ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) OF THE PROPOSED TWO STOREY ACADEMIC BLOCK AND REHABILITATION OF THE THREE (3) EXISTING HOSTEL BUILDINGSON PLOT NO 2 OF BLOCK A AT CHANGANYIKENI OBSERVATION HILLS, CHANGANYIKENI MTAA, MAKONGO WARD, KINONDONI MUNICIPALITY, DAR ES SALAAM REGION

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March 2024

EXECUTIVE SUMMARY

INTRODUCTION

The Government of the United Republic of Tanzania through the Ministry of Education Science and Technology (MoEST) is implementing 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. 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. The Eastern Africa Statistical Training .Centre (EASTC) through the support of HEET project intends to construct academic block of two storey which will comprise the ground floor and first floor. The Eastern Africa Statistical Training Centre (EASTC) site is located on Plot No. 2 with a total area of 199,970.00m^2 at Changanyikeni Observation Hills, Changanyikeni mtaa, Makongo Ward, Kinondoni Municipality, Dar es Salaam Region. The plot area is legal owned by EASTC.

The proposed building ground floor will comprise of 2 class rooms where each class room will able to occupy 200 students per time, one theatre room which will handle 200 students per time, 5 rooms for staff offices, one room for Counselling office, one room for Lactation/Breast feeding, 2 in one room for staff toilets (one for male and one for female), one room for electrical/power office, 4 rooms for special need people toilets (2 rooms for female and 2 rooms for male), 2 rooms for female students toilets (each room will be portioned into 6 small rooms for toilets and bath) and 2 rooms for male students toilets (each room will be portioned into 3 rooms for toilets and urinal area). The first floor will comprise of 2 rooms for lecture theatre (each room will handle 400 students per time), one room for Computer Laboratory which will handle 152 students per time, 2 in one room for ICT office and Saver room, 5 rooms for staff offices, 2 in one room for staff toilets (one for male and one for female), 2 rooms for special need people toilet (one for female and one for male), 6 in one room for female students' toilets and 4 in one room for male students' toilets and urinal area. The Construction activities will also include Rehabilitation of three (3) existing EASTC hostel buildings, Construction of landscaping and walk ways to connect EASTC buildings. The proposed Projects will be located on Plot No 2 of Block A at Changanyikeni Observation Hills, Changanyikeni Mtaa, Makongo Ward, Kinondoni Municipality, Dar es Salaam Region. The proposed project has an investment cost of TZS 5, 024, 309,495.08 (equivalent to 5 USD 2,174,099.11).

The construction of the proposed academic block of two storey 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, EASTC carried out this environmental and

social impact assessment (ESIA) for the proposed a two-storey academic block in the 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.

DESCRIPTION OF EASTC CAMPUS

Within EASTC Campus there are many infrastructures currently used where the notable ones are one Administration block of 3 storey, one building for Computer Lab and Library, one Canteen building, five buildings for students Hostels, one building for security office at entrance and among others. Within project site there is designed internal road which link one building to another. Other facilities found with the site are TANESCO infrastructures which have been connected to existing buildings, water infrastructures from Dar es Salaam Water Supply Authority (DAWASA) as main water source, one borehole as alternative water source, Septic tanks for domestic wastewater management, one diesel generator of 220kVA as alternative power source, water storage tanks, storm water channel, parking area and designed garden.

ADJACENT DEVELOPMENT

The EASTC Campus its bordered by residential plots and business outlet to the Northern side about 33meters whereby Changanyikeni road is used as the buffer zone between them. University of Dar es Salaam area to the Eastern side about 100meters, Golani seasonal river in southern side about 5m and some business outlets and residential to the western side about 15meters.

DESCRIPTION OF PROJECT PROPOSED SITE

A proposed project site is undeveloped area which is within EASTC Campus and it is borders by undeveloped area in all sides. The proposed area is about 60m from existing football ground from Northern side. The site is undeveloped one which is covered by vegetation like eight *Azadirachta indica trees* (Miarubaini), one cashew nut tree, six *SennaSiamea* (Mijohoro), four *acacia shrubs* and some short grass.

POLICY, ADMINISTRATIVE AND LEGAL FRAMEWORK

Carrying out the Environmental and Social Impact Assessment (ESIA) for the proposed development, various Policies, laws and regulations relevant to this assignment were reviewed and applied.

Furthermore, various World Bank Environmental and Social Standards (ESSs) approved by the Board for addressing environmental and social issues within the Bank supported development projects will be applicable. The proposed project at EASTC 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 6 relevant standards out of 10 Environmental

and Social Standards (ESSs). The Environmental and Social Standards (ESS's) that apply to this ESIA report include:

- ESS1- Assessment and Management of Environmental and Social Risks and Impacts;
- ESS2 - Labor and Working Conditions;
- ESS3 - Resource Efficiency and Pollution Prevention and Management;
- ESS4 - Community Health and Safety;
- ESS8-Cultural Heritage
- ESS10 - Stakeholder Engagement and Information Disclosure (ESS10).

STAKEHOLDER ENGAGEMENT

Stakeholder consultations were carried out during the preparation of scoping report to identify and respond 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. The Consultation involved all individuals, groups or organisations that might be affected or might affect (positively or negatively) the proposed construction of a two-storey academic building project in one way or the other. They are found at national, municipal and local levels. 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.

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

- Loss of lives and property due to fire break out
- Dust emission during construction and rehabilitation phase
- Occupational health hazard and safety risks to workers
- Proper Waste Management
- Enhanced income, employment opportunities and local business

DESCRIPTION OF THE MAJOR SIGNIFICANCE IMPACTS

The proposed project will generate a wide range of environmental and social impacts from site preparation stages, construction and rehabilitation phase to operation phase up to decommission phase. The impacts are of both positive and negative nature. Most adverse impacts will be of a temporary nature during the construction and rehabilitation phase and can be managed

to 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 SIGNIFICANT IMPACTS

Impact during Mobilization phase

Social impacts

- Employment Opportunities to local people
- Disturbance to pitch users

Environmental Impact

- Clearance of Vegetation to accommodate project development
- Dust emission during site clearing
- Occupational Health hazards to mobilization workers

Impacts During Construction and Rehabilitation Phase

Social Impacts

- Knowledge and skill increase to local labour
- Benefit to local producers and suppliers of construction materials
- Gender Inequity in Employment opportunities
- Spreading of HIV and other STIs in the project area and surrounding environs
- Revenue Generation to Local Governments and Agencies
- Increase income to offsite services providers
- Disrupted Traffic Flow and Public Safety/Accidents

Environmental Impacts

- Nuisance from noise and vibration impacts during construction and rehabilitation.
- Disturbance to contractor due to effect of storm water flowing during rainy season
- Occupational Health and Safety Hazards/Risk
- Air pollution due to dust and gaseous emission during construction and rehabilitation
- Water Pollution and siltation effect due to generation of soil materials
- Spread of communicable disease due to mismanagement of domestic wastewater
- Health hazards due to mismanagement of hazardous waste
- Bad visual/ smell due to mismanagement of solid waste

Impacts During Operation Phase

Social Impacts

- Increase Skills for all students graduate
- Creation of Direct Employment Opportunities
- Enhanced Income to the Surrounding Local communities
- Spreading of HIV/AIDS and other STIs
- Gender-based Violence, Sexual Exploitation and Harassment
- Reduction of Gender Gap
- Demand of basic needs due to population influx

- Security imbalance due to population influx
- Conflicts to community around due to population influx

Environmental Impacts
- Soil/water pollution due to solid waste mismanagement
- Water and soil pollution due to domestic wastewater mismanagement
- Soil Erosion due to Runoff Effects and Loosened Top Soil
- Fire outbreak
- Loss of properties due to Natural Disaster Risk

Impacts During Decommission Phase
Social Impacts
- Loss of aesthetic value due to Abandonment of infrastructure
- Loss of employment and learning place

Environmental Impacts
- Land pollution
- Air pollution resulting from demolition works
- Noise pollution from demolishing works
- Environmental pollution due to hazardous waste mismanagement
- Wastewater Management problems

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.

- Alternative site
- Alternative Power Supply
- Alternative Water source
- Alternative construction materials
- Alternative construction technology
- No Project 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;

Identified Impacts			**Mitigation and/or Enhancement Measures**
Project Phase	**Type**	**Description**	
Mobilization	Social Impacts		
	+ve	Employment and income generation opportunities	• Priority to local communities around Changanyikeni 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/permit small businesses that support the construction, such as cafes, food vendors, *kiosk, tricycle motorcycle (bajaji), 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)
	-ve	Disturbance to pitch users	• Students to be informed about the proposed project • Student to be informed about the proposed access road to the proposed project area • it is advised to re-locate the 'temporary ground' to its permanent location as per the EASTC masterplan.
	Environmental Impacts		

Identified Impacts			Mitigation and/or Enhancement Measures
Project Phase	**Type**	**Description**	
	-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
	-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 • the project should be insured against injuries and deaths. • 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
	-ve -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 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
Construc	Social Impacts		
	+ve	Income increases 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

Identified Impacts			Mitigation and/or Enhancement Measures
Project Phase	**Type**	**Description**	
	+ve	Benefit to local supplier of construction and rehabilitation 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
	+ve	Revenue generation to local government and 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
	-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

Identified Impacts			Mitigation and/or Enhancement Measures
Project Phase	**Type**	**Description**	
	-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 and rehabilitation 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 • 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
	-ve	Inequity in employment, unfair 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, or special needs 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, inclusive recruitment and non-discriminative employment terms, and on-the-job capacity development for labourers representing vulnerable groupings • Establishing affirmative action involving the preparation of equal opportunity, inclusive procurement plan • Capacity-development opportunities (e.g. internships, training seminars) for women and minority employees and women and minorities pursuing education

Identified Impacts			Mitigation and/or Enhancement Measures
Project Phase	**Type**	**Description**	
	+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 and rehabilitation staff will be encouraged to further develop the acquired knowledge and skills through Vocational Training Centres (VTCs) • Transfer of the skills into other livelihood activities, seek opportunities in other similar projects in the region and beyond
	Environmental Impacts		
	-ve	Noise pollution due to movement of construction and rehabilitation 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. 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.
	-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
	-ve	Impacts associated with transportation of construction and rehabilitation 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

Identified Impacts			Mitigation and/or Enhancement Measures
Project Phase	**Type**	**Description**	
	-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 • Contractor should employ a qualified health and safety officer at site, • 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.
	-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. Contractor should prepare a waste management plan for hazardous waste
	-ve	Disrupted traffic flow and staff and student safety/accidents	• Contractor to prepare and implement a Traffic Management Plan (TMP) for construction and rehabilitation 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.
	-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 and rehabilitation. • Emptying of provided toilets will be done to avoid overflow.

Identified Impacts			Mitigation and/or Enhancement Measures
Project Phase	**Type**	**Description**	
	-ve	Pollution due to mismanagement of domestic solid waste	• Ensuring proper design of systems for collection, transportation and disposal of solid wastes • 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 • Contractor should prepare a waste management plan for domestic solid waste, •
Operation	Social Impacts		
	+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 EASTC HIV/AIDS and Gender Policy.
	+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
	+ve	Improved students' enrolment and capacity building	Development of infrastructure and associated facilities that will enhance access to programs offered at EASTC 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

Identified Impacts			Mitigation and/or Enhancement Measures
Project Phase	**Type**	**Description**	
	-ve	Conflicts to community around due to population influx	Admitted students will be inducted on how to behave according to community around, Good corporation with community around and the proponent is insisted to solve any problem if happen
	-ve	Demand of basic needs due to population influx	• Allow private people to provide basic need within EASTC Campus to enhance availability • Number of students to be enrolled with base on presence of basic needs around the Campus, • The area will be connected with safe water from existing source, • The area will be connected with electrical power from TANESCO, • The area is along Changanyikeni road, so other basic human need will be obtained easily, • Toilets and wash rooms for workers shall be constructed and used in all phases
	-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.
	-ve	Gender-based violence, sexual exploitation & harassment	• Strict implementation of the EASTC's policy on Gender and HIV/AIDS issues • Developing and implementing Code of Ethical Conduct for the EASTC 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 EASTC's Gender Unit to conduct continuous gender-sensitive trainings and awareness creation in collaboration with various stakeholders
	Environmental Impacts		
	-ve	Pollution due to mismanagement of domestic solid waste	1. Ensuring proper systems for collection, transportation and disposal of solid wastes 2. Ensuring availability of sufficient waste bins at appropriate locations 3. Design and construct waste collection chambers for collecting waste before transported to dump site, 4. The constructed temporary waste collection chamber shall be paved, roofed and banded

Identified Impacts			Mitigation and/or Enhancement Measures
Project Phase	**Type**	**Description**	
	-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 of septic tank to avoid overflow of liquid waste
	-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
	-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 (annual) maintenance of the Fire Extinguishers 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

ENVIRONMENTAL AND SOCIAL MONITORING PLAN (ESMP)

Environmental and Social 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 (ESMP) 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. EASTC (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 67,500,000/=, the cost will be covered by developer.

ENVIRONMENTAL COST BENEFIT ANALYSIS (ECBA)

The implementation of the proposed Academic Building of 2 storey at EASTC Campus 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 new buildings project has both direct and indirect benefits to EASTC 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.

DECOMMISSIONING

Decommissioning is not anticipated in the foreseeable future. In the event that the proposed project will be decommissioned, 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 decommissioning 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, injuries to demolition workers and contamination of environmental due to improper management of demolition wastes.

About 26,000,000/= Tanzania Shillings is proposed to be used during project decommissioning, this will vary depending on money value on the time where decommissioning 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 are 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 EASTC will develop, implement and periodically review an operative Environmental and Social Management System (ESMS) for the project life cycle and other operations at the Campus

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ACKNOWLEDGEMENT

Eastern Africa Statistical Training Centre (EASTC), the Project Proponent would like to express sincere gratitude to all individuals, agencies and institutions who contributed to the completion of this ESIA study for the proposed construction of an academic block of two storey at EASTC Dar es Salaam Campus. Special thanks are due to Kinondoni Municipality, Makongo Ward Office, Changanyikeni Observation Hill, Changanyikeni Mtaa Office and Community around the project for providing valuable support and collaboration throughout the study.

Further, EASTC would like to thank various government Agencies for their contributions related to specific areas and issues in the project: Occupational Health and Safety Authority (OSHA), Tanzania Building Agency (TBA), Tanzania Commissioner for Universities (TCU), The National Council for Technical and Vocational Education and Training (NACTVET), Fire and Rescue Force-Kinondoni Region Office, Ministry of Finance, World Bank and Ministry of Education Science and Technology (MoEST)

EASTC would also like to thank COLBA Consulting Ltd, especially all Key and Non-Key Experts for undertaking this study successfully. Several other persons were involved in one way or another in the execution of this study. To all those, EASTC extends many thanks.

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
CCEP	Community Communication and Engagement Plan
CEF	Community Engagement Framework
CRB	Contractor Registration Board
CSMP	Construction Safety Management Plan
CSR	Community Social Responsibility
CSSMP	Contractor Site Safety Management Plan
DAWASA	Dar es Salaam Water Supply Authority
DoS	Dean of Student
EA	Environmental Audit
EAC	East African Community
EASTC	Eastern Africa Statistical Training Centre
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
EPP	Emergency Preparedness 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
FI	Financial Intermediaries
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
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

MEO	*Mtaa* Executive Officer
MoEST	Ministry of Education Science and Technology
NACTVET	National Council for Technical and Vocational Education and Training
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
PSEA	Prevention of Sexual Exploitation and Abuse
PTW	Permit to Work
RPF	Resettlement Policy Framework
SEP	Stakeholder Engagement Plan
SHO	Safety Health Officer
STD	Sexual Transmitted Disease
STPA	Statistical Training Programme for Africa
TAC	Technical Advisory Committee
TANESCO	Tanzania Electric Supply Company
TBS	Tanzania Bureau of Standards
TDV	Tanzania Development Vision
TGNP	Tanzania Gender Networking Programme
TMP	Traffic Management Plan
ToR	Terms of Reference
TTCL	Tanzania Telecommunication Limited
TZS	Tanzania Standards
Tsh	Tanzania Shillings
URT	United Republic of Tanzania
VOC	Volatile Organic Compounds
WBG	World Bank Group
WEO	Ward Executive Officer
WHO	World Health Organization
WSP	Waste Stabilization Pond

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 implementing 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. The EASTC through the support of World Bank intends to construct academic block of two storey which will comprise the ground floor and first floor. The Eastern Africa Statistical Training Centre (EASTC) site is located on Plot No. 2 with a total area of 199,970.00m^2 at Changanyikeni Observation Hills, Changanyikeni mtaa, Makongo Ward, Kinondoni Municipality, Dar es Salaam Region. The plot area is legal owned by EASTC.

The ground floor of the proposed building will comprise of 2 class rooms where each class room will able to occupy 200 students per time, one theatre room which will handle 200 students per time, 5 rooms for staff offices, one room for Counselling office, one room for Lactation/Breast feeding, 2 in one room for staff toilets (one for male and one for female), one room for electrical/power office, 4 rooms for special need people toilets (2 rooms for female and 2 rooms for male), 2 rooms for female students toilets (each room will be portioned into 6 small rooms for toilets and bath) and 2 rooms for male students toilets (each room will be portioned into 3 rooms for toilets and urinal area). The first floor will comprise of 2 rooms for lecture theatre (each room will handle 400 students per time), one room for Computer Laboratory which will handle 152 students per time, 2 in one room for ICT office and Saver room, 5 rooms for staff offices, 2 in one room for staff toilets (one for male and one for female), 2 rooms for special need people toilet (one for female and one for male), 6 in one room for female students' toilets and 4 in one room for male students' toilets and urinal area. The Construction activities will also include Rehabilitation of three (3) existing EASTC hostel buildings, Construction of landscaping and walk ways to connect EASTC buildings. The proposed Projects will be located on Plot No 2 of Block A at Changanyikeni Observation Hills, Changanyikeni Mtaa, Makongo Ward, Kinondoni Municipality, Dar es Salaam Region. The proposed project has an investment cost of TZS 5, 024, 309,495.08 (equivalent to 5 USD 2,174,099.11).

The construction of the proposed academic block of two storey 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, EASTC has commissioned Consultant "Colba Consulting Limited of P. O. Box 60132 in Dar es Salaam" to carried out this environmental and social impact assessment (ESIA) for the proposed a two-storey academic block in the 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, EASTC who is also the beneficiary of the HEET project had the following specific objectives: To increase enrolment in priority disciplines,
- To improve the relevance and quality of programs at training institute
- 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.

1.2.2 Project 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 (The National Development Vision 2025, The National Five-Year Development Plan of 2021/2022-2025/2026) 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 Main object of the ESIA Consultancy Service is to conduct the Environmental and Social Impact Assessment (ESIA) studies for proposed construction and rehabilitation of buildings at EASTC Campus, as follows:

- Construction of new academic block with capacity to accommodate 1,600 students and 6 staff offices at EASTC
- Rehabilitation of three (3) existing EASTC hostel buildings (Hostel 1,2&3)
- Construction of landscaping and walk ways to connect EASTC buildings

The Third Schedule of the Environmental Management Act 2004 and First Schedule to the Environmental Impact Assessment and Audit Regulations 2005 and EIA and Audit Regulations (Amendment) 2018 are the Environmental and Social Impact Assessment (ESIA) mandatory 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 the National Environment Management Council (NEMC). The Scoping Study was undertaken and approved by the NEMC, with the Terms of Reference (ToR) presented in *Appendix 2.*

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 construction of Academic block of two storeys, Rehabilitation of three (3) existing EASTC hostel buildings, Construction of landscaping and walk ways to connect EASTC buildings on Plot No 2 Changanyikeni Observation hill, Changanyikeni *Mtaa*, Makongo Ward, Kinondoni Municipality in Dar es Salaam Region. Thus, this EIA study integrates mitigations and enhancement measures in all phases of the proposed project, i.e., planning, mobilization, construction and rehabilitation,

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 Objectives

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

- To ensure that environmental considerations are explicitly addressed and incorporated into the development decision making process;
- To anticipate and avoid, minimize or offset the adverse significant effects of on biophysical, social and ecological environment;
- To provide mitigation measures for all potential negative impacts and enhancement of positive impacts;
- To promote development that is sustainable and optimizes resources use and management opportunities;
- To analyze environmental cost and benefits of the proposed project; and
- 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 7th August 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 on 7th August 2023 to observe, record and analyse the pertinent socio-economic and biophysical characteristics within and adjacent to the EASTC Dar es Salaam Campus. 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 EASTC and adjacent areas were carried out by the Consultant's team. The ESS1 recommends at least two rounds of fieldwork

should be conducted to ensure that seasonal 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 operations premises (inside EASTC Dar es Salaam Campus) to the surrounding areas (Changanyikeni area). The EIA 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, EASTC community (students, staff), Kinondoni Municipal Council, Makongo Ward, Changanyikeni *Mtaa* 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 all stakeholders were informed about the proposed project for construction of academic block of two storeys, Rehabilitation of three (3) existing EASTC hostel buildings, Construction of landscaping and walk ways to connect EASTC buildings and 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. This stakeholder consultation was done from August 2023 to October 2023

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 EASTC background reports, socio-economic and investment profiles, ESMF, development plans and project's preliminary reports as presented in a reference page 179. 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 as presented on reference page 179.

1.5.5 Physical and Socio-Economic Baseline Survey

1.5.5.1 Baseline data on measured Air quality, Vibration and Noise

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

The measured five (5) 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 (SO2), Nitrogen dioxide (NO2), Carbon monoxide (CO), Hydrogen Sulphide (H2S), Methane (CH4) 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 monitors (S-500). Particulate matter (PM10 and PM2.5) 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, NO2, SO2, H2S, CH4 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 five 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.

1.5.5.2 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 for flora and fauna analysis on site. 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.

1.5.5.3 Social Economic Baseline

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 project in terms of income earnings and expenditures and 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 used 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. In addition, questionnaires were administered to the neighbours and other stakeholders in order to get their views on the potential impacts of the project to both natural and human environment.

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

neighbourhood characteristics were assessed in terms of 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.

1.6 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. 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 EASTC Campus description, the major adjacent land use, waste management system within project site, description of project proposed site, project activities and among others

2.1.1 Location and accessibility

The Eastern Africa Statistical Training Centre (EASTC) site is located on Plot No 2 Changanyikeni Observation Hill, Changanyikeni Mtaa, Makongo Ward, Kinondoni Municipality, Dar es Salaam Region and lies between latitude 6.77195^{o} and 6.77169^{o} South of the Equator and between longitude 39.19335^{o} and 39.19293^{o} East of the Greenwich Meridian. The EASTC Campus is accessible from City centre by the Morogoro road, turning right at Ubungo following Sam Nujoma Road about 300m then turn left following University Road and then turn left at University of Dar es Salaam Main administration bus stand following Changanyikeni road. The project site is along the Changanyikeni road on left side. Both roads are tarmac which passable round a year. The EASTC Campus its bordered by residential plots in Eastern and Western sides, Golani seasonal river in southern side about 5m and Changanyikeni road in Northern side about 8m. The project proposed site will be about 250m to existing seasonal river in southern side, the river will not be receptor of project activities. See the location coordinates in table 2.1 and figure 2.1.

Table 2.1: GPS Coordinates of proposed site

Point	Latitude (S)	Longitude (E)
1	-06.77195^{0}	39.19335^{0}
2	-06.77243^{0}	39.19295^{0}
3	-06.77208^{0}	39.19267^{0}
4	-06.77169^{0}	39.19293^{0}

Source; COLBA Consulting Ltd on 7th August 2023

Figure 2.1: EASTC Dar es Salaam Campus site location map

Source; COLBA Consulting Ltd, August 2023

2.1.2 Land Ownership

The EASTC Campus site is on land area owned by The Eastern Africa Statistical Training Centre (EASTC) who has legal documents for ownership and the land has been surveyed and planned for Educational Purposes of use Group "K" and use class (d) as defined in the Urban Planning (Use Groups and Use classes) Regulations, 2018. The whole land covers total area of 199,970.00m^2. See appendix 5, page 204 of this ESIA report

As per the Urban Planning (Use Groups and Use classes) Regulations, 2018; Use Group "K" is for Educational Buildings and Use class (d) is for schools facilities, institutes, colleges, university colleges and universities.

2.1.3 The Eastern Africa Statistical Training Centre (EASTC) Campus Site description

Within EASTC Campus there are many infrastructures currently used namely; one Administration block of 3 storey, one building for Computer Lab and Library, one Canteen building, five buildings for students Hostels, one building for security office at entrance, water storage tanks, storm water channels, septic tanks for domestic wastewater management, internal walkway, one football ground, RO system for water purification and one borehole which currently not in use. Within the project site there is designed internal road which link one building to another. Other facilities found with the site are TANESCO infrastructures which have been connected to existing buildings, water infrastructures from Dar es Salaam Water Supply Authority (DAWASA) as main water source, one borehole as alternative water source, Septic tanks for domestic wastewater management, one diesel generator of 220kVA as alternative power source, water storage tanks, storm water channel, parking area and designed garden.

2.1.4 Major adjacent developments

The EASTC Campus is bordered by residential plots and business outlet to the Northern side about 33meters whereby Changanyikeni road is used as the buffer zone between them, University of Dar es Salaam area to the Eastern side about 100meters, Golani seasonal river in southern side about 5m and some business outlets and residential to the western side about 15meters. The project proposed site will be about 250m to existing seasonal river in southern side, the river will not be receptor of project activities pollutants.

2.1.5 Storm water management

There is storm water drainage system within EASTC Campus. The project proponent will ensure that the project design does not block the existing drainage system (existing storm water channel not destroyed) and effort has to be done to maintain the existing drainage systems. After the construction and rehabilitation phase, the project proponent must ensure that the constructed area is covered with concrete pavement to allow storm water flows to the drainage systems more easily.

2.2 DESCRIPTION OF PROPOSED PROJECT SITE

The Eastern Africa Statistical Training Centre (EASTC) through the support of World Bank intends to construct Academic block of two storeys, Rehabilitation of three (3) existing EASTC hostel buildings, Construction of landscaping and walk ways to connect EASTC buildings to be located on Plot No 2 Changanyikeni area at Changanyikeni Mtaa, Makongo Ward, Kinondoni Municipality in Dar es Salaam Region. The site for proposed academic block to be implemented is currently undeveloped area which covered by few vegetation and it's within EASTC campus premise. However, the area of rehabilitation is occupied by the existing hostels.

A proposed project site for the new academic block is undeveloped area while the area for the rehabilitation is occupied by 3 hostels which is within EASTC

Campus and it is borders by undeveloped area in all sides. The proposed area is about 60m from existing football ground from Northern side. The site is undeveloped one which is covered by vegetation like eight *Azadirachta indica trees* (Miarubaini), one cashew nut tree, six *SennaSiamea* (Mijohoro), four *acacia shrubs* and some short grass.

Plate 2.1: Vegetations at project proposed site for Academic block

Source; COLBA Consulting Ltd on 7th August 2023

2.3 DESCRIPTION OF THREE HOSTEL BUILDINGS TO BE RENOVATED

HEET Project at EASTC will involve the rehabilitation of three hostels that are within the EASTC Campus. Student hostels at EASTC are specialized accommodation facilities designed to provide housing for students who are attending educational programs at EASTC. These hostels offer a convenient and often cost-effective housing option for students, particularly those who come from different cities or countries to pursue their studies.

Hostel rehabilitation at EASTC will involve improving and renovating hostel accommodations to enhance their safety, comfort, and overall quality. Hostels are budget-friendly accommodations popular among students seeking affordable lodging options at EASTC. Rehabilitation activity at EASTC will involve improving the wastewater system, Doors, New Electric System, ICT Service, installation of a new water supply system, Painting etc.

The three hostels to be rehabilitated have the same common features (see plate 2.2); all hostels have ground and 1st Floor only, 16 rooms, 6bathroom for each floor, 4 toilet cubes for each floor, and water storage tanks on top of the roof.

Hostel 1 has 16 rooms and is occupied by women only pursuing Masters studies whereby each room is occupied by two students while Hostel 2 is occupied by undergraduate students with 16 rooms and each room is

occupied by 4 students. Hostel 3 is occupied by undergraduate students and has 16 rooms and each room is occupied by 2 students only.

Plate 2.2: Hostels to be rehabilitated

Source; COLBA Consulting Ltd on September 2023

Table 2.1: GPS Coordinates of proposed site

Point	Latitude (S)	Longitude (E)
1	-06.77195^0	39.19335^0
2	-06.77243^0	39.19295^0
3	-06.77208^0	39.19267^0
4	-06.77169^0	39.19293^0

Source; COLBA Consulting Ltd on 7th August 2023

Figure 2.1: EASTC Dar es Salaam Campus site location map

Source; COLBA Consulting Ltd, August 2023

2.4 PROJECT DESIGN

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, EASTC 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. EASTC 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 behavioral). These include provisions of lamps, toilets, etc.

2.4.4 Occupational health and safety (OHS)

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

2.5 PROJECT DESIGN COMPONENTS

The project will involve the construction of academic block of two storeys which will comprises ground floor and first storey. The ground floor will comprise of 2 class rooms where each class room will able to occupy 200 students per time, one theatre room which will handle 200 students per time, 5 rooms for staff offices, one room for Counselling office, one room for Lactation/Breast feeding, 2 in one room for staff toilets (one for male and one for female), one room for electrical/power office, 4 rooms for special need people toilets (2 rooms for female and 2 rooms for male), 2 rooms for female students toilets (each room will be portioned into 6 small rooms for toilets and bath) and 2 rooms for male students toilets (each room will be portioned into 3 rooms for toilets and urinal area). The first floor will comprise of 2 rooms for lecture theatre (each room will handle 400 students per time), one room for Computer Laboratory which will handle 152 students per time, 2 in one room for ICT office and Saver room, 5 rooms for staff offices, 2 in one room for staff toilets (one for male and one for female), 2 rooms for special need people toilet (one for female and one for male), 6 in one room for female students' toilets and 4 in one room for male students' toilets and urinal area

The proposed academic building will cover the total area of 1,752.755m^2. A proposed building has taken into account of the basic architectural principle such as orientation of the sun, placement of building so as to complete the west and east sun and larger opening to allow enough natural ventilation in the building

The project activities will also include Rehabilitation of three (3) existing EASTC hostel buildings, Construction of landscaping and walk ways to connect EASTC buildings. The design was attached see appendix 11
The design will come up with a sustainable built environment by considering key issues like use of energy, use of water, use of materials and resources, use of site, and consider special need people.

Table 2.2: Project Design Components/infrastructures

Building type	**Design Components**	**Designed Use**	**Area Coverage m²**
Two storeys Academic Block	Ground floor	The ground floor will comprise of 2 class rooms where each class room will able to occupy 210 students per time, one theatre room which will handle 210 students per time, 5 rooms for staff offices, one room for Counselling office, one room for Lactation/Breast feeding, 2 in one room for staff toilets (one for male and one for female), one room for electrical/power office, 4 rooms for special need people toilets (2 rooms for female and 2 rooms for male), 2 rooms for female students toilets (each room will be portioned into 6 small rooms for toilets and bath) and 2 rooms for male students toilets (each room will be portioned into 3 rooms for toilets and urinal area)	1,752.755m^2
	First floor	The first floor will comprise of 2 rooms for lecture theatre (each room will handle 400 students per time), one room for Computer Laboratory which will handle 152 students per time, 2 in one room for ICT office and Saver room, 5 rooms for staff offices, 2 in one room for staff toilets (one for male and one for female), 2 rooms for special need people toilet (one for female and one for male), 6 in one room for female students' toilets and 4 in one room for male students toilets and urinal area	1,752.755m^2
Total floor area for academic block			3,505.51m^2

2.6 PROJECT ACTIVITIES

During the implementation of the proposed academic block of two storeys, Rehabilitation of three (3) existing EASTC hostel buildings, Construction of landscaping and walk ways to connect EASTC buildings there will be some project activities that will be done in Mobilization, construction and rehabilitation Phase, Operation Phase 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 as:

2.6.1 Mobilization Activities

This is the initial phase of project implementation; this phase commences when all necessary permits like building permit and environment 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 establishment 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 transportation of construction materials to site and workforce recruitment. The temporary buildings will be established within a proposed site.

2.6.2 Construction and Rehabilitation Activities

2.6.2.1 Construction Activities

The major construction activities include excavation of foundation, transportation of the construction materials 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 and rehabilitation 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 structures.
- 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.

2.6.2.2 Rehabilitation and Landscaping Activities.

Hostel rehabilitation activities typically involve the restoration, renovation, or improvement of existing 3 hostel buildings to bring them up to code, enhance their functionality, and extend their lifespan. Rehabilitation of the hostel will include the following activities:

- Structural Repairs:
  1. Reinforcing or replacing damaged or deteriorated structural components, such as beams, columns, walls, or foundations.
  2. Addressing issues like subsidence, settlement, or cracks that may compromise the building's stability.
- Exterior Renovation:
  1. Repairing or replacing the building's exterior facade, including walls, windows, doors, and roofing materials.
  2. Restoring or updating the building's architectural features to maintain historical or aesthetic value.
- Interior Renovation:
  1. Gutting and redesigning interior spaces to accommodate new layouts, functions, or modern amenities.
  2. Upgrading electrical, plumbing to meet current building codes and energy efficiency standards.
- Accessibility Improvements:
  Installing ramps, to make the building accessible to people with disabilities.
- Mechanical and Electrical Upgrades:
  Installing energy-efficient lighting and electrical systems to reduce operational costs.
- Fire Safety Enhancements:
  1. Installing or upgrading fire suppression systems, such as sprinklers or fire alarms, to meet current safety standards.
  2. Ensuring compliance with fire codes, including adequate exit routes and fire-rated materials.
- Plumbing and Sanitary Improvements:

Replacing or upgrading plumbing systems, fixtures, and sewage lines to prevent leaks and ensure proper sanitation.

- Energy Efficiency Upgrades:
  Adding insulation, upgrading windows and doors, and implementing other measures to improve energy efficiency and reduce utility costs.
- Sustainability Initiatives:
  Incorporating green building practices, such as using renewable materials, incorporate water reservoirs.
- Landscaping and Site Improvements:
  Enhancing the surrounding landscaping, parking areas, and outdoor spaces to improve the overall appearance and functionality of the property.
- Budgeting and Project Management:
  Careful planning, cost estimation, and project management to ensure the rehabilitation project stays on schedule and within budget.

These major building rehabilitation activities require careful planning, skilled professionals, proper permits, and often significant financial resources.

2.6.2.3 Materials to be used for construction and rehabilitation phase

The materials that will be used for the construction of the proposed academic block of two storeys 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 DAWASA are connected at the project site, which will be used during construction and operation of the project. Most of materials to be used for the proposed building 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 and rehabilitation of proposed project

Type of materials	**Quantity**	**Potential Source**
Aggregates	50m^3	Msolwa burrow pits at Chalinze
Cement	500bags	Wazo cement factory-Tegeta
Sand	70m^3	Vianzi borrow pits at Mkuranga
Water	4.5m^3 per day	DAWASA
Steel bars	25tones	MMI steel factory Mikocheni
Iron sheets	200pieces	ALAF factory at Tazara
Electrical cables	1,000m	Master cable-Vingunguti
Timbers	50tons	Whole sale at Buguruni
Colour	1000litres	Colour Dealers in Dar es Salaam
Steel Nails	1 tone	Hardware shops

Source: Proponent preliminary information on August 2023

2.6.2.4 Storage Facilities and Materials Yard

There will be a store for building and rehabilitation 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 site. 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 site (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 on site. Storage of construction materials will be done in the designated yard/facility within the Campus. At this stage, the exact location for establishing lay down areas for construction is not yet identified. Potential site locations will largely depend on the required land's size, available space, especially within EASTC campus, accessibility, haulage distances for transferring construction equipment, and sensitive environmental and social receptors within and adjacent.

2.6.2.5 Machinery and Equipment

Various equipment and machinery will be used during construction activities at EASTC as detailed table 2.4 below.

Table 2.4: Equipment and machinery to be used during construction and rehabilitation and any other tools.

SN	Machinery/Equipment	Activity required
	Construction Equipment: Type and Characteristics	
•	Backhoe excavator	General earthworks, e.g., excavation of drains
•	Bulldozer with ripper	General earthworks
•	Wheel loader	General earth works and transport of concrete
•	Motor grader	General grading works, including earth works
•	Vibrating/sheep foot roller compactor	Compaction works
•	Truck-mounted crane	Lifting of construction materials e.g., pre-cast culverts, paving blocks e.t.c
	Construction and Rehabilitation Machines	
•	Concrete mixer	Preparation of concrete (batch concrete mixing)
•	Concrete truck mixer (mobile concrete mixer)	Concrete mixing

SN	Machinery/Equipment	Activity required
•	Concrete mixer	Concrete mixing
•	Small site dumper	Transport of construction and waste materials
•	Quarry dump trucks	Transport stones and aggregates
•	Dump trucks	Transport construction materials and wastes
•	Concrete batch plant	Concrete mixing in a concentrated way
•	Equipment for geotechnical investigations	Geotechnical investigation works
•	Concrete vibrator and poker	Vibrating concrete
•	Dewatering pump	Dewatering to allow for waterless construction
•	Generator, mobile workshop, welding facilities	Repair and maintenance of machinery and equipment
	Transport Facilities	
•	Light duty vehicles	Transport of light construction materials and machines
•	Water tanker truck	Dewatering of earth surfaces to attain effective compaction, minimizing generation of dust
•	Dump trucks	Transport of construction materials (sand, gravel, aggregated, cement etc.)

Source: EASTC, August 2023

2.6.2.6 Demobilization of construction and rehabilitation phase

This phase involves activities related to the completion of the construction and rehabilitation 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 and rehabilitation phase will be removed from site.

2.6.2.7 Trees planting program

This phase will involve the planting of indigenous trees to replace the removed trees during construction stage and garden with aid for beautification of the area. The trees expected to be removed are eight *Azadirachta indica trees* (Miarubaini), one cashew nut tree, six *Senna Siamea* (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 gardens are designed to cover open space after construction to ensure in feature the site will be green as it was before construction. The program will help to reduce wind effect in feature and soil erosion effects

2.6.3 Operation Phase

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

- daily lecture and training operations;
- operation and maintenance of the buildings and ancillaries;
- health and safety management;
- waste management; and
- storage and management of maintenance materials and equipment.

2.6.4 Decommissioning Phases

Since the building lifespan will be more than 50 years with proper maintenance and service, therefore the activities that will be undertaken are to demolish all structures and propose a completely new structure or different development project. The area may be used in other activities.

Demolition works: Upon decommissioning, the project components including 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 the site in decommissioning of the project. 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 decommissioning plan will be prepared 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 50 years, the client will invest in the appropriate technology and materials that will ensure quality and durability of the structure.

2.7 WASTE GENERATION AND MANAGEMENT

2.7.1 Waste to be generated during Construction and Rehabilitation 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: Waste Generation and its management during Construction and Rehabilitation Phase

Type of waste	**Sources**	**Quantity**	**Disposal / Management procedure**
Debris and Rubble (overburden)	-Site clearance -Excavation for foundation and storm water channel -Rehabilitation of 3 hostels	60m^3	Collected and stockpiled near construction and rehabilitation site and to be used as a base material in other construction works. Also, shall be used for site recovery after construction and rehabilitation.
Biodegradable materials mainly domestic waste (food, paper, wood etc.)	-Construction crew - offices	35.6kg	Collected into area designed for temporary solid waste collection while waiting to be taken to authorized dump site (engage a private company)
Non-biodegradable materials (plastic, glass, cut piece of reinforcement bar)	-Construction crew	50kg	Collected into special area designed for hazardous waste temporary storage while waiting to be taken by authorized dealers for hazardous waste disposal
Domestic wastewater	Toilets and floor cleaning	1,440litres	Collected into sewer pipe network which link with Municipal sewer line into Waste Stabilization Ponds (WSP) for treatment
Gaseous emission	Trucks delivering construction materials and machines used during compaction	-	All used machines will be regular serviced its engine for avoiding incomplete fuel burning and used fuel will be one accepted by EWURA of low sulphur contents
Dust emission	Excavation, trucks passing on unpaved road and construction materials at site	-	Water spray practice shall be employed twice a day for all area where dust emission expected, All stockpiles found at site shall be covered

Source: EASTC August 2023

2.7.2 Waste to be generated During Operation Phase

- **Solid Wastes**

Solid wastes such as waste papers, packaging materials, plastics and organic waste (food waste) are expected during the operation phase. About 1,780kg of domestic solid will be generated per day. 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, bottles, plastics, food and general waste, office waste, paper and cardboard. All decomposable waste will be taken into separate dustbin before collected by private company to dump site while plastic bottles will be collected into separate dustbin before taken bay authorized dealers for recycling.

- **Liquid waste**

Generated liquid waste will include domestic wastewater to be generated from washrooms. About 72000litres of domestic wastewater will be generated from generation rate of (2000 capital x 45litres x 80%). Domestic wastewater will be directed into a constructed septic tank for management and once it become full cesspit emptier truck will be employed to empty it for disposal at WSP.

- **Hazardous waste**

During project operation hazardous waste will include electrical equipment like bulb, damaged parts of computers, printer cartridges/ribbons and other metal waste. About 20kg of hazardous waste will be generated per day in generation rate of 0.01kg/day/capital x 2000capital. 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. The area for hazardous waste handling will be paved its floor, roofed and has band wall around to help for control rainy water contamination.

2.7.3 Waste to be generated during Decommissioning phase

In the decommissioning 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: Wastes to be generated during Decommissioning Phase

S/N	Types of Waste	Quantity	Management
1	Hazardous waste	50kg	To be sold to authorized dealers registered by NEMC
2	Concrete, debris and rubbles	$30m^3$	reuse for street road maintenance
3	Electrical wastes	250kg	To be sold to authorized dealers registered by NEMC

S/N	Types of Waste	Quantity	Management
4	Timber	2000kg	Reused as fire wood
5	Plastics	300kg	Collected by authorized dealers for recycling
6	Scrap metal	1500kg	To be collected and sold to authorized dealers for scrap waste management (with permits for scrap wastes collection and disposal)

Source; COLBA Consulting Ltd on August 2023.

2.8 PROJECT SUPPORTING FACILITIES AND LOBOUR

2.8.1 Labour Force

The proposed project is expected to employ about 40 people, both skilled and unskilled in the entire period of construction including labourers, senior managers, middle and junior managers, and support staff/hiring staff (part time) and technicians. Also, there will be workers at the project facility mainly to ensure good housekeeping to safeguard the students, staff, and non-staff worker's health and protect the environment during the project life span. Employment will be required to provide infrastructure, accounting and administrational back up.

The Priority of employment to unskilled labour will be given to 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 supervision of construction and rehabilitation works;
- Surveyors;
- Technicians to supervise artisans; and
- Other skilled labourers include artisans specialised 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.)

All permanent staff will be on contracts, enrolled in the National Social Security Fund (NSSF) and receive 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.

2.8.2 Sources of Water

The main source of water to facilitate all activities during construction and operation of the project will be from the existing Dar es Salaam Water supply and Sanitation Authority (DAWASA) pipeline. The site is already connected

with DAWASA piped water infrastructure. It is estimated that, about 3,950 litres per day will be used during construction and rehabilitation phase (where about 1800 litres (40 capital x 45 litres consumption rate per capita, according to water design manual of 2009 from Ministry of Water) per day will be used by construction workers and 2,150litres 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 academic building, approximated total water of 90m^3per day will be used (2000 people x 45 litres consumption rate per capita per day, according to water design manual of 2009 from Ministry of Water) per day will be used for domestic uses) for running capacity of academic building at site.

The proposed project will depend on existing water sources for all project activities during construction, where about 3.950m^3 per day will be used and during operation where about 160m^3 per day will be used. The amount of water will impact the existing water source which may cause water shortage to students and nearby residents who will share the water source at that time. To overcome such impacts; proponent will consult DAWASA for changing the line and connecting with new system which will have enough water according to project demand, According to ESIA team proponent is advised during construction to 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 DAWASA. Also, the use of water storage tanks at project site which will be filled during non-peak hours to reduce water shortage to nearby residents will help to reduce demand on water.

2.8.3 Sources of Energy.

EASTC is already connected with the TANESCO power system, before construction commence the proposed project site will also be connected and electricity will be used both during the construction and operation phases. It is estimated that 1,000units of power will be used per month during project construction and rehabilitation phase and 1,200units of power will be used per month during operation phase. However, the proponent has installed a diesel generator of about 220kVA which is used to supply power in case of power outage from TANESCO and it will be used for proposed projects in all phases. At project site during construction and rehabilitation phase electricity will be used in all metal works to be used in construction, offices uses and lighting during night for security issues while during operation phase electricity will be used in all office uses. The proposed project will not cause a shortage of energy to surrounding residents, but proponents will consult TANESCO for extra power energy to be used during construction to identify if there is a need to install a new Transformer for supporting the project.

2.8.4 Occupational Health and Safety Management

2.8.4.1 Health and Safety

Before starting the construction, the Contractor must be given Health and Safety Management Plan (HSMP) from contractor (it will be prepared by contractor). HSMP will describe 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 and standby ambulance and first aiders for case of emergency. The contractor shall outsource qualified and registered nurses and doctors from nearby dispensaries, health centres and/or hospitals. 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).

2.8.4.2 HIV/AIDS and STDs Issues

EASTC supports the Government's efforts to alleviate HIV/AIDS diseases and STDs. HIV/AIDS Management plan needs to be developed and implemented by the contractor after approval from the consultant on behalf of the client. 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;

- 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;
- Awareness campaigns and training will be raised to the immediate local communities and project staff;
- Operate HIV/AIDS and STD clinic at the project site or an existing qualified and equipped local clinic throughout the project implementation period. The clinic will undertake professional screening, diagnosis, counselling and treatment of the STDs affected people. Serious HIV/AIDS cases shall be referred to the National AIDS Control Programme coordinated by the Ministry of Health Community Development Gender Elderly and Children.
- Supply of adequate protective gears such as condoms for each site staff and labour;
- Contacting NGOs experienced in the field of HIV/AIDS and STD alleviation program;
- Evaluate and explore other opportunities for enhancing HIV/AIDS and STD related behavioural change; and

- Liaise with Regional or Municipal Medical Officers and their designated local representatives or agents to report progress and coordinate the HIV/AIDS and STD alleviation measures on-site in collaboration with the National AIDS Control Programme.

2.8.4.3 Traffic Management.

As part of road safety management, The Traffic Management Plan (TMP) will be prepared by the Contractor and supervised by the Client. Temporary traffic-control facilities within the EASTC Campus will be used to manage traffic during construction. The Contractor will 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.

2.9 DESCRIPTION OF INSTITUTIONAL, SPATIAL AND TEMPORAL BOUNDARIES.

2.9.1 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 Lands, Housing and Human Settlements Development, Ministry of Education Science and Technology, Vice President's Office – Division of Environment. Other Government agencies like National Environment Management Council (NEMC), Occupational Health and Safety Authority (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; Kinondoni Municipal Council through various experts within the Municipal Executive Director's Office has mandates on monitoring the project.

2.9.2 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 50 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.

2.9.3 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

3.0 INTRODUCTION

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 emphasise on both planning and implementation of this particular project. Furthermore, the study addresses Institutional frameworks 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 says; 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 threaten the livelihoods of the people and the national economy, but also the 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 harmonised 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 constructed engineering structure namely septic tank with soak away 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, 1995

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 guide 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 tank will be used for management of domestic wastewater while generated solid waste will be collected into dustbins and taken by authorized dealer for disposal

3.1.3 The National Energy Policy, 2015

The Policy promotes welfare and living standards of Tanzanians and provides catalytic inputs in the development process of the country by establishing a reliable and efficient energy production, procurement, transportation, distribution and end-use system in an environmentally sound manner, also the policy insists the proper utilization of energy, therefore the project proponent ensure that proper utilization of power as well as considering the alternative source of energy shall be considered to be environmentally friendly of low gaseous emission and allowable noise level.

3.1.4. 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.

3.1.5. The National Investment Promotion Policy, 1996

The Policy seeks to promote investment in the growth of various sectors, construction inclusive. It encourages and promotes private sectors to actively engage into economic growth. The proposed project will contribute to the national economic growth agenda and improvement of social welfare, where private contractors will be employed to provide construction services, private authorized construction materials suppliers will be engaged to supply all construction materials and other services to be needed for project construction phase. The project will provide employment to local people for both skilled and unskilled during construction and rehabilitation phase this will improve the living standards of those workers, where will be paid on time

3.1.6. 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 ensuring that the materials to be used are those with less negative impacts to the environment and will be sourced from authorized dealers. The materials will be certified for construction as per TBS guidelines.

3.1.7 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.

3.1.8 The National Health Policy 2017

The Vision of the policy was to attain a healthy community that contributes effectively to individuals as well as to the nation's development towards becoming a middle-income country and the Mission of the policy is to facilitate the provision of basic health services that are of good quality, equitable, accessible, affordable, sustainable and gender sensitive.

The policy objective is to reach all households with essential health services attaining the needs of the population, adhering to objective quality standards and applying evidence-informed interventions through resilient systems for health. Project proponents will ensure that basic health service will be provided to workers and working conditions will be enhanced to be conducive.

3.1.9 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 objectives states that the policy will ensure education and training will have standards of quality that are recognized nationally, regionally and internationally. The proposed project in EASTC is relevant to the policy objectives as it will improve the quality and standards of education and training provided as the project will construct and enhance learning facilities.

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 a 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 licence 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 two-storey academic block operation will face waste management and pollution problems as one of the main environmental challenges. However, the Proponent will have an 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 registered contractors for disposal.

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 tank for management and once it becomes full cesspit emptier truck will be employed to empty it for disposal at Vingunguti WSP.

3.2.2. The Land Act, 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, continues using the existing land for economic development by planning to construct academic block of two storeys

3.2.3. The Land Use Planning Act No. 6, 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. Implementation of two storeys Academic block on the land will ensure that the proponent is complying with this act, where proposed project is compatible with land use plan.

3.2.4. The Urban Planning Act, 2007

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 needs 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 and its implementation will comply with the land use of the area according to the 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 protective gears at workplace. 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 a program to include provision of gender responsive HIV and AIDS education, distribution of condoms and support for people living with HIV and AIDS. The project proponent / contractor will adhere with this Act by ensuring that construction workers will be aware of HIV /AIDs and other STDs, where special reminding programmes about HIV will be provided monthly.

3.2.7 The Water Supply and Sanitation Act No. 12, 2009.

The Act provides for sustainable management and adequate operation and transparent regulation of water supply and sanitation services; establishment of water supply and sanitation authorities as well as community owned water supply organisations; and appointment for service providers. The aim is to ensure: - the right of every Tanzanian to have access to efficient, effective and sustainable water supply and sanitation services for all purposes by taking into account among others protection and conservation of water resources and development and promotion of public health and sanitation; and protection of the interest of customers, since the project is connected with DAWASA piped water where regulations of this act will be abided. Any generated domestic wastewater at the project area will be managed by septic tanks.

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 authorised dealers.

3.2.9 The Public Health Act, 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 prescribes 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 off accordingly where sorting of solid waste shall be done at project site and temporary solid waste collection point where it is taken by authorized dealer to dumpsite.

3.2.10 The Employment and Labour Relation Act, 2019

Sect 2(1), this Act shall apply to all employees including those in the public service of the Government of Tanzania in Mainland Tanzania but shall not apply to members, whether temporary or permanent, in the service of:
(i) the Tanzania Peoples Defence Forces;
(ii) the Police Force;
(iii) the Prisons Service; or
(iv) the national Service

Sect 3, the principal objects of this Act shall be -
(a) to promote economic development through economic efficiency, productivity and social justice;
(b) to provide the legal framework for effective and fair employment relations and minimum standards regarding conditions of work;
(c) to provide a framework for voluntary collective bargaining;
(d) to regulate the resort to industrial action as a means to resolve disputes;
(e) to provide a framework for the resolution of disputes by mediation, arbitration and adjudication;
(f) to give effect to the provisions of the Constitution of the United Republic of Tanzania,1977, in so far as they apply to employment and labour relations and conditions of work; and
(g) generally, to give effect to the core Conventions of the International Labour Organization as well as other ratified conventions.

Section 5(1) No person shall employ a child under the age of fourteen years.
(2) A child of fourteen years of age may only be employed to do light work, which is not likely to be harmful to the child's health and development; and does not prejudice the child's attendance at school, participation in vocational orientation or training programmes approved by the competent authority or the child's capacity to benefit from the instruction received.
(3) A child under eighteen years of age shall not be employed in a mine, factory or as crew on a ship or in any other worksite including non-formal settings and agriculture, where work conditions may be considered hazardous by the Minister

Section 7(1), every employer shall ensure that he promotes an equal opportunity in employment and strives to eliminate discrimination in any employment policy or practice
(4) No employer shall discriminate, directly or indirectly, against an employee, in any employment policy or practice, on any of the following grounds:

(a) colour, (b) nationality, (c) tribe or place of origin, (d) race, (e) national extraction, (f) social origin, (g) political opinion or religion, (h) sex, (i) gender; (j) pregnancy, (k) marital status or family responsibility, (l) disability; (m) HIV/Aids, (n) age; or (o) station of life.
(5) Harassment of an employee shall be a form of discrimination and shall be prohibited on any one, or combination, of the grounds prescribed in subsection

Proponents shall observe the presence of the Act and ensure that in all project phases any kind of discrimination will be prohibited and employment opportunities will consider gender balance and age limit as per Act requirements.

3.2.11 The Engineers Registration Amendment Act No. 24, 2007.

The Act establishes an Engineers Registration Board (ERB) which regulates the conduct of engineers, to provide for their registration and for related matters. It restricts any unregistered engineer to engage in professional engineering work or services which includes professional service, consultation, planning, designing or responsible supervision of construction or operation in connection with any public or privately owned public utilities, buildings, machines, equipment, processes works or projects where public interest and welfare or the safeguarding of life, public health or property is concerned or involved and that requires application of engineering principles and data. It further prohibits the engagement of unregistered engineers into engineering works. In compliance with the Act, the proponent shall employ a registered engineer by the Engineers Registration Board (ERB) in supervising all construction work at site.

3.2.12 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 practise 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 contractors to undertake all the construction activities at site not otherwise.

3.2.13. The Workers Compensation Act, 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 framework 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 disability 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 wilful 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 dependant 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 dependents 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 the proponent. Also, if compensation is needed, it will be provided as recommended by the Act.

3.2.14. 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 fire-fighting 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 fire-fighting 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 workplace and the general public where all construction crew will be trained on fire emergency response and fire-fighting equipment shall be at project site located at strategic area which can be easily accessible and seen. Fire emergency area shall be at the project site. During operation fire inspection shall be done and all installed firefighting equipment shall timely test its durability.

3.2.15 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.

3.2.16 Social Security (Regulatory Authority) Act, 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

3.2.17 The Persons with Disability Act, 2010.

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.

Therefore, the proposed project will fulfil this legal requirement; by considering people with disability during project design, construction and operation.

3.2.18 The Child Act, 2009

Part II of the Act defines a child in Tanzania as a person below 18 years. Part II, Section 78 of the Act, provides for the prohibition of exploitive labour to children. Every child shall be protected from labour exploitation and any work that is likely to;

(a) deprive the child of his/her health or development; (b) exceed six hours a day; (c) is inappropriate to his/her age, and (d) the child receives inadequate remuneration.

Section 82 of the Act protects children from sexual exploitation. A child shall be protected from sexual exploitation and use in prostitution, inducement or coercion to engage in sexual activity and exposure to obscene materials. This Act will guide in protecting against child labour, especially during the construction phase.

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 EASTC) from undertaking any construction project without carrying out an EIA study required under the Environmental Management Act. The content of this ESIA report is in line with the EIA & EA Regulation, 2005 and its amendment of 2018 (Regulation 18(1) & (2)). Also, this ESIA study is conducted by a registered firm expert (COLBA Consulting Limited) for EIA study as per Regulation 14 of the EIA & EA Regulation, 2005 and its amendment of 2018.

3.3.2 Environmental Management (solid waste management) Regulations 2009

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 of 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 a 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, prescribing a 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 be abiding 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 to constructed at site

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 fertiliser industry, taste, colour and smell of potable water and Chemical and physical limits for quality of Drinking Water Supplies.

Project proponents 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 consistency 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 the 1st day of July of each financial year.

(3) The annual fees for environmental compliance monitoring and audit paid after the 31st day of December of every financial year shall attract a penalty of five per cent 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 Proponents 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 make 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 the community around and all equipment to be used shall be serviced regularly by its engine and installed with muffle.

3.3.9 The Environmental Management (Prohibition of Plastic Carrier Bags and Plastic Bottle Cap Seals) Regulations, 2022.

Regulation 2 is about application of the regulations which include to;
(a) the import, export, manufacturing, sale, supply, storage and use of plastic carrier bags within Mainland Tanzania; and
(b) the import, export, manufacturing, sale and use beverages with plastic bottle cap seal

Regulation 4 is about objective which include;
(a) impose a total ban on the import, export, manufacturing, sell or offer for sale and use of plastic carrier bags regardless of their thickness;
(b) impose a total ban on the import, export, manufacturing, sale and use beverages with plastic bottle cap seal;
(c) protect human and animal health as well as the environment from likely adverse effects of utilisation of plastic carrier bags, or plastic bottle cap seals; and
(d) provide economic and financial incentives for the production and importation of alternative carrier bags.

Regulation 5 is for prohibition of all plastic carrier bags regardless of their thickness from being imported, exported, manufactured, sold, stored, supplied and used in Mainland Tanzania.

Regulation 6 is for prohibition of plastic bottle cap seals; where a person shall not import, export, manufacture, store, distribute, supply, sell or offer for sale beverages with plastic bottle cap seals.

Regulation 7 is for prohibition of plastic wrappings, where a person shall not sell or offer for sale beverages or commodities wrapped in plastic unless the nature of such commodities requires wrappings by plastics.

Regulation 10 is about exemption of plastic packaging, where without prejudice to the provisions of regulation (5), plastic or plastic packaging for medical services or industrial products or construction industry or agricultural sector or food processing or sanitary and waste management are exempted from the prohibition

Regulation 11 is about management of waste exempted plastic packaging, where any person who imports, exports, manufactures, sells, stores, distributes, supplies, possesses or uses plastic packaging exempted under these Regulations shall ensure that the waste are managed and disposed of in accordance with the Environmental Management (Solid Waste Management) Regulations, 2009 and the Environmental Management (Hazardous Waste Control and Management) Regulations, 2021

12.-(1) Any person who imports, exports of manufactures plastic packaging which are exempted under these Regulations shall ensure that such products meet the quality standards prescribed by the Tanzania Bureau of Standards.
(2) The Minister shall promote the production and use of alternative carrier bags and wrappings

Proponent is aware of the regulation, where his project is only for educational purposes only. In case there is a need for use plastic carrier bags will be those exempted as per regulation 10 and the management of waste exempted plastic carrier bags will be done as per regulations.

3.3.10 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.

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(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

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
(g) 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;
(h) 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

3.3.11 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 93m², 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.

3.3.12 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 shelters; and
(f) to improve the environment.

For the proposed project site, the area has been surveyed and planned for Educational Purposes of use Group "K" and use class (d) as defined in the Urban Planning (Use Groups and Use classes) Regulations, 2018. The whole land covers a total area of 199,970.0m^2.

As per the Urban Planning (Use Groups and Use classes) Regulations, 2018; Use Group "K" is for Educational Buildings and Use class (d) is for schools' facilities, institutes, colleges, university colleges and universities which is compatible with proposed project

3.3.13 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 199,970m^2 (20.589ha). The project site area is reasonable and complies with requirements of regulations on area size.

3.3.14 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.

3.3.15 The Urban Planning (Building) Regulations, 2018

These regulations shall apply to all planning areas declared by the Minister under section 8 of the Act

Regulation 4(1) No person shall erect or begin to erect any building until he has: -

(a) made an application to the Authority upon Form 1 prescribed in the Fourth Schedule to be obtained from the Authority; (b) furnished the Authority with the drawings and other documents specified in the following regulations; and (c) obtained from the Authority a written permit to be called a "building permit".

Regulation 6 (1) every person other than a person using a designated drawing who intends to erect a building shall, except where otherwise provided, send or deliver to the Authority a plan of each floor and sections of each storey, floor and roof of the buildings and elevations drawn in a clear and intelligible manner, (2) The plan under sub regulation (1) shall show site plan, sections and elevations with the following particulars.

(a) the position, form and dimensions of the foundations, walls, floors, roofs, rooms, chimneys and the several parts of the building including outside kitchen, servants' quarters, stables, garages, and parking areas in such detail and to such extent as may be necessary to show that the buildings comply with any of the Regulations which apply to them

(b) any drawings, plans, site plans, documents or information that the Authority may require.

Before commencing construction phase, Proponent will apply for building permit from authority responsible and drawings will be submitted to authorities for approval and recommendation.

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.

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.

(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.

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 disposal.

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 an 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. Construction of academic block of two storeys at EASTC 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.

3.5 APPLICABLE INTERNATIONAL STANDARDS AND CONVENTIONS.

3.5.1 World Bank Environmental and Social Framework (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 for HEET project

Environmental and Social Standards	**Applicable No/Yes**	**Key Requirements and Applicability to the HEET project Operations at EASTC Campus**
ESS1 Assessment and Management of Environmental and Social Risks and Impacts	YES	The project will generate environmental and social risks and hence they will be screened, identified and prevention and mitigation measures implemented to prevent, reduce, mitigate and address these impacts. Additional work will be needed to look at whether sub-groups of women may be subject to barriers to information and benefits for socio-cultural reasons. These may include disabled women, women living with albinism, and women from Vulnerable Groups. There is a risk of discrimination of persons with disability in project job opportunities. The project will include the employment of persons with disability and address communication and other barriers related to disability in the construction workplace.
ESS2 Labor and Working Conditions	YES	a) 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. b) Written notice of termination of employment and details of severance payments to be given promptly. c) Ensure equal opportunity and fair treatment to workers.

Environmental and Social Standards	Applicable No/Yes	Key Requirements and Applicability to the HEET project Operations at EASTC Campus
		d) 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). e) Forced and child labour must not be used in the project.
ESS3 Resource Efficiency and Pollution Prevention	YES	a) Construction and operation activities implement measures for improving efficient consumption of energy, water and raw materials. b) 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. c) Project to assess the potential cumulative impacts of water use upon communities and apply proper mitigation measures. d) Construction and operation activities to avoid, minimize, and control pollutants' release by applying measures in EHSGs or in national laws. e) 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	a) Identification, evaluation and monitoring of the potential traffic and road safety risks to workers, affected communities and road users throughout the project life cycle. b) Enforcement of the procedures such as driver training to improve driver and vehicle safety. c) To enforce safety measures to avoid occurring of incidents and injuries to members of the public. d) Consider risks associated with the exposure of the public to operational

Environmental and Social Standards	Applicable No/Yes	Key Requirements and Applicability to the HEET project Operations at EASTC Campus
		accidents or natural hazards, including extreme weather events. e) Identification and implementation of measures to address emergency event. f) Implementation of measures to avoid or minimize transmission of communicable diseases. g) 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.
ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement.	NO	Not applicable for the proposed project at EASTC Campus since proponent has title deed for land ownership and the proposed site is within EASTC Campus. No land acquisition and resettlement issues
ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources	NO	Consideration of the direct, indirect and cumulative project-related impacts on habitats and biodiversity in project area. Project implementation to avoid adverse impacts on biodiversity and habitats. Undertake baseline conditions assessment to a proportional and specific degree to the anticipated risk and significance of impacts. However, EASTC is located in an urbanized area with highly fragmented habitats.
ESS7 Indigenous People/Sub-Saharan African Historically Underserved Traditional Local communities	NO	It was not applicable for the proposed project.
ESS8 Cultural Heritage	YES	Applicable for the proposed project due to chance finds of physical cultural resources during excavation activities for new construction.
ESS9 Financial Intermediaries (FIs)	NO	FIs to set up and control ESMS to identify, assess, manage, and monitor all environmental and social risks and impacts.

Environmental and Social Standards	Applicable No/Yes	Key Requirements and Applicability to the HEET project Operations at EASTC Campus
		Compliance with any exclusions in the legal agreement and apply relevant national law for all FI subprojects. FIs to provide a safe and healthy working environment. Ensure the requirements of the ESS1 and ESS2 are communicated to all FI personnel.
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 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 Guidelines (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 EASTC 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 academic block of two storeys at EASTC 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 academic block of two storeys at EASTC triggers 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 unfavourable 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 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 at EASTC, 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 by 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 PROJECT IMPLEMENTATION

EASTC established Institute level-Project Implementation Unit (IPIU) for the proposed project. The team has fourteen members. Out of this, there is one Social and Gender expert and one Environmentalist expert 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 and Health and Safety. 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 IPIU 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

This ESIA team consulted most of these institutions at various stages as part of this ESIA study and their views and concerns have been incorporated in the report. Key institutional arrangement for HEET Project Implementation is stipulated Table 9 summarizes responsibilities for each institution involved in ESIA.

Table 3.3: Key Institution for the implementation of the EASTC HEET Project

LEVEL	Institution	Roles and Responsibility
National Level	World Bank	• Review the ESIAs, ESMPs and site specific ESMPs; • Review quarterly reports by the implementing agencies; • Review sub-project screening including risk level categorization; • Monitor compliance with the ESMF; and • Undertake implementation support missions.
	MoEST (NPIT)	At the national level, NPTI to oversee key project functions including: • project coordination, • procurement, • financial management (FM), • and M&E.
	VPO's Office (NEMC, Division of Environment)	i) Co-ordinate Environmental Management Policy, Act and guidelines ii) Approval of ToR, Review of ESIA iii) Environmental monitoring and auditing iv) Advises Government on all environmental matters
	Minister for Lands, Housing and Human Settlements Development	i) Issuing rights of occupancy, ii) Overseeing land use planning and issues relating to compensation and physical and economic resettlement (if any) iii) Valuation and compensation
	Ministry of Water Basin water Officers	i) Responsible for issuing water use permits, ii) Enforcing laws and regulation of water quality and utilization, as well as permitted discharge levels. iii) Co-operate between sectors at the local level. iv) Resolve conflicts between water users
Regional and Municipality Authorities	Regional Commissioner's Office Municipal Executive Director Office Functional Departments – Planning, Water, Health, Community Development, Natural	• Issuing relevant permits • Land ownership, Land Approval and road reserves, current land uses, neighbouring activities and developments • Relevant permit, official public notices • Key stakeholder in Project implementation • Project Monitoring (Watchdog for the environment) • Extension Services

	Resources, Land Allocation, Permits, Environmental Committees etc.	
Ward and Mtaa /local level	Environmental Committees	Project Monitoring (Watchdog for the environment)
	Ward Development Committee	Project Monitoring
	Local Stakeholders	Project Monitoring
Water Supply and Sanitation Authorities	DAWASA	• Managing and maintaining sewerage networks • Managing and maintaining of water supply networks • Ownership of utilities within the road reserves • Placing, managing and relocating utilities on, over within or along the proposed project route
TANESCO Regional Level	TANESCO Regional	Power supply
Project Proponent - EASTC	EASTC HEET Project has established a Project. Institution-Project Implementation Unit (IPIU) as stipulated in POM 2021 which states that Each IPIU should have Project Coordinator that will be led by a Project Coordinator/Leader and have staff responsible for FM, procurement, environmental and social safeguards, and M&E.	Overall, IPIU 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** i) 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. ii) Oversee the preparation of and implementation of all ESIAs including ESMP required for the project iii) Monitoring the implementation of HEET Project as per POM and PAD.

	However, according to MoEST letter of 2021 14 specialists were required to be appointed to form a IPIU Team. Accordingly at EASTC 14 staff have been appointed by the Rector letters of appointments including their roles and responsibilities. The Environmentalist, Social sand Gender specialists, referred to as ESS Team, are part of the IPIU 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 building conducted by MoEST and WB.	iv) The ESS Team coordinates the preparation of ESIA and environmental and social management plans (ESMPs) done by consultant and site-specific ESMPs (SSESMP). v) Capacity building for GRM focal persons and members of the Grievance Redress Integrity includes vi) Oversee project implementation including mitigation measures through contractors vii) Ensure environmental compliance by the environmental standards. viii) 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 ix) The ESS Team also support 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. x) They ensure that contractors have an Environmental Health and Safety Officer (EHS), is familiar with the compliance requirements, including WB EHS guidelines. xi) To review progress reports by the supervision engineer/consultant during civil works and conduct inspection of the sites regularly and prepare regular progress report. xii) To make sure the Contractor complies with the WB guidance on Community Health and Safety and Gender-Based Violence

	Design Consultants	xiii) Understand the sub-project setting and site-specific requirements with discussions with the PIU; xiv) Incorporate the issues identified in the ESIAs, ESMPS into the project design xv) Provide cost estimates for implementing the design requirements.
	Occupational Safety and Health issues	i) Perform hazard identification ii) Hazard assessment and management iii) Risk assessment and management iv) Emergency preparedness plan and Response v) Risks and crises management vi) Stakeholder engagement and grievance management, including in relation to the SEP worker grievance mechanism, for the social and environmental staff.
	Supervision Engineer/Consultant	i) Assist the PIU to ensure that the necessary environmental, health and safety authorizations and permits have been obtained; ii) Maintain open and direct lines of communication between the PIU and contractor(s) with regard to environmental matters; iii) Review and approve the contractor's site-specific construction ESMPs (CESMP), Health and Safety, Labour Management Plans and Traffic Management Plans and Code of Conduct together with the PIU; Conduct regular site inspections of all work areas to ensure compliance with CESMPs and E&S specifications for contractors Assist the contractor in finding environmentally responsible solutions to problems; iv) Instruct the contractor(s) to take remedial actions within a specified timeframe, and carry out additional monitoring, if required, according to the contractual requirements and procedures in the event of non-compliances or complaints; v) Instruct the contractor(s) to stop activities which generate adverse impacts, and/or when the contractor(s) fails to implement the ESMP requirements / remedial actions; vi) Provide training to the contractor on the EHS

		requirements to be followed; vii) Monitor the contractor's environmental awareness training program for all personnel working onsite; viii) In case of any accidents or incidents, immediately notify the PIU and support the process of documenting and reporting the case to the WB; ix) Prepare written reports for the PIU such as weekly report of non-compliance issues; summary monthly report covering key issues and findings from supervision activities; and consolidated summary report from contractor's monthly report.
	Contractor	(i) Compliance with relevant environmental and social legislative requirements (project-specific, district- and national level), including allocating adequate budget for implementation of these requirements; (ii) Work within the scope of contractual requirements and other tender conditions; (iii) Prepare Site Specific ESMPs and Code of Conduct based on the ESMP in the bidding documents and contracts; (iv) Train workers about EHS (including relevant WBG EHS Guidelines) and the site- specific environmental and social measures to be followed; (v) The EHS officer of the contractor will participate in the joint site inspections with the PIU and Environmental Supervision Engineer/consultant; (vi) Propose and carry out corrective actions in order to minimize the environmental impacts; (vii) Carry out any corrective actions instructed by the Supervision Engineer/consultant; (viii) In case of non-compliances/discrepancies, carry out investigation and submit proposals on mitigation measures, and implement remedial measures to reduce environmental impact; (ix) Send monthly progress reports to the Supervision Engineer/consultant. (x) Send weekly reports of non-compliance to the Supervision Engineer/consultant;

3.8.1 Key players in implementing the ESMP

EASTC have to ensure proper implementation of the ESMP, it will be necessary to identify and define the responsibilities and authority of the various persons and organizations that will be involved in the project. The following entities will be involved in the implementation of this ESMP:

- Funding Institution
- EASTC
- National Environmental Management Council (NEMC)
- Contractor;

3.8.1 Funding Institutions

The funding organization will have an overarching responsibility to ensure that the project is carried out to the highest environmental standards strictly in accordance with the ESF, HEET Project's ESMF and ESIA project report and the mitigation measures in ESIA report. Additionally, the funding Institution requires that environmental and social impacts are managed in accordance with the World Bank ESF and its ESS.

3.8.2 EASTC Main Campus

The EAST responsibility is to make sure that project implementation of the proposed project is in according to ESMP and Mitigation measures and other relevant national policies and legislations and World Bank Environmental and Social Standard (ESS1). EAST IPIU team is the one responsible for the supervision and monitoring the implementation of the project construction activities. The management of all project activities during operation is under the IPIU, in collaboration with other departments and units depending on the nature of the activity. In general, the IPIU falls under the management of the EASTC executing day-to-day activities in the project. The IPIU is guided by management meetings that are chaired by the project Coordinator. Among the IPIU will have an Environmental and Social Safeguard Specialist(s) who will monitor the implementation during the construction and operation phases of the project. The IPIU team has enough staffs with capacity to undertake the required monitoring and supervision roles to include Environmental and Social Safeguard specialists.

3.8.3 NEMC

NEMC will monitor all activities to be done during the implementation of the proposed project. The monitoring will be done in all project phases to all activities with that have significance impacts on the environment and assess if the proper mitigation measures to all significance impacts as set in Chapter eight of ESMP are implemented as proposed. NEMC has a specific role of monitoring and ensuring that the mitigation measures are fully implemented as per certificate conditions (to be issued). It will ensure that its Zonal staff are fully trained and equipped to perform its monitoring role. It will review the results of any monitoring and Audit reports generated as part of the project implementation phase and will issue directives based on the monitoring

activities to ensure full compliance with the mitigation measures required and address any issues that may arise.

3.8.4 The Contractor

The project will be implemented by a Contractor and will be responsible to EASTC for constructing the proposed project in accordance with the Technical Specifications required. The Contractor shall implement the project entirely in accordance with the ESIA mitigation measures detailed the ESMP. It is recommended that before commencement of actual construction, the Contractor should submit a work site plan that complies with the national environmental guidelines and an ESMP for the different phases of the work. The environmental plan shall specify the location of sources of materials and disposal area of construction debris as well as other related matters. The plan shall take into consideration the mitigation measures proposed in this ESIA project report.

The Contractor shall nominate a Project Environmental Site Officer (ESO) and Project Social Site Officer (SSO) who will be the Contractor's focal point for all environmental and social matters. The ESO and SSO will be routinely on-site for the duration of the construction works. Both officers will have minimum of Bachelor Degree in their respective specialization. The officers among others will be responsible for the following tasks:

- Develop site specific ESMP and implement it during the proposed project construction
- Drafting environmental and social aspects during project implementation;
- Managing environmental, social, health and safety aspects at the worksites;
- stakeholders and interested parties;
- He/She will be required to liaise with EASTC Safeguard specialist on the level of compliance with the ESMP achieved by the contractor regularly for the duration of the contract;
- participating in the definition of the no working-areas;
- Recommending solutions for specific environmental and social problems;
- Facilitating the creation of a liaison group with the stakeholders at the project site and shall monitor the compliance of ESMP;
- Organizing consultations at critical stages of the project with the
- Controlling and supervising the implementation of the ESMP;

- Preparing environmental and social progress or "audits" reports on the implementation status of measures and management of site works.

3.9 INDICATIVE PERMITS, LICENSES AND AUTHORIZATIONS

In compliance with the legal and regulatory framework described in the previous sections, EASTC 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, EASTC 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	Kinondoni 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: Field study on August 2023

CHAPTER FOUR: SOCIO-ECONOMIC PROFILE AT THE PROJECT AREA AND PHYSICAL ENVIRONMENT

4.1 INTRODUCTION

Kinondoni Municipal Council is one of the five Municipalities within Dar es Salaam Region. The Municipal Council is made up of 2 Divisions, 20 Wards and 106 Mitaa. Where Makongo Ward is among 20 wards within Kinondoni Municipality made up of 4 Mitaa which are Changanyikeni, Makongo juu, Mlalakuwa and Mbuyuni. Changanyikeni Mtaa is where the proposed project is located.

Kinondoni Municipal is among 5 Municipalities forming the Dar es Salaam Region including Temeke Municipal Council, Dar es Salaam City, Ubungo Municipal Council and Kigamboni Municipal Council. The municipal is bordered to the North by Bagamoyo District and Kibaha of Pwani Region, Indian Ocean to the East, Ubungo Municipality to the West and Dar es Salaam City to the South. Kinondoni Municipality lies between latitudes 6° 42'19.08" South of the Equator and longitude 39°6'45.72" East of the Greenwich Meridian (Source: Kinondoni Municipal Council, Socio-Economic Profile 2018).

The proposed project site for construction of two storeys academic block is located within Changanyikeni Mtaa, Makongo Ward in Kinondoni Municipality. The proposed project site lies between latitude 6.77195° and 6.77169° South of the Equator and between longitude 39.19335° and 39.19293° East of the Greenwich Meridian.

4.2 SITE DESCRIPTION

4.2.1 Land use, tenure and Ownership

The area where the proposed project will be implemented is owned by The Eastern Africa Statistical Training Centre (EASTC) who has legal documents for ownership and the land has been surveyed and planned for Educational Purposes of use Group "K" and use class (d) as defined in the Urban Planning (Use Groups and Use classes) Regulations, 2018. The whole land covers a total area of 199,970.00m^2 according to title deed attached appendix 5 of this ESIA report.

As per the Urban Planning (Use Groups and Use classes) Regulations, 2018; Use Group "K" is for Educational Buildings and Use class (d) is for schools' facilities, institutes, colleges, university colleges and universities which is compatible with proposed project for academic building which will need total area of 1,752.755m^2

4.2.2 Biophysical Characteristics

Climate

Kinondoni Municipality experiences a modified type of equatorial climate. It is generally hot and humid throughout the year with an average temperature of 29^{0}C. The hottest season is from October to March while it is relatively cool

between May and August with temperature around 25^{0}C. There are two rain seasons: - short rain from October to December and long rain season between March and May. The average annual rainfall is 1300mm. Humidity is around 96% in the mornings and 67% in the afternoons. The climate is also influenced by the Southwest monsoon winds from April to October and Northeast monsoon winds between November and March (Source: Kinondoni Municipal Council, Socio-Economic Profile 2018).

In regard to project site, which is found within Kinondoni Municipality it experiences the same climatic condition

Topography and Land forms
Makongo Ward area is characterized by hills and valleys forming small river tributaries that drain its water into Mbezi River on the Northern side and Mlalakuwa River to the South-East side. EASTC area is covered with small hills and valleys surrounded by seasonal river tributary to the eastern side that drain its water into Golani River on south-west direction.

Soils
The EASTC area consists of silt clay soils which are good for all types of development including building construction but in order to increase the building stability, concrete piers have to go down to solid earth.

Hydrology
Makongo Ward is surrounded by various river tributaries that drain its water into Mbezi River on the Northern side and Mlalakuwa River to the South-East side. The proposed project site is surrounded by seasonal river tributary to the Eastern side that drain its water into Golani River on south-west direction.

4.2.4 Baseline Measurement for Air quality and noise level

Measurement and analysis of environmental parameters within the project area were carried out at the established sampling stations while targeting general environment, site workers and public health. Other criteria include areas that are easily definable and with easy future access in case of need for comparison measurements or another monitoring study. The baseline data will be used as a reference for monitoring during construction and rehabilitation phase and project operation phase for mitigation implementation and operation. Moreover, the selection criteria for sampling stations considered point source emissions and nearby receptors (i.e., workers or operators at their working locations) that is likely to be affected by existence of the proposed project. Environmental parameters identified were TSP, PM_{10}, $PM_{2.5}$, NO_2, SO_2, H_2S, CH4, O_3, CO and VOCs, noise level and vibration measurements.

All measured parameters were then compared with the available air quality standards stipulated in the Tanzania Environmental Management (Air Quality Standards) Regulations, as well as National and International Standard and Guidelines specifically TBS, IFC and WHO.

Environmental measurement locations were selected based on the climatic status of the area and the different activities' and across to the area were the dust and gases might be dispersed to. Moreover, noise measurements taken at the receptors nearby or outside the proposed project surroundings.

4.2.4.1 Dust Level Measurements

The highest daily average concentrations of 0.028 mg/m3 for TSP, 0.021 mg/m3 for PM10 and 0.010 mg/m3 for PM2.5 were measured at SP1 (Appendix 4-1). The noted higher air particulates at SP1 might be associated with wheel generated dust and tail piece emissions from vehicular movement along nearby access roads. However, none of the stations found with value above the assessment TBS limits and/or WHO guideline criteria for TSP, PM10 and PM2.5 concentrations (Appendix 4-1).

4.2.4.2 Ambient Pollutant Gases

The measured Sulphur dioxide (SO2), Volatile Organic Compounds (VOCs), Ozone (O3), Nitrogen dioxide (NO2) and hydrogen sulphide (H2S) concentrations were minimal and in conformity with their respective prescribed TBS and WHO/IFC limits at all stations (Appendix 4-2). Similarly, the recorded CO concentrations found complying with both TBS limit of 15 mg/m3 and WHO/IFC guideline value of 30 mg/m3 (Appendix 4-2). However, methane (CH4) concentrations were very low with its impacts considered insignificant, taking into account that CH4 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 (Appendix 4-2).

4.2.4.3 Noise Measurements at the Identified Onsite Receptors

The day time average noise levels were ranging from 44.0 to 51.6 dBA during the daytime and 41.4 to 46.0 dBA during night-time (Appendix 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 (Appendix 4-3).

4.2.4.4 Ground Vibrations

The recorded vibration levels were ranging from 0.007 to 0.011 mm/s PPV, with maximum value being recorded at SP4 (Appendix 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.

4.2.5 Baseline Measurement for Water quality test

For baseline measurement in water quality analysis, two water samples were taken, where one sample from existing borehole (B/H) and one sample from DAWASA piped water (DW). The points were sampling taken was named as Sample one (B/H) and Sample two (DW). Water sample is taken with aim to understand the existing situation of the area before project implementation, where the baseline data for ground water quality analysis will be used as a reference for monitoring during construction and rehabilitation phase and project operation phase for mitigation implementation and the data enable us to understand if ground water is polluted since the site is within Kinondoni Municipal.

Referring to the laboratory analysis results in the tables 4.8 above, it is evident that all analyzed parameters for water samples collected from DAWASA piped water namely (DW) which is currently used by staff and students within EASTC Campus are complied with the limits of Tanzania standard (TZS 789:2008).

Also, according to the laboratory analysis results table 4.8 above for sampled water from existing borehole namely (B/H) is above the Tanzania Standards for domestic water use, so we advise Proponent to install Reverse Osmosis incorporated with membrane filtration to enhance the quality of water source from borehole for domestic use

4.3 Biological Environment

4.3.1 Flora

The project proposed site is dominated with vegetation such as eight *Azadirachta indica trees* (Miarubaini), one cashew nut tree, six *Senna Siamea* (Mijohoro), four *acacia shrubs* and some short grass. The project site area is not a protected area, it is surveyed and planned for institution uses and all vegetation found within area intended for project implementation can be replaced if disturbed during project implementation.

4.3.2 Fauna

Mabwepande is also the only remaining biological species reserve in the city and it contains a significant diversity of monkeys and birds (Source: Konondoni Municipal Council, Socio-Economic Profile 2018). A few birds (mostly the Indian Crow), and reptiles such as lizards and a significant number of butterflies, grasshopper and ants were observed on proposed project site.

During site visit study at proposed project area, it was observed that there are no species of the amphibians and reptiles that are included in the IUCN Red list of threatened species

4.3.3 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 population and housing census of 2022, Kinondoni Municipal had a population of 982,328 of which 474,825 are males and the remaining 507,503 are females. The average household size is 3.3 persons per household. The Municipality has experienced a slight population increase from 929,681 in 2012 to 982,328 in 2022.

Makongo Ward had a population of 35,567 people, of which 16,991 are males and 18,576 are females, a total of 11,196 households with an average household size of 3.2 persons per household (Source: Population and housing and Settlement census 2022). The ward tends to experience significant population increase during EASTC study period. Currently, EASTC campus had a population of 694 people, of which 623 are students and 71 staffs including teaching and non-teaching staffs. The proposed project for expansion of EASTC campus is expected to enroll 1,500 students by 2026 (Source: EASTC Administration, June 2023).

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

4.4.2 Land Tenure and Land Use

The largest land area of Makongo Ward is covered by residential/settlement followed by private and government institutions (i.e., Eastern Africa Statistical Training Centre (EASTC), Tanzania People's Defence Force (JWTZ), primary and secondary schools), commercial, agriculture and livestock keeping. The common land tenure is acquired through inheritance and purchasing, only 7% of the population obtained the land through inheritance and the remaining 93% acquire land through purchasing. About 85% of the land owners at Makongo Ward have title deeds while the remaining 15% of the land owners have no title deeds (Source: Ward Executive Officer, August 2023).

The Eastern Africa Statistical Training Centre (EASTC), has an area of 50 Acres with a title deed and occupied by various existing land use development including administration block, student hostels, function hall, academic building and new academic building (ongoing construction). The main land uses adjacent to EASTC comprises of Commercial and Residential areas.

4.4.3 Ethnicity and Family Structure

Makongo ward and Changanyikeni Mtaa accommodate many people with different ethnic groups due to existence of education institutes, health facilities and business opportunities.

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 Makongo Ward and Changanyikeni Mtaa area hence will improve the ability of some residents to provide services in their families.

4.5 Economic activities and Income Generation Activities

4.5.1 Trade and Business

The main entrepreneur/commercial activities carried out at the EASTC campus are bar, restaurant, fruits and fresh juice kiosk and mobile money services (Airtel Money, Tigopesa, Halopesa and M-Pesa) all run by private individuals and provide services to the institute communities. Most of the entrepreneurship activities and commercial establishments especially bar, restaurant, fruits and fresh juice kiosk and mobile money services will benefit from the proposed project as most of the construction workers will be getting food, fruits, drinks and mobile money services located at EASTC commercial zone.

4.5.2 Agriculture

Makongo Ward is surrounded by seasonal water streams and such as Mbezi, Golani and Mlalakuwa Rivers which play a vital role in agriculture as they act as sources of water for horticulture crops production. The proposed site is near a seasonal water stream to the east side and Golani river to the South-western side that used by surrounding community for production of horticultural crops namely vegetables (matembele/Sweet potato leaves, spinach, Chinese cabbage, radish, Tomatoes) and Fruits (Pawpaw, mangoes and Orange).

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

4.5.3 Livestock Keeping

Makongo Ward 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, sheeps, pigs 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 within the project area.

4.5.5 Employment

During the study, it was revealed that 10% of residents in Makongo Ward are employed in public sector, 30% in private sector, and the remaining 60% are self-employed engaged in petty traders, business, small-scale agriculture,

handcraft, transport business, livestock rearing, and others depend on renting business.

4.5.8 Industries
Makongo Ward has few small-scale industries including carpentry, welding, garages, electrical works and civil works. The proposed project will stimulate industrial production and attract new investors in the area.

4.6 Social Infrastructures

4.6.1 Health Services
Makongo Ward residents obtain health care services from health centres, dispensaries and hospitals. There are 2 health centres of which one is owned by JWTZ and the remaining one is government owned. Currently, there is ongoing construction of another public health centre at Makongo Ward (**Source:** WEO, August 2023).

EASTC campus has no health facility, there is a rest room and full equip first aid that used in case of emergency. They depend on JWTZ and UDSM health centre (**Source:** EASTC Dean of Student, August 2023).

The consultation with EASTC Peer Educator and HIV/AIDS coordinator, revealed that their students and staffs are provided with HIV/AIDS and STDs awareness training programme twice a year and free condoms are provided through boxes allocated within the campus. Moreover, for those affected persons exposing themselves to the office are provided with cancelling, food, money and transport to go to hospital to fetch medicine.

During the meeting with Ward and Mtaa Council, it was revealed that EASTC administration and contractor should work closely with Ward and Mtaa Office during project implementation and provide HIV/AIDS and STDs awareness training to EASTC students and staffs, construction workers and surrounding community in order to control sexual interaction and prevent new infections.

4.6.2 Water supply and sanitation
Most of Makongo ward residents depend on water supplied by Dar-es-salaam Water and Sewerage Authority (DAWASA) and only 10% of the total population have boreholes. EASTC campus depends on water supplied by Dar-es-salaam Water supply and Sewerage Authority (DAWASA) and borehole. Also, for the anticipated water demand there are water storage tanks (**Source:** WEO, August 2023).

4.6.3 Education
Makongo ward has 16 pre and primary schools out of which 10 are pre-primary schools owned by private sector and 6 primary schools of which 3 are owned by Government and the remaining 3 owned by private sector. Also, there are one public secondary school, 3 private secondary schools and one university (EASTC) (**Source:** WEO, August 2023).

Currently, EASTC amounts to 623 students of which 398 are males and 225 are females. The proposed project for expansion of EASTC is expected to enroll 1,500 students by 2026.

4.6.4 Energy source and supply

Makongo Ward is supplied and connected with electricity from National hydroelectric power grid (TANESCO); most of the population use it for lighting and run machinery and equipment while charcoal and gas used for cooking. Standby generators and solar power used as a backup power source.
There are electrical lines passing through the project site area and existing buildings including: administration block, Function Hall, student hostels, staff house, library and commercial zone are connected to the services. Also, there is a standby generator for backup energy source.

4.6.5 Waste generation and management

4.6.5.1 Solid waste management

The consultation with Environmental Officer from Kinondoni Municipal Council revel that, all solid wastes generated within the Municipality are collected and sorted, composite wastes are taken to Municipal composite plant at Mabwepande to produce animal feeds, health care wastes are incinerated, plastic wastes taken by plastic recycling plants and the rest disposed to Pugu Kinyamwezi dumpsite. Also, other wastes such as hazardous wastes including oil are taken by recognized contractors for proper disposal.
The Municipality is responsible for supervising the franchisees involved in Solid Waste Management.

Solid wastes generated at Makongo Ward mainly are domestic, commercial and health care wastes. All wastes generated by households, shops and food stalls/kiosks are taken by Municipal truck to Pugu Kinyamwezi dumpsite every week while health care wastes are incinerated. Solid wastes generated at EASTC campus include sanitary pads, papers, plastic bottles, plastic wrappings, vegetable and other organic materials of which are collected in dustbins strategically located within the campus and taken to Pugu Kinyamwezi by contracted solid waste handler.

The operation of the proposed project will lead to generation of various solid wastes in each development stage. 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 and taken to the designated dumpsite by contracted licensed solid waste handler.

4.6.5.2 Liquid waste generation

The residents of Makongo ward use on site disposal services such as septic tank system and pit latrines for liquid waste management. This situation imposes necessities for increasing the capacity of cesspit emptying services, which is being provided by both Municipal council and private sector.

In regard to project site, septic tank will be used for managing domestic wastewater and once the facility is becoming full, cesspit emptier truck will be employed to empty it for disposal at WSP.

4.6.6 Road

EASTC campus is accessed through a tarmac Changanyikeni road and within the campus area there are feeder tarmac roads used by EASTC community.

4.6.7 Telecommunication

Makongo Ward and Changanyikeni Mtaa is well connected and serviced with all mobile communication network, Television and radio channels. EASTC campus is serviced with free WiFi connected by Tanzania Telecommunication Company (TTCL).

4.7 PREDICTED IMPACTS AFTER PROJECT

If the proposed project will be implemented, the following changes will occur; 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 building for education purposes at project site where this will increase quality of education to be provided to students at EASTC Campus, presence of storm water channel for rainy water management at project site and few trees will be destroyed due to project implementation.

4.8 GENDER-BASED VIOLENCE (GBV), WOMEN AND CHILDREN VULNERABILITY ISSUES

4.8.1 GBV Context at Ward and Mtaa Levels

The consultation with Ward Social Welfare Officer and Inspector from Gender desk at University of Dar-Es-Salaam (UDSM) Police Station revealed that, Child Sexual Abuse mainly rape and sodomy cases increases in Makongo Ward area. The Child Sexual Abuse acts occur between an adult and children as well as among children themselves especially those in primary schools. Other forms of GBV in which women and young girls experience are early pregnancies, shamed/harassment on social media, rejection/ neglect, sexual violence, intimate partner (psychological, or sexual harm/beating to those in the relationship), Emotional violence, economic violence and divorce in which mostly are not reported either due to negligence, hiding secrets and fear of social isolation and/or violation of traditional norms. For the reported cases that taken to court, 40% of those the accused receive the right punishment and the remaining 60% the accused don't receive punishment due to lack of evidence and cooperation from the victims. GBV and VAC occurs in the community due to poor parenting and decline in moral values. Moreover, they revealed that EASTC students respect themselves and no cases on GBV and VAC against them has been reported.

4.8.2 Existing Support System and Service Providers

Consulted stakeholders from Municipal to Mtaa level play a great role to help the victims of GBV and VAC. Most services provided by the government and Community Based Organisations (CBOs)/Non-governmental Organisations (NGOs) in the project vicinity comprise legal support services, GBV and VAC awareness education, economic empowerment in the form of groups, and creating the centre for caring survived-children and giving them basic needs including education, as well as the formation of gender desks in primary and secondary schools, colleges and higher learning institutions and police stations making frequent fall-up to GBV and VAC cases. Consultation with Municipal Social welfare Officer revealed that there are 18 Centres for caring for surviving children in Dar es Salaam in which 2 Centres among them care for children aged between 0-3 years and the remaining 16 care for children aged 4-18 years. Moreover, it was pointed out that, Municipal Community Development department working together with police gender desks to ensure that all GBV and VAC cases (e.g., physical violence, economic violence, rape and sodomy) are taken to the court and the accused get the right punishment.

At Municipal, ward and *mtaa* level the system of handling GBV and VAC 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 and VAC 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 (UDSM Police station). 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 4.1: GBV and VAC service provider and support in the project area

SN	Level	Relevant official	Role and responsibilities related to GBV
1	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)
2	Ward	Ward Social Welfare Officer	• Advice and counselling • Marital reconciliation/mediation, including mandating compensation, • Provide a referral letter to Gender Police Post (UDSM) • Mandate to convene and hear a case • Make a referral to Municipal Social Welfare

SN	Level	Relevant official	Role and responsibilities related to GBV
			Officer
3	Municipal	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
4	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
5	Court	Magistrate	Resolution of the problem (judgment)
6.	CBOs/NGOs	-	Legal support, Counselling, Child care 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, August 2023

4.8.3 The Context of Gender Based Violence (GBV) at EASTC

Gender based violence is a serious violation of human rights and a complex problem in many educational institutions which can affect both men and women including students, staff. EASTC gender desk coordinators revealed that the Gender desk was formed and started to operate on February, 2023 and Gender Policy was signed on July, 2023. No GBV cases have been reported. The only cases reported to their office and Dean of Student are fights for suitors in which counselling is provided to the involved parties. Moreover, they pointed out that EASTC students and staff are involved in gender desk and gender equality has been considered. Since, the formation of gender desk GBV awareness education has been provided during orientation and there are plans to provide it in each semester and involve Ward and Mtaa office as well as Police gender desk, CBOs/NGOs and surrounding community.

Before the proposed project implementation, they suggest that a contract on GBV issues should be signed between contractor and EASTC administration, posters on GBV issues should be posted in the EASTC compound and GBV awareness education provided to the construction workers, EASTC students and staffs as well as surrounding community.

The focus group discussion with EASTC students pointed out that, the proposed project will have construction workers who are being paid wages and spend it locally. Due to poverty and low economic status of most of people in the vicinity including students with no loan will drive young girls to engage in sexual relationship with construction workers and results to various forms of GBV such as early pregnancies, shamed/harassment on social media, rejection and negligence.

4.8.4 Grievance Redress Mechanism

A Grievance Redress Mechanism is a process for receiving, evaluating and addressing project-related complaints from affected communities at the level of project component or activity. The terms 'grievance' and 'complaint' are used interchangeably. The GRM aims to reduce the risk of the project inadvertently affecting project beneficiaries and serves as important feedback and learning mechanism that can help improve project impacts.

The EASTC will include a Grievance Redress Mechanism that will be available for project stakeholders to submit questions, comments, suggestions and/or complaints, or provide any form of feedback on all project activities that may cause beneficiaries to feel treated unfairly.

The established GRM is accessible to all stakeholders, including ethnic, religious, gender, and other special groups. The mechanism focuses not only receiving and recording complaints but also on how complaints are resolved. While feedback should be handled at the level closest to the complaint, but all complaints should be registered and follow the basic procedure

4.8.4.1 EASTC Channels to Make Complaints

The complaint can be lodged verbally or written through appointed project staff or is availed directly or through project meetings, project stakeholders shall provide verbal feedback or complaint and the project staff/ responsible for GRM will log the complaint on their behalf through Grievance registration form, and it will be processed through the same channels.

Also, the Complaints can be expressed anytime by Project affected people or any other aggrieved person in or around the project area, will be made aware to submit any complaint related to project to mtaa government office. Special forms will be prepared for registration of any complaint that will be available at each respective office.

Therefore, the appointed project staff will collect the registered grievances from local government for resolution. The EASTC project shall make sure that the registered complain is resolved within 30 days upon its registration.

CHAPTER FIVE: STAKEHOLDERS ENGAGEMENT AND PUBLIC INVOLVEMENT

5.1 INTRODUCTION

This chapter presents all the stakeholders identified, consulted, and elaborates as main issues and concerns. 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 (2018)
- The World Bank Environmental and Social Standards (ESS10)

Stakeholders are persons or groups of people who are directly or indirectly affected by a project or those who may have interests in a project positively or negatively. In this project, emphasis has been placed on the key stakeholders' involvement, their fundamental concerns and incorporation of the stakeholders' issues in the decision-making process and the entire project life cycle. Stakeholder engagement was conducted in August 2023.

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's ESSs, EIA and Audit Regulations, 2005 and its amendment of 2018, and IFC PS1 (para 25-33). Public consultation for the EASTC 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 advise 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.

5.3.1 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/district levels and Non-Governmental Organizations (NGOs) depending on the type of data required.
Consultation meetings were also done with Ward and *Mtaa* leaders where the proposed project is located. Data collected during consultation included views, concerns, opinions and recommendations on the proposed project.

The summary of the consulted stakeholders is presented in Tables 5.1 and Table 5.2 up to table 5.5 for Names and issues raised and signatures of all consulted parties are presented in Appendix 3 of this EIS report while meeting minutes are presented in Appendix 4 of this EIS report.

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	• Fire and Rescue Force – Kinondoni Municipal • Occupational, Health and Safety Authority (OSHA)- Dar es salaam • Tanzania Building Agency • National Council for Technical and Vocational Education and Training (NACTVET), • Tanzania Commissioner for Universities (TCU), • Ministry of Education Science and Technology (MoST) • Gender desk -UDSM Police Station
2	Municipal Council	Kinondoni Municipal Council Officials
3	Ward	Makongo Ward Officials
4	Mtaa	Changanyikeni Officials
5	Eastern Africa Statistical Training Centre (EASTC)	• EASTC Administration and Project Coordinator • Unit of student affairs • Students • HIV/AIDS Coordinator • EASTC Gender Desk Coordinator, and HEET project Gender, Inclusive Education and Social Portfolio Coordinator • Entrepreneurs
6	Non-Government Organization (NGOs)	Tanzania Gender Networking Programme (TGNP)
7	Adjacent land users (Neighbours)	Residents of Changanyikeni Mtaa

Source: Field Study, August, 2023

5.4 ISSUES AND CONCERNS RAISED BY STAKEHOLDERS

This section summarizes key issues that various consulted stakeholders raised during the consultation. The comments issues form various public and private institutions, NGO's and neighbors are attached in Appendix 1 on page 153

Table 5.2: Summary of the Issues and concerns raised by stakeholders

Views, concerns, and recommendations	**Response from Proponent**
• Improvement of the workplace to the EASTC staffs; • Provision of enough venues to the students; • Increasing of students' enrolment from currently 623 students to 1500 students; • Enhancement of Inclusive Education due to the presence of improved structures and support facilities such as breast-feeding room and special need people unit; and • Providing quality education and skills to students using ICT technology and providing graduates who will be employed.	Noted, the proposed project implementation will enhance availability of staff offices, lecture rooms and computer lab
• Improvement of workplace for EASTC staffs; • Employment opportunities to the surrounding community; • Noise pollution from construction works; and • Fencing of project site area.	• Noted, the proposed project will enhance number of student enrolment to 1500 on 2026, • Noted, during construction and rehabilitation phase employment opportunity will be for local people around, • Noted, all used machines will be of low noise emission • Noted, the site will be fenced by iron sheets

Views, concerns, and recommendations	Response from Proponent
• Expansion of EASTC campus; • Improvement of workplace for EASTC staffs; • Availability of enough venues to accommodate the increased number of students; • Sexually interaction between students, EASTC staffs and construction workers; • The contractor should ensure that all laws and regulations are followed; • Warning and safety signs should be posted at the project site area; • All machinery and equipment used should be serviced regularly; • HIV/AIDS, STDs and drugs awareness trainings should be provided to construction workers, students, EASTC staffs and surrounding community; • Sexually education should be provided to construction workers, students, EASTC staffs and surrounding community to avoid early and/or unexpected pregnancies to girls when construction and rehabilitation phase ceases; • Construction workers should be educated on the use of foul language in institution area; and • Construction workers should be controlled on the use of drugs and alcohol while at work to avoid violence at the project area.	• Noted, training awareness for HIV/ AIDS will be provided to construction workers, students and community • Noted, • Noted, warning sign will be posted at all strategic areas, • Noted, all machines will be regularly serviced, • Noted education about HIV/AIDS, STDs and drugs will be given to construction workers, • Noted, education will be given to staffs, students, construction workers and community, • Noted, all construction workers will be insisted to use good language, • Use of drugs at site will be prohibited
• Provision of quality education by using ICT technology; • The contractor and EASTC administration should sign a memorandum of understanding to prevent Gender Based violence before project implementation; • There should be GBV posters onsite and within the EASTC boundaries; and • GBV education should be provided to contractor, construction workers, EASTC staffs and students as well as surrounding community.	Noted

Views, concerns, and recommendations	Response from Proponent
• Employment opportunities to skilled and unskilled people in Changanyikeni area; • Accessibility of high education to locals (Makongo Ward and Changanyikeni Mtaa residents); • Increase income generation to surrounding community • Sexually interaction between construction workers, EASTC staffs and students as well as surrounding community; • Unwanted pregnancies to girls in surrounding community when construction and rehabilitation phase ceases; • Construction workers should be recognized and monitored by EASTC administration in collaboration with security guards; • EASTC administration should set strictly rules to construction workers to avoid interaction with students and staffs within EASTC boundaries; and	• Noted, employment opportunities during construction will be for local people around, • Noted, awareness about impacts of sexual relation will be given to the EASTC staff, students, community around and construction workers, • Noted, all site construction workers will be with uniform and ID for recognition, • Noted education about HIV/AIDS, STDs and drugs will be given to construction workers

Source: Field study on August 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: -

(i) Issues of concerns raised at various stakeholders' consultation or interview meetings
(ii) Expert observations or experiences and judgement

6.2 ANALYSIS OF IMPACTS

Table 6.2 presents summary of analysis of identified environmental impacts; the analysis is based on the following criteria:

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

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

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

(v) Reversibility
   a) Reversible (if impacts can be mitigated)
   b) Irreversible (if impact cannot be mitigated)

Table 6.1: 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

		CONSEQUENCE OF IMPACT (Aggregate: Magnitude + Duration + Scale)				
		Very Low	Low	Moderate	High	Very High
LIKELIHOOD OF IMPACT (Compound: Exposure x Probability)	Very Low	VL	VL	L	L	M
	Low	VL	L	L	M	H
	Moderate	L	L	M	H	H
	High	L	M	H	H	VH
	Very High	M	H	H	VH	VH

Figure 6.1: Significance Analysis from the Consequence Vs Probability Evaluation

Table 6.2 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 6.3 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 of the frequency of the activity that may cause the impact, or the continuity of the exposure.	Very High	Daily or continuous	Exposure in perpetuity	5
		High	Weekly/once per week	Continuous exposure into closure or post-closure phases	4
		Moderate	Monthly/once per month	Continuous exposure during construction and operations phases	3
		Low	Bi-annually	Continuous exposure throughout one phase	2
		Very low	Annually or less frequently	Prolonged exposure yet finishes before end of a phase	1
		Unknown	Frequently of activity unknown	Continuity of exposure unknown	0
Probability of the Occurrence	An assessment of the degree of certainty associated with a potential 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

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

6.3 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 and rehabilitation 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 etc.

6.3.1 Potential Environmental Impact

6.3.1.1 Vegetation clearance to accommodate project development

The current status of the project proposed sites are undeveloped land which is found within EASTC Campus. The site is undeveloped one which is covered by vegetation like eight *Azadirachta indica trees* (Miarubaini), one cashew nut tree, six *SennaSiamea* (Mijohoro), four *acacia shrubs* and some short grass. During mobilization phase vegetation on the project site will be cleared to make the area clear for the proposed project implementation. The existing vegetation at the project site is common and has relatively low biological significance. However, no notable plant species of international conservation importance was recorded at the site. The EASTC and Contractor will ensure that the removal of vegetation is done only when it cannot be avoided. *This impact is negative, short term and of low significance.*

6.3.1.2 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.*

6.3.1.3 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 being cut by sharp objects. This will affect the general environmental health of workers. *This impact is considered negative, short term and of high significance*

6.3.2 Potential Social Impact

6.3.2.1 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 (Changanyikeni *Mtaa*) will have additional income generating opportunities. *This impact will be positive, short term and of high significance.*

6.3.2.2 Disturbance to students due to lack of accommodation within the campus.

Student at the hostel to be rehabilitated will be disturbed as they will face scarcity of hostels to stay during their studies. *This impact will be negative, short term and of high significance.*

6.3.2.3 Disturbance to pitch users

Due to the location and proximity of the Academic Block to the Playground (football pitch) it is highly likely the place to be used as Access to the site during construction. Also, during completion of the building, the closeness may result to the disturbance to the users. *This impact will be negative, long term and of high significance.*

6.4 IMPACT IDENTIFICATION DURING CONSTRUCTION AND REHABILITATION PHASE

6.4.1 Environmental Impacts

6.4.1.1 Nuisance from noise and vibration impacts during construction and rehabilitation.

During construction and rehabilitation 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 students, workers, staff and visitors at the project site. *This impact is negative, short term and of high significance*

6.4.1.2 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.*

6.4.1.3 Occupational Health and Safety Hazards/Risk

The labour force to be employed to carry out the construction and rehabilitation 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 and rehabilitation 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 6.4: Occupational health and safety hazards during construction and rehabilitation phase.

Category	**Description**	**Hazards/Risks**
Physical hazards	Operational and workplace hazards, working at elevation, overhead works, on a storey building	• 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)

Category	Description	Hazards/Risks
	Confined and restricted space entry	i) 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 ii) Entry into all confined spaces will be restricted and subject to permitted supervision by properly trained persons
	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	i) Exposures to dust during construction and paving activities ii) Exhaust emissions from heavy equipment and motor vehicles iii) 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	i) Exposure to bronchial and other respiratory tract diseases, HIV/AIDS, STDs and other communicable diseases ii) Exposure to infectious diseases, especially water supply and sanitation-related diseases. iii) Poor sanitation due to sharing of sanitation facilities: Construction workers sharing sanitation facilities such as toilets with EASTC students and other members of the community could lead to hygiene challenges and a risk of hygiene-related diseases.	

Source: Fieldwork, August 2023 & EHS Guidelines

6.4.1.4 Air pollution due to dust and gaseous emission during construction and rehabilitation

Air emissions due to release of particulate matters (dust) during construction and rehabilitation 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*

6.4.1.5 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.*

6.4.1.6 Spread of communicable disease due to mismanagement of domestic wastewater

During construction and rehabilitation phase, local people will be employed to work in construction activities. Also, services providers like food vendors and supplier of construction materials will enter at 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.*

6.4.1.7 Health hazards due to mismanagement of hazardous waste

During construction and rehabilitation 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. Rehabilitation activities will also generate scrap metals, iron sheets, iron bars, electric wires and the same; Mismanagement of such waste may lead to injuries to workers as cut by sharpness to be formed. *This impact is negative, short term and of high significance.*

6.4.1.8 Bad visual/ smell due to mismanagement of solid waste

During construction and rehabilitation 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. Rehabilitation will also generate demolished wastes like rubble *This impact is negative, short term of medium significance.*

6.4.2 Social Impacts

6.4.2.1 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 and rehabilitation 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.*

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

Construction of two storeys academic block and rehabilitation of the three hostels on the area may cause an influx of people from various places in search for jobs and other opportunities that come with construction of a project. 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.

6.4.2.3 Knowledge and skill increase to local labour

Since the project will provide direct employment to local people to work during construction and rehabilitation, 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.*

6.4.2.4 Revenue Generation to Local Governments and Agencies

The construction and rehabilitation 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 DAWASA 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.*

6.4.2.5 Benefit to local producers and suppliers of construction and rehabilitation materials

Construction of two storeys academic block and rehabilitation of the hostels 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.*

6.4.2.6 Increase income to offsite services providers

Construction and rehabilitation 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 significant.*

6.4.2.7 Disrupted Traffic Flow and Public Safety/Accidents

The project site can be accessed using a single access road (Changanyikeni Road) from either direction. The main entrance/exit is located adjacent to Changanyikeni 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 sites is generally known to cause traffic reducing movement and vehicle flow during construction, this may increase congestion, delays, road accidents (especially at Changanyikeni Road) and EASTC's 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 students, staff, visitors, pedestrians and commuters along Changanyikeni Road. If drivers will not take due caution, haulage trucks might be an accident risk to students. *This is a negative impact that can be characterized as site-specific, high magnitude, short term and highly probable*

6.5 IMPACTS DURING OPERATION PHASE

During operation of a proposed two storeys academic block, it is anticipated that there will be both negative and positive environmental, social and economic impacts.

6.5.1 Social Impacts

6.5.1.1 Creation of Direct Employment Opportunities

The construction of new academic block for staff offices, teaching and learning programmes will create demand for additional skilled and non-skilled labours, who will be employed directly by EASTC. 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.

6.5.1.2 Enhanced Income to the Surrounding Local communities

The improved infrastructures for teaching within EASTC 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 Changanyikeni 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.

6.5.1.3 Increase Skills for all students

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 EASTC will work across the borders in East Africa. *This impact is positive, long term and of high concern*

6.5.1.4 Spreading of HIV/AIDS and other STIs

Establishment of the project in the area will add to the already existing 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*

6.5.1.5 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, unwelcome 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.*

6.5.1.6 Reduction of Gender Gap

The proposed project at EASTC 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*

6.5.1.7 Demand of basic needs due to population influx

Upon completion of the project, will go with number of students enrolment increase due to introduced new courses at the University. Population influx /growth will lead to high demand of basic needs like food, water 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.

6.5.1.8 Security imbalance due to population influx

The influx of people may lead to security challenges as well as attitudes and behaviour changes to indigenous people, where this may lead to moral and ethics decay.

6.5.1.9 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

6.5.2 Environmental Impacts

6.5.2.1 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 people at the area, the issue of solid wastes disposal is particularly important as it is anticipated that there will be a greater number of people meet at a time. So, mismanagement of generated solid waste may cause soil contamination due from leachate to be regenerated when such waste decomposes, 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*

6.5.2.2 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*

6.5.2.3 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*

6.5.2.4 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 fire 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*

6.5.2.5 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 upland area, it means that during rainy season water runoff from upper area to down area, if care not considered this will affect the use of the proposed and other existing facilities at EASTC. Also, the historical of Tanzania on earth quake impact indicate that it not likely to occur but at low intensity (at Dar es Salaam Region). 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*

6.6 IMPACTS DURING DECOMMISSIONING PHASE

The structures might remain in operation for 50 years provided maintenance of the facility is given due attention. However, even if maintenance is done as it should, a time will come when the facility 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;

6.6.1 Loss of aesthetic value due to Abandonment of infrastructure

The proposed project is planned to run for a long time unless there are unforeseeable events which may curtail the project life span of 50 years. The proponent may abandon building and other supporting facilities that may permanently render the project site unattractive.

6.6.2 Dust and noise Pollution from demolition activities

In closure of the project the proponent may decide to demolish the structure. Solid waste, dust and noise are expected from demolition works of the

structures. *This impact is considered negative, short term and of high significance*

6.6.3 Loss of aesthetics due to haphazard disposal of demolition waste

Loss of aesthetics may result from the demolished waste remaining on site for a long time to the extent of becoming an eyesore.

6.6.4 Loss of employment and learning place

If for whatever reason the project is closed down, the people employed by the project will lose their jobs. 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*

6.7 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 6.5 also indicated the affected environmental media, namely the Physical, Biological, Socio-Economic-and Cultural Environment.

Table 6.5 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	
	Access road to the proposed project site	Disturbance to Pitch Users	X		X
Construction and rehabilitation	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 and rehabilitation activities	Degradation at Point of Sourcing construction materials	X	X	
	Improper relocation of construction and rehabilitation materials	Loss of construction and rehabilitation materials to flooding to be caused by high rain water flow rate	X		X
	Generation of spoil materials from the construction and rehabilitation 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 cut by sharpness objects			X
	Generation of domestic wastewater by construction workers	Pollution of water bodies		X	X
	Construction and rehabilitation of a proposed buildings	Income, skills and knowledge increase to local labours			X

Phase	Key Activities	Identified Environmental. Impacts	Physical	Biological	Socio Economic/ Cultural
	Using heavy equipment in construction activities	Potential to noise and vibration impact	X		X
	Working during construction and rehabilitation of the project	Potential to Occupational Health issues			X
	Movement of Construction Machines and vehicles at site	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 and rehabilitation materials meet at project site	Impacts due to Traffic congestion	X		X
	Transportation of construction and rehabilitation materials from point source to project site using trucks	Dust emission, noise pollution and traffic jam around the project site	X		
Operation	Operation of two storeys academic block 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

Phase	Key Activities	Identified Environmental. Impacts	Physical	Biological	Socio Economic/ Cultural
	Increase number of people in the area	Increase bad act in the area which result to security unbalance	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
	Demolition of structures	Loss of Aesthetics due to Haphazard Disposal of Demolition Waste	X	X	
	Demolition activities	Dust and noise pollution	X		X

Table 6.6 Summary of analysis of identified environmental impacts,

Phase	Key activities	Identified environmental. Impacts	Analysis of environmental Impacts													Significance Rating
			Nature of impacts		Magnitude/significance				Sequence		Duration/term			reversibility		
			+ve	-ve	igh	low	wide	local	irect	ndirect	ong	nid	hort	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
		Disturbance to pitch users		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 and rehabilitation of the project	Income and skills increase to local labours	X		X		X		X		X			X		+ve Moderate
	Working during construction and rehabilitation of the project	Potential to Occupational Health issues		X	X			X	X				X	X		-ve Major

Phase	Key activities	Identified environmental. Impacts	Analysis of environmental Impacts													
			Nature of impacts		Magnitude/significance				Sequence		Duration/term			reversibility		Significance Rating
			+ve	-ve	igh	low	wide	local	irect	ndirect	ong	nid	hort	reversible	irreversible	
	Movement of Construction and rehabilitation Machines and vehicles	Potential to air pollution		X	X			X	X				X	X		-ve major
	Use of local materials for construction and rehabilitation	Benefit to Local suppliers of Construction Materials	X		X		X		X			X		X		+ve Major
	Movement of construction and rehabilitation equipment	Potential to noise impact		X	X			X	X				X	X		-ve Major
	Trucks carrying construction and rehabilitation materials meet at site	Impacts due to Traffic congestion		X		X		X	X				X	X		-ve major
	Employment during construction and rehabilitation	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

Phase	Key activities	Identified environmental. Impacts	Analysis of environmental Impacts												
			Nature of impacts		Magnitude/significance				Sequence		Duration/term			reversibility		Significance Rating
			+ve	-ve	igh	low	wide	local	irect	ndirect	ong	nid	hort	reversible	irreversible	
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 Odor/ 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
Decommission	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

Note that X=where impact is according to nature, magnitude, sequence, duration and reversibility
-Ve=means nature of impact is negative
+Ve=means nature of impact is positive

6.8 CONSIDERATION OF PROJECT ALTERNATIVES

6.8.1 Alternatives site

The proposed project site is currently continuing with core activities of providing education services (certificates, diploma, degree and master programmes) and has available land space suitable for the proposed project. The proposed site is easily accessible by Changanyikeni road, where it is about 120m from Changanyikeni road. 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 and the land is planned for educational purpose which is a proposed academic block for as per attached right of occupancy. The proposed area is opted to be used for proposed project implementation since will minimize social impacts of land acquisition and compensation cost for acquiring new land.

6.8.2 Alternative Power Supply

Currently the existing buildings within EASTC Campus have been connected with TANESCO infrastructure as the main power source. However, there is a diesel generator of 220kVA which is used as an alternative source of power. High running cost, gaseous emission during operation and noise pollution hinders the smooth operation of diesel generator as alternative power source. The consideration of solar panels as alternative power is considered since it will be silent operating, no gaseous emission and low running cost. The use of solar panel will be considered as best option due to being environmentally friendly of no gaseous emission and economically feasible for low running cost compared to diesel generator.

6.8.3 Alternative Water source

At EASTC, there is piped water infrastructure connected from DAWASA which is used as the main water source and one borehole which is used as alternative water source and there are water storage tanks. Increased building at EASTC, means even rainy water generation surface will be increased and this will be easy to consider rainy water harvesting as the best option for alternative water to replace relay on ground water. This alternative will be economically feasible, due to low operation cost and will be the best option.

6.8.4 Alternative construction materials

In considering alternative construction materials we consider the 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 hindered 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.

6.8.5 Alternative construction technology

Various technologies were 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.

6.8.6 No-Project Alternative

This alternative is considered not feasible from the following facts:

1. The revenue envisaged from the project and other incomes for local people will not be realized;
2. Availability of academic building will not be realised hence enhancing quality of graduate students will be thwarted.
3. It is against the Tanzania Development Vision 2025 to discourage developments of projects especially if there are no negative, irreversible impacts associated with such projects.

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

CHAPTER SEVEN: MITIGATION MEASURES

7.0 INTRODUCTION

Chapter six 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.

7.1 MOBILIZATION PHASE

7.1.1 Mitigation measures for Environmental Impacts

7.1.1.1 Noise pollution due to site clearance.

To mitigate this impact, the following will be considered;

(i) Regular maintenance of all used machines,
(ii) Site mobilization works will be on day time only not otherwise
(iii) The site will be fenced by iron sheet before levelling
(iv) Noise protective gear will be provided to workers

7.1.1.2 Dust emission due to site clearance

To mitigate this impact, the following will be considered;

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

7.1.1.3 Occupational Health Hazards to workers

To mitigate this impact the following will be done;

(i) Apply water spray to all area where dust emission is high
(ii) All used trucks their engines will be serviced regularly
(iii) Cover all stockpile found at site
(iv) Any trucks used for transporting waste from site will be covered
(v) Provide safety gears to site clearance crews like safety boots, uniform etc
(vi) Emergency assembly point shall be designed
(vii) Induction training shall be given to mobilization crews
(viii) First Aid Kit should be in place

7.1.1.4 Vegetation clearance

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

7.1.2 Enhancement measures for Social Impact

7.1.2.1 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 and rehabilitation 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 they 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 those with special needs and elderly, have lower employment opportunities than youths and people that have no special need. 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.

7.1.2.2 Disturbance to Pitch Users

To mitigate the impact

(i) Students to be informed about the proposed project
(ii) Student to be informed about the proposed access road to the proposed project area
(iii) it is advised to re-locate the 'temporary ground' to its permanent location as per the EASTC masterplan.

7.2 CONSTRUCTION AND REHABILITATION PHASE

7.2.1 Mitigation Measures for Environmental Impacts

7.2.1.1 Noise pollution due to movement of construction equipment

To mitigate the impact, during construction and rehabilitation 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.

7.2.1.2 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 used by such equipment to suppress dusts during construction and rehabilitation 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

7.2.1.3 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.

7.2.1.4 Impacts associated with transportation of construction and rehabilitation materials

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

7.2.1.5 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 (EASTC community and visitors) interaction with construction vehicles. 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),
- 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)
- The contractor should employ a qualified health and safety officer at site

Table 7.1: Management of occupational health and safety hazards during construction and rehabilitation

Category	Description	Management Practices to Prevent/Control
Physical hazards	Moving equipment and traffic safety	i) Development of a transportation management plan for road repairs that include measures to ensure work zone safety for construction workers and the travelling public, ii) Establishment of work zones to separate workers on foot from traffic and equipment (e.g., routing of traffic to alternative roads, lanes closure, diversion, protective barriers to shield workers and road users, signage, eliminate blind spots etc.) iii) Speed controls in work zones iv) Training of workers in safety issues related to their activities
	Elevated overhead works	i) Barricading of the works area to prevent unauthorized access ii) Hoisting and lifting equipment will be rated and properly maintained, and operators trained in their use iii) Elevating platforms will be maintained and operated according to established safety procedures, including use of fall protection measures iv) Working at height training and safety measures, equipment and personnel movement protocols
	Fall protection	i) Implementation of a fall protection program e.g., training, use of fall protection equipment, measures, inspection, maintenance, rescue of fall-arrested workers ii) Workers training of working at heights iii) Installation of fixtures on bridge components to facilitate the use of fall protection systems iv) Ensure availability and use of correct PPE for the fall protection
	Confined and restricted space entry	i) Entry into all confined spaces will be restricted and subject to permitted supervision by properly trained persons ii) Workers training and awareness creation

Category	Description	Management Practices to Prevent/Control
	Risk of fire and explosion	i) Fire protection measures, including spill prevention ii) Signage and markings iii) Controlled access, surveillance and tight security controls in risky zones
Chemical hazards		i) Reduction of engine idling time in construction and rehabilitation sites ii) Maintenance of work vehicles and machinery to minimize air emissions iii) Ventilation of indoor areas where vehicles or engines are operated, or use of exhaust extractor hose attachments to divert exhaust outside iv) Provision of adequate ventilation in tunnels or other areas with limited natural air circulation v) Use of protective clothing when working with cutbacks (a mixture of asphalt and solvents for the repair of pavement), diesel fuel, or other solvents vi) Use of extenders or other means to direct exhaust/fumes away from the operator
Noise		i) Use of personal hearing protection by exposed personnel ii) Implementation of work rotation programs to reduce cumulative exposure
Health hazards		i) VCT on HIV/AIDS, STDs, awareness campaigns ii) Proper waste management and sanitation in all works areas iii) Provide adequate sanitation facilities for workers

Source: Fieldwork, August 2023 & EHS Guidelines

7.2.1.6 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.

7.2.1.7 Health hazards due to mismanagement of hazardous waste.

In order to mitigate impacts; generated cut pieces of iron sheets, steel bars and the likes shall be collected into a designed area for temporary hazardous waste storage while waiting to be collected by authorized dealers for disposal. Contractor should prepare a waste management plan for hazardous waste.

7.2.1.8 Pollution due to mismanagement of domestic solid waste

In order to mitigate this impact, the following are suggested mitigation measures:

(i) Ensuring proper design of systems for collection, transportation and disposal of solid wastes
(ii) Ensuring availability of sufficient waste bins at appropriate locations
(iii) Design and construct solid waste collection chambers for collecting waste before transported to dump site,
(iv) Sorting of solid waste shall be done at source

(v) Constructed temporary solid waste collection chamber at project site shall be paved and roofed to ensure no contamination due to rainy water effect
(vi) Contractor should prepare a waste management plan for domestic solid waste.

7.2.1.9 Pollution due to mismanagement of domestic wastewater

In order to mitigate this impact, the following shall be done:
(i) Installation of a movable toilet or construction of temporary toilets and bath to be used during construction.
(ii) Emptying of provided toilets will be done to avoid overflow.
(iii) Contractor should prepare a waste management plan for domestic wastewater.

7.2.2 Enhancement Measures for Social Impacts

7.2.2.1 Gender inequity in Employment Opportunities

The proposed mitigation measures include:
(i) Implementation of the Gender Action Plan (GAP);
(ii) 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;
(iii) Livelihood support strategies will be extended to the vulnerable groups and their income levels monitored closely during the implementation process;
(iv) 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;
(v) Establishing affirmative action involving the preparation of equal opportunity, gender-inclusive procurement plan; and
(vi) Capacity-development opportunities (e.g., internships, training seminars) for women and minority employees and women and minorities are pursuing education.

7.2.2.2 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.

7.2.2.3 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 *bajaji* 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.

7.2.2.4 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.

7.2.2.5 Knowledge and skill increase to local labour

Proposed enhancement measures include:

(i) Use of locally registered and certified contractors and sub-contractors;
(ii) 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;
(iii) 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;
(iv) Contractors and sub-contractors will be encouraged to deliver skills and training to local staffs (both skilled and unskilled);
(v) The construction staff will be encouraged to further develop acquired knowledge and skills through Vocational Training Centers (VTCs); and
(vi) Transfer of the skills into other livelihood activities, seek opportunities in other similar projects in the region and beyond.

7.2.2.6 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 Dar es Salaam Region in general.

7.2.2.7 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 EASTC 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 Changanyikeni Road (morning and evening), and the peak of operations within EASTC. 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 special need people, including wheelchair users, children, students, and patients;
- Provision of safe corridors and crossings along internal access roads and construction areas within EASTC;
- 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 EASTC

7.3 OPERATION PHASE

7.3.1 Social Impacts

7.3.1.1 Income, skills and knowledge to local labourers

In order to enhance this positive impact, the proponent shall take deliberate measures to ensure that human labourers 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.

7.3.1.2 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.

7.3.1.3 Reduction of Gender Gap

The proposed enhancement measures include:

(i) Women and girls to benefit from affirmative actions during admission to reduce the enrolment gap and an enabling learning environment including provision of better learning infrastructure and accommodation for women to be enrolled and
(ii) Develop, implement, and monitor a Gender Action Plan (GAP). This will be integrated in EASTC's HIV/AIDS and Gender Policy.

7.3.1.4 Spreading of HIV/AIDS and other STIs

Measures for mitigation of this impact include:

i) Raising awareness of the dangers of the HIV/AIDS to workers, lessors and visitors,
ii) Support voluntary HIV counselling and testing.

7.3.1.5 Gender-based Violence, Sexual Exploitation and Harassment

The suggested mitigation measures are presented below:

(i) Strict implementation of the EASTC's policy on Gender and HIV/AIDS issues including utilization of the existing structure and system for management of gender-related issues within the Institution; Implementing Code of Ethics and Conduct of 2005 for the EASTC employees and students within the Campus;

(ii) 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;

(iii) Utilization of the transparent and accessible system/mechanism for the victim support, protection, reporting and other forms of counselling;

(iv) 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

(v) EASTC's Gender Desk to conduct continuous gender-sensitive training and awareness creation in collaboration with various stakeholders such as Social Welfare Officers (Makongo Ward and Kinondoni Municipal) and nearby NGOs.

7.3.1.6 Demand of basic needs due to population influx

The following will be implemented;

(i) Allow private people to provide basic need within EASTC Campus to enhance availability

(ii) Number of students to be enrolled with base on presence of basic needs around the Campus,

(iii) The area will be connected with safe water from existing source,

(iv) The area will be connected with electrical power from TANESCO,

(v) The area is along Changanyikeni road, so other basic human need will be obtained easily,

(vi) Toilets and wash rooms for workers shall be constructed and used in all phases

7.3.1.7 Security imbalance due to population influx

The following will be implemented;

(i) The area will be fenced to enhance security system,

(ii) Security people will be employed to provide service in twenty-four hours

(iii) Lighting bulb will be installed to enhance security system during the night,

7.3.1.8 Conflicts to community around due to population influx

The following will be insisted;

(i) Admitted students will be inducted on how to behaviour according to community around,

(ii) Good corporation with community around and the proponent is insisted to solve any problem if happen,

7.3.2 Measures for Environmental Impacts

7.3.2.1 Fire break out

To mitigate this impact the following are suggested mitigation measures

(i) Portable fire extinguishers shall be put in place in all strategic areas.
(ii) Fire-fighting system incorporating water hydrants shall be installed in the building including fire detection alarm system to avoid the risk of fire break out.
(iii) Routine checking for performance of fire-fighting equipment shall be done as recommended
(iv) Fire assembly area shall be designated in the project area
(v) Fire escape routes shall be designed,
(vi) All facilities used during wiring system must be approved by responsible organ,
(vii) Induction training to workers shall be given on how to response in case of fire emergency

7.3.2.2 Pollution due to mishandling of domestic solid Wastes

In order to mitigate this impact, the following are suggested mitigation measures:

i) Ensuring proper systems for collection, transportation and disposal of solid wastes
ii) Ensuring availability of sufficient waste bins at appropriate locations
iii) Design and construct waste collection chambers for collecting waste before transported to dump site.
iv) The constructed temporary waste collection chamber shall be paved, roofed and banded

7.3.2.3 Pollution due to mishandling of domestic liquid Waste

In order to mitigate this impact, the following are suggested mitigation measures:

i) Ensuring proper design and construction and rehabilitation of sanitary system
ii) Ensuring routine maintenance of sanitary system
iii) Ensure frequency emptying of septic tank to avoid overflow

7.3.2.4 Soil Erosion due to Runoff Effects and Loosened Top Soil

To mitigate this impact, the following shall be considered

(i) Proper backfilling and resurfacing of the constructed area
(ii) Stabilize the soil by applying light compaction,
(iii) Planting of trees and grass on bare land at project site

7.3.2.5 Occupational Health and Safety hazards to workers

The following will be implemented;

(i) Develop and implement Health, Safety and Environment Plan (HSEP)
(ii) Develop and implement the Emergency Response Plan (ERP) for unplanned events
(iii) Periodic HSE, emergency response, fire drills and first aid training for the employees

(iv) Ensuring at least two first aider trained personnel are available at project site
(v) Offering various types of HSE training in collaboration with the OSHA
(vi) Zoning of heavy moving parts and machinery away from employees and public paths as much as possible

7.4. DECOMMISSIONING PHASE

7.4.1 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.

7.5.2 Contamination and impairment of Environment

To mitigate the impact during demolition, the contractor and developer shall ensure that proper decommissioning procedures are followed.

7.5.3 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:

(i) Prepare workers for forced retirement by providing skills for self-employment, and wise investment of the retirement benefits,
(ii) Ensure that all employees are members of the Social Security schemes,
(iii) Consider redeploying employees in other projects of the proponent.

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 EASTC. 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:
(i) Description of an impact, i.e., positive or negative;
(ii) Description of proposed mitigation and enhancement measures;
(iii) Institution responsible for implementation;
(iv) Cost estimates (whenever possible); and
(v) Implementation time frame such as mobilization, construction, operation or decommissioning.

The ESMP for the proposed project at EASTC is given in Table 8.1 below.

8.3 IMPACT MANAGEMENT STRATEGY

The ESMP points out essential obligations for the EASTC, construction Contractor and operator to meet relevant environmental guidelines in line with the recommendations provided in this ESIA report. Concerning the proposed academic block project, the ESMP requires that the contractor and/or operator;
(i) Possesses an Environmental Policy statement;
(ii) addresses contractual and regulatory requirements;
(iii) Provides procedures developed to address the environmental aspects and risks related to the construction;
(iv) 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;
(v) 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;
(vi) Provides checking and corrective action through monitoring and measurement; and
(vii) 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 and rehabilitation period under the close supervision of the consultant's management. During the Operation Phase, EASTC will manage the facility and implement the ESMP.

The overall implementation of the enhancement and mitigation measures is the primary responsibility of the EASTC 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 developer. Also, environmental and social protection clauses for contracts and specifications will support the implementation of mitigations.

EASTC will forward its monitoring reports to the World Bank and NEMC during project implementation as part of their 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, DAWASA, 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

The EASTC 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 EASTC, 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). The project developer will be responsible to cover all cost for implementing mitigation measures

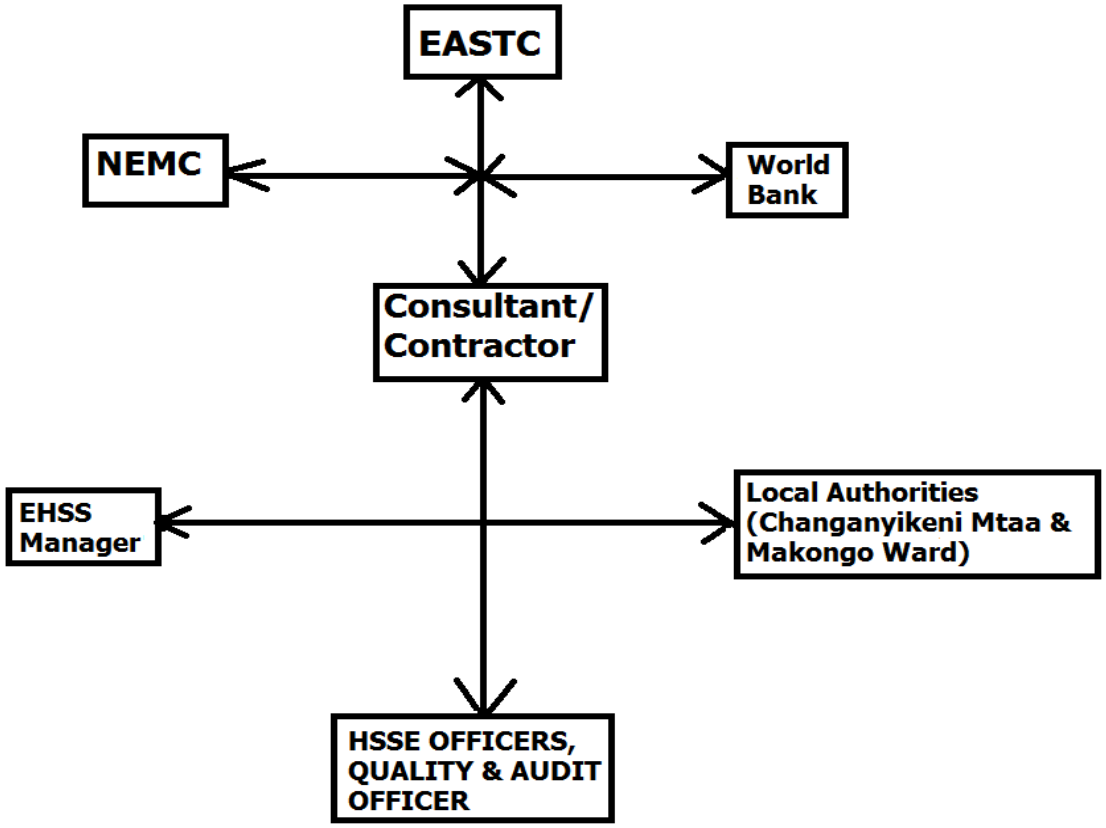

Figure 8.1: Proposed ESMP Reporting and Responsibilities

Source: COLBA Consulting Limited, August 2023

Table 8.1: ESMP for the proposed project at EASTC

Identified Impacts			Mitigation and/or Enhancement Measures	Implementation	
Project Phase	**Type**	**Description**		**Responsibility**	**Relative/Costs (Tshs)**
Mobilization	+ve	Employment and income generation opportunities	• Priority to local communities around Changanyikeni 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/permit small businesses that support the construction, such as cafes, food vendors, *kiosk, tricycle motorcycle (bajaji), 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)	Contractor.	No cost
	-ve	Dust emission	i) Dust suppressive agents such as water to be used/sprinkling along excavated routes ii) Activities producing excessive dust levels to be confined within working areas iii) Fine earth materials such as sand and gravel to be covered during haulage to prevent spillage and dusting iv) Excavated soils will be compacted to reduce the amount of dust spreading by wind v) Administer adequate Personal Protective Equipment (PPE) vi) Haulage trucks to have tailgates that close properly and tarpaulins to cover materials being transported	Contractor	1,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Implementation	
Project Phase	**Type**	**Description**		**Responsibility**	**Relative/Costs (Tshs)**
	-ve	Occupational Health and Safety Hazards to workers	i) Apply water spray to all area where dust emission is high ii) All used trucks their engines will be serviced regularly iii) Cover all stockpile found at site iv) the project should be insured against injuries and deaths. v) Any trucks used for transporting waste from site will be covered vi) Provide safety gears to site clearance crews like safety boots, uniform etc vii) Emergency assembly point shall be designed viii) Induction training shall be given to mobilization crews	Contractor	1,000,000
	-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	Contractor, and, EASTC	1,000,000
	-ve	Disturbances from noise emissions	i) Limit noise level during construction within works areas ii) Activities that generate excessive noise will be limited to day time hours iii) Maintain proper function of equipment and comply with required standards iv) Noise emission devices are properly maintained, and mufflers will be affixed to construction equipment in use v) Unnecessary idling of equipment within noise-sensitive areas will be avoided	Contractor, sub-contractors	1,000,000
	-ve	Disturbance to pitch users	i) Students to be informed about the proposed project ii) Student to be informed about the proposed access road to the proposed project area iii) it is advised to re-locate the 'temporary ground' to its permanent location as per the EASTC masterplan.	Contractor and EASTC	10,000,000
Sub-total I (once-off cost) during project preparation/mobilization					**14,000,000**
	+ve	Income increases 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	Contractor	No cost

Identified Impacts			Mitigation and/or Enhancement Measures	Implementation	
Project Phase	**Type**	**Description**		**Responsibility**	**Relative/Costs (Tshs)**
Construction and rehabilitation	+ve	Benefit to local supplier of construction and rehabilitation 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	Contractor, EASTC	No cost
	+ve	Revenue generation to local government and 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	Contractor, sub-contractors	No cost envisaged
	+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 and rehabilitation staff will be encouraged to further develop the acquired knowledge and skills through Vocational Training Centers (VTCs) • Transfer of the skills into other livelihood activities, seek opportunities in other similar projects in the region and beyond	Contractor, sub-contractors	No cost
	-ve	Noise pollution due to movement of construction and rehabilitation 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. 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.	Contractor, sub-contractors	1,000,000
	-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	Contractor, sub-contractors,	1,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Implementation	
Project Phase	**Type**	**Description**		**Responsibility**	**Relative/Costs (Tshs)**
	-ve	Generation of spoil materials	i) Resurface and level debris in the course of compaction and construction of the foundation for the structures, ii) 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	Contractor/,	1,000,000
	-ve	Impacts associated with transportation of construction and rehabilitation materials	i) the contractor shall cover well all trucks transporting construction materials ii) the trucks will be service regularly its engine to minimize noise and gaseous emission iii) fuel used will be certified by EWURA	Contractor/sub-contractor	1,500,000
	-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 • Contractor should employ a qualified health and safety officer at site, • 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.	Contractor, sub-contractors	4,000,000
	-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. Contractor should prepare a waste management plan for hazardous waste	Contractor	2,000,000
	-ve	Disrupted traffic flow and staff and student safety/accidents	i) Contractor to prepare and implement a Traffic Management Plan (TMP) for construction and rehabilitation purposes for his work activities. ii) Avoid delivering materials onsite during peak hours (morning and evening), iii) Installation of warning signs i.e. speed limits signs for truck drivers.	Contractor, sub-contractors, EASTC, Traffic Police	3,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Implementation	
Project Phase	**Type**	**Description**		**Responsibility**	**Relative/Costs (Tshs)**
	-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 and rehabilitation. • Emptying of provided toilets will be done to avoid overflow.	Contractor	2,000,000
	-ve	Pollution due to mismanagement of domestic solid waste	i) Ensuring proper design of systems for collection, transportation and disposal of solid wastes ii) Ensuring availability of sufficient waste bins at appropriate locations iii) Design waste collection chambers for collecting waste before transported to dump site, iv) Sorting of solid waste shall be done at source v) Constructed temporary solid waste collection chamber at project site shall be paved and roofed to ensure no contamination due to rainy water effect vi) Contractor should prepare a waste management plan for domestic solid waste,	Contractor, sub-contractors	1,000,000
	-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	Contractor, NGOs, EASTC	7,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Implementation	
Project Phase	**Type**	**Description**		**Responsibility**	**Relative/Costs (Tshs)**
	-ve	Workplace sexual harassment and violence against women & vulnerable segments	i) Implementation of the Gender Action Plan (GAP) ii) 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 iii) Establishing a Gender Help Desk at the construction site and ensuring adequate and transparent referral mechanisms are in place for reported cases iv) Review of specific project components and activities that are known to heighten sexual abuse/harassment/abuse/GBV risks at the community level v) Implementing the Code of Ethical Conduct for the construction and rehabilitation workers vi) Sensitization of employees and supervisors about sexual harassment and periodic inductions vii) 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 viii) Jobs will be equitably distributed to both women and men ix) Employment records disaggregated by sex will be kept and easily accessed by the monitoring and supervising team	Contractor, sub-contractors, NGOs, Health facilities, Municipal councils (Social Welfare Depts.), Police, Community, EASTC (Gender Unit),	10,000,000

Identified Impacts			Mitigation and/or Enhancement Measures	Implementation	
Project Phase	**Type**	**Description**		**Responsibility**	**Relative/Costs (Tshs)**
	-ve	Inequity in employment, unfair 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, or special needs 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, inclusive recruitment and non-discriminative employment terms, and on-the-job capacity development for labourers representing vulnerable groupings • Establishing affirmative action involving the preparation of equal opportunity, inclusive procurement plan • Capacity-development opportunities (e.g. internships, training seminars) for women and minority employees and women and minorities pursuing education	Contractor, sub-contractors, Municipal councils, *Mtaa* authorities, EASTC (Gender Unit),	5,000,000
Sub-total II (once-off cost) during actual construction and Rehabilitation					***38,500,000***
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 EASTC HIV/AIDS and Gender Policy.	EASTC (Human Resources Dept., Gender Unit)	Part of EASTC HR budget
	+ve	Enhanced incomes to the surrounding petty traders	i. Sourcing materials, equipment and other resources locally ii. Permit shall be given to small businesses that support for service provider near project site to benefit for selling their goods iii. Procurement plan to incorporate affirmative action on local procurement provision of equal opportunity, gender-inclusive procurement iv. Procurement from registered and licensed suppliers throughout the suppl chain	HR Dept., Gender Unit, Procurement & Logistics Dept.	No cost

Identified Impacts			Mitigation and/or Enhancement Measures	Implementation	
Project Phase	**Type**	**Description**		**Responsibility**	**Relative/Costs (Tshs)**
	+ve	Improved students' enrolment and capacity building	i. Development of infrastructure and associated facilities that will enhanc access to programs offered at EASTC programs ii. Offering relevant courses as demanded in the market. iii. Timely and appropriate operation and maintenance of the developed facilities iv. Initiating exchange programmes with other non-participating Institutes v. Fostering collaborations and partnership through students and staff visit and practical training	EASTC Academic department	No cost
	-ve	Pollution due to mismanagement of domestic solid waste	i) Ensuring proper systems for collection, transportation and disposal of solid wastes ii) Ensuring availability of sufficient waste bins at appropriate locations iii) Design and construct waste collection chambers for collecting waste before transported to dump site, iv) The constructed temporary waste collection chamber shall be paved, roofed and banded	EASTC	2,000,000 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.	NGOs dealt with HIV and EASTC	7,000,000
	-ve	Pollution due to mismanagement of domestic liquid waste	i) Ensuring proper design and construction of sanitary facilities and connected to septic tank ii) Ensuring routine maintenance of sanitary facilities iii) Ensure frequency emptying of septic tank to avoid overflow of liquid waste	EASTC	5,000,000 per year
	-ve	Occupational health and safety risks/hazards	i. Develop and implement Health, Safety and Environment Plan (HSEP) ii. Develop and implement the Emergency Response Plan (ERP) for unplanned events iii. Periodic HSE, emergency response, fire drills and first aid training for the employees iv. Ensuring first aider trained personnel will be at project site v. Offering various types of HSE training in collaboration with the OSHA vi. Zoning of heavy moving parts and machinery away from employees and public paths as much as possible	EASTC	5,000,000 Per year

Identified Impacts			Mitigation and/or Enhancement Measures	Implementation	
Project Phase	**Type**	**Description**		**Responsibility**	**Relative/Costs (Tshs)**
	-ve	Possibility of Fire outbreak	(i) Portable fire extinguishers shall be put in place in all strategic areas. (ii) Firefighting system incorporating water hydrants shall be installed in the building including fire detection alarm system to avoid the risk of fire break out. (iii) Routine (annual) maintenance of the Fire Extinguishers (iv) Fire assembly area shall be designated in the project area (v) Fire escape routes shall be designed, (vi) All facilities used during wiring system must be approved by responsible organ, (vii) Induction training to worker shall be given on how to response in case of fire emergency	EASTC	4,000,000 Per year
	-ve	Gender-based violence, sexual exploitation & harassment	(i) Strict implementation of the EASTC's policy on Gender and HIV/AIDS issues (ii) Developing and implementing Code of Ethical Conduct for the EASTC employees, service providers and suppliers (iii) Implementation of the GAP and protection of women against all forms of sexual abuse, harassment and violence (iv) Development and dissemination of mechanisms to report, address and register incidents of violence and harassment (v) Establishment of a transparent and accessible system/mechanism for the victim support, reporting and other forms of counselling, where EASTC's Gender Unit to conduct continuous gender-sensitive trainings and awareness creation in collaboration with various stakeholders	EASTC	10,000,000/year
Sub-total III (once-off costs) during the operation phase					**33,000,000**
Grand total (indicative)					**85,500,000**

CHAPTER NINE: ENVIRONMENTAL AND SOCIAL MONITORING PLAN

9.1 INTRODUCTION

Environmental and social monitoring plan (Table 9.1) provides the application of ESMP as well as dealing with adhoc 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	1,000,000 per quarterly
	Noise pollution due to demolition	Noise level	Daily	Project area	dB(A)	As per TZS 837 Parts 1, 2 and 3	Contractor	1,000,000 quarterly
	Vegetation clearance	Number of trees before mobilization and after	Mobilization period	Project area	Number	Minimum vegetation clearance	Contractor	1,000,000
	Occupational Health hazards	Occupational status of environment	Daily	Project area	Number	Zero injury	Contractor	1,000,000

Phase	Potential Direct Impact	Parameter to Monitor	Frequency	Monitoring Area	Measurement unit	Target Level/Standard	Responsibility	Estimated costs (Tsh)
CONSTRUCTION AND REHABILITATION	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	4,000,000 paid once
	Noise due to Construction Equipment and Materials	noise level	Quarterly	Project area	dBA	As per TZS 932:2006	Contractor	1,000,000 12 Months
	Impacts associated with transportation of construction and rehabilitation materials	$PM_{2.5}$ and PM_{10}	Daily	Using road	$\mu g/m^3$	Minimal	Contractor	1,500,000 12 Months
	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.	Contractor	1,000,000 12 Months
	Occupational Health and Safety of Construction Workers	Number of injuries	Daily	Project site	Number	Zero injuries	Contractor	4,000,000 12 Months
	Potential for spread of HIV/AIDS, STDs	Number of cases of HIV reported	Quarterly	Project workers	Number	prevalence rate to be reduced	Contractor	2,000,000 12 Months

Phase	Potential Direct Impact	Parameter to Monitor	Frequency	Monitoring Area	Measurement unit	Target Level/Standard	Responsibility	Estimated costs (Tsh)
	Health hazards to workers due to poor management of hazardous waste	Quantity of hazardous waste generated and its management	Weekly	Construction site	Kg	No injury due to hazardous waste	Contractor	2,000,000 12 Months
	Pollution due to mismanagement of solid waste	Quantity of solid waste generation	Weekly	Project site	Kg	Zero pollution	Contractor	1,000,000 12 Months
	Gender equity in employment opportunities	Gender balance in employment opportunities	Quarterly	Project site	Number	No gender imbalance	Contractor	No cost
	Pollution due to mismanagement of domestic wastewater	Water pH, -Faecal coliform -BOD -COD, Turbidity, Color, Na	Quarterly	Borehole within EASTC Campus	m^3	zero pollution	EASTC	2,000,000 annually
OPERATION PHASE	Pollution of surface water source due to mismanagement of liquid waste	Water pH, -Faecal coliform -BOD -COD, Mg, K, Turbidity, Color, Na	Quarterly	Project area	mg/l	As per TZS 344:1989	EASTC	5,000,000 annually

Phase	Potential Direct Impact	Parameter to Monitor	Frequency	Monitoring Area	Measurement unit	Target Level/Standard	Responsibility	Estimated costs (Tsh)
	Fire breaks out and safety system	Number and state of fire-fighting equipment	Semi annually	Project buildings	Number	Enough fire extinguishers	EASTC	4,000,000 annually
	Gender based violence and harassment	Gender balance	Quarterly	Project area	Number of cases	No GBV/SEAH	EASTC	5,000,000 annually
	Soil erosion due to runoff effects	Tendency of soil erosion	Rainy season	Project site	m^2	No soil erosion	EASTC	4,000,000 annually
	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	EASTC	2,000,000annually
	Pollution due to mishandling of solid Wastes	Quantity of solid waste	Weekly	Project area	Kg	No pollution	EASTC	2,000,000 annually
DECOMMISSIONING	Loss of Employment,	Payment of social security remittance for workers	Semi-annually for workers	Social Security schemes for workers	Number o workers registered with socia security fund	Workers' remittances paid in time	EASTC	10,000,000
	Loss of Aesthetics	Buildings or total coverage area	During decommissioning	Project Area	Area	restored environment into its original appearance	EASTC	8,000,000

Phase	Potential Direct Impact	Parameter to Monitor	Frequency	Monitoring Area	Measurement unit	Target Level/Standard	Responsibility	Estimated costs (Tsh)
	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 TZS 932:2006 and TZS 837 Parts 1, 2 and 3.	EASTC	5,000,000
TOTAL COST IS TANZANIA SHILLINGS (TSH)							67,500,000/=	

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 increase in number of students to be admitted during operations through who will pay 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 contractor who run different businesses and services in the country including the private sector who will be investing 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 entail 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 triggered by change of land use. The product of this project will have a life span of 50 years with proper maintenance and services. Therefore, the decommissioning will take place a long time to come.

Table 11.1 Decommissioning and closure plan

Activity	**Closure Plan**	**Responsibility**	**Budget (Tsh)**
Filling all excavation and trenches formed	i. Removal of all concrete materials and metals pieces from all excavation, ii. Filling of trenches/excavation with soil from the designated borrow pit. iii. Compaction of soil accordingly to avoid possibility of soil erosion	EASTC	6,000,000
Disassemble all equipment and demolish the structures	i. Disassemble electrical appliances including Air conditions, Generator, water pumps to mention but a few. ii. Consult TANESCO to disconnect electricity from the project. iii. Demolition of all concrete and metal from building and all pavements. iv. Warning signs will be posted v. All demolition activities will be supervised by qualified engineers. vi. 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	EASTC	8,000,000
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.	EASTC	2,000,000
Waste Management	i. All waste generated during the closure phase will be sorted for easy management ii. A review process will be introduced so that the closure plan for waste dumps adjusted and updated for the inevitable	EASTC	5,000,000

Activity	Closure Plan	Responsibility	Budget (Tsh)
	changes to institution plans schedules, community standards and recognized best practices iii. Debris may be used on the road to fill on feeder roads instead of dumping over land. iv. Metal materials will be collected and stored at the recommended area while waiting to be collected by authorized dealer for disposal. v. 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. vi. The closure committee will make sure that no wastes will be disposed of in the water bodies.		
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.	EASTC	5,000,000
Total Cost Tsh		**26,000,000**	

11.3 PROJECT REMOVAL PROCESS

The proponent shall fund and implement all aspects of project decommissioning, including but not limited to all engineering, permitting and mitigation activities associated with the removal of the project; in accordance with the plan to be developed. The proponent shall monitor environmental impact during and after project removal to respond to defined events during the monitoring phase. Project removal will commence six months after its closure and continue for six months within this month, the proponent will make an inventory of all components that need to be removed and disposed off. This inventory will include building to be demolished /dismantled and debts to be settled. Also, the mode of disposal will be finalized. This information will assist in the preparation of the final decommissioning plan for approval by the relevant authorities. Project decommissioning 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: -

Pre – removal monitoring: includes environmental and social economic status of the building and the surrounding. This period will be used to conduct inventory of all assets and facilities that need to be disposed off and to prepare a final decommissioning plan for approval.

Permitting: The proponent shall obtain all permits from relevant authorities required for removal of the building.

Interim Protective Action: This will take care of any internal protective measures that need to be implemented to protect human health and environment.

Post – removal Activities: post – removal activities monitoring will continue afterward.

CHAPTER TWELVE: CONCLUSIONS AND RECOMMENDATIONS

12.1 INTRODUCTION

The findings from this environmental and social impact assessment report can be summarized as follows:

i. The project is generally accepted at the community, district, 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.

ii. All key stakeholders, including Changanyikeni *Mtaa* and Makongo Ward Offices, Ministry of Education, Neighbours to project, Fire and Rescue Force, and among others accept the proposed project and will be involved at all stages of the project.

iii. The project will not have involuntary resettlement and compensation-related issues since it will be implemented within EASTC Campus and the land use of the area is compatible with proposed project as per provided right of occupancy.

iv. Ecologically, the project site is located in a highly urbanised area with low species diversity. 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.

v. The design, construction and operation of a proposed academic building will consider the needs of the special needs groups. The gender requirements (gender-responsive design, construction, operation and maintenance), health and safety standards and conformity to national and international standards/guidelines.

vi. The negative impacts of concern are:
   a. Disturbances from construction noise and vibrations;
   b. Air emissions impact from dust and exhaust fumes during construction;

vii. Occupational health and safety hazards in all phases of the project;

viii. Accidental contamination of surface and groundwater resources;

ix. Exposure to HIV/AIDS and new transmission; and

x. Workplace sexual harassment and violence against women & vulnerable segments.

xi. The significant positive impacts of concern are:
   a) Employment and income generation opportunities in phases of the project;
   b) Income to surrounding petty traders, materials/equipment suppliers and service providers during construction phase;
   c) Revenue generation to local government and agencies;
   d) Skills and knowledge transfer;
   e) Reduction of gender gap in enrolment;

12.2 CONCLUSIONS AND RECOMMENDATIONS

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 are 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 standards including ESF and ESS and other relevant authorities.

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

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Appendix I: ISSUES AND CONCERNS RAISED BY STAKEHOLDERS

Issues and concerns raised at Eastern Africa Statistical Training Centre

Department/Unit	Views, concerns, and recommendations	Response from Proponent
Administration and Project coordinators	• Improvement of the workplace to the EASTC staffs; • Provision of enough venues to the students; • Increasing of students' enrolment from currently 623 students to 1500 students; • Enhancement of Inclusive Education due to the presence of improved structures and support facilities such as breast-feeding room and special need people unit; and • Providing quality education and skills to students using ICT technology and providing graduates who will be employed.	Noted, the proposed project implementation will enhance availability of staff offices, lecture rooms and computer lab
Unit of Student Affairs	• Increasing of students' enrolment; • Improvement of workplace for EASTC staffs; • Enhancement of Inclusive Education due to the presence of improved structures and support facilities such as breast-feeding room and special need people unit; • Employment opportunities to the surrounding community; • Noise pollution from construction works; and • Fencing of project site area.	• Noted, the proposed project will enhance number of student enrolment to 1500 on 2026, • Noted, during construction and rehabilitation phase employment opportunity will be for local people around, • Noted, all used machines will be of low noise emission • Noted, the site will be fenced by iron sheets

Department/Unit	Views, concerns, and recommendations	Response from Proponent
	• Expansion of EASTC campus; • Improvement of workplace for EASTC staffs; • Availability of enough venues to accommodate the increased number of students; • Sexually interaction between students, EASTC staffs and construction workers; • The contractor should ensure that all laws and regulations are followed; • Warning and safety signs should be posted at the project site area; • All machinery and equipment used should be serviced regularly; • HIV/AIDS, STDs and drugs awareness trainings should be provided to construction workers, students, EASTC staffs and surrounding community; • Sexually education should be provided to construction workers, students, EASTC staffs and surrounding community to avoid early and/or unexpected pregnancies to girls when construction and rehabilitation phase ceases; • Construction workers should be educated on the use of foul language in institution area; and • Construction workers should be controlled on the use of drugs and alcohol while at work to avoid violence at the project area.	• Noted, training awareness for HIV/AIDS will be provided to construction workers, students and community • Noted, • Noted, warning sign will be posted at all strategic areas, • Noted, all machines will be regularly serviced, • Noted education about HIV/AIDS, STDs and drugs will be given to construction workers, • Noted, education will be given to staffs, students, construction workers and community, • Noted, all construction workers will be insisted to use good language, • Use of drugs at site will be prohibited
	• Increase student enrolment; • Enhancement of Inclusive Education due to the presence of improved structures and support facilities such as breast-feeding room and special needs unit; • Provision of quality education by using ICT technology; • The contractor and EASTC administration should sign a memorandum of understanding to prevent Gender Based violence before project implementation; • There should be GBV posters onsite and within the EASTC boundaries; and • GBV education should be provided to contractor, construction workers, EASTC staffs and students as well as surrounding community.	Noted

Department/Unit	Views, concerns, and recommendations	Response from Proponent
Eastern Africa Statistical Training Centre Students	• Expansion of EASTC campus; • Development of the Institution outside Tanzania border; • Availability of enough venues/lecture rooms; • Increased students' enrolment; • Increasing number of staffs; • Employment opportunities to skilled and unskilled people in Changanyikeni area; • Accessibility of high education to locals (Makongo Ward and Changanyikeni Mtaa residents); • Business expansion; • Increase income generation to surrounding community • Sexually interaction between construction workers, EASTC staffs and students as well as surrounding community; • Unwanted pregnancies to girls in surrounding community when construction and rehabilitation phase ceases; • Fencing the project site; • Construction workers should be recognized and monitored by EASTC administration in collaboration with security guards; • EASTC administration should set strictly rules to construction workers to avoid interaction with students and staffs within EASTC boundaries; and • HIV/AIDS, STDs and GBV awareness education should be provided to construction workers, EASTC staffs and students as well as surrounding community.	• Noted, • Noted, • Noted, the proposed project will enhance availability of enough venues, • Noted, the proposed project will enhance number of students enrolment to 15000 on 2026, • Noted, employment opportunities during construction will be for local people around, • Noted, awareness about impacts of sexual relation will be given to the EASTC staff, students, community around and construction workers, • Noted, the site will be fenced by iron sheets, • Noted, all site construction workers will be with uniform and ID for recognition, • Noted education about HIV/AIDS, STDs and drugs will be given to construction workers
Business area	• Increased number of student enrolment; • Generation of income to the entrepreneurs; and • Dust and noise pollution.	• Noted, during construction all stockpiles at site will be covered, water spray will be done twice a day for dust control and all trucks delivering construction materials will be covered on top, • Also, all construction machines will be serviced regularly for noise control
	Increased number of customers in restaurants and bars within EASTC, hence generation of income to entrepreneurs	Noted

Concerns from Government Departments and Agencies

Name of MDAs	Issues, Concerns, Comments and Recommendations	Response from Proponent
Fire and Rescue Force – Kinondoni Office	• The proposed building should have rescue and exit route; • The proposed building should have firefighting equipment including fire extinguishers that are serviced after every 6 months; • There should be assembly point at the project area; • Fire and Rescue Force emergency number 114 should be posted onsite; • Construction workers and EASTC staffs should be provided with fire and rescue training; and • Before project implementation, architectural drawings should be submitted to Fire and Rescue Force for approval and be given safety recommendations.	• Noted, rescue and exit route will be at site, • Noted, enough firefighting equipment will be installed at site and tested after six months, • Noted, assembly point will be at site, • Noted, fire call emergency number will be posted at all strategic area • Noted, fire training will be given to workers, • Noted, architectural drawings will be submitted to fire office
Occupational, Health and Safety Authority (OSHA	• The proposed project should be registered to OSHA through WIMS and have certificate of registration; • Adequate PPEs should be provided to construction workers; • There should be safety policy onsite; • First aid box and trained first aider should be provided onsite; • Medical examination to construction workers should be conducted; • There should be health and safety committee that include construction workers; • Every accident occurred at the project site should be recorded and reported to OSHA within 24 hours; • Health and safety should be considered at the workplace; and • Risk hazards assessment should be conducted and construction workers involved.	• Noted, the site will be registered as workplace at OSHA, • Noted, recommended PPEs will be provided to construction workers, • Noted, first aid kit with recommended facilities and trained First Aider will be at site, • Noted, medical examination will be done to construction workers, • Noted, every accident at site will be recorded and reported to OSHA within 24hours of occur, • Noted, risk assessment will be conducted at site
Tanzania Building Agency (TBA)	• Geotechnical study should be conducted; • Procurement of building materials should follow government procedures; • Building materials should be tested and approved; • The proposed building construction should be done by the recognized contractor who met the required criteria; and	• Noted, geotechnical survey will be done by contractor, • Noted, all building materials will be tested and approved, • Noted, construction will be done by registered contractor as per CRB,

Name of MDAs	Issues, Concerns, Comments and Recommendations	Response from Proponent
	• The concrete foundation should be tested in each construction stage.	• Noted, concrete will be tested at each stage
Tanzania Commissioner for Universities (TCU)	Proponent should consult NACTVET as the relevant stakeholder for opinion and guidance	Noted, NACTVET was consulted
National Council for Technical and Vocational Education and Training (NACTVET)	• Proponent should consider standards for students intake per program of 20-40 annual, • Average standards for staff to students of 1:8 should be considered, • For classroom which accommodate less than 49 students should has one entry door and for classroom with capacity to accommodate more than 49 students should has 2 doors for entry/exit	• Noted, • Noted • Noted
Ministry of Education, Science and Technology	• Control dust and exhaust emissions from construction activities and operations of construction machinery and equipment; • Control noise pollution due to operations of trucks and construction machinery and equipment; • Allocate solid waste collection bins onsite; • Proper handling and disposal of solid wastes; and • Proper handling and disposal of waste oil.	Noted
Gender Desk - UDSM POLICE STATION	• The contractor and EASTC administration should sign a memorandum of understanding to prevent Gender Based violence before project implementation; • Contractor and construction workers should follow culture and customs of Changanyikeni Mtaa and Makongo Ward residents; • GBV awareness education should be provided to construction workers, EASTC staffs and students, also surrounding community; and • The contractor should involve police gender desk on provision of GBV awareness education.	• Noted, a memorandum of understanding to prevent GBV will be signed between contractor and proponent, • Noted, the culture of Changanyikeni people will be respected, • Noted, training awareness against GBV will be given to the EASTC staff, students, project construction workers and community around, • Noted, at site gender desk will be provided

Concerns from Kinondoni Municipal Council

Department/Unit	Issues, concerns, comments and recommendations	Response from Proponent
Environmental Conservation and Natural Resource	• Trees cleared onsite should be replaced; • PPEs should be provided to construction workers; • Fencing the proposed project site; • First aid box should be provided onsite; • Safety net should be provided on constructed building to avoid dust and accidents; • There should be temporary toilet and changing rooms for construction workers (women and men); • Hazardous waste management should be done by registered and recognized contractor by Vice President Office; • Solid waste management should be done by registered and recognized contractor by Kinondoni Municipal Council; and • The proponent should cooperate and participate in social corporate responsibility with ward and mtaa offices;	• Noted, trees planting programs will be initiated after construction phase, • Noted, recommended PPEs will be provided, • Noted, the site will be fenced by iron sheets, • Noted, first aid kit with recommended facilities and trained First Aider will be at site, • Noted, temporary movable toilets will be at site, • Noted, generated hazardous waste at site will be collected by authorized dealer, • Noted, solid waste will be collected by registered contractor, • Noted, good corporate with community around will be done
Community development and planning	• Employment opportunities to the surrounding community; • Business growth in the project area; • Increase student's enrolment; • Increase the aesthetic value of the area; • Accessibility of quality education in good environment; • Ecosystem distraction at the project area; • Dust and noise pollution; • Spread of HIV/AIDS and STDs; • Health and safety onsite should be observed; • Gender, HIV/AIDS and STDs awareness Education should be provided at the project area; • Contractor and proponent should involve Kinondoni Municipal Council officials on provision of GBV awareness education to the community.	• Noted, employment will be for local people around, • Noted, • Noted, • Noted, • Noted, • Noted, during construction all stockpiles at site will be covered, water spray will be done twice a day for dust control and all trucks delivering construction materials will be covered on top, • Also, all construction machines will be serviced regularly for noise control • Noted education about HIV/AIDS, STDs and drugs will be given to construction workers • Noted, training awareness against GBV will be given to the EASTC staff, students,

Department/Unit	Issues, concerns, comments and recommendations	Response from Proponent
		project construction workers and community around,
	• Sexually interaction between construction workers, students and community; • Moral ethics committee should be established at EASTC to monitor interaction between students, contractors and construction workers to avoid girls left with pregnancy by contractor and construction workers; and • GBV and VAC awareness Education should be provided at the project area to construction workers, EASTC staffs and students as well as surrounding community	• Awareness will be given to construction workers, students and community around about effects of sexual interaction, • Noted, training awareness against GBV will be given to the EASTC staff, students, project construction workers and community around,
Land planning	• The land use is compatible with the proposed project development; • Levelling of the site area should be done; and • Building permit should be acquired.	• Noted, • Noted, site levelling will be done, • Noted, proponent will apply for building permit

Concerns and issues from Ward and Mtaa levels

Department/ unit	Views/Concerns/Issues	Response from Proponent
Makongo Ward	• Employment opportunities priority should be given to the surrounding community; • EASTC administration and Contractor should cooperate with Ward and Mtaa offices; • Budget should be allocated for HIV/AIDS, STDs and GBV awareness programme during project implementation; and • Makongo Ward official should be part of the team providing HIV/AIDS, STDs and GBV awareness trainings to the construction workers, EASTC staffs and students, also surrounding community.	• Noted, employment opportunity will consider local people around, • Noted, budget for awareness training on danger of HIV/AIDS will be allocated, • Noted, Makongo ward official will be among a team for awareness training to construction workers, staff, students

Department/ unit	Views/Concerns/Issues	Response from Proponent
	• Solid waste management should be done by the contractor assigned by Makongo Ward office; • Medical examination for construction workers and food provider onsite should be conducted; • There should be proper sewerage system design; and • Health and safety of construction workers onsite should be observed.	• Noted, solid waste will be managed as per regulation, • Noted, medical exam will be done for workers, • Noted, wastewater will be managed by septic tank
	• Sexually interaction between construction workers, EASTC staffs and students also, surrounding community; • Spread of HIV/AIDS and STDs; • HIV/AIDS, STDs and GBV awareness education should be provided; and • Protective gears such as condoms should be provided.	• Noted, awareness will be given to construction workers, students and community around about effects of sexual interaction • Noted, training awareness against GBV will be given to the EASTC staff, students, project construction workers and community around, • Noted, condoms will be given free to workers
	• Sexually interaction between construction workers, EASTC staffs and students also, surrounding community; and • EASTC gender desk should cooperate with UDSM Police Station-gender desk and Ward official on provision of GBV awareness education to the community during project implementation.	• Noted, awareness will be given to construction workers, students and community around about effects of sexual interaction • Noted, EASTC gender desk will cooperate with residents around
	• Contractor should hire security guards; and • Contractor and EASTC administration should cooperate with ward security committee.	• Noted, contractor will hire security guard, • Noted, contractor and proponent will cooperate with community around

Department/ unit	Views/Concerns/Issues	Response from Proponent
Changanyikeni Mtaa	• Employment opportunities priority should be given to Changanyikeni Mtaa residents; • Health and safety of construction workers and surrounding community should be observed; • OSHA should be involved during construction phase; • PPEs should be provided to construction workers; • Sexually education should be provided to construction workers, students, EASTC staffs and surrounding community to avoid early and/or unexpected pregnancies to girls when construction and rehabilitation phase ceases;	• Noted, employment opportunity will consider local people around, • Noted, health of workers will be considered, • Noted, recommended PPEs will be given, • Noted education about HIV/AIDS, STDs and drugs will be given to construction workers •
	• Prior employment opportunities to Changanyikeni Mtaa residents; • Medical examination should be conducted; • Solid waste management Plan should be onsite; • Sewerage system design should be considered; • PPEs should be provided to construction workers; • Condoms should be provided at the construction site; • Security to the project area; • Contractor should cooperate with Ward security committee; • HIV/AIDS, STDs and GBV awareness education should be provided.	• Noted, employment opportunity will consider local people around, • Noted, medical exam will be done for workers, • Noted, recommended PPEs will be given to workers, • The contractor will hire security guard at the area • Noted, contractor will cooperate with community • Noted education about HIV/AIDS, STDs and GBV will be given to construction workers
Neighbours	• Business growth at Changanyikeni area; and • The contractor should hire calm and honest construction workers to strengthen the security in the project area.	Noted
	• Employment opportunities to the community; • Business growth at the project area; • Clearing of forest area will reduce the hiding place for criminals and strengthen security of the area; and • During construction phase, an informal footpath route that passes through the project area should be left to be used by the surrounding community	• Noted, employment opportunity will consider local people around • Noted, existing footpath will not be blocked

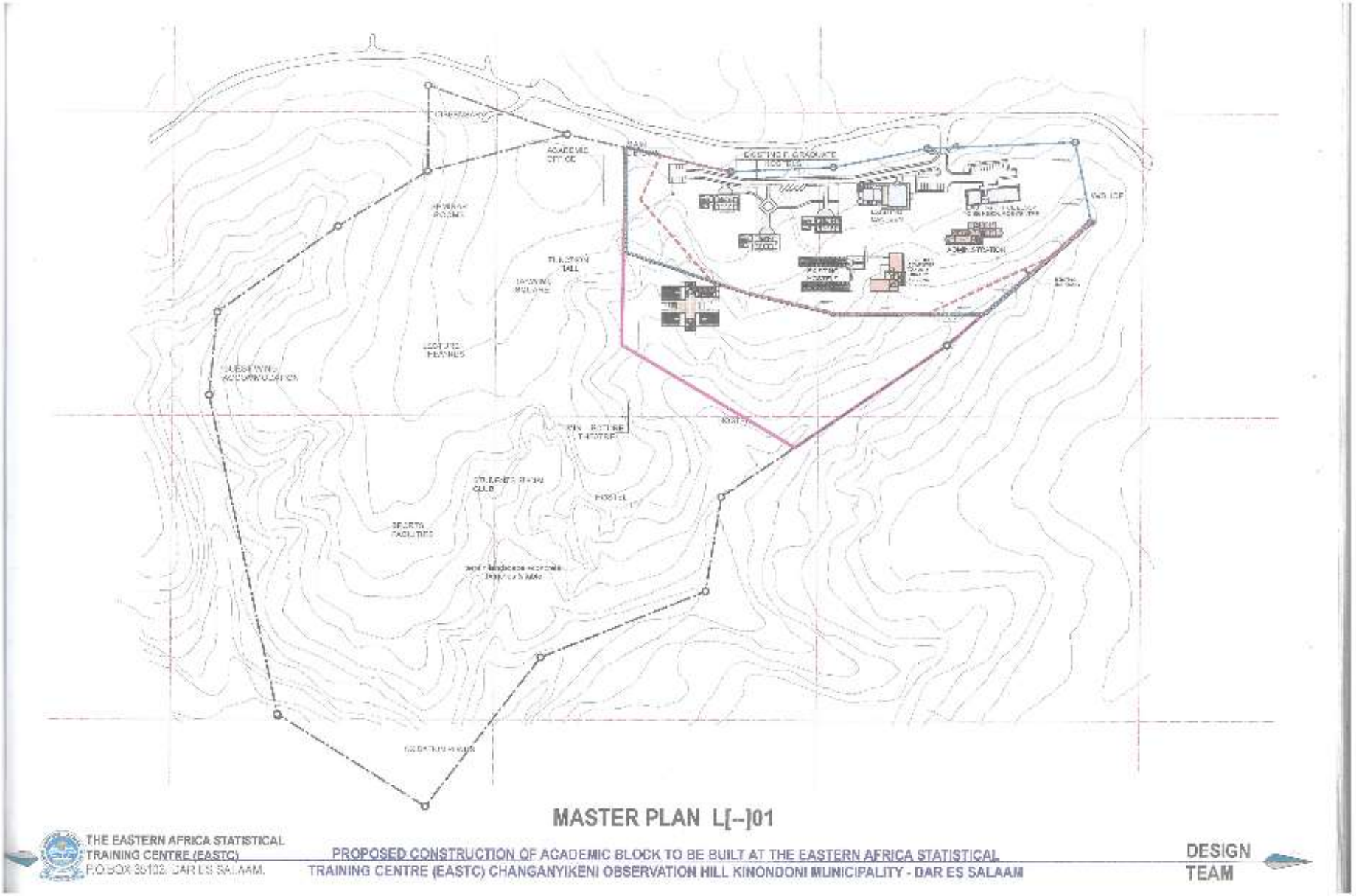
Department/ unit	Views/Concerns/Issues	Response from Proponent
	• Increase the security of the area; and • Employment opportunities to the surrounding community.	• The contractor will hire security guard at the area • Noted, employment opportunity will consider local people around
	• Employment opportunities to the surrounding community; • Aesthetic value of the project area increases; • Noise pollution; and • The contractor should ensure that existing informal footpath used by the community is not blocked or create alternative path	• Noted, employment opportunity will consider local people around • Noted, all machines will be of low noise emission, • Noted, existing footpath will not be blocked or alternative footpath will be established
	• Employment opportunities to the surrounding community; • Contractor should ensure that there is no corruption during provision of employment opportunities to surrounding community.	• Noted, employment opportunity will consider local people around • Noted, any kind of corruption will be prohibited
Motorcyclist	• Business opportunity will increase • There should have a special program to enhance neighbors to use the football pitch because in changanyikeni area there is no pitch	Noted
Football Coach	• Support the proposed project • Will increase the income for motorcyclist and food vendors • Football pitch have to be improved • Should re allocate the pitch first before construction commence	Noted
Motorcyclist	• Will increase student enrolment hence customers for motorcyclist • The pitch has to be re allocated in suitable area • The institute should have reasonable procedures to allow neighbours to use their pitch.	Noted

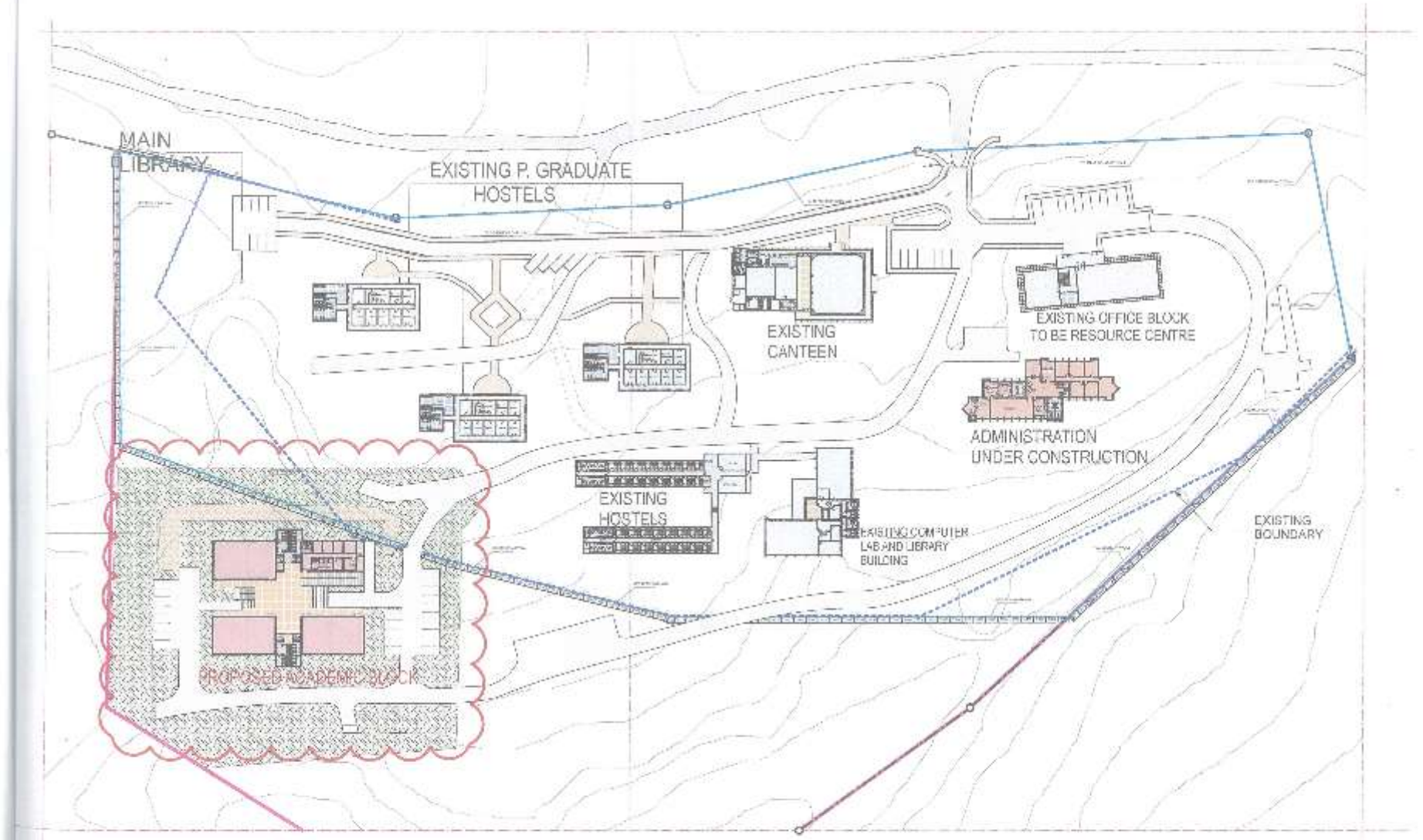
Concerns from local NGOs/CBOs within the project area

Stakeholder	Views/Concerns/Issues	Response from Proponent
Tanzania Gender Networking	• Employment opportunities to the locals; • Business growth;	• Noted, employment opportunity will consider local people around

Stakeholder	Views/Concerns/Issues	Response from Proponent
Programme (TGNP)	• Tender for construction works should consider gender equality according to public procurement policy in which 30% should be given to women; • The contractor should consider gender equality in providing employment opportunities priority should be given to women; • The allocated breastfeeding rooms and special needs units should be used according to the plan; • Sexual interaction between construction workers, EASTC staffs and students also, surrounding community; • The building design should incorporate nursing, privacy and rest rooms; • Budget should be allocated for HIV/AIDS, STDs and GBV awareness trainings; • HIV/AIDS, STDs and GBV awareness trainings should be provided to construction workers, surrounding community, EASTC staffs and students.	• Noted, tender for construction will consider gender, • Noted, employment opportunity will consider gender, • Noted, awareness will be given to construction workers, students and community around about effects of sexual interaction • Noted, budget for awareness training on danger of HIV/AIDS will be allocated, • Noted education about HIV/AIDS, STDs and GBV will be given to construction workers

Appendix II. Layout plan and Drawings





PART SITE PLAN L[--]02

THE EASTERN AFRICA STATISTICAL
TRAINING CENTRE (EASTC)
P.O BOX 35103, DAR ES SALAAM.

PROPOSED CONSTRUCTION OF ACADEMIC BLOCK TO BE BUILT AT THE EASTERN AFRICA STATISTICAL
TRAINING CENTRE (EASTC) CHANGANYIKENI OBSERVATION HILL KINONDONI MUNICIPALITY - DAR ES SALAAM

DESIGN
TEAM

Appendix III: WATER QUALITY AND AIR QUALITY, NOISE AND VIBRATION BASELINE DATA

Appendix IIIa: Average ambient Particulate Matter measured at four stations

Code	LOCATION		Particulate Matter		
	GPS Readings		TSP	PM10	PM2.5
	Latitudes	Longitudes	mg/m3	mg/m3	mg/m3
SP1	-6.771994	39.193299	0.026	0.018	0.009
SP2	-6.772315	39.192988	0.019	0.0013	0.007
SP3	-6.77208	39.192670	0.017	0.012	0.006
SP4	-6.77169 -6.771997	39.192930 39.192941	0.022	0.015	0.008
SP5	-6.771994	39.193299	0.028	0.021	0.010
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

Appendix IIIb: Average values of measured ambient pollutant gases

Code	LOCATION		Ambient Pollutant Gases						
	GPS Readings		CO	NO2	SO2	H2S	O3	CH4	VOCs
	Latitudes	Longitudes	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3

SP1	-4.968949	32.946918	2.01	0.088	0.07	0.05	0.002	0.010	4.4
SP2	-4.965549	32.946200	1.94	0.069	0.06	0.04	0.003	0.012	4.6
SP3	-4.963337	32.943455	1.26	0.074	0.08	0.06	0.004	0.011	4.5
SP4	-4.959730	32.946210	2.91	0.063	0.05	0.03	0.002	0.019	4.8
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

Appendix IIIc: 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	48.0	42.1
SP2	-4.965549	32.946200	44.0	41.4
SP3	-4.963337	32.943455	51.6	46.0
SP4	-4.959730	32.946210	48.6	45.4
TBS Limits for Institution area			<52	<42
WHO/IFC/WB Guidelines			<60	<45

Source: COLBA Consulting Field Measurements on January 2024

Appendix IIId: 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	0.010
SP2	-4.965549	-4.965549	0.008
SP3	-4.963337	-4.963337	0.007
SP4	-4.959730	-4.959730	0.011
Human detection level			<0.15
TBS Limit			5
British Limit			0.3

Source: COLBA Consulting Field Measurements on January 2024

Appendix IIIe: Water Quality Analysis Report for 2 Samples

SN	**Parameters**	**Units**	**Sample recorded**		**TZS: 789: 2008**
			DW	**B/H**	
1	pH		7.78	7.26	6.5-8.6
2	Turbidity	NTU	4.0	48.0	25
3	Colour	Hazen^{o}	3.0	14.0	50
4	Salinity	%(ppt)	0.098	1.303	NA
5	Electric conductivity	µS/cm	195.0	2,605	2000
6	Total dissolved solids	mg/l	99.5	1,302.5	2000
7	Phosphate	mg/l	0.17	0.181	NA
8	Nitrate-Nitrogen	mg/l	0.60	0.40	10
9	Nitrite-Nitrogen	mg/l	<0.001	<0.001	NA
10	Ammonia-Nitrogen	mg/l	0.155	0.841	0.5

SN	Parameters	Units	Sample recorded		TZS: 789: 2008
			DW	B/H	
11	Chloride	mg/l	175.0	658.0	800
12	Sulphate	mg/l	7.10	39.80	600
13	Bicarbonate Alkalinity	mg/l	52.0	258.0	NA
14	Sodium	mg/l	15.73	190.90	NA
15	Potassium	mg/l	1.337	13.40	NA
16	Carbonate Alkalinity	mg/l	0	0	NA
17	Total Alkalinity	mg/l	52.0	258.0	NA
18	Total Hardness	mg/l	55.0	580.0	500
19	Magnesium	mg/l	3.869	38.60	100
20	Calcium	mg/l	13.869	230.0	75
21	Iron	mg/l	0.017	0.313	1.0
22	Manganese	mg/l	0.011	1.543	0.5
23	Zinc	mg/l	<0.01	0.23	5.0
24	Chromium	mg/l	<0.01	<0.01	0.05
25	Nickel	mg/l	<0.01	<0.01	NA
26	Copper	mg/l	<0.01	<0.01	0.05
27	Lead	mg/l	<0.01	<0.01	0.01
28	Cadmium	mg/l	<0.01	<0.01	0.05
29	Faecal Coliform	Count/100l	0	1	0
30	Total Coliform	Count/100l	0	3	0

Source: Ardhi University Laboratory analysis: August 2023,