3
SP1	-4.968949	32.946918	2.04	0.091	0.04	0.01	0.002	0.012	4.3
SP2	-4.965549	32.946200	1.16	0.063	0.02	001	0.001	0.009	4.5
SP3	-4.963337	32.943455	1.09	0.061	0.03	0.01	0.001	0.010	4.9
SP4	-4.959730	32.946210	0.97	0.055	0.01	0.01	0.001	0.014	4.1
TBS Limits			15	0.12	0.5	-	-	-	6.0
WHO/IFC Guidelines			30	0.2	0.5	0.1	0.1	-	-

Source: COLBA Consulting Field Measurements on January 2024

4.2.2.3 Noise Measurements at the Identified Onsite Receptors

The day time average noise levels were ranging from 48.5 to 50.2 dBA during the daytime and 39.3 to 43.8 dBA during night-time (Table 4-3). The results suggested that the recorded noise levels are acoustically safe for people residing nearby the project site as the measured noise levels found to be lower, well below the TBS and WHO/IFC acceptable noise levels (Table 4-3).

Table 4.3 Average ambient Noise Levels measured at four stations

STATION CODE	LOCATION		Noise Levels in dBA	
	GPS Readings		Daytime	Nigt-time
	Latitudes	Longitudes	dBA	dBA
SP1	-4.968949	32.946918	50.2	43.8
SP2	-4.965549	32.946200	49.9	42.5
SP3	-4.963337	32.943455	48.7	41.4
SP4	-4.959730	32.946210	48.5	39.3
TBS Limits			<55	<35
WHO/IFC/WB Guidelines			<60	<45

Source: COLBA Consulting Field Measurements on January 2024

4.2.2.4 Ground Vibrations

The recorded vibration levels were ranging from 0.014 to 0.023 mm/s PPV, with maximum value being recorded at SP1 (Table 4-3). The anticipated impact resulting from the measured vibrations is considered insignificant as the measured levels not exceeded 0.15 mm/sec PPV criteria established to evaluate the extent that can easily be detected by human, TBS and British

Standard limits. In that regard, the measured ground vibration levels are lower and thus is not likely to impact negatively any sensitive receptors.

Table 4.4: Average vibrations measured in mm/s PPV at four measured stations

STATION CODE	LOCATION		LOCATION
	GPS Readings		GPS Readings
	Latitudes	Latitudes	(mm/s PPV)
SP1	-4.968949	-4.968949	0.023
SP2	-4.965549	-4.965549	0.017
SP3	-4.963337	-4.963337	0.019
SP4	-4.959730	-4.959730	0.014
Human detection level			<0.15
TBS Limit			5
British Limit			0.3

Source: COLBA Consulting Field Measurements on January 2024

4.2.3 Baseline Measurement for Water quality test

For baseline measurement in water quality analysis, three points are identified and ground water is taken for analysis. The selected points for water quality analysis are at area where a proposed effluent treatment plant will be implemented. The point were named point 1 which is from a shallow well (borehole) (-4.95567^0, 32.94577^0) at kwa Muhozya home, point 2 from a small pond within project site (-4.95947^0, 32.94619^0) and point 3 (-4.96187^0, 32.93956^0) which a surface water found about 70m from project site at kwa Maganga home. Water sample is taken from each point and the aim of this baseline data is to understand the existing situation of the area before project implementation. The baseline data for water quality analysis will be used as a reference for monitoring during construction phase and project operation phase for mitigation implementation and the data enable us to understand if existing water source from nearby residents was pollutes since the site is bordered by residents.

Table 4.5 Water Quality Analysis Report for 3 Samples

SN	Parameters	Units	Sample recorded			TZS: 789: 2008
			P1	P2	P3	
1	pH	Scale	6.35	6.14	6.04	6.5-8.6
2	Turbidity	NTU	94	4683	117	25
3	Colour	Hazen^o	14.24	10600	1312	50
4	Salinity	%(ppt)	0.081	0.20	0.05	NA
5	Electric conductivity	µS/cm	163	406	106	2000
6	Total dissolved solids	mg/l	82.0	203	53	2000
7	Nitrate-Nitrogen	mg/l	0.5	0.4	0.4	10
8	Nitrite-Nitrogen	mg/l	0.027	0.0167	0.023	NA
9	Ammonia-Nitrogen	mg/l	0.322	2.118	0.298	0.5
10	Sulphate	mg/l	<1.0	<1.0	<1.0	400
11	Iron	mg/l	1.014	0.763	1.717	1.0

12	Total Alkalinity	mg/l	14.0	80.0	24	NA
13	Total Hardness	mg/l	18	102	11	500
14	Bicarbonate alkalinity	mg/l	14.0	80.0	24	NA
15	Carbonate alkalinity	mg/l	0	0	0	NA
16	Manganese	mg/l	0.073	0.119	0.039	0.5
17	Calcium	mg/l	10.0	66.0	6.0	75
18	Potassium	mg/l	6.47	9.38	3.79	NA
19	Lead	mg/l	<0.01	<0.01	0.028	0.01
20	Copper	mg/l	<0.01	<0.01	<0.01	0.05
21	Cadmium	mg/l	<0.01	<0.01	<0.01	0.05
22	Chromium	mg/l	<0.01	<0.01	<0.01	0.05
23	Zinc	mg/l	<0.01	<0.01	0.025	5.0
24	Nickel	mg/l	<0.01	<0.01	0.195	NA

Source: Ardhi University Laboratory analysis: October, 2023, NA=Not Analysed

Referring to the laboratory analysis results in the tables 4.7 above, it is evident that all analyzed parameters for water samples collected from all sources are complied with the limits of Tanzania standard (TZS 789:2005) except few parameters for small pond found within project site. The pollution of this small pond was contributed by cows which found within site using such water.

4.2.4 Baseline measurement for Soil quality test

For baseline measurement in soil quality analysis, five points are identified and soil is taken for analysis. The selected points for soil quality analysis are at area where the proposed buildings and other supporting facilities will be implemented. The point was named point P1 (-4.96745^0, 32.94802^0), point P2 (-4.95944^0, 32.94622^0), point P3 (-4.95994^0, 32.94432^0), point P4 (-4.96438^0, 32.94441^0) and point P5 (-4.96421^0, 32.94438^0). Soil samples are taken from each area, where a hole is drilled about 1.8m and soil is taken for analysis. The aim of this baseline data is to understand the existing situation of the area before project implementation and the baseline data will be used as a reference for monitoring during construction phase and project operation phase for mitigation implementation and enhancement.

Table 4.6 Soil Quality Analysis for Baseline Data.

SN	Parameters	Units	Sample recorded					Soil Standard 2007
			1	2	3	4	5	
1	pH	Scale	4.51	2.69	4.48	6.23	4.41	NM
2	Electric conductivity	µS/cm	0.243	0.528	0.047	0.056	0.090	
3	Copper	mg/kg	4.115	2.202	1.324	1.596	1.549	200
4	Lead	mg/kg	12.11	1.526	4.263	12.22	9.688	200
5	Zinc	mg/kg	17.8	9.222	9.671	17.83	10.63	
6	Cadmium	mg/kg	1.061	0.981	0.337	0.274	1.734	1.0
7	Chromium	mg/kg	8.901	2.093	5.408	10.08	7.723	100
8	Nickel	mg/kg	4.223	3.336	3.388	2.485	0.763	
9	Manganese	mg/kg	101.9	24.48	64.51	65.76	73.02	

Source: Ardhi University Laboratory analysis: October, 2023, NM=Not mentioned

Referring to the laboratory analysis results in the tables 4.9 above, it is evident that all analyzed parameters for soil samples collected at five points within proposed project site where various buildings will be constructed were complied with the limits of soil quality standard of 2007. The current status of the area its soil is not polluted.

4.3 Biological Environment

4.3.1 Flora and Fauna

The proposed site for project implementation has a variety of plants species including acacia trees, one baobao tree, cashew nut trees, mango trees and grasses

During site visit study it was observed that there are no species of the amphibians and reptiles that are included in the IUCN Red list of threatened species.

Figure 4.2 Vegetation cover at project proposed site

Source; COLBA Consulting Ltd field work on 23rd October 2023

4.3.2 Unique and Endangered species

There are neither unique nor endangered species of concern that were observed in the project area during site field study.

4.4 SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT

4.4.1 Demographic Profile

According to the National Housing and Population Census Report of 2022 Tabora Municipal Council has total population of 308,741, whereby 150,416 are male and 158,325 are female. The Municipal has average household size of 4.2 and sex ratio of 95%.

Itonjanda Ward where the proposed project will be implemented has total population of 3,313, whereby 1,628 are male and 1,685 are female. The ward has average household size of 5.0 and sex ratio of 97% (Source: Population

and housing and Settlement census 2022). The Village tends to experience significant population increase during construction and operation phase of the proposed project. During operation the university will will have capacity of accommodating 2,800 students and 350 staffs (Source: MJNUAT Administration, October 2023).

The proposed project will result to increased population in Itonjanda Village and Itonjanda Ward in general. The increased population will depend on social services, food and accommodation within Itonjanda Ward area, hence, benefit the existing population.

Table 4.7 Administrative Units and Population size in Tabora MC

	Population (Number)			Sex Ratio	Number of Household	Average House Hold Size
	Total	Male	Female			
Tabora MC	308,741	150,416	158,325	95	73,500	4.2
Kanyenye	11,218	6,378	4,840	132	2,435	4.6
Gongoni	7,094	3,376	3,718	91	2,017	3.5
Tambuka-Reli	5,396	2,523	2,873	88	1,416	3.8
Kiloleni	7,439	3,557	3,882	92	2,110	3.5
Mtendeni	16,983	8,324	8,659	96	3,901	4.4
Isevya	12,782	5,888	6,894	85	3,716	3.4
Ipuli	20,816	9,711	11,105	87	5,410	3.8
Kakola	4,047	2,033	2,014	101	812	5.0
Uyui	8,438	4,243	4,195	101	1,574	5.4
Itonjanda	3,313	1,628	1,685	97	668	5.0
Kalunde	9,776	4,857	4,919	99	2,001	4.9
Misha	8,276	4,187	4,089	102	1,653	5.0
Kabila	7,712	3,876	3,836	101	1,267	6.1
Ikomwa	8,619	4,291	4,328	99	1,311	6.6
Ifucha	4,680	2,492	2,188	114	839	5.6
Mpela	19,016	8,957	10,059	89	4,743	4.0
Mapambano	8,944	4,257	4,687	91	2,297	3.9
Mbugani	20,607	9,716	10,891	89	5,558	3.7
Chemchem	10,924	5,331	5,593	95	2,813	3.9
Cheyo	9,404	4,538	4,866	93	2,483	3.8
Kitete	12,693	6,034	6,659	91	3,310	3.8
Ng'ambo	17,829	8,586	9,243	93	4,563	3.9
Malolo	12,366	5,963	6,403	93	2,791	4.4
Ndevelwa	10,940	5,484	5,456	101	1,953	5.6
Itetemia	8,465	4,202	4,263	99	1,834	4.6
Tumbi	7,760	3,944	3,816	103	1,581	4.9
Ntalikwa	5,249	2,641	2,608	101	874	6.0
Mwinyi	16,531	7,980	8,551	93	4,311	3.8
Kidongochekundu	11,424	5,419	6,005	90	3,259	3.5

Source: NBS 2022

4.5 Land Tenure and Land Use

4.5.1 Land Use

The main land uses in Tabora Municipal land area include residential by 8.3%, commercial by 0.61%, institutional by 10.16%, industrial 9.52%, open spaces and recreational 0.39 %, special areas by 13.19%, agricultural 47%, forestry 13% and open bushy land and villages (Source; Tabora Municipal Council Strategic Plan 2021/2022-2025/2026).

In regard to the proposed project site, the area is surveyed and planned for educational purpose only of Use Group 'K', use class (d) as per attached title deed.

4.5.2 Land Tenure

The land in the city is governed under the Land Act of 1999 which provides for all land to be surveyed and deeds of occupancy given to people owning land. The land officers are required to monitor all developments on plots so that they are according to the plans and building permits. A change of land use requires application of the proposed change of use to local authorities and later on to be registered at the Ministry of Lands, Housing and Human Settlements Development. The project area is owned by MJNUAT and the area has been surveyed. The proponents plan to construct and operate a new MJNUAT Tabora Campus on the plot.

4.6 Ethnicity and Family Structure

The main ethnic groups are the Africans and in small proportion there are Arabs, Indians, and Europeans. The main tribes found in greater proportion are Nyamwezi, Sukuma, Tutsi and Ha. (Source: Tabora Municipal Council: Socio-Economic Profile, 2008). Most of Itonjanda Village are Nyamwezi, Sukuma, Tutsi and Ha.

The family structure in the project vicinity comprises both polygamous and monogamous systems. Men as the heads of households, are responsible for providing food security to family members, family caring including the provision of required services to the family. However, some families are female-headed households with different reasons such as the husband's death, divorce, and others are not married at all.
The proposed project will provide employment to the surrounding community in the Itonjanda Village area hence will improve the ability of some residents to provide services in their families.

4.6.1 Housing Conditions

Majority of the residents in Tabora Municipal own their residential premises, which most of them had been inherited from their ancestors. Others had bought land from residents to settle or rented houses especially in urban areas.

Itonjanda Village is accommodated by houses constructed by using cement bricks with iron sheet roofing/ or grass. The existence of project will motivate most of residents to construct high standard houses for renting businesses.

Figure 4.3 Housing Condition around the project area
Source: COLBA Consulting Ltd, field work October 2023

4.7 Economic Activities

During the study, it was revealed that 10% of residents in Itaonjanda Village are employed in public sector and the remaining 90% are self-employed engaged in business, small-scale agriculture, transport business and livestock rearing. Mostly, women are engaged in small scale agriculture and food vendors while youth are engaged in agriculture and transport businesses.

The implementation of the proposed project at the area will increase employment opportunities to many youths and women from Itonjanda area.

4.7.1 Agriculture

Itonjanda Village has deep and shallow wells including that play a vital role in agriculture as it acts as sources of water for animal. The proposed site is not located near water sources.

During project implementation, pastoralists, food vendors and food crops sellers will benefit from the proposed project as construction workers will obtain their food from within the project area.

4.7.2 Livestock Keeping

Itonjanda Village residents are engaging in urban livestock keeping. During the study, it was revealed that zero-grazing is the most preferred option of feeding livestock due to absence of large grazing land. Livestock such as cattle, goats, sheep and poultry are kept by most of the ward residents. Livestock keeper will benefit from the proposed project as construction workers will obtain dairy milk, eggs and meat from livestock keepers near the project area.

4.7.3 Industries

Currently the Municipality has little industrial development as compared to other Municipalities, according to the Town and country planning Act. Cap. 378 (use classes) we have three categories of industries

4.7.3.1 Special Industries

These are industries including storages which may be offensive by reason of smell, noisy or fumes or dangerous by reason of the use and storage of dangerous or inflammable materials or inimical to public health by reason of vermin or other courses. For that reason, we have only two industries in Tabora Town which are meat plant and petroleum depots.

4.7.3.2 General industries

These are industries which do not fall under special or service industries or do not require segregation from general industries. In Tabora Municipality these includes the Tabora Textile, Tabora Timber supplies, Tabora sawmills, Tabora Builders Saw Mills, Azimio cottage (SIDO), Mpembampazi saw mills, Railway corporation Locomotive Workshop, TMP printers, Tobacco processing factories and Ugala saw mills.

4.7.3.3 Service industries

Itonjanda Village has few small-scale industries including maize and rice milling. The proposed project will stimulate industrial production and attract new investors in the area

4.7.4 Mining

There is one mining quarry in Itonjanda Village that can be used during construction phase. The proposed project will benefit this sector by utilizing building materials extracted from legalized quarry for construction activities.

4.8 Social Infrastructures

4.8.1 Health Services

Itonjanda Villlage residents obtain health care services from health centers, dispensaries and hospitals. There is one Council Designated Hospital, one dispensary which owned by the Government. Manoleo Dispensary has six (6) workers (see figure 4.5)

Figure 4.5 Manoleo Dispensary at Itonjanda Village

Source: Field Work, October 2023

4.8.2 Water supply and sanitation

Most of Itonjanda village residents depend on water from shallow boreholes and few get water from TUWASA (Tabora Urban Water and Sanitation Authority) i.e Distribution point (DP)/Kiosk (Source: VEO, October 2023).

4.8.3 Education service

Itonjanda Village has 3 primary schools (Manoleo, Itonjanda and Hengele Primary school) owned by Government and one secondary school (Itonjanda Secondary School that will be Hight school) owned by Government (Source: VEO, October 2023). The proposed establishment of new MJNUAT Tabora Campus will have capacity of accommodating 2,800 students and 350 staff, where will enhance availability of education services at Tabora Municipality.

4.8.4 Energy source and supply

Itonjanda village is supplied and connected with electricity from National grid (TANESCO) where few of the population use it for lighting and run machinery and equipment while charcoal and gas used for cooking.

There are electrical transmission lines passing near the project site area, proponent will be required to apply for new connection from TANESCO through online system. Also, there will be a generator with capacity of 230 V used to run different operation when there is power cut.

4.8.5 Waste generation and management

4.8.5.1 Solid waste management

Solid wastes generated at Itonjanda ward mainly are domestic, commercial and health care wastes. All wastes generated by households, shops and food

stalls/kiosks are taken by Tabora Municipal Council truck to Itetemia dumpsite three times per month others are disposed in open pits at the households while health care wastes are incinerated.
The operation of the proposed project will lead to generation of various solid wastes in each development phase such as food remains, sanitary pads, papers, boxes, plastic bottles and plastic wrappings of which will collected in dustbins within the project premises. The proponent and contractor will ensure that there are designated solid waste collection facilities and point onsite. All solid wastes generated will be collected, sorted/separated and taken to the authorized dump site in Tabora MC

4.8.5.2 Liquid waste generation

Liquid waste to be generated domestic waste will be managed by using septic tank since the area is not served by sewer line and once septic tank is full a cesspit emptier truck will be employed to empty it to disposal at WSP

4.8.6 Storm water drainages

At the proposed project site, storm water drainage channel will be constructed and linked to public drainage channels in southern side for management of rainy water. However, rainwater harvesting will be considered by constructing underground water storage tanks.

4.9 Economic infrastructure

4.9.1 Road network

The road network linking to project proposed site is Tabora-Nzega road as one drive from Tabora Municipal to Nzega District Council on left side at Itonjanda area (Source; COLBA Consulting Ltd secondary information on October 2023).

4.9.2 Railway

By location Tabora Municipal council has an advantage of surface transport as it is a junction of central Railway to Dar es Salaam, Kigoma and Mwanza. This branch has been fortunate in that each one of Tabora region districts is served by Railway line except Igunga and Sikonge. The Tabora Municipal Council boasts of 38 kms Of Railway line (Source: Tabora Municipal Council: Socio-Economic Profile, 2008).

The proposed Mwalimu Julius K. Nyerere University of Agriculture and Technology (MJUAT) project site is about 13 kilometer from the railway line.

4.9.3 Air transport

There is one airport in Tabora Town supported by 10 air strips i.e Igunga 1, Nzega 4, Urambo 4 and Uyui 1. The Tabora airport can service BOMBADIER aircraft (Source: Tabora Municipal Council: Socio-Economic Profile, 2008). The proposed Mwalimu Julius Nyerere University of Agriculture and Technology (MJUAT) project site is about 16km from the Tabora airport

4.9.4 Telecommunication network

Tabora Municipal Council has an exposure to cellular phone networks of TTCL, VODACOM, AIRTEL, TIGO and HALOTEL. Within the Municipal there are Four radio stations that is Voice of Tabora (VOT) and CG FM, UHAI FM, UYUI FM. Also, there is TV cable services of Tabora TV, Rage TV and Califonia TV. Postal services are also available (Source: Tabora Municipal Council: Socio-Economic Profile, 2008).

Itonjanda Village is well connected and serviced with all mobile communication network, Television and radio channels.

4.9.5 Police and Judiciary services

At Itonjanda Village there is no police station, where the village obtain police services at Tabora Police central, Tanzania Police Force (TPF) Tabora has a plan to construct police station at Nyambele Helmet in Itonjanda village to their own area.

4.10 PREDICTED IMPACTS AFTER PROJECT

If the proposed project will be implemented, the following changes will occur; presence of new MJNUAT Tabora Campus at the area where this will help for provision of education service to admitted students, number of students to be admitted will increase where this will go together with increase in basic human needs at the area and security imbalance will increase if care not taken, presence of modern buildings for education purposes at project site where this will increase quality of education to be provided to students, presence of storm water channel for rainy water management at project site and some few exotic trees will be destroyed due to project implementation.

4.11 GENDER ISSUES AND GENDER BASED VIOLENCE (GBV)

4.11.1 GBV Context at Country, Regional and Municipal Levels

Results from the consulted stakeholders show that, community awareness on GBV is widespread in the Tabora Region including Tabora Municipal Council, Itonjanda Village where the proposed project is located as well as Tanzania in general. They mentioned several forms of GBV, including intimate partner (psychological, or sexual harm/beating to those in the relationship), Neglect, Sexual violence, Emotional violence, economic violence, divorced leading to family separation as results children lack parental care and support, Child Sexual Abuse (CSA) mainly rape and sodomy, early marriage, and early pregnancies. It was revealed that most of GBV cases start at the family level (family members and house helper are the one committing these acts) hence, are not reported to the relevant authority due to negligence, hiding secrets and fear of social isolation and/or violation of traditional norms.

Tanzania Gender Assessment 2022 shows that 40% of all women aged 15 -49 years have experienced physical violence, while 17% have experienced sexual violence and 44% have experienced either physical or sexual violence by an intimate partner. Spousal violence prevalence is highest in rural areas, averaging 52% while the prevalence in urban areas averages 45%. Almost 30%

of girls experience sexual violence before the age of 18. In Tanzania, GBV have become major problems due to negative cultural beliefs and practices, existing gender norms, and economic, social and gender inequalities.

The consultation with Project Officer from IDT for Tabora revealed that, most of construction projects conducted in the Tabora Municipal are done by foreigners and people from outside Tabora Region. These contractors and construction workers use their power and money to sexually harass young girls and women in the project areas. Also, poor economic situation of most families in Tabora Municipal leads to young girls and women engage in prostitution within the project area and results to early and/or unwanted pregnancies, children abandonment and neglect.

The consultation with Municipal Community officer disclosed the presence of a wide range of GBV and sexual exploitation in the Council caused by increased population influx in the Tabora Municipal and bad economic situation that leads to men to abandon their families and the burden of raising those families remains to women alone.

The presence of colleges and universities with good number of people also lead to increased number of abandoned and discarded children mostly are found dead and few of them are alive. She mentioned several forms of GBV including intimate partner (psychological, or sexual harm/beating to those in the relationship), Sexual violence mainly rape and sodomy, emotional violence, economic violence, rejection/neglect and divorce. The Table 4.10 below presents a summary of GBV cases at the Municipal Council level.

Table 4.8 Summary of GBV and VAC cases at the Municipal Council level

Municipal	Type of GVB	Above 18 Years		Total	Below 18 Years		Total	Cases Sent to The Courts	Adjudicated Cases
		Male	Female		Male	Female			
The First quarter 2022/23									
Tabora MC	Physical Violence (beats, stabbing with a sharp object),	2	17	19	1	9	10	0	0
	Emotional Violence (insulting etc.)	31	105	136	8	88	96	4	2
	Sex (rape, sex)	0	3	3	1	10	11	4	1
	Economic Violence (denial to work, go to school etc.)	0	0	0	0	0	0	0	0
Total		33	125	158	10	107	117	8	3
The second quarter 2022/23									
Tabora MC	Physical Violence (beats, stabbing with a sharp object),	13	47	60	8	27	35	4	4
	Emotional Violence (insulting etc.)	24	133	157	36	80	116	0	0
	Sexual (rape, sex)	2	0	2	1	9	10	3	3
	Economic Violence (denial to work, go to school etc.)	0	0	0	0	0	0	0	0
Total		39	180	219	45	116	161	7	7

Municipal	Type of GVB	Above 18 Years		Total	Below 18 Years		Total	Cases Sent to The Courts	Adjudicated Cases
		Male	Female		Male	Female			
The Third quarter 2022/23									
Tabora MC	Physical Violence (beats, stabbing with a sharp object),	0	3	3	7	18	25	3	0
	Emotional Violence (insulting etc.)	20	120	140	39	83	122	0	0
	Sexual (rape, sex)	0	0	0	0	6	6	1	0
	Economic Violence (denial to work, go to school etc.)	0	0	0	0	0	0	0	0
Total		20	123	143	46	107	439	4	0
The Fourth quarter 2022/23									
Tabora MC	Physical Violence (beats, stabbing with a sharp object),	0	1	1	2	16	18	2	0
	Emotional Violence (insulting etc.)	8	90	98	28	92	120	0	0
	Sexual (rape, sex)	0	0	0	0	1	1	1	0
	Economic Violence (denial to work, go to school etc.)	0	0	0	0	0	0	0	0
Total		8	91	99	30	109	139	3	0
The First quarter 2023/24									

Municipal	Type of GVB	Above 18 Years		Total	Below 18 Years		Total	Cases Sent to The Courts	Adjudicated Cases
		Male	Female		Male	Female			
Tabora MC	Physical Violence (beats, stabbing with a sharp object),	0	2	2	1	1	2	1	0
	Emotional Violence (insulting etc.)	7	39	46	5	7	12	0	0
	Sex (rape, sex)	0	0	0	0	2	2	2	0
	Economic Violence (denial to work, go to school etc.)	0	3	3	0	0	0	0	0
Total		7	44	51	6	10	16	3	0

Source: Social welfare office at Tabora Municipal council, October 2023

4.11.2 GBV and HIV/AIDs Context at Ward and Mtaa Levels

The consultation with village Chairperson VEO and Ward Councillor revealed that, GBV cases mainly beating occurred in high rate at Itonjanda village, most of men are beating their wives. Other forms of GBV are emotional violence and economic violence.

Consultation with IDT officers reveal that there are total of eleven (11) Children Living with HIV/AIDs and four (4) HIV Exposed Infant (HEI) at Itonjanda Village and No GBV case reported in 2022/23 and both are female.

Consultation with Manoleo Dispensary officers reveal that there are total of 216 (141 Female and 75 Male) living with HIV/AIDs at Itonjanda Village and there four (4) Emotional Violence case reported in 2022/23 and both are female

4.11.3 Existing Support System and Service Providers

Consulted stakeholders from Municipal to Mtaa level play a great role to help the victims of GBV and HIV/AIDs. Most services provided by the government and CBOs/ NGOs (IDT and CARTUS etc) in the project vicinity comprise legal support services, GBV and HIV/AIDs awareness education, economic empowerment in the form of groups, and giving them basic needs including education, as well as the formation of gender desks in VEO office (MTAKUWA) and police stations making frequent fall-up to GBV cases.

At Municipal Council, ward and *Mtaa* level the system of handling GBV is clearly organized; the entry point for a help seeker is often the lowest-level representative, Street/Mtaa leader. Depending on the type of GBV case, usually GBV victims/survivors and abused children report to their local leaders (*Mtaa* Executive Officer (MEO)/*Mtaa* Chairperson primarily for advice and marital reconciliation services. In case the issue is not resolved, they make their referrals to the Ward Social Welfare Officer and afterwards to the Municipal level (Social Welfare Officer) and/or police Gender Desk. Victims may also pursue help (legal and counselling support) from existing CBOs /NGOs within the project area. This process is summarized in Table 4.9 below.

Table 4.9 Existing GBV service provider and support system in the project area

SN	Level	Relevant official	Role and responsibilities related to GBV
	Mtaa	Mtaa Executive Officer (MEO) and Mtaa Chairperson	Advice and counselling Marital reconciliation/mediation, including suggesting compensation. Provide a referral letter toward (Ward Social Welfare Officer) Provide referral letter to Police Post –mainly for cases such as rape, sodomy, beating, early pregnancy for students/young girls (below 18 years)
	Ward	Ward Social Welfare Officer	Advice and counselling Marital reconciliation/mediation, including mandating compensation,

SN	Level	Relevant official	Role and responsibilities related to GBV
			Provide a referral letter to Gender Police Post Mandate to convene and hear a case Make a referral to Municipal Social Welfare Officer
	Municipal Council	Social Welfare Officer	Advice and counselling Reconciliation/mediation, including negotiating family/child support Mandate payment of compensation May offer exemptions for medical bills/other payments Provide referral letter to police/court
	Police post	Police	Provide PF3 to GBV and VAC survivor for investigation and medication. Catching criminal and taking to the court
		Gender desk	Advice, Counselling, and mediation and Provide a referral letter to the court
	Court	Magistrate	Resolution of the problem (judgment)
6.	CBOs/NGOs	-	Legal support, Counselling, Childcare and protection, economic support to GBV survival (e.g. forming VICOBA) and re-unification of abused children with their families.

Source: COLBA Consulting Limited, Fieldwork, October 2023

4.11.4 Gender Based Violence, Sex exploitation, sexual harassment context during Construction work

It is anticipated that during project construction there will be GBV and sexual exploitation and sexual harassment incidences both at district and project level. During project implementation Gender Based Violence, Sexual Exploitation, and Sexual harassment affects workers, community members and service users. During project construction Women and children are prone to numerous forms of abuse and exploitation. Mostly women face sexual harassment mostly done by their supervisors and their co-workers with the notion of sexual availability in the construction site. Although sometimes the vicious trap is used to get a woman to submit to the abuser is a plea to be granted a certain job at construction site. Likewise, Community around the project area may also face Sexual harassment, GBV mainly from construction workers. Awareness creation is important to the targeted groups for such training;

i. workers, both from the contractor and sub-contractors;
ii. consultants, such as the supervision consultants or others working in the project area; and
iii. staff involved with the project. Managers are particularly important to train as they have the responsibility for ensuring compliance of staff with the GBVs, Sexual harassment and sexual exploitation issues as well as implementing sanctions for transgressions.

Training will be done to all employees prior to commencing work on site to ensure they are familiar with the company's commitments to address GBV, Sexual exploitation and sexual harassment and the project's GBV. The sanctions embodied in the GBV, Sexual exploitation and sexual harassment needs to be clearly explained. It should be noted that the induction course will need to be repeated on a regular basis as new staff start on the project. The trainings will be conducted no more frequently than monthly for the duration of the contract starting from the first induction training prior to commencement of project construction and subsequent construction works to reinforce the understanding of the project's GBV, Sexual exploitation and sexual harassment goals.

4.11.5 Suggested ways of reporting GBV, sexual exploitation and sexual harassment

Community and workers will be sensitized on the existing channels for reporting grievances related to GBV, sexual exploitation and sexual harassment. The awareness shall be made publicly advertised procedures, setting out the length of time users can expect to wait for acknowledgement, response, and resolution of their grievances. Transparency about the grievance procedure, governing structure, and decision makers.

Different ways in which users can submit their grievances, which may include:

- submissions in person, by phone, text message, mail, email or to project grievance handling committee. A log where grievances are registered in writing and maintained as a database managed by Community development officers at LGA and Community development officers at Ward, or to the project grievance management unit.
- An appeals process (including the national judiciary) to which unsatisfied grievances may be referred when resolution of grievance has not been achieved; and,
- An option for mediation when users are not satisfied with the proposed resolution.

CHAPTER FIVE: STAKEHOLDERS ENGAGEMENT AND PUBLIC INVOLVEMENT

5.1 INTRODUCTION

Stakeholder engagement refers to a broad, inclusive, and continuous process to engage persons or groups who are directly or indirectly affected by a project, as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively. Stakeholder engagement was conducted in 23rd to 27th October 2023.

There is a growing consensus that timely and broad-based stakeholder involvement is a vital ingredient for effective environmental assessment, as it is for project planning, appraisal and development in general. The World Bank has found that public participation in ESIA tends to improve project design, environmental soundness and social acceptability (Mutemba, 1996).

Mwalyosi and Hughes (1998) identified a similar experience in Tanzania. They found that ESIA that successfully involved a broad range of stakeholders tended to lead to more influential environmental assessment processes and, consequently, to development that delivered more environmental and social benefits. Conversely, ESIA that failed to be inclusive tended to have less influence over planning and implementation, and consequently resulted in higher social and environmental costs.

Stakeholder engagement enhances the effectiveness, efficiency, and accountability of the ESIA process and the project as required by Stakeholders Engagement Plan (SEP). When undertaken in a transparent, balanced manner, it can reduce conflicts and strengthen the sense of ownership of a project and the project's sustainability.

Stakeholder engagement often collaboratively identifies issues and options and helps make decisions based on input received via the stakeholder engagement process.

Placing sufficient emphasis on stakeholder involvement in the ESIA process can also improve the predictive quality of environmental assessments. This is because the prediction of impacts using ESIA often requires multi-year information and good quality baseline data. Yet one of the commonest problems with 'conventional' environmental assessment is that time and financial limitations, and project cycle schedules, constrain the collection of such data. Hence predictions are often based on a 'snapshot' picture which can be misleading or inaccurate. In contrast, assessments that involve different stakeholder groups, including those in local communities, have greater potential to access a wider information resource-base, and in some cases, generations of cumulative knowledge of their local environment.

The stakeholder engagement activities during the ESIA process will be conducted in accordance with The Environmental Management Act, 2004, The EIA and Audit (Amendment) Regulation 2005 and its amendment of 2018 and the world Bank Environmental and Social Framework, 2018 (ESS10)

5.2 OBJECTIVE OF THE CONSULTATION AND PUBLIC PARTICIPATION

The overall objective of the consultation process was to solicit concerns, opinions, views, and attitudes of the stakeholders; disseminate project information and incorporate the views of stakeholders in the project design and operation, including environmental and social mitigation measures, management and monitoring plans.

The specific objectives of the consultation process were to:

- Ensure the community and other key stakeholders are aware of the project process and operations.
- Consult stakeholders to gather the information needed to complete the assessment.
- Improve project design to minimize conflicts and delays in implementation.
- Obtain stakeholders' inputs into the scope of the EIA, impact identification, potential sources of cumulative impact and impact mitigation.
- Solicit stakeholders' questions and concerns from stakeholders and ensure these are addressed in the EIA;
- Enhance long term project sustainability.
- Reduce problems of institutional coordination.
- Incorporate the stakeholders' concerns in the project development and life cycle.

5.3 STAKEHOLDERS IDENTIFICATION AND ENGAGEMENT PROCESS

Stakeholders' identification and engagement process was conducted based on World Bank Environmental and Social Framework, 2018(ESS10), EIA and Audit Regulations, 2005 and its amendment of 2018, and Public consultation for the MJNUAT project entailed an inclusive and culturally appropriateness of the on-going process, which involved sharing information and knowledge, seeking to understand key stakeholders' concerns and building relationships with the community. The exercise allowed stakeholders to understand the risks, impacts, and opportunities of the project to achieve desired outcomes. The public participation process was designed to provide information and receive feedback from stakeholders about the overall project phases that will be carried out during project implementation. Thus, the exercise would provide opportunities to organizations and individuals to advice about the project through comments and suggestions.

Identification of key stakeholders was based on the role, relevance and influence of an organization, group or individual on the proposed project. A

tentative Stakeholders Engagement Plan (SEP) for EIA study was prepared by the Consultant. This was done by identifying and mapping all key stakeholders including engagement strategies before the actual commencement of the fieldwork. The SEP was prepared for EIA to inform upcoming phases of the project, including gender-related matters. Stakeholders that influence and/or affect the project and those influenced and/or affected by the project were predetermined based on their roles and pertinence. Since stakeholder's engagement is a continuous process, its committed to continuing with planned engagements during the project's operation phase.

The main stakeholders were identified and drawn from different categorical project proponents, relevant administrative and regulatory authorities, agencies, local communities, and other interested parties. Stakeholders are found at both national and local levels and range from government authorities to local community members. Relevant stakeholders were identified based on their roles and pertinence to the Project. Some of the stakeholders were predetermined based on the nature of the proposed project activities. Classification by levels allowed the establishment of adequate planning and strategies for the development of the consultation meetings.

5.4 STAKEHOLDERS' INVOLVEMENT

Key stakeholders were categorized into groups according to the types of concerns raised from the implementation of the project. Stakeholders were mainly consulted through interviews, focus group discussions, group meetings, and through written documents that are pertinent to stakeholder's affiliation, etc.

The guiding questionnaire and/or themes were prepared before holding an in-depth discussion with all stakeholders. In-depth interviews and focus group discussion were held with staff /key informants from government institutions, agencies, Municipal levels and Non-Governmental Organizations (NGOs) depending on the type of data required.

Consultation meetings were also done with Ward and Village leaders where the proposed project is located and neighbour. Data collected during consultation included views, concerns, opinions and recommendations on the proposed project.

Figure 5.1 Itonjanda Village Committee Meet
Source: Field Work, October 2023

Figure 5.2 Project Neighbours Consultation
Source: Field Work, October 2023

Figure 5.3 Ifucha Ward Officers Meet
Source: Field Work, October 2023

Figure 5.4 MNRECO-Tabora MC Consultation
Source: Field Work, October 2023

These consultations were held to ensure that these groups were informed about the project and their views are incorporated in the project development process. The discussion allowed members of the community to present their views concerning the proposed project.

Table 5.1 List of stakeholders' consultations

SN.	Category of Stakeholder	Institutions
1	Government Departments, Agencies and Authorities	Ministry of Education, Science and Technology Ministry of Agriculture (MoA) Ministry of Energy Ministry of Information, Communication and Information Technology Ministry of Natural Resource and Tourism Ministry of lands, Housing and Human Settlements TANROADs TUWASA Fire and Rescue Force – Tabora Occupational, Health and Safety Authority (OSHA)-Dodoma Tanzania Building Agency-Tabora
2	RAS	Regional Administrative Secretary-Tabora
3	DAS	District Administrative Secretary-Tabora MC
4	Municipal Council	Tabora Municipal Council officials
5	Ward	Itonjanda and Ifucha Ward Officials
6	Village	Itonjanda and Neighbor Proper officials
7	Mwl. Julius K Nyerere University of Agriculture and Technology	MJNUAT Project coordinator

SN.	Category of Stakeholder	Institutions
8	Non-Government Organization (NGOs)	Inland Development Trust (IDT) Catholic Archdiocese of Tabora (CARTAS)
9	Adjacent land users	Residents of Itonjanda Proper Mtaa

Source: COLBA Consulting Ltd October, 2023

5.5 ISSUES AND CONCERNS RAISED BY STAKEHOLDERS

This section summarizes key issues that various consulted stakeholders raise.

Table 5.2 Concerns and issues raised by stakeholders during consultation

Department	Views, concerns, and recommendations	Response to concerns/issues
MINISTRY OF EDUCATION	Control dust and exhaust emissions from construction activities and operations of construction machinery and equipment.	Water spray will be applied for all areas where dust emission expected twice a day. Also all used machines will serviced regularly
	Control noise pollution due to operations of trucks and construction machinery and equipment.	Noted, all construction machines will be of low noise emission
	Allocate solid waste collection bins onsite.	Solid waste collection bins will be at project site
	Proper handling and disposal of solid waste	Noted
	Proper handling and disposal of waste oil.	Noted
MINISTRY OF LAND	The proponent is required to comply with Environmental Management Act, 2004 and it's supporting regulations.	Noted
	The proponent shall follow all the requirements and procedures as per the laws and regulations.	Noted
	The proponent should observe the condition stipulated on the Certificate of Occupancy	Noted
	All buildings should contain with fire system and should contain ramp and other disabilities system.	Proper Firefighting systems will be at site and serviced per time and design consider disability people
	Before construction the proponent should ensure all land fees related to land rents.	Noted
MINISTRY OF	The project will be of great important since it will help in different issues such as precision agriculture which need high technology e.g Drones, Farmers registration,	Noted

Department	Views, concerns, and recommendations	Response to concerns/issues
AGRICULTURE	The project is important since it will enhance easy access of different information such as "*Mgawanyo wa mbolea ya ruzuku*".	Noted
	The presence of this campus will help to reduce the cost for finding people from outside to deals with weather forecasting issues, and hence will facilitate easy access of information to farmers.	Noted
	Different information is important in agriculture hence the presence of this university will help in correct usage of water and in getting information concerning moisture contents of the area	Noted
	The proponent should ensure there is no land conflict regarding the proposed area.	Noted, the proposed project will be implemented only on land which is owned by Proponents
	Also, during construction, the proponent should consider issue of climate change hence every building should have rainwater harvesting system.	Noted, rainy water harvesting will be implemented during construction phase
	The proponent should plant trees and other vegetation at the proposed area especially during construction.	Noted, after construction phase trees planting programs will be initiated
OCCUPATIONAL SAFETY AND HEALTH AUTHORITY -	Proponent should register the project to OSHA.	Noted, the project should register workplace during construction phase
	Should prepare health and Safety policy in English and Swahili language and should be displayed at project site.	Noted
	Risk assessment should be conducted from mobilization to decommissioning phase and should.	Noted

Department	Views, concerns, and recommendations	Response to concerns/issues
	Contained proposed mitigation measures for identified risks.	Noted
	Emergency preparedness and response plan should be in place.	Noted
	There should be health and safety representative at the project site.	Noted
	Proponent should provide and enforce the use of PPEs especially in construction phase.	Noted
	There should be First Aid Kit with a provision of first aider.	Noted
	Proponent should provide safety drinking water to all workers.	Noted
	Provision of PPE`s to all workers	Noted
	There should be meeting which will includes toolbox talk and Job Safety Analysis every morning before starting any work.	Noted
	Provision of safe working procedures as per machine	Noted
	Workers should conduct medical examination.	Noted
	At the project site there should be a sanitary convenience e.g Toilet Proponent should provide OSHA file.	Noted
TANZANIA COMMISSION OF UNIVERSITIES	The University has the responsibility to ensure that community engaged activities are conducted within institutional policy and strategies that facilitate collaboration between the university and the local, national, regional, continental and global stakeholders for mutual gain in knowledge and resource exchange.	Noted

Department	Views, concerns, and recommendations	Response to concerns/issues
	The university may offer a degree, diploma and/or certificate programme but such programme shall not be that being offered in regular middle level institution operating in Tanzania and shall cater for professional development.	Noted
	The physical infrastructure of every university shall be sufficient to accommodate the enrolled student population.	Noted
	The University should have a gender policy framework which is sensitive to various matters that relate to gender equality and equity and ensure that plans and resources of the institution adequately address these issues; and	Noted
	The University should provide adequate physical resources such as laboratories, workshops, staff offices, ICT and library resources, staff and student support systems, Environmental Safety and Security, and Health and sanitary aspects to support teaching and learning activities with adherence to quality aspects corresponding to the benchmark set by the Commission while observing standards applicable to the resources in universities in and outside the EAC region.	Noted
RAS OFFFICE	Employment opportunities should be prioritized for local people (i.e. Tabora Region) whenever possible.	Noted, employment first priority will be for local at project area (Itonjanda Ward)
	Facilities for disabled people should be provided.	Noted, facilities for disable people will be implemented
	Provision of three conference hall with different size i.e small, medium and large size	Noted
	There should be warning signs in all areas that pose risks to workers and community members using special warning tapes	Noted, warning sign will be implemented

Department	Views, concerns, and recommendations	Response to concerns/issues
DAS OFFICE	Employment should be provided for people with experience with relevant activities.	Noted, employment first priority will be for local at project area (Itonjanda Ward)
	Trees should be planted around the project for environmental conservation.	Noted, trees planting will be considered
	The university should teach skill/knowledge not only theory.	Noted
	Workers for the proposed construction sites must have experience in construction activities to prevent poor and/or below standard construction	Noted, construction works will be done by contractor who has experience in buildings construction
FIRE AND RESCUE FORCE TABORA	When the drawings are complete, please bring them to the office so that we can review them, consider offering our assistance and ideas, and consider being able to pay in accordance with Act No. 14 of 2008.	Noted, drawings will be submitted to fire office for advice
	Please submit the necessary information to the office before beginning any construction so that we can visit you, advise you on fire safety, and train you on the necessary measures. We will also be able to cover the costs associated with this service.	Noted, before construction commence fire office will be consulted regarding implementation of firefighting facilities
TANROAD	TANROADs should be informed in order to provider access road to the proposed project site.	Noted
	The proposed access road should make Ninety Degree (90°) to the main road (Nzega to Tabora road)	Noted
	TANROADs provided access road for all institution area (school, collage, university, church, mosque, hospital etc) along the road without any payment.	Noted

Department	Views, concerns, and recommendations	Response to concerns/issues
TBA	Proponent should prepare the master plan of the proposed project.	Noted
	The proponent should follow all laws and regulations of Tanzania.	Noted
	Should conduct geotechnical survey to proposed project area	Noted
	Wastewater should be well managed in all project phase i.e. during mobilization, construction and operation phase	Noted
	The location of the construction should support wastewater treatment infrastructures	Noted
TANESCO	There is transmission line (33KVA and 132KVA) near the project area, during construction should leave 5meter from transmission line for safety issue.	Noted
	Proponent should apply through online system for electricity connection.	Noted
	The project layout plan should be submitted to TANESCO office in order to determine project demand	Noted
TUWASA	Proponent will be supplied with water from Lake Victoria	Noted
	Proponent should apply for water supply from TUWASA.	Noted
	At Itonjanda village there is no sewer system hence proponent is advised to use septic tank and soak away pit	Noted

Department	Views, concerns, and recommendations	Response to concerns/issues
	TUWASA has a plan to buy new vacuum tanker for wastewater collection to carter the need of the area, the client should benefit for septic tank emptying on time	Noted
	Wastewater shall be disposed to Milambo Area	Noted
LTBWB	Proponent should apply for drilling and water use permit.	Noted
	The project that is to be established is important and should be implemented.	Noted
	Conservation of water resources both ground and surface water sources around the project area be considered	Noted
	Instalment of gutters for rainwater harvesting, due to water scarcity should be considered	Noted
Tabora MC	There is Gender Bases Violence in the project area, but people keep it a secret.	Induction training will be given to project workers in order to increase their awareness and confidence to report any GBV issues
	Employment opportunities should be given to the local people.	Noted, employment opportunities will consider people around project
	HIV/AIDS and other infectious diseases including STIs, education should be given to all people who will participate in the proposed project.	Noted, awareness campaign will be given about HIV/AIDS for workers and nearby residents
	There should be strategies to control HIV/AIDS and other sexually transmitted diseases.	Noted, awareness campaign will be given about HIV/AIDS for workers and nearby residents

Department	Views, concerns, and recommendations	Response to concerns/issues
	In the phase of construction and operation, Municipal Social Welfare Officer should be engaged in educating the community and workers about HIV/AIDS and GVB.	Noted, Municipal Social Welfare Officer will be invited to conduct training awareness about HIV/AIDS and GBV for workers at site
	Employment opportunities should be prioritized for local people whenever possible.	Noted, employment opportunities will consider people around project
	The university should provide agriculture course because most of the Itonjanda villagers depend on agriculture.	Noted
	The project will be stimulate development of the area,	Noted
	Awareness creation regarding GBV, HIV/AIDS should be provided to construction workers and community at large	Noted, awareness campaign will be given about HIV/AIDS and GBV for workers and nearby residents
	The land use of the area is for educational purpose only	The proposed project will be according to land use of the area
	Before construction proponent shall apply for building permit	Noted, building permit will be applied
	Employment opportunities should be available to local people and not only to people coming from other areas. This may reduce unnecessary conflicts and increase project acceptance	Noted, employment opportunities will consider people around project
	Materials for construction example gravel and sand should be taken from authorized places in Itonjanda village	Noted, construction materials will be supplied by authorized dealers from Tabora Municipal

Department	Views, concerns, and recommendations	Response to concerns/issues
	Employment opportunities should be given to the local people	Noted, employment opportunities will consider people around project
	Health and safety consideration example availability of PPE and other safety gear should be assured all the time	Noted, recommended PPEs will be given to workers and insist to use while at site
	Ensure strategies are put in place to limit environmental pollution, particularly water	Noted, all generated wastes will be properly managed
	The health of people in communities and in nearby areas to the construction sites should be given priority by making sure that noise threshold level limits are not exceeded during construction	All construction machines will be those of low noise emission and regular service of all trucks will be done
	There should be proper waste management programmes	All generated wastes will be properly managed
	The project area shall be fenced	The area will be fenced by iron sheet and only responsible person will be allowed to enter
	Availability of hygiene facilities shall be assured all the time	Recommended hygienic facilities will be at site all the time for use by workers
	There is dump site at Itetemia area for solid waste management, the project can use this dumpsite for waste disposal	Noted, generated solid waste will be collected into designed area and taken to dumpsite by Municipal Truck
	Employment opportunities should be given to the local people.	Noted, employment opportunities will consider people around project

Department	Views, concerns, and recommendations	Response to concerns/issues
	In the phase of construction and operation, CDO-Tabora MC should be engaged in educating the community and workers about HIV/AIDS and GVB.	Noted, Municipal Community Officer will be invited to conduct training awareness about HIV/AIDS and GBV for workers at site
	The project will leads to business expansion;	Noted
	The project will cause population influx.	Noted, employment at site will consider introduction letter from Village Government
	There is NGOs that deal with HIV/AID and GVB at Tabora MC i.e IDT and CARTAS etc	Proponent/contractor will corporate with those NGOs for HIV/AIDS training campaigns to workers
	Employment opportunities should be given to the local people.	Noted, employment opportunities will consider people around project
	HIV/AIDS and other infectious diseases including STIs, education should be provided to all people who will participate in the proposed project.	Noted, awareness campaign will be given about HIV/AIDS for workers and nearby residents
	There should be strategies to control HIV/AIDS and other sexually transmitted diseases.	Noted, awareness campaign will be given about HIV/AIDS for workers and nearby residents
	In the phase of construction and operation, Municipal Social Welfare Officer should be engaged in educating the community and workers about HIV/AIDS and GVB.	Noted, Municipal Social Welfare Officer will be invited to conduct training awareness about HIV/AIDS and GBV for workers at site
Manoleo Dispensary	Manoleo Dispensary had no objection with the proposed project.	Noted

Department	Views, concerns, and recommendations	Response to concerns/issues
	Manole0 Dispensary should be upgraded to health centre in order to accommodate larger number of patients from the university	The project will depend on Manoleo dispensary for health care to workers during construction and operation phase
	Manoleo dispensary has capacity of accommodating 50-100 patient per day	Noted, effort will be made on how to support
	Employment opportunities should be prioritized for local people whenever possible	Noted, employment opportunities will consider people around project
	Manoleo Dispensary staff provided education to the community regarding Gender Based Violence during the implementation of the project	Noted, proponent/contractor will corporate with expert from Manoleo dispensary for training awareness to workers about GBV issues
	HIV/AIDS and other infectious diseases including STIs, education should be given to all people who will participate in the proposed project.	Noted, awareness campaign will be given about HIV/AIDS for workers and nearby residents
IDT	Employment opportunities should be prioritized for local people whenever possible	Noted, employment opportunities will consider people around project
	In the phase of construction and operation, IDT should to be engaged in educating the community and workers about HIV/AIDS and GVB.	Noted, IDT will be invited to provide training awareness regarding HIV/AIDS and GBV for workers
	When implementing a project, safety and human rights should be considered, especially preventing acts of sexual violence in the project area	Noted, all human right will be protected during project implementation

Department	Views, concerns, and recommendations	Response to concerns/issues
	There is Gender Bases Violence in the project area, but the people keep it a secret	Induction training will be given to project workers in order to increase their awareness and confidence to report any GBV issues
	There are different IDT people that collect data in village i.e HIV/AIDS, GVB etc	Noted, for any issue regarding HIV/AIDS or GBV will be consulted
CARITAS	Employment opportunities should be prioritized for local people whenever possible.	Noted, employment opportunities will consider people around project
	Increased income generation to locals	Noted, local people around project will be given priority for employment opportunities
	There is Gender Bases Violence in the project area, but the people keep it a secret	Induction training will be given to project workers in order to increase their awareness and confidence to report any GBV issues
Itonjanda Village Executive Office	Employment opportunities should be prioritized for local people.	Noted, local people around project will be given priority for employment opportunities
	Gender violence occurs in some houses in Itonjanda Village, where women are beaten, and their daughters are not sent to school.	Induction training will be given to project workers in order to increase their awareness and confidence to report any GBV issues

Department	Views, concerns, and recommendations	Response to concerns/issues
	Increased income generation to locals Proposed project will be source of development	Noted
Ifucha Ward Executive Office	Proposed project will be source of development.	Noted,
	Whenever possible project activities should involve local communities at all levels.	Noted, local people around project area will be given first priority for employment opportunities
	Job opportunities that do not necessarily call for higher and specialized skills should be given to local communities	Noted, local people around project area will be given first priority for employment opportunities
Project Neighbors	Increased income generation to locals; ●There was fair compensation	Noted, local people around project area will be given first priority for employment opportunities
	Increased income generation to locals. There was fair compensation	Noted, local people around project area will be given first priority for employment opportunities
	Job opportunities that do not necessarily call for higher and specialized skills should be given to local communities.	Noted, local people around project area will be given first priority for employment opportunities
	Increased income generation to locals. There should be a clear barrier separating the proposed project from others. Proposed project will be attracting social service like Water and and Electricity	Noted
	Increased income generation to local community The proposed project area should be fenced. Employment should give priority to women Proposed project will be source of social service like Water and Electricity	Noted

Department	Views, concerns, and recommendations	Response to concerns/issues
	There was fair recompense. Increased income generation to locals	Noted
	Proposed project will attract social service like Water and Electricity, Increased income generation to locals	Noted

Source: COLBA Consulting Ltd, October 2023

CHAPTER SIX: ANALYSIS OF IMPACTS AND IDENTIFICATION OF ALTERNATIVES

6.1 INTRODUCTION

This chapter seeks to identify and analyze environmental and social impacts that may result from the proposed project. Identification of the impacts is based on the following: -

- Issues of concerns raised at various stakeholders' consultation or interview meetings
- Expert observations or experiences and judgment

The identified impacts are based on project phases namely: - Mobilization, Construction, Operation as well as Decommissioning phase.

6.2 MOBILIZATION PHASE

This phase will include recruiting of labour, site clearance (cutting of existing vegetation, transportation of waste materials from site to dump site), transportation of construction materials from point source to project site and fencing area ready for starting construction phase. This phase will be implemented once client acquire all recommended certificates i.e. Construction permit, NEMC EIA Certificate e.t.c

6.2.1 Potential Environmental Impact

6.2.1.1 Vegetation clearance to accommodate project development

The current status of the project proposed site is undeveloped open land and it is owned by MJNUAT. The site is not built-up area, its open area and covered by vegetation like Mango trees, Cashew nut trees, Palm trees, acacia trees, one baobab tree and short grasses. No species of the amphibians and reptiles that are included in the IUCN Red list of threatened species. During mobilization and project construction phase vegetation on the project site will be cleared to make the area clear for the proposed project implementation. This will affect the existing vegetation at the area and cause deforestation which contributes on climate change. This impact is negative, short term and of high significance.

6.2.1.2 Dust emission during site clearing

Dust will be generated at the proposed project site and along the access roads (internal access roads) at the project site due to site preparation activities like clearing and grubbing, offloading of construction materials etc. Further, the required construction materials will be sourced and transported to the site for the preparatory activities, where during offloading dust will be emitted. Also, movement of trucks delivering construction materials will be a source of dust emission to community around the site. *This impact is negative, short term and of high significance.*

6.2.1.3 Occupational Health hazards to mobilization workers

For the whole activities of site clearance, workers will be exposed to situation that will affect their health like dust emission, noise pollution and injuries

due to use of machines or cut of sharp objects. This will affect the general environmental health to workers. *This impact is considered negative, short term and of high significance*

6.2.2 Potential Social Impact

6.2.2.1 Employment Opportunities to local people

During mobilization phase, local people will be employed for site preparation activities as direct employment as both skilled and unskilled labours to perform various mobilization activities such as site clearance, construction of materials storage yard, mobilization of machinery and site preparation/setting. Also, food vendors and other local suppliers adjacent to the project (Itonjanda area) will have additional income generating opportunities. *This impact will be positive, short term and of high significance.*

6.3 IMPACT IDENTIFICATION DURING CONSTRUCTION PHASE

6.3.1 Environmental Impacts

6.3.1.1 Nuisance from noise and vibration impacts during construction,

During construction phase, noise and vibration nuisance will be generated from activities such as excavations, drilling, earthworks, processing of construction materials, haulage of construction materials or mixing of construction materials at site. The machines to be used in the construction works will be a source of noise pollution during extraction and processing of construction materials and transporting construction materials. The movement of heavy construction equipment will generate nuisance primarily to workers, neighbours and visitors at the project site. *This impact is negative, short term and of high significance*

6.3.1.2 Disturbance to contractor due to effect of storm water flowing during rainy season

During the heavy rainfall, storm water runoff at the project is a normal situation. Storm water runoff could cause nuisance to contractor if construction material like cement and sand is not well kept. Contactor will make sure that all construction materials are well kept to mitigate the impacts of storm water runoff during the heavy rain. *This impact is negative, short term and of high significance.*

6.3.1.3 Occupational Health and Safety Hazards/Risk

The labour force to be employed to carry out the construction activities will pose several health and safety hazards if care not considered. The occupational health and safety issues to be associated with the construction of the proposed project include physical, chemical, noise and health hazards. Many of the project construction activities will involve the handling of potentially harmful objects, working at heights, transporting of construction materials from point source to project site and lifting of heavy equipment, vehicular traffic, and contact with electrical conductors, exposure to dust and excessive noise. Thus,

construction workers will be at risk of injuries such as falls, cuts, fractures and electrical shocks, and ailments from harsh ambient effects and unsanitary conditions. Workers will be prone to all sorts of safety and health risks during construction. This impact is negative, short term (during construction) and of high significance

Table 6.1 Occupational health and safety hazards during construction

Category	**Description**	**Hazards/Risks**
Physical hazards	Operational and workplace hazards, working at elevation, overhead works, on storey buildings	Slips, trips, and falls (inadequate workplace) resulting in sprains, strains, and fractures Ergonomics hazards from manual handling, lifting weights, or repetitive movements Sharp and moving objects in the workplace (e.g., foot injuries from thorns on oil palm fronds and fruit) Over-exposure to noise, vibration, and extreme or adverse weather conditions Wounds from equipment or sharp objects Exposure to extremes of weather, including sustained exposure to the sun or cold, can be harmful Typical problems include hypo- or hyperthermia dehydration, ultraviolet damage to skin or eyes, and heat or cold exhaustion cases Noise and vibration from hand-held equipment (such as chainsaws, brush cutters, or trimmers) can cause hand/arm problems or hearing loss
	Machinery and vehicles operations	Accidents may occur in the use of machines, equipment and vehicles. This may include vehicle and machinery roll-overs; uncontrolled movement resulting in personal injury (e.g. crushing by moving vehicles); damage or loss of asset; injury, entrapment, or death due to faulty or unguarded equipment and machinery (e.g. moving parts and pinch points on machinery and vehicles); entrapment due to unplanned starting, activation, or engagement of equipment (e.g. rollers); or injury during inspection or repair of vehicles (e.g. vehicle lift not secured while personnel working underneath)
	Confined and restricted space entry	Risk of asphyxiation; explosions due to gas, dust, or fumes (e.g. residual petroleum fumes); and entrapment or enclosure within the confined space, injury or fatality can result from inadequate preparation when entering a confined space or in attempting a rescue from a confined space Entry into all confined spaces will be restricted and subject to permitted supervision by properly trained persons

Category	Description	Hazards/Risks
	Risk of fire and explosion	Combustion of stored oil/fuel residues, which can lead to a loss of property or cause possible injury to or fatality of project workers
Chemical hazards	Exposures to dust during construction and paving activities Exhaust emissions from heavy equipment and motor vehicles Inhalation during preparation, mixing, and application	
Noise	Exposure to extremely high levels of noise from heavy equipment operation and from working in proximity to vehicular traffic	
Health hazards	Exposure to bronchial and other respiratory tract diseases, HIV/AIDS, STDs and other communicable diseases Exposure to infectious diseases, especially water supply and sanitation-related diseases. Poor sanitation due to sharing of sanitation facilities: Construction workers sharing sanitation facilities such as toilets with other members of the community could lead to hygiene challenges and a risk of hygiene-related diseases.	

Source: Fieldwork, October 2023 & EHS Guidelines

6.3.1.4 Air pollution due to dust and gaseous emission during construction

Air emissions due to release of particulate matters (dust) during construction and exhaust from vehicles and construction traffic (vehicular emissions) will be of high concern. It is noted that construction activities may contribute to local PM_{10} concentrations (which can potentially impact upon human health), where this will be more critical in dry season. Regarding exhaust emissions from construction equipment/ machines and vehicles, the operation of the construction vehicles and equipment powered by internal combustion engines will result in the emission of exhaust gases containing pollutants, including NOx and Volatile Organic Compounds (VOCs) and carbon monoxide. The quantities emitted depend on engine type, service history, usage pattern, and fuel composition. Dust and fumes are likely to deteriorate ambient air quality and will have major impact to workers and neighbours. *This impact is negative, short term and of high significance*

6.3.1.5 Water Pollution and siltation effect due to generation of soil materials

For proposed project facilities implementation, soil materials will be from excavation of foundation, trenches. Poor management of generated soil materials will lead to water pollution in receiving water bodies and siltation issues which disturb depth of water bodies and affect aquatic organism due change of water pH. Also, the effect of water Turbidity may affect oxygen circulation in water bodies and this will lead to death of aquatic organism. *This impact is negative, short term and of high significance.*

6.3.1.6 Spread of communicable disease due to mismanagement of domestic wastewater

During construction phase, local people will be employed to work in construction activities. Also, services providers like food vendors and supplier of construction materials will enter project site. The presence of high number of people at site will generate liquid waste from toilets/wash rooms. Mismanagement of such generated wastewater may be a source of communicable disease to community around. *This impact is negative, short term and of high significance.*

6.3.1.7 Health hazards due to mismanagement of hazardous waste

During construction activities various materials like iron sheets, iron bars, electrical wires, and wire mesh will be used. During fixing cut pieces of such materials will be generated, where such waste will be termed as hazardous wastes. Mismanagement of such waste may lead to injuries to workers as sharpness to be generated. *This impact is negative, short term and of high significance.*

6.3.1.8 Bad visual/ smell due to mismanagement of solid waste

During construction phase people to be employed will need food for survival, where food remain, empty water bottles, offices papers and alike will be generated at site but the rate will be minimum. Mismanagement of domestic solid waste may lead to bad smell and bad visual due to scattering of generated solid waste like water bottles and food remains. *This impact is negative, short term of medium significance.*

6.3.2 Social Impacts

6.3.2.1 Gender Inequity in Employment opportunities

During construction, it is likely that the population within and beyond the proposed project area will be subject to exclusion from formal employment opportunities offered within the project's construction phase due to common types that undermine their perceived occupational capabilities and productivity. Gender inequality might be perpetuated through unequal distribution of work, discrimination against women during recruitment, and unequal pay for women. Women are likely to be least favoured in the employment opportunities in the project area. This is because the nature of jobs available during construction is perceived to be done mainly by men. Sexual exploitation and immorality could result, especially with the young girls of the area, to gain favour for employment opportunities. This can result in the spread of sexually transmitted diseases such as HIV/AIDS and other sexually related diseases. *This is a negative impact that can be characterized as local, medium magnitude, short term and probable.*

6.3.2.2 Spreading of HIV and other STIs in the project area and surrounding environs

Construction of all project supporting facilities in the area may cause an influx of people from various places in search for jobs and other opportunities that come with construction activities. The project may facilitate interaction

of people of different sex which may lead to sexual relationships and eventually spreading of HIV and other Sexually Transmitted Infections.

6.3.2.3 Knowledge and skill increase to local labour

Since the project will provide direct employment to local people to work during construction, so those who will get opportunity to work particularly unskilled and semi-skilled labour will get an opportunity for skills development. Skills to be acquired may include construction equipment, heavy machinery operation, materials preparation and mixing, construction standards, health and safety procedures at construction sites, laying drainage, laying pavements, and excavating trenches, building works etc. Apart from gaining working skills and knowledge qualified experts, the employed people will benefit from formal training opportunities, which contractors expect to offer during the construction phase. Consequently, would be employable in the construction industry projects, earn more income and improve their standard of living. *This is positive impact that can be characterized as regional, high magnitude, long term and highly probable.*

6.3.2.4 Revenue Generation to Local Governments and Agencies

The construction activities will generate additional revenues to the central, regional and local government in the form of taxes, fees, levies and other charges generated throughout construction activities. The project will contribute to local and central government revenue through corporate taxes, duties, levies, fees, contributions to the National Social Security Fund (NSSF), and monthly PAYE income tax of all full-time employees.

The Contractor will make sure that payment for various utilities providers such as TANESCO and TUWASA will be done per time to enhance for better service. *This is a positive impact that can be characterized as regional, high magnitude, short-term and definite.*

6.3.2.5 Benefit to local producers and suppliers of construction materials

Construction of project supporting facilities at the area will consider the use of local contractors as well as local building materials available in the country. This will contribute to the boosting of income among local suppliers of materials, labours and the economy of the country as a whole. *This impact is considered positive, short term and of high significance.*

6.3.2.6 Increase income to offsite services providers

Construction workers required will provide a ready market for various goods and services, leading to several business opportunities for small-scale traders such as shop owners, accommodation providers, and food vendors near the project proposed site. With the commencement of construction activities, workers' influx to the project site will attract small-scale business opportunities. These may include the growth of eateries and hawkers that may seek to market food and products to the project workers. Construction work will indirectly cause an increase of individuals from the informal sector and service providers come from different areas beyond the project's primary

influence area. The increase in small vendors and businesses in the area will increase income and indirect employment opportunities. This will affect positively the life of those who provide offsite services and increase flow of cash in the area. *This is a positive impact, short term and of high significance*

6.3.2.7 Disrupted Traffic Flow and Public Safety/Accidents

The project site can be accessed using a single access route (Nzega-Tabora Road) from either direction. The main entrance/exit will be located adjacent to Nzega-Tabora Road, which is currently not experiencing traffic congestion. Traffic may be disrupted on all the roads and junctions under construction due to slow and interrupted traffic flow and potential diversions. The use of heavy moving construction vehicles and machinery in project site is generally known to cause traffic reducing movement and vehicle flow during construction, this may increase congestion, delays, road accidents (especially along Nzega-Tabora Road) and planned internal access roads (within construction project site), and reduce road safety, especially at peak hours. The impact can be further severe, particularly during morning and evening peak hours. The traffic disruption could potentially cause disruption, health and safety impacts, and economic impacts from delays for road users going to or from work and other destinations.

Further, accidents to the project site access road may increase due to additional movements generated by vehicle traffic during the transportation of construction materials to the project site and failure to observe safety rules in traffic movements and mobility. The likely sensitive receptors are project site staff, visitors, pedestrians and commuters along Nzega-Tabora Road at Itonjanda area. If drivers will not take due caution, haulage trucks might be an accident risk to workers and neighbours at the area. *This is a negative impact that can be characterized as site-specific, high magnitude, short term and highly probable.*

6.4 IMPACTS DURING OPERATION PHASE

During operation of proposed buildings, it is anticipated that there will be both negative and positive environmental, social and economic impacts.

6.4.1 Social Impacts

6.4.1.1 Creation of Direct Employment Opportunities

The construction of proposed buildings and other supporting facilities will create demand for additional skilled and non-skilled labours, who will be employed directly by MJNUAT Tabora Campus. Operation and maintenance of the facilities will create employment as well. Increased employment opportunities will be created as more students enrol when facilities are improved and increased at MJNUAT Tabora Campus.

6.4.1.2 Enhanced Income to the Surrounding Local communities

The establishment of new MJNUAT Tabora Campus will translate to more opportunities for the local economy as demand for goods and services trickle down to the local businesses. The petty traders and various service providers at Itonjanda areas are likely to benefit from an increased market for various

goods and services. The program will translate to overall measurable economic and employment growth for the country. *This impact is positive, long term and of high concern*

6.4.1.3 Increase Skills for all students graduate

The project will increase the likelihood of students' employment after graduation by producing graduates with high quality and relevant training aligned with the country's vision. There will be significant exchange opportunities for trainers and management staff in the academic, given the high-quality training. The quality graduates from MJNUAT Tabora Campus will work across the borders in East Africa, where such skills are still inadequate. *This impact is positive, long term and of high concern*

6.4.1.4 Spreading of HIV/AIDS and other STIs

Establishment of new MJNUAT Tabora Campus in the area will add to the students from various places in search for learning vacancy and non-students for searching opportunities that come with project development. The project may facilitate interaction of people of different sex which may lead to sexual relationships and eventually spreading of HIV and other Sexually Transmitted Infections. *This impact is considered negative, long term and of high significance*

6.4.1.5 Gender-based Violence, Sexual Exploitation and Harassment

The project's operation may lead to sexual abuse and exploitation-related incidences. The majority of victims might be young female students and employees at the project site. Cases like this can be mostly between students, students and lecturer/trainers, staff and staff, students and neighbours communities. The common acts of sexual misconduct are groping, sexual rubbing, unwelcomed sexual touching, sexually suggestive or degrading remarks and sexually explicit or abusive language. Frequently, sexual abuse behaviours may include sexual bribery in connection to various favours or facilitations like promotions, allowances, examination performances/marks/grades and other personal benefits. *This is a negative impact characterized as site-specific, high magnitude, long term and probable.*

6.4.1.6 Reduction of Gender Gap

The proposed establishment of new MJNUAT Tabora Campus is expected to increase capacity for gender-friendly and responsive learning environments due to the development of infrastructure and facilities with increased capacity to enrol women and attract them to enrol in various programmes. *This impact is considered positive, long term and of high significance*

6.4.2 Environmental Impacts

6.4.2.1 Soil/water pollution due to solid waste mismanagement

Management of solid wastes especially from domestic sources needs to be well designed to avoid soil pollution and other associated health hazards. In regard to the proposed project development is concerned with increase number of students at the area, the issue of solid wastes disposal is particularly important as it is anticipated that there will be more number of students meet

at a time. So mismanagement of generated solid waste may cause soil contamination due from leachate to be regenerated when such waste decompose, where this may change the soil pH and cause death of important micro-organism needed for soil decomposition to increase soil fertile. *This impact is negative, long term and of high significance*

6.4.2.2 Water and soil pollution due to domestic wastewater mismanagement

Generation of liquid waste in the form of sewage is inevitable in a community such as proposed development project. This calls for proper design and management of sewage systems to avoid water/soil and human health risks. The poor management of generated domestic waste at site like improper maintenance of damaged sanitary system for wastewater control and may cause direct contamination of such waste into soil and then to water body. *This impact is considered negative, long term and of high significance*

6.4.2.3 Soil Erosion due to Runoff Effects and Loosened Top Soil

Removal of soil cover will expose the remaining area to runoffs, which may in turn result in soil erosion. Inadequate backfilling and resurfacing may result into erosion which in turn may damage the built structures and may result in siltation of receiving water bodies. *This impact is considered negative, long term and of high significance*

6.4.2.4 Fire outbreak

During project operation, the facilities will be connected with electricity source from national grid (TANESCO). So improper wiring system, use of electrical equipment which not meets recommended standards may be a source of heat at project site. This may result into loss of lives and properties around project area. *This impact is considered negative, long term and of high significance*

6.4.2.5 Loss of properties due to Natural Disaster Risk

The natural disasters considered include flooding and earthquake impacts. Since the proposed project site is located at flat area, it means that during rainy season water runoff will be from northern area to southern area, if care not considered this will affect the use of the proposed project supporting facilities. Also, the historical of Tabora region on earth quake impact indicate that it likely to occur but at low intensity. If care not considered during design, this will affect the proper use of the building and ultimate stage may cause death. *This impact is negative, short term and of high significant*

6.5 IMPACTS DURING DECOMMISSIONING PHASE

The proposed structures might remain in operation for 50 years provided maintenance of the facilities may be given due attention. However, even if maintenance will be done as it should, a time will come when the facilities may be dilapidated and deemed unsuitable for proposed operations. This is what is meant by decommissioning phase. Decommissioning of the proposed project may set in anytime due to financial challenges, high operating costs, decision of the investor to change the line of business etc. If this happens

environmental as well as socio-economic impacts may occur. The following are impacts to be associated with decommissioning phase;

6.5.1 Environment Impacts

6.5.1.1 Loss of aesthetic value due to Abandonment of infrastructure

The proposed project is planned to run for a long time unless there happen unforeseeable events which may curtail the project life span of 100 years. The proponent may abandon buildings and other supporting facilities that may permanently render the project site unattractive.

6.5.1.2 Land pollution and loss of aesthetic

In the event that a major rehabilitation of a Campus involves demolition of structures, there is a risk that improper waste management could contaminate land (soils and water resources). In case demolition waste is left scattered, it will destroy the aesthetic values of the area, and its neighbouring environment. Abandoned waste management facilities (septic tanks, wetland could potentially become a breeding area for diesel causing vector, that could transmit infectious disease to the neighbouring community. *The significance of the impact is high. The spatial scale of the impact regional and its duration will be short term.*

6.5.1.3 Generation Demolition waste materials

The major rehabilitation of MJNUAT Tabora campus will generate demolition wastes that are heterogeneous mixtures of building materials such as aggregate, concrete, wood, paper, metal, insulation, and glass that are usually contaminated with paints, fasteners, adhesives, wall coverings, insulation, and dirt. Due to the complex composition of demolition waste, its haphazard disposal on the environment could have deleterious effects. For example, metals, paints when exposed to wet environment can potential release toxic ions (through leaching), thus altering the soils chemistry, and contaminating water resources and the food chain. Other components such plastics and glass are non-decomposable, thus can remain in the environment for years. The waste if improper placed will become a safety hazard. *The significance of this impact is high. The scale of impact is local, and short term. The impact is reversible, and will have cumulative and residual impacts.*

6.5.1.4 Air pollution resulting from demolition works

Demolition activities will potentially generate dusts and other air pollutants. Dust will emanate from gridding, drilling on concrete works, from moving, loading and off-loading of construction materials. Dust will have impacts on the aesthetic value of the area, impair plants photosynthesis and possibly impair visibility. Inhalation of fine particulates (PM) may cause health hazards to receptors (demolition workers). *The significance of this impact is low, of local scale and short term.*

6.5.1.5 Noise pollution from demolishing works

Demolition activities are typically associated with noise levels above the standards. The main noise receptors will be the demolition force and neighbouring community. Noise is nowadays considered a public health

concern. Impacts of noise could be physical (such as hearing loss) and psychological (such as frustration and nuisance). *The impacts of noise is considered local, of medium significance, short term but could be irreversible.*

6.5.1.6 Environmental pollution due to hazardous waste mismanagement

During the major rehabilitation, hazardous wastes will be generated from the use of chemicals; oils, lubricants and containers, cut materials (plastics, metals and similar) and e-waste computer rooms. Health-care waste contains potentially harmful microorganisms that can ready infect any exposed person, where infectious medical waste can cause disease in humans either through direct contact or indirectly by contamination of soil, ground or surface water and air, accidents: sharps-inflicted injuries. Haphazard burning of medical waste may cause air pollution and health problem associated with inhalation of toxic substances such as mercury gas or dioxins.

Also E-waste contains a list of chemicals that are harmful to people and the environment, like: mercury, lead, beryllium, brominated flame retardants, and cadmium. When electronics are mishandled during disposal, these chemicals may reach out and end up in soil, where it washed away with runoff, and contaminate soils, water, and air. The open-air burning releases toxic fumes, while acid baths leaches toxic materials leaching into the environment. The most dangerous property of heavy metals is their toxicity and tendency to accumulate in the environment. Highly toxic substances such as mercury, lead, beryllium, and cadmium can accumulate in water, in plants and animal tissues and pose a significant threat to the environment even in minute quantities Heavy metals.

6.5.1.7 Wastewater Management problems

The types of wastewaters to be generated during rehabilitation activities include sewage, grey water and process water. Sewage effluent will be produced in the sanitary facilities provided and collected on site. Wastewater produced if not well disposed will also pose a problem to human health. This will be particularly severe if the waste is not collected directly and / or is released directly into the environment without any treatment. Wastewater if discharge in the natural environment can pollute environment and causing unhygienic sanitary conditions and nuisances to the human perceptions. *The significance of the impact is moderate as the impact is localized, short term and reversible.*

6.5.2 Social impacts

6.5.2.1 Loss of employment, student hostel and learning place

If for whatever reason the project is closed down, the people employed by the project will lose their jobs, students will loss hostel for sleeping and hall for learning. The offices will be affected during the project decommission. This will have significant impact to the people and their dependents. This impact is considered negative, long term and of high significance

6.6 SUMMARY OF IDENTIFIED ENVIRONMENTAL AND SOCIAL IMPACTS

The table 6.1 presents summary of identified environmental impacts based on expert opinions or observations. At this stage the identified impacts are categorized with project phases as well as proposed project activities. The table 6.1 also indicated the affected environmental media, namely the Physical, Biological, Socio-Economic-and Cultural Environment.

Table 6.2 Summary and Categorization of identified impacts

Phase	Key Activities	Identified Environmental. Impacts	Physical	Biological	Socio Economic/ Cultural
Mobilization	Site clearance	Noise pollution	X		X
		Dust emission		X	X
		Occupational health hazards			X
		Vegetation clearance	X	X	
Construction	High number of people in the area for those construction workers and services providers.	Potential for increase of social interaction which may lead to spread of HIV/AIDS, STDs			X
	Using local materials for construction activities	Degradation at Point of Sourcing construction materials	X	X	
	Improper relocation of construction materials	Loss of construction materials caused by rain water flow rate	X		X
	Generation of spoil materials from the construction activities	Pollution of water bodies and siltation impact	X	X	
	Generation of hazardous wastes (cut pieces of iron sheets, steel bar etc)	Injuries to construction workers due to sharpness of such waste			X
	Generation of domestic wastewater by construction workers	Pollution of water bodies		X	X
	Construction of a proposed buildings	Income, skills and knowledge increase to local labours			X
	Using heavy equipment in construction activities	Potential to noise and vibration impact	X		X
	Working during construction of the project	Potential to Occupational Health issues			X

Phase	Key Activities	Identified Environmental. Impacts	Physical	Biological	Socio Economic/ Cultural
	Movement of Construction Machines and vehicles	Potential to air pollution due to dust and gaseous emission		X	X
	Use of local materials for construction	Benefit to Local Producers and Suppliers of Construction Materials			X
	Trucks carrying construction materials meet at project site	Impacts due to Traffic congestion	X		X
	Transportation of construction materials from point source to project site using trucks	Dust emission, noise pollution and traffic jam around the project site	X		
Operation	Operation of buildings at project site	Enhanced income, employment opportunities and local business			X
	High number of students to be admitted for learning per year	Reduction in gender gap in education provision			X
	Increasing number of people in the area	Potential for sexual interaction which may spread HIV/AIDS			X
	Improper backfilling and resurfacing	Soil erosion due to runoff effect	X		X
	Fire accident	Potential to loss due to fire accidents	X		X
	Liquid waste overflow	Pollution of surface water source due to mishandling of liquid waste	X		X
	Increase number of people in the area	Increase bad act in the area which result to security imbalance	X		X
	Haphazard spreading of solid wastes	soil pollution due to mishandling of solid Wastes	X		X
Decommission Phase	Demolition of structures	Loss of employment			X
	Abandonment of infrastructure	Loss of aesthetics	X		X

Phase	Key Activities	Identified Environmental. Impacts	Physical	Biological	Socio Economic/ Cultural
	Demolition of structures	Loss of Aesthetics due to Haphazard Disposal of Demolition Waste	X	X	
	Demolition activities	Dust and noise pollution	X		X

6.7 ANALYSIS OF IMPACTS

Table 6.3 presents summary of analysis of identified environmental impacts, the analysis is based on the following criteria:

- Nature of impacts (positive/negative)
- Magnitude/significance i.e. depending on the severity
  - Major (if severe)
  - Minor (if not severe)
  - Wide scale (if it affects large areas)
  - Local scale (if it affects a locality)

- Sequence (i.e. depending on reach)
  - Direct (if there is a direct impacts)
  - Indirect (if there are indirect impacts)

- Duration/time frame
  - Long duration/time (if the impacts will persist for more than 5 years)
  - Medium duration/time (if the impacts will persist for 1-5 years)
  - Short duration (if the impacts will persist for a couple of months/weeks/days

- Reversibility
  - Reversible (if impacts can be mitigated)
  - Irreversible (if impact cannot be mitigated)

Table 6.3 Consequence Assessment According to Score/Scale

Consequence	Magnitude + Scale + Duration	3-4	5-7	8-11	12-14	15 and above
		Very Low	Low	Moderate	High	Very High
Likelihood	Exposure + Probability	2-3	4-5	6-7	8-9	10 and above
		Very Low	Low	Moderate	High	Very High

In order to determine the overall significance of the impacts, a matrix of the scores of the Consequence and Likelihood is then used as shown in Figure 6.1 below. The Color codes in the figure are used to show the significance of the impact, i.e., White for Very Low, Green for Low, Orange for Moderate, Red for High and Black for Very High. The implications of these descriptions of the impact's significance are shown in Table 6.5. Based on these implications, the mitigation measures and hence the Environmental Management Plan are drafted

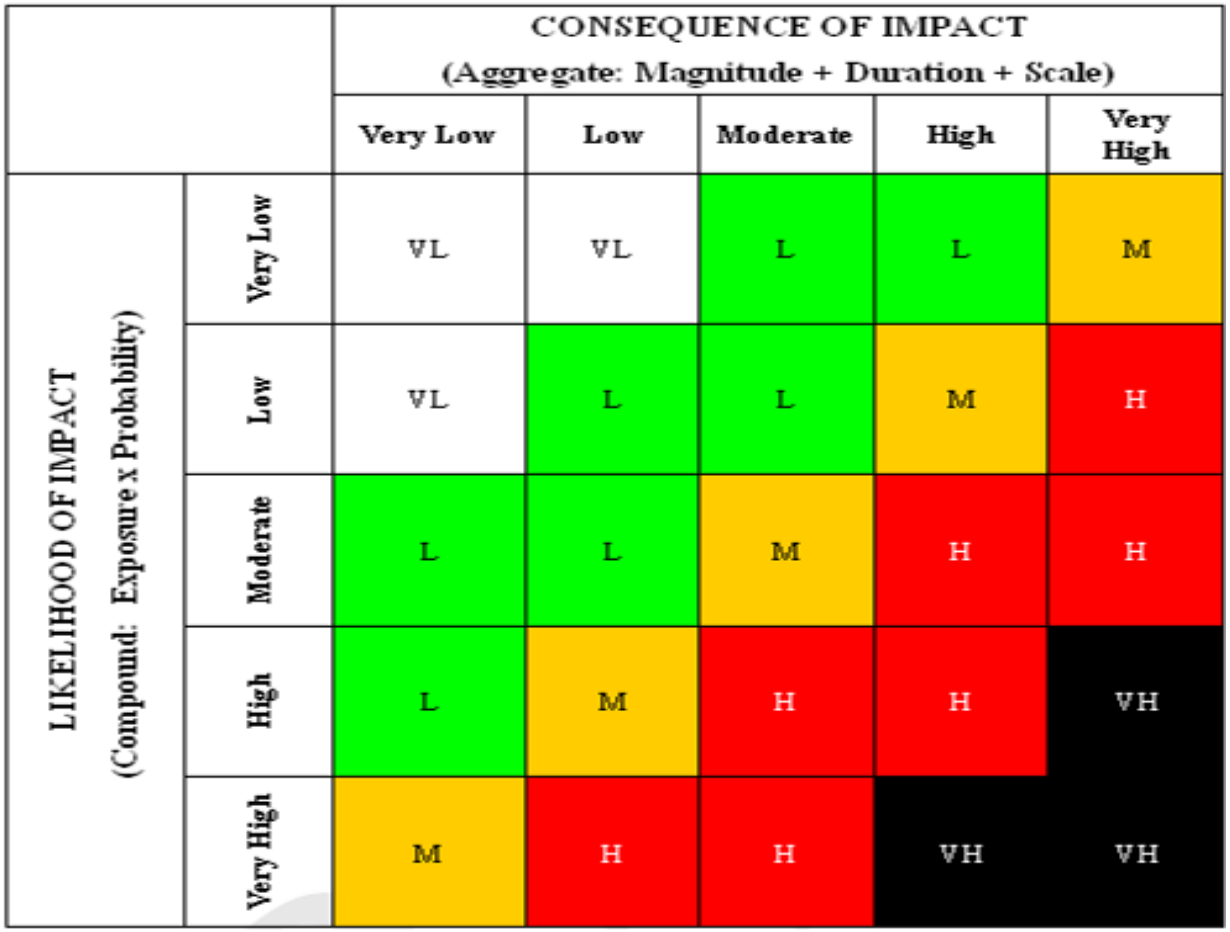

Figure 6.1 Significance Analysis from the Consequence Vs Probability Evaluation

Table 6.4 Methodology/criteria for impact analysis magnitude/significance

Criterion	Description	Possible Results		
		Term	Description	Score
Magnitude of the Impact	An indication of the severity of the impact, either positive or negative.	Very High	Extreme effect – where natural, cultural or social functions or processes permanently cease.	5
		High	Severe effect – where natural, cultural or social functions are altered to the extent that they temporarily cease.	4
		Moderate	Moderate effect – the affected environment is altered but natural cultural or social functions continue, albeit in a modified way.	3
		Low	Minimal effect – affects the environment in such way that natural cultural or social functions and processes are not affected.	2
		Very Low	Minimal or negligible effect	1
		Unknown	Magnitude of the impact unknown.	0
Scale of the Impact	An indication of geographical extent of the impact	National	Affects the resources of the country	5
		Regional	Affects the resources of the region	4
		District	Affects the resources of the district	3
		Local	Affects the project area and surrounding villages	2
		Site – specific	Localized, confined within the license area.	1
		Unknown	Extent of the impact unknown	0
Duration of the Impact	An indication of the duration or time over which the impact will be experienced.	Permanent	Will remain permanently	5
		Long term	Extends into the post- closure phase, but not permanently	4
		Medium term	During the operational life of the project	3
		Short term	Shorter than the operational life of the project	2
		Transient	Very short duration	1
		Unknown	Duration of the impact is unknown	0

Table 6.5 Methodology/criteria for analysis of probabilities

Criterion	Description	Possible Results			
		Term	Description		Score
			Discrete Event	Prolonged Exposure from a single activity or event	
Exposure to Impact	An indication o the frequency o the activity tha may cause the impact, or the continuity o the exposure.	Very High	Daily or continuous	Exposure in perpetuity	5
		High	Weekly/once pe week	Continuous exposure into closure or post-closure phases	4
		Moderate	Monthly/once pe month	Continuous exposure during construction and operations phases	3
		Low	Bi-annually	Continuous exposure throughout one phase	2
		Very lo	Annually or less frequently	Prolonged exposure yet finishes before end of a phase	1
		Unknown	Frequently of activity unknown	Continuity of exposure unknown	0
Probabilit y of the Occurrenc e	An assessmen of the degree o certainty associated with a potentia impact	Highly likely	Very likely or certain to occur		5
		Likely	Likely to occur		4
		Possible	May possibly occur		3
		Unlikely	Unlikely to occur		2
		Highly Unlikely	Very unlikely to occur, or almost impossible		1
		Unknown	Probability of the occurrence unknown		0

Table 6.6 Summary of analysis of identified environmental impacts

Phase	Key activities	Identified environmental. Impacts	Analysis of environmental Impacts													
			Nature of impacts		Magnitude/significance				Sequence		Duration/term			reversibility		Significance Rating
			+ve	-ve	high	low	wide	local	direct	indirect	long	mid	short	reversible	irreversible	
Mobilization	Site clearance	Noise pollution		X	X				X				X	X		-ve Moderate
		Dust emission		X	X				X				X	X		-ve Moderate
		Occupational health hazard		X	X				X				X	X		-ve Moderate
		Vegetation clearance		X	X					X	X			X		-ve Moderate
Construction	Change of Landscape of the area	Potential for improvement of scenery	X			X		X	X		X					+ve Moderate
	High number of people in the area	Potential for spread of HIV/AIDS		X	X		X		X		X			X		-ve Major
	Generation of spoil materials from the construction activities	Pollution of water bodies and siltation impact		X		X		X	X		X			X		-ve major
	Construction of the project	Income and skills increase to local labours	X		X		X		X		X			X		+ve Moderate

	Working during construction of the project	Potential to Occupational Health issues		X	X			X	X				X	X		-ve Major
	Movement of Construction Machines and vehicles	Potential to air pollution		X	X			X	X				X	X		-ve major
	Use of local materials for construction	Benefit to Local suppliers of Construction Materials	X		X		X		X			X		X		+ve Major
	Movement of construction equipment	Potential to noise impact		X	X			X	X				X	X		-ve Major
	Trucks carrying construction materials meet at site	Impacts due to Traffic congestion		X		X		X	X				X	X		-ve major
	Employment during construction	Workplace Sexual harassment and violence against women & vulnerable segments		X	X				X			X		X		-ve Major

		Gender inequity in employment, fair labour terms and exclusion from economic opportunities		X	X				X			X		X		-ve major
Operation	Operation of buildings at project site	Enhanced income, employment opportunities and local business	X		X		X		X		X			X		+ve Major
	Improper solid waste handling	Bad smell/ visual and clogging of storm water channel		X		X	X		X		X			X		-ve Moderate
	Fire accident	Potential to loss due to fire accidents		X	X			X	X				X		X	-ve major
	Poor management of wastewater	Pollution to receiving environment (water and soil)		X		X			x					x		-ve moderate
	Increasing number of people in the area.	Potential for spread of HIV/AIDS and other STDs		X	X		X		X		X			X		-ve major
Decommissi	Demolition of the structures	Loss of employment		X	X			X	X		X			X		-ve Moderate
	Abandonment of infrastructure	Loss of aesthetics value		X		X		X	X		X			X		-ve Moderate

	Demolition of structures	Poor disposal of wastes		X	X			X	X		X			X		-ve Major
	Demolition activities	Dust and noise		X	X			X	X				X	X		-ve Major

6.8 CONSIDERATION OF PROJECT ALTERNATIVES

6.8.1 Alternatives site
The proposed project site is currently planned for educational purposes and has available land space suitable for the proposed project. It is worth noting that it is very difficult for one to get land for investment wherever she/he wishes, thus limiting the flexibility for allocating and relocating project site. In that view, considering site relocation alternative based on the proposed project will entail negative financial and time implication to the client. The provided site is economic feasible for proposed project implementation since not require fund for purchasing extra land

6.8.2 Alternative Power Supply
Currently the proposed site is not connected with any power source but TANESCO infrastructure is about 30m in southern side of the plot where it will be easy to connect as main power source. TANESCO power will be used as the main source of energy. However, proponents plan to install a diesel generator and solar panel to be used as a power back up system in case of power interruption.

6.8.3 Alternative Water source
The project site is not connected with any water source but piped water infrastructure from TUWASA is passing near project site which will be easy to connect as main water source. The main source of water will be TUWASA, however harvested rain water could be used for garden irrigation to reduce dependence on TUWASA water and save the cost.

6.8.4 Alternative Solid waste Management
Biodegradable materials will be collected and stored in specified places for temporary solid waste collection, awaiting delivery to permitted dump sites by Tabora Municipal trucks. This will improve solid waste segregation, encourage the reuse of other garbage, and attempt to reduce the amount of waste delivered to dump sites. Plastic waste, including plastic bottles, will be collected in a separate area before it is delivered to a recycling agent in Tabora region or nearby region.

6.8.5 Alternative Liquid waste management
The project site does not have enough space for the wetland treatment plant and waste stabilization ponds (WSP); therefore, the project developer will opt for the construction of a septic tank with a soak-away pit for liquid waste management. Once it is full, wastewater will be transported using authorized dealers to the Mirambo Waste Stabilization Pond (WSP) for treatment. The WSP is operated and managed by the Tabora Water Supply and Sanitation Authority (TUWASA).

6.8.6 No-Project Alternative
This alternative is considered not feasible from the following facts:

d) The revenue envisaged from the project and other incomes for local people will not be realized;
e) Availability of new MJNUAT Tabora Campus at the area will not be realized hence enhance quality of students graduated and accommodation rooms for student will be thwarted.
f) It is against the Tanzania Development Vision 2025 to encourage developments of projects especially if there are no negative irreversible impacts associated to such project.

Based on the above, it is considered that No-Project alternative is not a plausible alternative.

6.8.7 Alternative construction materials

In considering alternative construction materials we consider ability of materials in heat reduction, cost of materials, time taken to get those materials (delivering time from supplier/ point source), reuse of those materials after construction and colour of materials for sun ray reflection during summer period. The use of construction opted in this alternative may be hinder by other factors like availability of such materials and technology used to manufacture such materials. The construction materials opted in this project include sand, timber, iron sheets, aggregates, steel bar of 1" x 3mm for window and steel plates of 2mm thickness (4ft x 8ft) for door gate. All construction materials will be locally obtained from authorized suppliers

6.8.8 Alternative construction technology

Various technologies was considered such as use of concrete framework, use of steel framed, use of structural insulated panels and use of cob technology. Structural Insulated Panels (SIPs) is considered a best method as it provides a cost effective, environmentally friendly and labour-saving alternative to traditional timber framing and masonry construction methods. A method reduces energy consumption and CO_2 emissions.

CHAPTER SEVEN: MITIGATION MEASURES

7.1 INTRODUCTION

Chapter six has identified potential impacts and their significance. This chapter provides a summary of mitigation measures of those impacts which are considered to be of a moderate to high significance.

7.2 MOBILIZATION PHASE

7.2.1 Mitigation measures for Environmental Impacts

7.2.1.1 Noise pollution due to site clearance.

To mitigate this impact, the following will be considered;

- regular maintenance of all used machines,
- site mobilization works will be on day time only not otherwise
- The site will be fenced by iron sheet before levelling
- The machines to be used will be of low noise emission
- noise protective gear will be provided to workers

7.2.1.2 Dust emission due to site clearance

To mitigate this impact, the following will be considered;

- Application of water spray for all area where dust emission is high
- Fence the area using iron sheets to minimize wind effects
- All cleared materials will be covered while at project site waiting for disposal schedule,

7.2.1.3 Occupational Health Hazards to workers

To mitigate this impact the following will be done;

- Apply water spray to all area where dust emission is high
- All used trucks their engines will be serviced regularly
- Cover all stockpile found at site
- Any trucks used for transporting waste from site will be covered
- Provide safety gears to site clearance crews like safety boots, uniform etc
- Emergency assembly point shall be designed
- Induction training shall be given to mobilization crews

7.2.1.4 Vegetation clearance

To mitigate the impact during mobilization, the vegetation clearance shall be for those hinder project implementation and after construction vegetation planting program shall be initiated

7.2.2 Enhancement measures for Social Impact

7.2.2.1 Promoting Local Employment and Income Generating Opportunities

Semi-skilled and unskilled labour will be sourced locally to provide communities with employment and the opportunity to earn an income during the construction phase of the proposed project. The contractor will engage

nearby local communities and those offsite to perform various construction activities that do not require specialized skills. A special clause that requires residents to be employed as labourers during construction will be included in the contract.

Equal opportunities shall be provided for both females and males for all jobs that can do. Further, the project proponent/contractor will encourage/permit small businesses that support the construction, such as cafes, food vendors, *kiosk* etc. to provide services to the construction staff in consultation with the local government authority.

Vulnerable groups, particularly the disabled and elderly, have lower employment opportunities than youths and non-disabled. As part of an economic empowerment, the Contractor shall ensure vulnerable groups are given priorities to all works that can perform. For example, involving female-headed family/ poor households and women-widow groups to prepare food for his/her staff.

7.3 CONSTRUCTION PHASE

7.3.1 Mitigation Measures for Environmental Impacts

7.3.1.1 Noise pollution due to movement of construction equipment

To mitigate the impact, during construction the contractor and project owner shall ensure that proper maintenance of machines and vehicles is done to minimize the presence of noise and emissions from engines. Equipment and engines that are not serviced regularly are more likely to cause much noise than regularly serviced ones. Furthermore, the construction during the night will be avoided to ensure quietness in the neighbourhoods at night.

7.3.1.2 Air pollution due to dust

In order to mitigate air pollution due to dust emission which is caused from earth moving equipment on site, water shall be sprayed on unpaved surfaces to suppress dusts followed by paving of surfaces at the project site. All construction materials at site will be covered for non-active hours. The area will be fenced by iron sheets to prevent wind effects

7.3.1.3 Generation of excess soil or spoil materials

To mitigate this impact, the contractor and the proponent shall:

- Resurface and level debris in the course of compaction and construction of the foundation for the structures,
- Ensure proper backfilling and resurfacing of the construction site. Light compaction will be necessary to stabilize the soil. Planting of grass on bare land to minimize soil erosion tendencies will be given a high priority.

7.3.1.4 Impacts associated with transportation of construction materials

To mitigate impacts associated with transportation of construction materials, the contractor shall cover well all trucks transporting construction materials

7.3.1.5 Occupational health and safety of construction workers

The following are the mitigation measures:

(a) The Contractor shall adopt and implement Health and Safety Management Plan (HSMP) attached in appendix 7. HSMP at the site will be strictly adhered by all construction workers and visitors at the site, See Appendix 7 for indicative HSMP for the proposed project at the project site;

(b) Before the commencement of any activity, Point of Work Risk Assessment shall be conducted by responsible personnel (activity-specific risk assessment and mitigation measures before actual commencement);

(c) The contractor will be fully responsible for the health and safety of workers on-site, including providing all workers with appropriate PPE and training on the use of protective equipment;

(d) Ensure provisions of first aid for staff, insurance, and access to ambulance service at all worksite, and arrangement to access local hospital/dispensary with qualified medical staff by workers;

(e) All construction workers must undergo HSE induction training before commencement of construction works;

(f) The HSE Officer shall conduct periodic workshops and training to create awareness amongst construction workers;

(g) Adequate PPE such as reflective vests, helmets, and hazard cones to demarcate the working area will be provided. This will improve the visibility of the construction work to drivers on nearby roads and thereby help prevent accidents;

(h) A well-stocked First Aid kit (administered by a trained first aider) shall be made available at active work site;

(i) Adequate access and egress shall be maintained; a fire-fighting system will be established;

(j) Effective safety and warning measures will be taken to reduce accidents. Safety signal devices and signage will be installed to ensure safety during construction;

(k) Minimizing pedestrians and vehicles interaction within construction site. The proposed project site shall be fenced off and provided with security at the access gates to reduce potential accidents and injuries to the public;

(l) Contractor shall adhere to construction guidelines and directives issued by Occupational Safety and Health Authority (OSHA),

(m) Implementation of the additional specific measures related to physical, chemical, health and noise hazards as recommended by EHS Guidelines and best practices (see Table 7.1)

(n)

Table 7.1 Management of occupational health and safety hazards during construction

Category	Description	Management Practices to Prevent/Control
Physical hazards	Moving equipment and traffic safety	● Development of a transportation management plan for road repairs that include measures to ensure work zone safety for construction workers and the travelling public, ● Establishment of work zones to separate workers on foot from traffic and equipment ● Speed controls in work zones ● Training of workers in safety issues related to their activities
	Elevated overhead works	● Barricading of the works area to prevent unauthorized access ● Hoisting and lifting equipment will be rated and properly maintained, and operators trained in their use ● Elevating platforms will be maintained and operated according to established safety procedures, including use of fall protection measures ● Working at height training and safety measures, equipment and personnel movement protocols
	Fall protection	● Implementation of a fall protection program e.g. training, use of fall protection equipment, measures, inspection, maintenance, rescue of fall-arrested workers ● Worker's training of working at heights ● Ensure availability and use of correct PPE for the fall protection
	Confined and restricted space entry	● Entry into all confined spaces will be restricted and subject to permitted supervision by properly trained persons ● Worker's training and awareness creation
	Risk of fire and explosion	● Fire protection measures, including spill prevention ● Signage and markings ● Controlled access, surveillance and tight security controls in risky zones

Category	Description	Management Practices to Prevent/Control
Chemical hazards	● Reduction of engine idling time in construction sites ● Maintenance of work vehicles and machinery to minimize air emissions ● Ventilation of indoor areas where vehicles or engines are operated, or use of exhaust extractor hose attachments to divert exhaust outside ● Provision of adequate ventilation in tunnels or other areas with limited natural air circulation ● Use of protective clothing when working with cutbacks diesel fuel, or other solvents ● Use of extenders or other means to direct exhaust/fumes away from the operator	
Noise	● Use of personal hearing protection by exposed personnel ● Implementation of work rotation programs to reduce cumulative exposure	
Health hazards	● VCT on HIV/AIDS, STDs, awareness campaigns ● Proper waste management and sanitation in all works areas ● Provide adequate sanitation facilities for workers	

Source: Fieldwork, October 2023 & EHS Guidelines

7.3.1.6 Vibration due to construction and installation activities

To mitigate this impact, the contractor shall do all high noise polluting works during daytime in order to avoid disturbance to the neighbours. Neighbours and workers will be informed the day of installation of machines which might cause vibration.

7.3.1.7 Health hazards due to mismanagement of hazardous waste.

In order to mitigate impacts; generated cut pieces of iron sheets, steel bars and a like shall be collected into a designed area for temporary hazardous waste storage while waiting to be collected by authorized dealers for disposal and the area for temporary hazardous waste storage will be roofed, paved its floor and has band wall

7.3.1.8 Pollution due to mismanagement of domestic solid waste

In order to mitigate this impact, the following are suggested mitigation measures:

- Ensuring proper design of systems for collection, transportation and disposal of solid wastes
- Ensuring availability of sufficient waste bins at appropriate locations
- Design and construct solid waste collection chambers for collecting waste before transported to dump site,
- Sorting of solid waste shall be done at source
- Constructed temporary solid waste collection chamber at project site shall be paved and roofed to ensure no contamination due to rainy water effect

7.3.1.9 Pollution due to mismanagement of domestic wastewater

In order to mitigate this impact, the following shall be done:

- Installation of a movable toilet or construction of temporary toilets and bath to be used during construction.
- Emptying of provided toilets will be done to avoid overflow.

7.3.2 Enhancement Measures for Social Impacts

7.3.2.1 Gender inequity in Employment Opportunities

The proposed mitigation measures include:

- implementation of the Gender Action Plan (GAP);
- jobs will be equitably distributed to both women and men as long as they qualify rather than based on gender to allocate jobs. Employment records disaggregated by sex will be kept by the contractor and easily accessed by the monitoring and supervising team;
- livelihood support strategies will be extended to the vulnerable groups and their income levels monitored closely during the implementation process;
- human resource management training concerning equal opportunity, gender-inclusive recruitment and non-discriminative employment terms, and on-the-job capacity development for labours representing vulnerable groupings;
- establishing affirmative action involving the preparation of equal opportunity, gender-inclusive procurement plan; and
- Capacity-development opportunities (e.g. internships, training seminars) for women and minority employees and women

7.3.2.2 Impacts due to HIV/AIDS

In order to address and alleviate spreading of HIV/AIDS among construction crew, sensitization campaigns against the danger of HIV/AIDS shall be organized including voluntary Counselling and Testing programs in collaboration with agencies dealing with control of HIV/AIDS.

7.3.2.3 Increase income to offsite service providers

The project proponent/contractor will encourage/permit small businesses that support the team involved with construction activities. For instance, food vendors (*mama Lishe*), transport services including motorcycle and tricycle motorcycle (*bodaboda* and *bajaj* respectively), kiosks, etc., can provide the construction staff services. This will enhance internal money circulation and growth of business in the project area. The Contractor's procurement plan shall be required to incorporate affirmative actions involving the preparation of equal opportunity and gender-inclusive procurement.

7.3.2.4 Revenue generation to Government

The Contractor and all sub-contractors will be required to pay all the applicable corporate taxes, charges to appropriate local and central authorities or government agencies. On the other hand, the government is encouraged to develop a streamlined, efficient system for the clearance and

monitoring and create a transparency system for computation and collection of all taxes, levies, customs duties, and revenues.

7.3.2.5 Knowledge and skill increase to local labour

Proposed enhancement measures include:

- use of locally registered and certified contractors and sub-contractors;
- provisions of on-job training for the workers (unskilled and semi-skilled) in various areas of construction. This could be achieved by deliberately placing unskilled workers with semi-skilled personnel and semi-skilled with skilled workers;
- offering capacity-development opportunities (e.g. internships, training seminars) for women and minority employees, and women and minorities pursuing education within the civil engineering sector;
- Contractors and sub-contractors will be encouraged to deliver skills and training to local staffs (both skilled and unskilled); and
- transfer of the skills into other livelihood activities, seek opportunities in other similar projects in the region and beyond.

7.3.2.6 Benefit to local supplier of construction materials

The Contractor will strive to source materials, equipment and other resources that can be provided by local suppliers adjacent to the project site and Tabora Municipal in general

7.3.2.7 Disrupted Traffic flow and public accidents

The mitigation measures for controlling and managing traffic flow and ensuring public safety at the proposed project site within in Tabora Municipal and along access routes are outlined below:

(a) Contractor to prepare and implement a Traffic Management Plan (TMP) for construction purposes for his work activities. The plan is intended to guide and specify traffic flow and adequate safety measures during construction. TMP will include a description of measures to be taken to protect pedestrians and community health and safety, proposed diversions, detours, traffic flow and scheduling in the key intersections, haulage routes, traffic signage and monitoring mechanism;

(b) Avoid delivering materials onsite during peak hours along Nzega-Tabora Road (morning and evening), and the peak operations. Ideally, materials will be delivered at night hours/less busy hours;

(c) Initiation of a safety program and measures by creating awareness and educational campaigns for drivers, workers and local communities, including observation of speed limits;

(d) Installation and maintenance of all signs, signals, markings, and other devices used to regulate traffic, including posted speed limits, warnings of sharp corners, or other special access road conditions;

(e) Establishment of the support mechanism for the movement of the vulnerable groups such as disabled people, including wheelchair users, children, students, and patients;

(f) Provision of safe corridors and crossings along internal access roads and construction areas within project site;

(g) Installation of barriers (e.g. fencing, plantings) to deter pedestrian access to the roadway except at designated crossing points; and
(h) Minimizing pedestrian interaction with construction vehicles especially inside project site.

7.3.2.8 High demand on social service due to population increase

The following shall be implemented;

a) Limit the number of unskilled workers recruited from outside the direct vicinity as far as possible.
b) Provide First Aid Facilities on site.
c) Explore alternative sources of domestic water, such as rainwater harvesting.
d) Link to mandated structures to support improvement of social and infrastructural services at the project site and communities surrounding project area.

7.3.2.9 Increased in level of crimes

The following shall be implemented;

a) Tabora municipal to strengthen security services by provision of more police stations/posts.
b) Establish community-based security in collaboration with village/ward leaders.
c) The contractor shall establish his own security to protect his properties and should establish community police to support insufficient police force.
d) The community should be encouraged to participate in security matters by providing information on suspects
e) The cooperation of local people together will help to lessen criminal incidents and maintain security of people and their properties.

7.3.2.10 Children employment

The following shall be implemented;

a) Proponent will conduct regular monitoring of project workers in relation to health, working conditions, hours of work, minimum age, and the other requirement of national law
b) Work with local authorities and schools in the area to control school drop out
c) Cooperate with relevant authorities like Ministry of Labour to control child labour
d) Create awareness rising to the communities on the importance of education to the children,
e) The local authorities should develop bylaws to control the engagement of children in petty business or work in project related activities

7.4 OPERATION PHASE

7.4.1 Social Impacts

7.4.1.1 Income, skills and knowledge to local labours

In order to enhance this positive impact, the proponent shall take deliberate measures to ensure that human labours are employed as much as possible in carrying out normal activities during construction and operation phases. This is meant to increase the number of people that would benefit through wages, skills and knowledge transfer during all phases of the project life cycle.

7.4.1.2 Enhanced income, employment opportunities and local business

To enhance this positive impact, the proponent shall make deliberate effort to employ local people to work at the site. Also, efforts shall be made to pay workers handsomely so as to improve their livelihood. Outsourcing of services needed at the site shall be procured locally to benefit the local community around the project area.

7.4.1.3 Reduction of Gender Gap

The proposed enhancement measures include:

(a) women (and girls) to benefit from affirmative actions during admission to reduce the enrolment gap and enabling learning environment including provision of accommodation for women to be enhanced; and

(b) Develop, implement, and monitor a Gender Action Plan (GAP). This will be integrated in MJNUATs HIV/AIDS and Gender Policy.

7.4.1.4 Gender-based Violence, Sexual Exploitation and Harassment

The suggested mitigation measures are presented below:

(a) Strict implementation of the MJNUAT policy on Gender and HIV/AIDS issues including utilization of the proposed structures and system for management of gender-related issues within the Institute;

(b) Developing and implementing Code of Ethical Conduct for MJNUAT employees, students, operators and throughout the supply chain, including service providers and suppliers operating within the Institution;

(c) Development, implementation, monitoring and periodic review of the Gender Action Plan (GAP), including protection of female students and women against all forms of sexual abuse, harassment, and violence;

(d) Establishment of the transparent and accessible system/mechanism for the victim support, protection, reporting and other forms of counselling;

(e) Development and dissemination of mechanisms to report, address and register incidents of violence and harassment (e.g. help desks, warning posters, posted hiplines, emergency buttons in the facilities etc.); and

(f) MJNUAT's Gender Unit to conduct continuous gender-sensitive training and awareness creation in collaboration with various stakeholders such as Social Welfare Officers (Itonjanda Ward and Tabora Municipal) and nearby NGOs.

7.4.1.5 Demand of basic needs due to population influx

The following will be implemented;

a) Allow private people to provide basic need within MJNUAT Tabora Campus to enhance availability
b) Number of students to be enrolled with base on presence of basic needs around the Campus,
c) The area will be connected with safe water from existing source,
d) The area will be connected with electrical power from TANESCO,
e) The area is along Tabora-Nzega road, so other basic human need will be obtained easily,
f) Toilets and wash rooms for workers shall be constructed and used in all phases

7.4.1.6 Security imbalance due to population influx

The following will be implemented;

a) The area will be fenced to enhance security system,
b) Security people will be employed to provide service in twenty-four hours
c) Lighting bulb will be installed to enhance security system during the night,

7.4.1.7 Conflicts to community around due to population influx

The following will be insisted;

a) Admitted students will be inducted on how to behaviour according to community around,
b) Good Corporation with community around and the proponent is insisted to solve any problem if happen,

7.4.2 Measures for Environmental Impacts

7.4.2.1 Fire break out

To mitigate this impact the following are suggested mitigation measures

- Portable fire extinguishers shall be put in place in all strategic areas.
- Firefighting system incorporating water hydrants shall be installed in the buildings including fire detection alarm system to avoid the risk of fire break out.
- Routine checking for performance of firefighting equipment shall be done as recommended
- Fire assembly area shall be designated in the project area
- Fire escape routes shall be designed,
- All facilities used during wiring system must be approved by responsible organ,
- Induction training to worker shall be given on how to response in case of fire emergency

7.4.2.2 Pollution due to mishandling of domestic solid Wastes

In order to mitigate this impact, the following are suggested mitigation measures:

- Ensuring proper systems for collection, transportation and disposal of solid wastes

- Ensuring availability of sufficient waste bins at appropriate locations
- Design and construct waste collection chambers for collecting waste before transported to dump site.
- The constructed temporary waste collection chamber shall be paved its floor, roofed and has band wall to control leachate spill into soil

7.4.2.3 Pollution due to mishandling of domestic liquid Waste

In order to mitigate this impact, the following are suggested mitigation measures:

- Ensuring proper design and construction of septic tank system
- Ensuring routine maintenance of sanitary facilities
- Ensure frequency emptying of septic tank to avoid overflow

7.4.2.4 Soil Erosion due to Runoff Effects and Loosened Top Soil

To mitigate this impact, the following shall be considered

- Proper backfilling and resurfacing of the constructed area
- Stabilize the soil by applying light compaction,
- Planting of trees and grass on bare land at project site

7.4.2.5 Occupational Health and Safety hazards to workers

The following will be implemented;

- Develop and implement Health, Safety and Environment Plan (HSEP)
- Develop and implement the Emergency Response Plan (ERP) for unplanned events
- Periodic HSE, emergency response, fire drills and first aid training for the employees
- Ensuring at least two first aider trained personnel are available at project site
- Offering various types of HSE training in collaboration with the OSHA
- Zoning of heavy moving parts and machinery away from employees and public paths as much as possible

7.4.2.6 Generation of Hazardous waste during the operation phase

- Providing adequate secondary containment for fuel storage tanks and for the temporary storage of other fluids such as lubricating oils and hydraulic fluids,
- Using impervious surfaces for refueling areas and other fluid transfer areas
- Training workers on the correct transfer and handling of fuels and chemicals and the response to spills
- Providing portable spill containment and cleanup equipment on site and training in the equipment deployment
- Assessing the contents of hazardous materials and petroleum-based products in building systems (e.g. PCB containing electrical equipment, asbestos-containing building materials) and process equipment and removing them prior to initiation of decommissioning activities, and managing their treatment and disposal

- Assessing the presence of hazardous substances in or on building materials (e.g., polychlorinated biphenyls, asbestos containing flooring or insulation) and decontaminating or properly managing contaminated building materials,
- All hazardous materials shall be handled by registered personnel/company

7.4.2.7 Increased traffic flow and increased risks of road accidents

- Institute good site practices including preventing public access to the construction site by securing equipment and demarcating project boundaries using warning signs with appropriate text (local language) and graphic displays.
- Institute traffic management and safety programme including, training and testing of heavy vehicles operators and drivers, enforcement of speed limits, maximum loading restrictions and compliance with all Tanzania transportation law and standards.
- Protect stockpiles of friable material subject to wind through wetting.
- Cover loads with friable material during transportation.
- Contractors will ensure access to potable water for all workers.
- Contractors will be required to abide by national law about vehicle conditions and movements and behaviour of drivers.
- Signage will be erected at construction sites to advise the community of the dangers of entering the site and appropriate barricades (fencing, tape etc) will be put in place, especially around quarries, trenches, etc.
- Contractor shall develop and use the traffic management plan

7.5 DECOMMISSIONING PHASE

7.5.1 Social Impacts

7.5.1.1 Loss of aesthetic value due to abandonment of structures

At decommissioning, Proponent may either demolish the structures or undertake major rehabilitation in an environmentally sound manner in order to restore the environment to its original appearance.

7.5.1.2 Loss of Employment

The major impact that will result from the project decommissioning will be loss of jobs. In order to minimize the impacts that may result from this eventuality, the following measures will be taken:

- Prepare workers for forced retirement by providing skills for self-employment, and wise investment of the retirement benefits,
- Ensure that all employees are members of the Social Security schemes,
- Consider redeploying employees in other projects of the proponent.

7.5.2 Environmental Impacts

7.5.2.1 Land pollution

- There should proper separation of materials and wastes,-selection (eg more environmental friendly, etc.), less use, proper storage, etc.

- An efficient collection and disposal system based on the principles of reduction, re-use and recycling of materials, shall be instituted at project areas.
- Ensure proper waste segregation and introduction of waste disposal bins, and warning notices, posted at strategic points;
- No, on-site burial or open burning of solid waste shall be permitted.
- There should be proper procedure for handling hazardous waste such as oils, lubricants and non-combustible waste.

7.5.2.2 Air pollution resulting from demolition works

- Water sprinkling shall be applied to open earth to reduce dust emission;
- Trucks transporting demolished wastes shall be covered if the load is dry and prone to dust emissions;
- The demolition area shall be fenced with iron sheets; this shall prevent the dust at the ground to be picked up by the wind;
- All stockpiles at project site shall be covered;

7.5.2.3 Noise pollution from demolishing works

- Any activities with the greatest potential to generate noise are planned during periods of the day that will result in least disturbance,
- Using noise control devices, such as temporary noise barriers and deflectors for impact and blasting activities, and exhaust muffling devices for combustion engines.
- Demolition equipment, with noise sinks, shall be used;
- Machine operators in various sections with significant noise levels shall be provided with noise protective gear,
- Demolition equipment shall be selected, operated and maintained to minimize noise

7.5.2.4 Environmental pollution due to hazardous waste mismanagement

- Providing adequate secondary containment for fuel storage tanks and for the temporary storage of other fluids such as lubricating oils and hydraulic fluids,
- Training workers on the correct transfer and handling of fuels and chemicals and the response to spills,
- Assessing the presence of hazardous substances in or on building materials (e.g., polychlorinated biphenyls, asbestos containing flooring or insulation) and decontaminating or properly managing contaminated building materials,
- All hazardous materials shall be handled by registered personnel/company

7.5.2.5 Wastewater Management problems

The campus shall have sewer system to collect the wastewater (sewage) to onsite septic tank with soak away pit found at the campus, the septic tank shall be emptied on time to avoid overflow.

CHAPTER EIGHT: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

8.1 INTRODUCTION

An Environmental and Social Management Plan (ESMP) entails managing and monitoring the impacts during different phases of the proposed project at Itonjanda area in Tabora Municipal. The plan attempts to guarantee that suggested measures are practically feasible or implementable depending on the prevailing ground conditions if the proposed project becomes fully operational as envisaged.

8.2 COMPONENTS OF THE ESMP

The standard ESMP comprises the following major components:

(a) Description of an impact, i.e. positive or negative;
(b) Description of proposed mitigation and enhancement measures;
(c) Institution responsible for implementation;
(d) Cost estimates (whenever possible); and
(e) Implementation time frame such as mobilization, construction, operation or decommissioning.

The ESMP for the proposed project at Itonjanda area in Tabora Municipal is given in Table 8.1 below.

8.3 IMPACT MANAGEMENT STRATEGY

The ESMP points out essential obligations for MJNUAT, construction Contractor and operator to meet relevant environmental guidelines in line with the recommendations provided in this ESIA report. Concerning the proposed project establishment, the ESMP requires that the contractor and/or operator;

- possesses an Environmental Policy statement;
- addresses contractual and regulatory requirements;
- provides procedures developed to address the environmental aspects and risks related to the construction;
- provides for the implementation and operation of the ESMP to ensure that structure and responsibilities are assigned; staff are trained, aware and competent; and that there is proper communication, documentation, operational control, reporting and emergency preparedness and response;
- provides clear and precise organizational and technical procedures for implementation of the ESMP, which ensure that construction and operation activities associated with potential environmental and social impacts are carried out in a controlled and responsible way;
- provides checking and corrective action through monitoring and measurement; and
- provides records collection and storage, and programme audit that includes a management review of the ESMP and enables improvements to be incorporated in the Plan.

8.4 IMPLEMENTATION ARRANGEMENT AND COORDINATION

The ESMP incorporated in the detailed design will be handed over to the Contractor prior to the construction period. The Contractor has to take stock of the contents of the ESMP of the Project and implement them during the construction period under the close supervision of the consultant's. During the Operation Phase, MJNUAT will manage the facility and implement the ESMP.

The overall implementation of the enhancement and mitigation measures is the primary responsibility of MJNUAT (Proponents) as per national requirements and World Bank ESS1. The supervision of the construction works and implementation the E&S Safeguards (including ESMP) for this project will be carried out primarily by Proponent's Health, Safety and Environment Department. Specifically, the Environmental Expert shall be appointed to assist the Resident Engineer. He/she will be responsible for making sure that the aspects of the ESMP that are to be implemented during construction are included in the Contractor's tender documents and are responsible for the overall monitoring of the Contractor to ensure that the enhancement and mitigation measures are implemented. The cost of implementing mitigation measures will be covered by project proponent. Also, environmental and social protection clauses for contracts and specifications will support the implementation of mitigations.

MJNUAT (Proponent) will forward monitoring reports to the World Bank and NEMC during project implementation as part of their monthly, quarterly, semi-annual and annual progress reports. The World Bank and NEMC may conduct an audit to ensure that the approved mitigation measures are implemented. The project implementation has not led to the emergence of new impacts. To ensure effective implementation of the ESMP, including the associated monitoring activities, both the Contractor and Proponent shall have Environmentalists or personnel responsible for ensuring environmental compliance (e.g. HSE Officers). The Contractor's Environmentalist/HSE Officer shall be responsible for translating and implementing the provisions of the ESMP. At the same time, the Proponent's Environmentalist shall supervise the Contractor for the implementation of the provisions of the ESMP.

The project will require the support of various institutions in the implementation of ESMP to minimize potential environmental and social negative impacts. The organization framework for the ESMP is designed to evolve as the project progresses through Mobilization, Construction and Operation phases. Proponent's key institutions will liaise with NEMC, OSHA, TANESCO, TUWASA, LTBWB, TBA, local authorities, and surrounding communities. The responsible authorities for compliance audits, principally NEMC and OSHA, may wish to visit, inspect and monitor the site or specific activities at their own convenient time.

8.5 REVIEW AND REPORTING PROCEDURES

MJNUAT (Proponent) will provide the Environmental monitoring reports during implementation as part of the semi-annual progress reports and annual reports and will forward those reports to NEMC and World Bank. Depending on the status of environmentally sensitive locations in areas where there are project activities, NEMC will perform annual or bi-annual Environmental reviews to ensure that the project's environmental aspects are reviewed alongside project implementation.

The parameters, timing, frequency and responsible parties are thoroughly presented in the monitoring table. During the implementation process of the ESMP and Mitigation measures, the key player and follow up team from Environmental and Social issues will be MJNUAT (proponent), Local government, Resident engineer, World Bank and NEMC (See Figure 8.1). The contractor shall be responsible for daily implementation and internal monitoring of all activities that under his care. NEMC will be responsible for overseeing that all Environmental construction activities are conducted to adhere to regulations outlined in Environmental Impact Assessment and Audit Regulations (2005) and its amendment of 2018. The project Proponent will be responsible to cover all costs for implementing mitigation measures

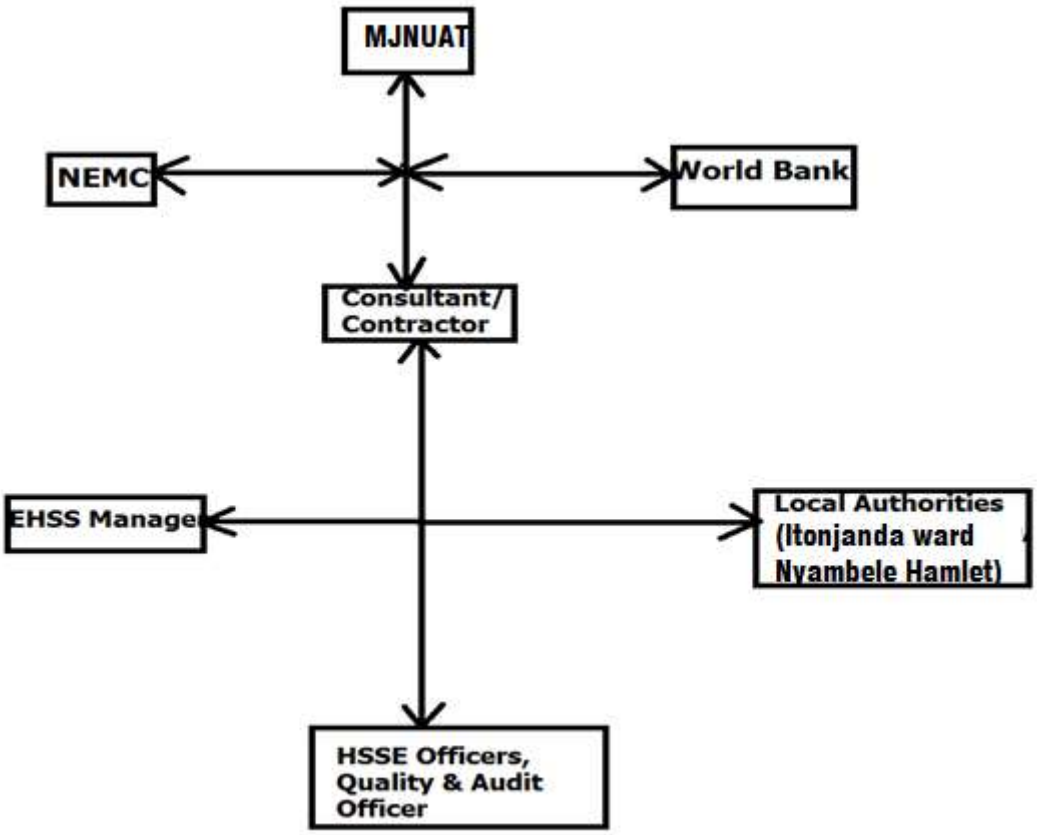

Figure 8.1 Proposed ESMP Reporting and Responsibilities

Source: COLBA Consulting Limited, October 2023

Table 8.1 ESMP for the proposed project at MJNUAT Tabora Campus

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	**Type**	**Description**			**Responsible**	**Relative/Costs (TSH)**
Mobilization	+ve	Employment and income generation opportunities	• Priority to local communities around Itonjanda area and vicinity • Sourcing semi-skilled and unskilled labour locally/affected community • Special clause that requires nearby residents to be employed as labours to be included in the contract • An inclusive, transparent and gender-sensitive recruitment process to be established and implemented • Encourage small businesses that support the construction, such as cafes, food vendors, *kiosk, tricycle motorcycle (bajaj), Motorcycle (bodaboda)* etc. • Equal employment to be provided to both women and men regarding gender and equity • Vulnerable groups to be considering the employment opportunities for the works that they can perform • Develop and implement a Labour Recruitment and Management Plan (LRMP)	Employing nearby communities	Contractor.	No cost

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
	-ve	Dust emission	● Dust suppressive agents such as water to be used/sprinkling along excavated routes ● Activities producing excessive dust levels to be confined within working areas ● Fine earth materials such as sand and gravel to be covered during haulage to prevent spillage and dusting ● Excavated soils will be compacted to reduce the amount of dust spreading by wind ● Administer adequate Personal Protective Equipment (PPE) ● Haulage trucks to have tailgates that close properly and tarpaulins to cover materials being transported	As per TZS 837 Parts 1, 2 and 3.	Contractor	4,000,000
	-ve	Occupational Health and Safety Hazards to workers	● Apply water spray to all area where dust emission is high ● All used trucks their engines will be serviced regularly ● Cover all stockpile found at site ● Any trucks used for transporting waste from site will be covered ● Provide safety gears to site clearance crews like safety boots, uniform etc. ● Emergency assembly point shall be designed ● Induction training shall be given to mobilization crews	Zero injury	Contractor	4,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	**Type**	**Description**			**Responsible**	**Relative/Costs (TSH)**
	-ve	Vegetation clearance	● Vegetation clearance to be limited to the specific space (footprint) required for construction ● Ground clearance to be minimized and, if possible, concentrate on the footprint area and when it is necessary ● Trees planting program will be implemented after construction to replace all removed trees	Minimum vegetation clearance	Contractor, and, MJNUAT	4,000,000
	-ve	Disturbances from noise emissions	● Limit noise level during construction within works areas ● Activities that generate excessive noise will be limited to day time hours ● Maintain proper function of equipment and comply with required noise level standards ● Noise emission devices are properly maintained, and mufflers will be affixed to construction equipment in use ● Unnecessary idling of equipment within noise-sensitive areas will be avoided	As per TZS 837 Parts 1, 2 and 3	Contractor, sub-contractors	4,000,000
		Sub-total I (once-off cost) during project preparation/mobilization				16,000,000
Construction	+ve	Income increase to offsite service providers	The project proponent/contractor will encourage/permit small businesses that support the team involved with construction activities. The Contractor's procurement plan shall be required to incorporate affirmative actions involving the preparation of equal opportunity and gender-inclusive procurement	Neighbour community should benefit	Contractor	No cost

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
	+ve	Benefit to local supplier of construction materials	● Sourcing materials, equipment and other resources locally ● Procurement plan to incorporate affirmative actions involving the preparation of equal opportunity, gender-inclusive procurement ● Procurement from registered and licensed suppliers throughout the supply chain	Buy construction materials from locals	Contractor, MJNUAT	No cost
	+ve	Revenue generation to government agencies	● Timely payment of all applicable charges, fees, taxes, levies etc. ● Strengthening of a streamlined system for the taxes/charges clearance and monitoring ● Transparency system for clearance and monitoring	Make sure service providers pay Revenues	Contractor, sub-contractors	No cost envisaged

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
	+ve	Skills and knowledge transfer to local labour	● Deliver skills and on-job training (both skilled and unskilled) in various areas of construction ● Use of locally registered and certified contractors and sub-contractors ● Capacity-development opportunities (e.g. internships, training seminars) for women and minority employees in civil engineering ● Construction staff will be encouraged to further develop the acquired knowledge and skills through Vocational Training ● Transfer of the skills into other livelihood activities, seek opportunities in other similar projects in the region and beyond	Employ local community nearby villages	Contractor, sub-contractors	No cost
	-ve	Noise pollution due to movement of construction equipment	The contractor and project owner shall ensure that proper maintenance of machines and vehicles is done to minimize the presence of noise and emissions from engines. Modern machines (all with low noise emission) will be used at project site. Furthermore the construction during the night will be avoided to ensure quietness in the neighbourhoods at night.	As per TZS 837 Parts 1, 2 and 3	Contractor, sub-contractors	6,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
	-ve	Air pollution due to dust	Water shall be sprayed on unpaved surfaces used by such equipment to suppress dusts during construction followed by paving of surfaces at the project site. All construction materials at site will be covered for non active hours. The area will be fenced by iron sheets to prevent wind effects	As per TZS 837 Parts 1, 2 and 3	Contractor, sub-contractors,	4,000,000
	-ve	Generation of spoil materials	• Resurface and level debris in the course of compaction and construction of the foundation for the structures, • Ensure proper backfilling and resurfacing of the construction site. Light compaction will be necessary to stabilize the soil. Planting of grass on bare land to minimize soil erosion tendencies will be given a high priority	All spoil material is well managed	Contractor/,	4,000,000
	-ve	Impacts associated with transportation of construction materials	• the contractor shall cover well all trucks transporting construction materials • the trucks will be service regularly its engine to minimize noise and gaseous emission • fuel used will be certified by EWURA	All transport to be done by specialised transporter	Contractor/sub-contractor	7,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
	-ve	Occupational health and safety hazards	● Contractor will adopt and implement developed Health and Safety Management Plan (HSMP), ● Performing task or activity-specific risk assessment and mitigation measures before the actual commencement ● Providing all workers with appropriate PPE and enforcement of the use ● Adequate access and egress shall be maintained, a fire-fighting system will be established, and hazard cones will be used to restrict the working area. ● Well-stocked First Aid kit (administered by a trained first aider) shall be made available at active work sites ● Regular induction training course on health, safety, security and environment to all workers before beginning of construction activities.	Zero Injury	Contractor, sub-contractors	14,000,000
	-ve	Health hazards due to mismanagement of Hazardous waste	Generated cut pieces of iron sheets, steel bars and a like shall be collected into a designed area for temporary hazardous waste storage while waiting to be collected by authorized dealers for disposal and the area for hazardous waste temporary storage will be roofed, paved its floor by concrete and has band wall.	All hazardous to be managed by registered specialist	Contractor	10,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
	-ve	Disrupted traffic flow and staff and student safety	● Contractor to prepare and implement a Traffic Management Plan (TMP) for construction purposes for his work activities. ● Avoid delivering materials onsite during peak hours (morning and evening), ● Installation of warning signs i.e speed limits signs for truck drivers.	Traffic Management plan to be in place	Contractor, sub-contractors, MJNUAT, Traffic Police	10,000,000
	-ve	Pollution due to mismanagement of domestic wastewater	▪ Installation of a movable toilet or construction of temporary toilets and bath to be used during construction. ▪ Timely emptying of provided toilets will be done to avoid overflow.	No discharge or leakage to the environment	Contractor	8,000,000
	-ve	Pollution due to mismanagement of domestic solid waste	● Ensuring proper solid waste for collection, transportation and disposal ● Ensuring availability of sufficient waste bins at appropriate locations ● Design waste collection chambers for collecting waste before transported to dump site, ● Sorting of solid waste shall be done at source ● Constructed temporary solid waste collection chamber at project site shall be paved and roofed to ensure no contamination due to rainy water effect	No solid waste pollution	Contractor, sub-contractors	10,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
	-ve	Exposure to HIV/AIDS and new transmission	• Sensitization campaigns against the danger of HIV/AIDS shall be organized including voluntary Counselling and Testing programs in collaboration with agencies dealing with control of HIV/AIDS	No new HIV transmission	Contractor, sub-contractors, NGOs, MJNUAT	6,000,000

	-ve	Workplace sexual harassment and violence against women & vulnerable segments	● Implementation of the Gender Action Plan (GAP) ● Develop and implement Child Abuse Protection Plan (CAPP) and Gender-Based Violence Action Plan (GBVAP) that will contain and address Protection Against Sexual Exploitation and Abuse (PSEA), response to PSEA, engagement with community, mainstreaming of PSEA, Management and coordination including the integration of PSEA in the job description ● Establishing a Gender Help Desk at the construction site and ensuring adequate and transparent referral mechanisms are in place for reported cases ● Review of specific project components and activities that are known to heighten sexual abuse/harassment/abuse/GBV risks at the community level ● Implementing the Code of Ethical Conduct for the construction workers ● Sensitization of employees and supervisors about sexual harassment and periodic inductions ● Promote women involvement in all stages of project activities and ensure that vulnerable people are involved in taking decisions on matters that affect them directly	No Sexual harassment	Contractor, sub-contractors, NGOs, Health facilities, Municipal councils (Social Welfare Depts.), Police, Community, MJNUAT (Gender Unit),	12,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
			● Jobs will be equitably distributed to both women and men ● Employment records disaggregated by sex will be kept and easily accessed by the monitoring and supervising team			

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
	-ve	Gender inequity in employment, fair labour terms and Exclusion from economic opportunities	● Implementation of the Gender Action Plan (GAP) ● Jobs to be equitably distributed to both women and men as long as the candidate has the qualification rather than based on gender to allocate jobs ● Livelihood support strategies will be extended to the vulnerable groups and their income levels monitored closely during the implementation process ● Human resource management training concerning equal opportunity, gender-inclusive recruitment and non-discriminative employment terms, and on-the-job capacity development for labours representing vulnerable groupings ● Establishing affirmative action involving the preparation of equal opportunity, gender-inclusive procurement plan ● Capacity-development opportunities (e.g. internships, training seminars) for women and minority employees and women and minorities pursuing education within transport sector services	No GBV	Contractor, sub-contractors, Municipal councils, village authorities, MJNUAT (Gender Unit),	14,000,000
		Sub-total II (once-off cost) during actual construction				*105,000,000*

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
Operation	+ve	Reduction of Gender Gap	Women (and girls) to benefit from affirmative action during admission to reduce the enrolment gap and an enabling learning environment including provision of accommodation for women to be enhanced; and Develop, implement, and monitor a Gender Action Plan (GAP). This will be integrated with the existing MJNUAT HIV/AIDS and Gender Policy.	No Gender Gap	MJNUAT (Human Resources Dept., Gender Unit)	Part of MJNUAT HR budget
	+ve	Enhanced incomes to the surrounding petty traders	● Sourcing materials, equipment and other resources locally ● Permit shall be given to small businesses that support for service providers near project site to benefit for selling their goods ● Procurement plan to incorporate affirmative action on local procurement, provision of equal opportunity, gender-inclusive procurement ● Procurement from registered and licensed suppliers throughout the supply chain	Livelihood of Surrounding improved	HR Dept., Gender Unit, Procurement & Logistics Dept.	No cost

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
	+ve	Improved students enrolment and capacity building	● Development of infrastructure and associated facilities that will enhance access to programs offered at MJNUAT programs ● Offering relevant courses as demanded in the market. ● Timely and appropriate operation and maintenance of the developed facilities ● Initiating exchange programmes with other non-participating Institutes Fostering collaborations and partnership through students and staff visits and practical training	Increase enrolment to full capacity	MJNUAT Academic department	No cost
	-ve	Pollution due to mismanagement of domestic solid waste	● Ensuring proper systems for collection, transportation and disposal of solid wastes ● Ensuring availability of sufficient waste bins at appropriate locations ● Design and construct waste collection chambers for collecting waste before transported to dump site, ● The constructed temporary waste collection chamber shall be paved, roofed and has band wall	No solid waste Pollution	MJNUAT	10,000,000 per year
	-ve	Spread of HIV/AIDS and other STIs	● Raising awareness of the dangers of the HIV/AIDS to workers, lessors and visitors, ● Support voluntary HIV counselling and testing.	No new HIV Transmission.	NGOs dealt with HIV and MJNUAT	8,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
	-ve	Pollution due to mismanagement of domestic liquid waste	● Ensuring proper design and construction of sanitary facilities and connected to septic tank ● Ensuring routine maintenance of sanitary facilities ● Ensure frequency emptying septic tank to avoid overflow	No leakage or discharge of Liquid waste to environment	MJNUAT	16,000,000 per year
	-ve	Occupational health and safety risks/hazards	● Develop and implement Health, Safety and Environment Plan (HSEP) ● Develop and implement the Emergency Response Plan (ERP) for unplanned events ● Periodic HSE, emergency response, fire drills and first aid training for the employees ● Ensuring first aider trained personnel will be at project site ● Offering various types of HSE training in collaboration with the OSHA ● Zoning of heavy moving parts and machinery away from employees and public paths as much as possible	Zero Injury	MJNUAT	16,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
	-ve	Possibility of Fire outbreak	● Portable fire extinguishers shall be put in place in all strategic areas. ● Firefighting system incorporating water hydrants shall be installed in the building including fire detection alarm system to avoid the risk of fire break out. ● Routine checking for performance of firefighting equipment shall be done as recommended ● Fire assembly area shall be designated in the project area ● Fire escape routes shall be designed, ● All facilities used during wiring system must be approved by responsible organ, ● Induction training to worker shall be given on how to response in case of fire emergency	All fire fighting equipment to be in place	MJNUAT	30,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Target/Level	Implementation	
Project Phase	Type	Description			Responsible	Relative/Costs (TSH)
	-ve	Gender-based violence, sexual exploitation & harassment	● Strict implementation of the MJNUAT's policy on Gender and HIV/AIDS issues ● Developing and implementing Code of Ethical Conduct for the MJNUAT employees, service providers and suppliers ● Implementation of the GAP and protection of women against all forms of sexual abuse, harassment and violence ● Development and dissemination of mechanisms to report, address and register incidents of violence and harassment ● Establishment of a transparent and accessible system/mechanism for the victim support, reporting and other forms of counselling, where MJNUAT's Gender Unit to conduct continuous gender-sensitive trainings and awareness creation in collaboration with various stakeholders	No GBV	MJNUAT	24,000,000 per year
Sub-total III (once-off costs) during the operation phase						104,000,000
Grand total (indicative)						225,000,000

CHAPTER NINE: ENVIRONMENTAL MONITORING PLAN

9.1 INTRODUCTION

Environmental and social monitoring plan (Table 9.1) provides the application of EMP as well as dealing with ad hoc or unforeseen issues which need to be mitigated. Details of parameters to be monitored have been considered along with costs estimates and responsible institution (s) and developer will be responsible for all cost to implement monitoring mitigation measures.

Table 9.1 Environmental and Social Monitoring Plan

Phase	POTENTIAL DIRECT IMPACT	Parameter to Monitor	Frequency	Monitoring Area	Measurement unit	Target Level/Standard	Responsibility	Estimated costs (Tsh)
MOBILIZATION	Dust emission due to site clearance	$PM_{2.5}$ and PM_{10}	Daily	Project area	$\mu g/m^3$	As per TZS 837 Parts 1, 2 and 3.	Contractor	4,000,000
	Noise pollution due to demolition	Noise level	Daily	Project area	dB(A)	As per TZS 837 Parts 1, 2 and 3	Contractor	4,000,000
	Vegetation clearance	Number of trees before mobilization and after	Mobilization period	Project area	Number	Minimum vegetation clearance	Contractor	4,000,000
	Occupational Health hazards	Occupational status of environment	Daily	Project area		Zero injury	Contractor	4,000,000
CONSTRUCTION	Depletion or degradation at points of source of construction materials	Quantity of concrete mixer used	Daily	Construction site	m^3	No burrow pit formed	Contractor	16,000,000 paid once
	Noise due to Construction Equipment and Materials	noise level	Quarterly	Project area	dBA	As per TZS 932:2006	Contractor	10,000,000 yearly
	Impacts associated with transportation of construction materials	$PM_{2.5}$ and PM_{10}	Daily	Using road	$\mu g/m^3$	Minimal	MJNUAT	7,000,000
	Impacts of dust from movement of construction equipment	Particulate matter in the air	Quarterly	Project area	$\mu g/Nm^3$ per hr	As per TZS 837 Parts 1, 2 and 3.	MJNUAT	9,000,000 yearly

	Occupational Health and Safety of Construction Workers	Number of injuries	Daily	Project site	NA	Zero injuries	MJNUAT	14,000,000 yearly
	Potential for spread of HIV/AIDS, STDs	Number of cases of HIV reported	Quarterly	Project workers	Number	prevalence rate to be reduced	MJNUAT	8,000,000 annually
	Health hazards to workers due to poor management of hazardous waste	Quantity of hazardous waste generated and its management	Weekly	Constructi on site	Kg	No injury due to hazardous waste	MJNUAT	10,000,000 per year
	Pollution due to mismanagement of solid waste	Quantity of solid waste generation	Weekly	Project site	Kg	Zero pollution	MJNUAT	10,000,000 annually
	Gender inequity in employment opportunities	Gender balance in employment opportunities	Quarterly	Project site	Number	No gender imbalance	MJNUAT	No cost
	Pollution due to mismanagement of domestic wastewater	Water pH, -Faecal coliform -BOD -COD, Turbidity, Color, Na	Quarterly	Monitoring borehole at MJNUAT Tabora Campus	m^3	zero pollution	MJNUAT	12,000,000
OPERATIONPHA	Pollution of surface water source due to mismanagement of liquid waste	Water pH, -Faecal coliform -BOD -COD, Mg, K, Turbidity, Color, Na	Quarterly	Monitoring Borehole at MJNUAT Tabora Campus	mg/l	As per TZS 344:1989	MJNUAT	12,000,000 annually
	Fire break out and safety system	Number and state of firefighting equipment	Semi annually	Project buildings	Number	No fire incidents	MJNUAT	30,000,000 annually
	Gender based violence and harassment	Gender balance	Quarterly	Project area	Number of employmen t by gender	No gender imbalance	MJNUAT	24,000,000
	Soil erosion due to runoff effects	Tendency of soil erosion	Rainy season	Project site	-	No soil erosion	MJNUAT	20,000,000

S E	Spreading of HIV and other STIs in the District	New cases of HIV infected staff	Thrice per year	Staff and Lessors	Number of cases	Minimized to zero	MJNUAT	10,000,000
	Pollution due to mishandling of solid Wastes	Quantity of solid waste	Weekly	Project area	Kg	No pollution	MJNUAT	10,000,000 annually
D E C O M M I S S I O N I N G	Loss of Employment,	Payment of social security remittance for workers	Semi-annually for workers	Social Security schemes for workers	Number of workers registered with NSSF	Workers' remittances paid in time	MJNUAT	60,000,000
	Loss of Aesthetics		During decommissioning	Project Area	NA	restore environment into original state	MJNUAT	32,000,000
	Noise and dust from demolition activities	Particulate matter (PM_{10}, $PM_{2.5}$) and Sound level	Daily	Project area	ppm, mg/m^3, dBA	As per As per TZS 932:2006 and TZS 837 Parts 1, 2 and 3.	MJNUAT	20,000,000
TOTAL COST TSH							330,000,000/=	

CHAPTER TEN: COST BENEFIT ANALYSIS OF THE PROJECT

10.1 INTRODUCTION

Cost-benefit analysis is done in the framework of feasibility study of an activity. The analysis assists the proponent to make a decision on: whether it makes economic sense to continue with the project; whether the chosen option is cost effective; and estimate the size of a project. In this project the costs will include: capital expenditures, operating and maintenance costs, construction materials, environment, health and other social costs.

10.2 QUANTIFIABLE AND NON-QUANTIFIABLE BENEFITS TO COMMUNITIES

There will be direct and indirect benefits to the communities. The project will employ local people during different phases. Through taxes to the Government, the proponents will indirectly be contributing to development projects such as roads, medical care, education services, etc. The presence of project in the area will drastically increase business opportunities in the area; hence increase revenue to the community as well as to the government.

10.3 QUANTIFIABLE AND NON-QUANTIFIABLE BENEFITS TO DEVELOPER

The proponent will benefit directly from the numbers of students to be admitted during operations through school fees and other costs.

10.4 QUANTIFIABLE AND NON-QUANTIFIABLE BENEFITS TO THE GOVERNMENT

The Government will directly and indirectly benefit from taxes from the investor who run different businesses and services in the country including private sector who will be invest due to project operation. Apart from tax generation, this investment will enhance the economic growth and ancillary private sector development spurred by the operations and activities associated with this project operation. The image of the government in investment sector will be enhanced nationally and that will increase attractions from other local and foreign investors and ensure continued market growth.

10.5 POSSIBLE COSTS TO COMMUNITIES

It is a fact that the proposed project will entails social and environmental impacts. These have been more elaborated in Chapters 6 – 9. There will be individuals in the communities who will be affected more than others. Moreover, the proponent is committed to mitigate the negative social and environmental impacts associated with the proposed development in different phases of the project.

10.6 ENVIRONMENTAL COST BENEFIT ANALYSIS

Environmental cost benefit analysis is assessed in terms of the negative versus positive impacts. It considers whether the impacts are mitigated and the costs of mitigating the impacts are reasonable. As addressed in Chapters 6 – 9, potential benefits of the project, both financial and social benefit are substantial. The environmental impacts are reasonably mitigated and the financial resources needed

to mitigate negative impacts when compared to the required investment, are relatively small.

CHAPTER ELEVEN: DECOMMISSIONING

11.1 INTRODUCTION

The decommissioning phase is part of the reversal phase, which has the additional and often dominant risk factors associated with the materials produced during the life of the project as well as potentially decreased structural integrity due to renovations and/or wear and tear. Similar impacts encountered during the renovation/upgrading phase will be experienced in much the same way when the reserve process is set in motion.

11.2 DECOMISSIONING PLAN

A decommissioning plan that takes environmental issues into consideration is prepared by the proponent prior to decommissioning works. The decommissioning may entail change of use (functioning change) or demolition applicable by change of land use. The product of this project will have a life span of 100 years with proper maintenance and services. Therefore, the decommissioning will take place for long time to come.

Table 11.1 Decommissioning and closure plan

Activity	Closure Plan	Responsibility	Budget (Tsh)
Filling all excavation and trenches formed	● Removal of all concrete materials and metals pieces from all excavation, ● Filling of trenches/excavation with soil from the designated borrow pit. ● Compaction of soil accordingly to avoid possibility of soil erosion	Environmental Managers and Closure Committees	20,000,000
Disassemble all equipment and demolish the structures	● Disassemble electrical appliances including Air conditions, Generator, water pumps to mention but a few. ● Consult TANESCO to disconnect electricity from the project. ● Demolition of all concrete and metal from building and all pavements. ● Warning signs will be posted ● All demolition activities will be supervised by qualified engineers. ● Closure Committee will monitor all closure activities to ensure they are done appropriately where relevant stakeholders will be consulted for technical assistance during the closure phase	Environmental Managers and Closure Committees	36,000,000
Personal Protective Equipment (PPE)	All workers during the closure phase shall use appropriate PPE including helmet, safety boots, dust mask, safety gloves, goggles, protective garment and safety reflected vest.	Environmental Managers and Closure Committees	10,000,000

Waste Management	● All waste generated during the closure phase will be sorted for easy management ● A review process will be introduced so that the closure plan for waste dumps adjusted and updated for the inevitable changes to institution plans schedules, community standards and recognized best practices ● Debris may be used on the road to fill on feeder roads instead of dumping over land. ● Metal materials will be collected and stored at recommended area while waiting to be collected by authorized dealer for disposal. ● All hazardous wastes (for example used batteries, tires, acids etc.) found at the institution during decommissioning will be cleaned up and disposed of in accordance with the regulations, where responsible dealer will be contracted for disposal. ● The closure committee will make sure that no wastes will be disposed in the water bodies.	Environmental Managers and Closure Committees	24,000,000
Restore the environment into its original appearance	● All formed holes will be filled, all debris plus metal removed to disposal by authorized dealer who will be contracted. ● All disturbed areas will be landscaped and re-vegetated using indigenous trees.	Environmental Managers and Closure Committees	30,000,000
Total Cost Tsh		120,000,000	

11.3 MAJOR REHABILITATION PROCESS

The proponent shall fund and implement all aspect of project major rehabilitation process, including but not limited to all engineering, permitting and mitigation activities associated with the major rehabilitation of the project; in accordance with the plan to be developed. The proponent shall monitor environmental impact during and after project major rehabilitation to respond to defined events during the monitoring phase. Project major rehabilitation will commence six months after its closure and continue for six months within this month, the proponent will make inventory of all components that need to be replaced and disposed of. This inventory will include buildings to be rehabilitated and debts to be settled. Also, mode of disposal will be finalized. This information will assist in the preparation of the final major rehabilitation plan for approval by the relevant authorities. Project major rehabilitation has five phases: pre – removal monitoring; permitting; interim protective measures; project removal and associated protective actions; and post – removal activities, including monitoring of environment and socio economic activities:-

a) Pre – removal monitoring: includes environmental and social economic status of the buildings and the surrounding. This period will be used to inventories all assets and facilities that need to be disposed of and to prepare a final decommissioning plan for approval.

b) Permitting: The proponent shall obtain all permits from relevant authorities required for removal of the buildings.

c) Interim Protective Action: This will take care of any internal protective measures that need to be implemented to protect human health and environment.

d) Post – removal Activities: post – removal activities monitoring will continue afterward.

CHAPTER TWELVE: SUMMARY AND CONCLUSIONS

12.1 SUMMARY

The findings from this environmental and social impact assessment report can be summarized as follows:

(a) The project is generally accepted at the community, municipal, regional and national levels, based on its potential socio-economic benefits. The potential long-term social and economic benefits that the project is likely to bring are much greater than the negative impacts that can be managed to acceptable levels.

(b) All key stakeholders, including Itonjanda Village and Itonjanda Ward Offices, Ministry of Education, LTBWB, TUWASA, Neighbours to project, Fire and Rescue Force, and among others accept the proposed project and will be involved at all stages of the project.

(c) The project will not trigger involuntary resettlement and compensation-related issues since it will be implemented on land owned by MJNUAT and the area has been surveyed and planned for educational use which is compatible with proposed project as per provided title deed.

(d) Ecologically, the project site is located in an undeveloped area with natural vegetation. It is characterized by a continuum of highly modified environment resulting from long-term anthropogenic activities. It is dominated by non-native floral species, secondary species attempting to recover. Species recorded are of low conservation concern, no species of either IUCN standards or CITES appendices was recorded; There are no officially recognized critical habitats or IUCN-designated Key Biodiversity Areas (KBAs) that exist within the core area.

(e) The design, construction and operation of a proposed buildings will consider the needs of the PWDs. The gender requirements (gender-responsive design, construction, operation and maintenance), health and safety standards and conformity to national and international standards/guidelines.

(f) The negative impacts of concern are:
   (i) disturbances from construction noise and vibrations;
   (ii) air emissions impact from dust and exhaust fumes during construction;
   (iii) occupational health and safety hazards in all phases of the project;
   (iv) accidental contamination of surface and groundwater resources;
   (v) exposure to HIV/AIDS and new transmission; and
   (vi) workplace sexual harassment and violence against women & vulnerable segments.

(g) The significant positive impacts of concern are:
   (i) employment and income generation opportunities in phases of the project;
   (ii) income to surrounding petty traders, materials/equipment suppliers and service providers during construction phase;
   (iii) revenue generation to local government and agencies;
   (iv) skills and knowledge transfer;
   (v) reduction of gender gap in enrolment;

12.2 CONCLUSIONS

Given the above findings, it can be concluded that the proposed project activities from design, construction to operations stage will have manageable/ reversible negative impacts on the biophysical and social-economic environments, provided that if the proposed mitigation measures will be appropriately implemented. In this way, the project will have minimal environmental, socio-economic, and cultural concerns that would inhibit its implementation and development. It is anticipated that the project will potentially result in more positive than negative impacts in the long term.

This ESIA report recommends that the proposed project be allowed to proceed on condition that the proponent implements the ESMP and EMP proposed in this report as appropriate and any other conditions imposed by NEMC, WB ESF and HEET Project ESMF and other relevant authorities.

Further, it is recommended that MJNUAT will develop, implement and periodically review an operative Environmental and Social Management System (ESMS) for the project life cycle and other operations at new MJNUAT Tabora Campus in Tabora Municipal.

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APPENDIXES

Appendix 1: Screening Letter from NEMC

THE UNITED REPUBLIC OF TANZANIA

VICE PRESIDENT'S OFFICE
UNION AND ENVIRONMENT

NATIONAL ENVIRONMENT MANAGEMENT COUNCIL
(NEMC)

In reply please quote:
REF. No. **HE.145/88/138/1**

Date:1st November,2023

MJNUAT Tabora Campus,
P.O. Box 1463,
Tabora.

RE: REVIEW OF SCOPING REPORT AND APPROVAL OF TERMS OF REFERENCE (TORs) FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT OF THE PROPOSED ESTABLISHMENT OF MWALIMU JULIUS NYERERE UNIVERSITY OF AGRICULTURE AND TECHNOLOGY (MJNUAT) TO BE LOCATED ON PLOT NO.2, BLOCK 'A', AT ITONJANDA VILLAGE, ITONJANDA WARD, TABORA MUNICIPALITY IN TABORA REGION

Kindly refer to the above heading.

This is to acknowledge receipt of the Scoping Report and Draft Terms of Reference (ToRs) for undertaking an Environmental and Social Impact Assessment (EIA) of the aforementioned project. Your project has been assigned with Project Number **EC/EIA/2023/5835** and you are kindly requested to refer this number in any future correspondences with the Council.

The Terms of Reference were reviewed and found to be generally adequate and therefore can be used to guide the Environmental and Social Impact Assessment (EIA study for the named project. Thus, these Term of Reference are approved. However, you will be required to ensure that:

1. The proponent should not initiate construction activities until the EIA process completed and EIA certificate award;
2. Land ownership documents compatible with the proposed project activities and all relevant documents should be appended;

Lake Victoria Zone Office, 6th Floor, PSSSF Front Wing, Kenyatta Road, P.O Box 11045, Mwanza,
Phone: +255 28 2541679 ; Mobile: +255 737988999; Fax: +255 28 2541679
Email Address: nemcmwanza@nemc.or.tz Website: www.nemc.or.tz

3. You will be required to consult all relevant stakeholders but not limited to (OSHA, FIRE AND RESCUE FORCE,TCU,TBA, LVBWB, Ministry of Lands, Housing and Human Settlements Development (MLHHSD), Ministry of Education,LGAs Office, Local communities) and there should be an evidence that they have been consulted by signing against their names; In addition their concern must be taken on board in this study
4. Architectural design and site layout plan showing location of all project components in relation to the project area indicating plot ratio, coverage, set-backs, parking lots should be appended and must approved by relevant authorities;
5. Describe the programs expected to be taught by the Institution specifically the possible environmental risk, its mitigation and number of students at full designed capacity;
6. The project design should consider escape root and should include system to allow accessibility for special group;
7. The report should address issues on storm water drainage management, solid, E-waste, hazardous and liquid waste management from collection and disposal mechanisms;
8. Issues of compensation and resettlement (if any) should be well addressed;
9. All relevant permits and licences from relevant authorities related to your proposed activities should be appended in the report;
10. Ensure detailed description of management of sanitary pad with an attachment of structure design for the treatment of the same;
11. Ensure that baseline information/data on water quality, air quality, wind speed and direction, as well as flora and fauna are captured well in the report and should be on recent data;
12. Describe in details all components of the proposed project;
13. All applicable legal and policy frameworks and their respective requirements are addressed in the EIA report with focus on existing and revised/repealed legislations;
14. The report should describe to what extent the project will be comply to policies and legislation that are relevant to the project;
15. The EIA study should include identification and assessment of all utilities infrastructures that share the land with proposed project facilities and should ensure that they are incorporated in the project design;
16. Geotechnical report that explains the bearing capacity of the soil;

17. Ensure complete set of the project drawings (Architectural, Layout, electric and plumbing);
18. Proposals on emergency response plan and preparedness plans are incorporated in the EIA report;
19. Append letter approving ToR and revised ToR in the final EIA report; and
20. Finally, you are required to submit to NEMC 15 copies of the Audit report for review.

In this regard, you are required to pay to the Council the project for review costs as it will be indicated in the Electronic generated Invoice. Note that the paid review cost will exclude transport costs of three officers to and from the project site which has to be incurred by the project proponent.

Should you need additional information or clarification on this matter, please, contact us through Tel. No.0713296112.

Yours sincerely,

Samwel Nyasan D,
For; Zonal Manager

cc: Colba Consulting Ltd,
P.O. Box 60132,
Dar es Salaam.

Lake Victoria Zone Office, 6th Floor, PSSSF Front Wing, Kenyatta Road, P.O Box 11045, Mwanza,
Phone: +255 28 2541679 ; Mobile: +255 737988999; Fax: +255 28 2541679
Email Address: nemcmwanza@nemc.or.tz Website: www.nemc.or.tz

Appendix 2: Copy of Title Deed

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF LANDS, HOUSING AND HUMAN SETTLEMENTS DEVELOPMENT

Telegrams: LANDS
Telephone: 2121241-9
In reply please quote:
Ref. No. LR/T 17437

LAND REGISTRY,
P.O Box 1191,
Dar es salaam.
Date: 27 Feb, 2023

MWALIMU JULIUS.K.NYERERE UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
P.O Box 976
MUSOMA
Sir/Gentlemen/Madam,

RE: TITLE NO: 17437 LAND OFFICE NO: 1261783
PLOT NO. 2 BLOCK 'A' AT ITONJANDA

I have the honour to enclose herewith duplicate of the Certificate of Title Numbered as above please.

REGISTRAR OF TITLES

Copy to: Commisioner for Lands
Your LD File No: TMC/33483 refers

Date of Issue: 27-02-2023
Title Number: 17437 TBR
Land Office Number: 1261783
Land: PLOT NO.2 BLOCK 'A' ITONJANDA AREA IN TABORA MUNICIPALITY

Term: NINETY NINE YEARS

TITLE No: 17437
REGISTERED ON: 27.02.2023
AT: 01:00 P.M
Senior Asst. Registrar of Titles

TANGANYIKA STAMP DUTY ACT
Land Form No. 22
Stamp Duty Shs: 240/- Paid
On Original Receipt Shs: 922270128607360
of 07360 of 27.09.2022
Stamp Duty Officer

TANGANYIKA STAMP DUTY ACT
Stamp Duty Shs: 100/- Paid
Receipt No: 922270128607360
of: 27.09.2022
Stamp Duty Officer

THE UNITED REPUBLIC OF TANZANIA

THE LAND ACT, 1999
(NO. 4 OF 1999)
CERTIFICATE OF OCCUPANCY
(Under Section 29)

Title No. 17437 IBR
L.O. No. 1261783
L.D. No.TMC/33483

The 24th day of February Two Thousand and Twenty three.

THIS IS TO CERTIFY that **MWALIMU JULIUS K. NYERERE UNIVERSITY OF AGRICULTURE AND TECHNOLOGY (Established under the Universities Act No. 7 of 2005)** of P.O.Box 976, **MUSOMA** (hereinafter called "**the Occupier**") is entitled to the Right of Occupancy (hereinafter called "the Right") in and over the land described in the Schedule hereto (hereinafter called "the Land") for a term of **Ninety Nine (99)** years from the first day of **July, Two Thousand and Twenty Two** according to the true intent and meaning of the Land Act and subject to the provisions thereof and to any regulations made there under and to any enactment in substitution there for or amendment thereof and to the following special conditions:-

1. The Occupier having paid rent up to the thirtieth day of **June, 2023** shall thereafter pay rent of shillings **Five Thousand (5,000/=) Only** a year in advance on the first day of July in every year of the term without deduction **PROVIDED** that the rent may be revised by the **Commissioner for Lands.**

2. The Occupier shall:-

   (i) Be responsible for the protection of all beacons on the land throughout the term of the Right. Missing beacons will have to be re-established at any time at the Occupier's expenses as assessed by the Director responsible for **Surveys** and **Mapping.**

(ii) Do everything necessary to preserve the environment and protect the soil and prevent soil erosion on the land and do all things which may be required by the authorities responsible for environment and to achieve such objective.

(iii) Erect on land Buildings in permanent materials designed for use in accordance with the conditions of the right and which conform to the building line (if any) decided by the **Tabora Municipal Council** (hereinafter called "**the Authority**")

(iv) Submit to the Authority building plans within Six months from the date of commencement of the **Right**

(v) Begin building construction within six months after the approval of the building plans by the Authority.

(vi) Complete the building construction within Thirty Six months from the date of commencement of the **Right.**

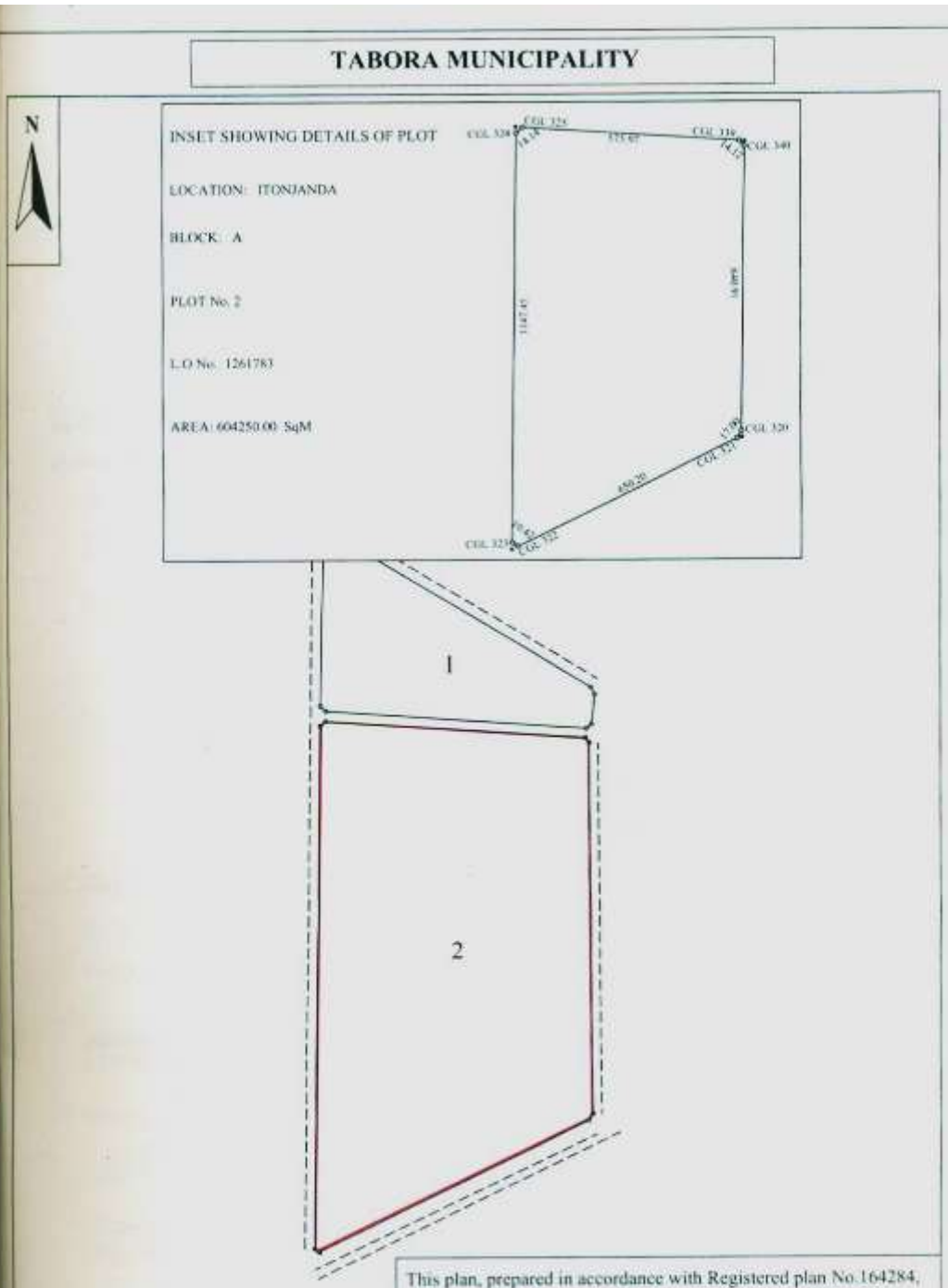
3. **USER:** The land shall be used for **Educational** purposes only, Use group **'K'** Use class **(d)** as defined in the Urban Planning Act No. 8 of 2007 (Use Groups and Classes) Regulations **2018.**

4. The Occupier shall not assign the Right within three years of the date hereof without the prior approval of the Commissioner.

5. The Occupier shall deliver to the Commissioner notification of disposition in prescribed form before or at the time the disposition is carried out together with the payment of all premia, taxes and dues prescribed in connection with that disposition.

6. The **President** may revoke the right for **good cause** and in **public interest**.

TABORA MUNICIPALITY



The issue of the plan implies no guarantee or admission of the tittle by the Government.

This plan, prepared in accordance with Registered plan No.164284, is approved for the purpose of Land Registration Act.Cap 334

For Director of Surveys and Mapping

Date. 09/10/2022 Surveys and Mapping Division
Ministry of Lands, Housing and Human Settlement Development.

SCHEDULE

ALL that Land known as Plot .No. **2 Block A'** situated at **Itonjanda Area in Tabora Municipality** containing an area of **Six Hundred and Four Thousand, Two Hundred and Fifty (604250) Square Meters** shown for identification only edged **red** on the plan attached to this Certificate and defined on the registered survey plan numbered **164284** deposited at the Office of the Director for Surveys and Mapping at Dar es Salaam.

Given under my hand and my official seal the day and year first above written.

.....

Ag. **ASSISTANT COMMISSIONER FOR LANDS**

We, the within named **MWALIMU JULIUS K. NYERERE UNIVERSITY OF AGRICULTURE AND TECHNOLOGY** hereby accept the terms and conditions contained in the foregoing Certificate of Occupancy.

SEALED with a **COMMON SEAL** of the Said)
MWALIMU JULIUS K. NYERERE)
UNIVERSITY OF AGRICULTURE AND)
TECHNOLOGY)
In the presence of us)
This .....day of.....2022)

Witness's
Signature.....)
Postal Address: BOX 976, MUSOMA
Qualification: VICE CHANCELLOR

Witness's
Signature.....)
Postal Address: P.O. BOX 976 MUSOMA
Qualification: DVC - PFA

Appendix 3: Baseline data for Water quality

ARDHI UNIVERSITY
School of Engineering and Environmental Studies

TEL: +255 738 357 310
+255 738 357 311
+255 738 357 312

FAX: (255-022) – 277 5391

P. O. BOX 35176
DAR ES SALAAM
E-MAIL: aru@aru.ac.tz
WEBSITE: http://www.aru.ac.tz

ENVIRONMENTAL ENGINEERING LABORATORY

Water Analysis Results

Client: COLBA
Date: 26 October 2023
Source: Water

S/N	PARAMETER	Units	Shallow well	Small Pond	Surface S3
1	pH		6.35	6.14	6.04
2	Turbidity	NTU	94	4683	117
3	Colour	Hazen°	1424	10600	1312
4	Salinity	‰ (ppt)	0.081	0.20	0.05
5	Electric conductivity	µS/cm	163	406	106
6	Total Dissolved solids	mg/l	82.0	203	53
7	Nitrate-Nitrogen	mg/l	0.50	0.40	0.40
8	Nitrite –Nitrogen	mg/l	0.027	0.0167	0.0226
9	Ammonia-Nitrogen	mg/l	0.322	2.118	0.298
10	Sulphate	mg/l	<1.0	<1.0	<1.0
11	Iron	mg/l	1.014	0.763	1.717
12	Total Alkalinity	mg/l	14.0	80.0	24
13	Total Hardness	mg/l	18	102	11
14	Bicarbonate Alkalinity	mg/l	14.0	80.0	24
15	Carbonate alkalinity	mg/l	0	0	0
16	Manganese	mg/l	0.073	0.119	0.039
17	Calcium	mg/l	10.0	66.0	6.0
18	Potassium	mg/l	6.470	9.377	3.785
19	Lead	mg/l	<0.01	<0.01	0.028
20	Copper	mg/l	<0.01	<0.01	<0.01
21	Cadmium	mg/l	<0.01	<0.01	<0.01
22	Chromium	mg/l	<0.01	<0.01	<0.01
23	Zinc	mg/l	<0.01	<0.01	0.025
24	Nickel	mg/l	<0.01	<0.01	0.195

Sampling done by client

Reporting Officer

Ndimbo AM

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Appendix 4: Baseline data for Soil quality analysis

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ENVIRONMENTAL ENGINEERING LABORATORY

Soil Analysis Results

Client: COLBA
Date: 26 October 2023
Source: Soil

S/N	PARAMETER	Units	S1	S2	S3	S4	S5
1	pH		4.51	2.69	4.48	6.23	4.41
2	Electric Conductivity	mS/cm	0.243	0.528	0.047	0.056	0.090
3	Copper	mg/kg	4.115	2.202	1.324	1.596	1.549
4	Lead	mg/kg	12.11	1.526	4.263	12.22	9.688
5	Zinc	mg/kg	17.8	9.222	9.671	17.83	10.68
6	Cadmium	mg/kg	1.061	0.981	0.337	0.274	1.734
7	Chromium	mg/kg	8.901	2.093	5.408	10.08	7.723
8	Nickel	mg/kg	4.223	3.336	3.388	2.485	0.763
9	Manganese	mg/kg	101.9	24.48	64.51	65.76	73.02

Sampling done by client

Reporting Officer

Ndimbo A.M

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