UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

SOKOINE UNIVERSITY OF AGRICULTURE – MIZENGO PINDA CAMPUS COLLEGE (MPCC)

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT FOR THE PROPOSED CONSTRUCTION AND OPERATION OF ACADEMIC BUILDING, HOSTELS AND CAFETERIA BUILDINGS ON PLOT NO. 1, KIBAONI VILLAGE, KIBAONI WARD, MPIMBWE DISTRICT COUNCIL IN KATAVI REGION

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EXECUTIVE SUMMARY

1. Introduction

The Sokoine University of Agriculture (SUA) is a public higher learning institution located in Morogoro, Tanzania. It was established on July 1, 1984, through Parliamentary Act No. 14 of 1984, with subsequent amendments. The university now operates under the SUA Charter of 2007 and the Universities Act of 2005. In 2020, SUA established the Mizengo Pinda Campus College in Katavi region to offer various degree and non-degree programs in Agriculture.

SUA has received funding from the Higher Education for Economic Transformation (HEET) Project (P166415) to support its strategic development plans. The project is backed by the Government of Tanzania and financed by the World Bank. SUA has directed about 11,044,550,000/= TZS (USD 4,418,261.80) for developing its existing MPCC located in Mpimbwe district, Katavi region. The project implementation is estimated to take 18 months after commencement. Its objective is to strengthen the learning environment and labor market alignment of priority programs at higher education institutions and improve the management of the higher education system. The HEET project focuses on seven strategic areas, including increasing enrollment capacity, upgrading learning resources, promoting research and innovation, building linkages with the private sector, strengthening the use of digital technology, promoting self-generated income, and building the capacity of academic staff and university leadership.

To enhance enrollment capacity and research and innovation at the MPCC, SUA plans to use a portion of the funds to construct academic buildings, student hostels, and a cafeteria. These constructions aim to improve accessibility for individuals with special needs, address gender considerations, and enhance safety within the campus.

The World Bank employs the Environmental and Social Framework (ESF) alongside policies and standards to address expected social and environmental impacts in Investment Projects Financing. The ESF's first standard (ESS1) outlines criteria for Borrowers to identify and assess these impacts, requiring the development of mitigation measures. In line with this, SUA submitted Environmental and Social Impact Assessment (ESIA) documents to the National Environmental Management Council (NEMC), including a Scoping Report and Terms of Reference (ToR). NEMC approved the ToR, assigning a Project Reference No. EC/EIA/2023/3511. The study adhered to local and World Bank environmental regulations and the project's Environmental and Social Management Framework (ESMF).

2. Project Description and location

SUA-MPCC landscape is moderately flat terrain with gentle slopes and dominated by sandy clay loam soil-type. The built- up area of two buildings is found in the flat area about 80m from administration building where current administrative activities take place. The least developed area is found near the existing staff houses where current there is a farming activity. The proposed site is surrounded by commercial-residential buildings and exotic vegetation, households farming plots and perennial vegetation covers. Indigenous vegetation has been long cleared to pave way for anthropogenic activities. The proposed establishment of new buildings under HEET project will be done at the least developed area. The academic building and cafeteria will be constructed at flat area. However, the construction of hostel building may not necessitate the demolition of the staff quarter because there is an enough bare land for construction.

In Katavi Region, the MPCC is positioned below the equator, between latitudes -5.5‟ and 30.25‟, and longitudinally between -7.5‟ and 31.5‟ east of Greenwich. It is 1160 km from the Main campus in Morogoro, accessible via different roads. The MPCC is about 12 km north of Katavi National Park. Regionally, it is situated in Kibaoni village, Kibaoni ward at Mpimbwe District Council, approximately 70 km from Mizengo Pinda Bus Stand through the Sumbawanga Road, connecting it with the rest of Katavi region and inter-regional bus services to cities like Dar es Salaam, Kigoma, and Tabora.

3. Nature and The Main Project Activities

The project involves establishment of academic, cafeteria, and student hostel buildings in four phases: mobilization, construction, operation/maintenance and decommissioning. Planning activities include obtaining permits, surveys, feasibility studies, engineering designs, and environmental assessments. Construction activities encompass site establishment, worker mobilization, equipment and material transportation, camp construction, road clearing, excavation, and building structures. Decommissioning involves laying off workers, removing equipment, demolishing camps, restoring roads and areas, and re-vegetating cleared spaces.

4. Relevant Policies and Legislation

The proposed project at SUA-MPCC is subject to various policies, legislations, standards, regulations, and guidelines to ensure legal and regulatory compliance. These include policies such as

- The National Environmental Policy (2021)
- Construction Industry Policy (2003)
- National Land Policy (1997)
- National Gender Policy (2002), Energy Policy (2015)
- National Water Policy (URT, 2002)
- National Health Policy (URT, 2003)
- Education Training Policy (2014)
- National Mineral Policy (2009)
- National Employment Policy (2008)
- National HIV and AIDS Policy (2001), and among others.

Additionally, legislations and regulation were included in this report such as the

- Environmental Management Act (2004)
- Employment and Labour Relation Act (2004)
- Urban Planning Act (2007)
- Occupational Health and Safety Act (2003)
- Public Health Act (2009), Urban Planning Act (2007)
- Fire and Rescue Act (2015)
- Workers Compensation Act (No.20), (2008)
- Universities Act No. 7 of 2005, The Education (Amendment) Act, 1995
- Standard Act of 2009
- Contractors Registration Act (1997)
- Architects and Quantity Surveyors Act (1997)
- Environmental Impact Assessment and Audit (Amendment) Regulations (2018), Environmental Management (Air Quality Standards) Regulations, 2007
- Environmental Management (Soil Quality Standards) Regulations, 2007,

- Environmental Management (Water Quality Standards) Regulations, 2007
- Environmental Management (Standards for Control of Noise and Vibration Pollution) Regulations, 2015.

The ESIA study aligns with the World Bank Environmental and Social Framework (ESF), promoting sustainable and inclusive development by enhancing safeguards for people and the environment. It addresses various aspects including labor, inclusion, non-discrimination, gender, climate change, biodiversity, community health, safety, and stakeholder engagement. HEET will adhere to 6 out of the 10 relevant Environmental and Social Standards (ESSs) set by the World Bank.

- 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

The Environmental Impact Statement for the project will evaluate compliance with these policies, legislations, standards, regulations, and guidelines to ensure that the proposed development aligns with and abides by all relevant legal and regulatory requirements related to environmental management, health and safety, land use, and pollution control.

5. Baseline Data and Information

The proposed project area for project implementation has no variety of plants species except only grasses and few trees were observed. During general searches it was observed that there is no species of the amphibians and reptiles that are included in the IUCN Red list of threatened species. The plants species covered the project area it includes herbs, grasses, sunflower crops (*Helianthus giganteus*) and one trees species called *Balanite aegyptiaca* (Desert date).

Also, this show the measuring recommended parameters from the existing environment that will be used for monitoring practices during project construction and operation phases. For our proposed project, all measured parameters for particulate matter (PM_{10} and $PM_{2.5}$), noxious gases, and noise for all sites of the proposed project were within permissible limits corresponding to limits prescribed by Local Standard (TBS limits) and international limits (WHO/IFC limit) for ambient air quality.

Furthermore, the project site boasts excellent accessibility to social amenities, such as road networks, church, school, water, electricity and telecommunication services for Vodacom only and limited to Tigo and Airtel. SUA-MPCC and the neighboring communities offer convenient access to financial services, including mobile money and banking facilities. This accessibility ensures that laborers working at MPCC can easily avail themselves of these services during both the construction and operational phases. Moreover, MPCC features a hospital that will be utilized for healthcare services throughout the construction and operation periods. The proposed project at SUA-MPCC may lead to the raises of several social issues and potential impacts SUA-MPCC Students and residents from Kibaoni ward which includes but not limited to the following;

- The project is expected to bring in an influx of people, including construction workers, leading to a temporary increase in the local population. This could strain existing resources and infrastructure.
- The construction phase is likely to lead to an increase in the local population due to the

migration of contracted workers.

- The existing health infrastructure in Katavi region, with 2 health centers and 10 dispensaries, may face challenges in coping with the increased population during and after the construction phase.
- The spread of transmitted diseases is a significant challenge in institutions with high populations, and the introduction of new managerial methods, such as handwashing systems, sanitizers, distribution of condoms etc., should be implemented.

6. Stakeholders Engagement and Public consultations

The identification and engagement of stakeholders followed regulations from EIA and Audit Regulations (2005 and its 2018 amendment), World Bank Environmental and Social Standards (ESS10), and Stakeholders Engagement Plan (SEP). Public consultation involved sharing project information, understanding stakeholders' concerns, and building community relationships. Key stakeholders were identified based on their role, relevance, influence, and potential impact on the project. The Stakeholders Engagement Plan (SEP) covered both national and sub-national levels, with a focus on sub-national stakeholders. It outlined engagement details related to project activities, including various stakeholders at regional, district, and village levels. The project aimed for inclusiveness, involving women, vulnerable populations, and people with special needs. Consultations were conducted throughout the project lifespan, and mechanisms were established to address grievances such as Gender-based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH).

Stakeholders' consultation was carried out during the scoping exercise to identify and respond to project issues of concern to stakeholders. Details of the meetings and focus group discussions with individuals and groups of stakeholders shall be appended in the EIS. Stakeholders consulted included all individuals or groups that might be affected or might affect (positively or negatively) the proposed development in one way or another. They are found at the Zonal, Regional, District, and local levels. At the Zonal level, OSHA was consulted. At the Regional level, the following stakeholders were consulted SUA-MPCC (Staff, Students, and Service Providers), Fire and Rescue Force, Rural Water Supply and Sanitation Agency (RUWASA), TANESCO, NGOs and CBOs, Mpimbwe District Council. At the local level, the ward executive officer (WEO) and village executive officers (VEO) as well as community members were consulted.

7. Impact Assessment and Identification of Alternative

The different stages of the project will bring about environmental and social outcomes. These outcomes will be observed during the mobilization, construction, demobilization, operation, and closure periods of the project. Among these outcomes, one of the most prominent and easily recognizable ones will be the contamination of the nearby environment, which will affect the water, land, air, and project life. Although the project will be enclosed within a fence, there is still a chance of direct or indirect effects on these elements as a result of the project's implementation.

Some of the social and economic impact of the project

The following is a summary of the main positive impacts.

a) Job Creation and employment opportunities
b) Increased market opportunities and sources of income
c) Increase of admission of students to SUA
d) Increased Revenues to local authorities

e) Disruption of social activities
f) Increased skills and impart knowledge to local communities
g) Growth of Trade and Increased Investment
h) Increased commercial and social activities around project locations
i) Influx of people
j) Occupational Safety and Health impacts.
k) Community Health, Safety and Security
l) Conflicts and grievances
m) Prevalence of Communicable diseases
n) Increased level of crimes
o) Child labour
p) Loss of employment
q) Loss of business opportunities
r) Disruption of flow of traffic and public mobility.
s) The growth of banking activities in the project area
t) Increase pressure on social services and utilities.

Some of the environmental impact of the project

The following is a summary of the environmental impacts:

a) Loss of vegetation due to exploitation of borrow pits/quarries and other natural resources
b) Contamination and /impaired quality of receiving body – land and water
c) Contribution to climate change
d) Increased generation of solid and hazardous waste
e) Generations of Solid and Hazardous Wastes
f) Generations of Liquid Wastes
g) Storm water generation and overflow
h) Increased vibration
i) Air pollution due to dust and gases emission.
j) Increased Noise level
k) Loss of vegetation
l) Impact on natural resource (Energy and water)
m) Erosion of Exposed Surfaces
n) Increase storm water generation and overflow
o) Loss of Visual Aesthetics
p) Health and safety risks due to fire hazards

The current project site is actively engaged in delivering educational services and possesses suitable available land for the proposed project. The possibility of using an alternative location outside the campus will take into account the existing university land.

8. Mitigation Measures

SUA-MPCC is responsible for project execution and fulfilling environmental and social management responsibilities. The report contains plans and a monitoring strategy to minimize or prevent any negative social and environmental consequences. The Environmental and Social Management Plan (ESMP) described in the report chapter 7 outlines the schedule for implementing the suggested strategies to address these impacts, as well as plans for ongoing

monitoring. It clearly establishes the roles and responsibilities of the parties involved in mitigating and monitoring the adverse environmental and social effects. Many of the mitigation measures put forward are essentially good engineering practice that shall be adhered to during all the project phases.

8. Environmental And Social Management Plan

The options to minimize or prevent the identified adverse social and environmental impacts as well as a monitoring plan have been suggested in this report and are contained in the ESMP as shown in Table 8.1. Many of them are based on good engineering and social practices. The ESMP defines roles and responsibility of different actors of the plan. However, the key actors during construction phase are contractor and Mizengo Pinda Campus College while during the operation phase, MPCC will be the key actor in implementation of mitigation measures. The associated environmental costs amount to TZS 315,000,000.

9. Environmental and Social Monitoring Plan

There will be four types of monitoring activities; i) baseline monitoring, ii) impact monitoring, compliance monitoring, and mitigation monitoring. The monitoring of environmental and social parameters during the construction phase shall be carried out by the Contractor's safeguard team (i.e., Environmental, social and safety experts), under the supervision of the Consultant's safeguard team. The responsibility for mitigation and monitoring during the operation phase will lie with the MPCC Estate Department. Depending on the implementation status and sensitivity of any emerging issues, OSHA and /or NEMC will perform annual EHS reviews in which environmental concerns raised will be reviewed alongside project implementation. The estimated annual costs for carrying out the proposed environmental motoring programme amounts to TZS 59,000,000.

10. Cost Benefit Analysis

The Environmental and Social Impact Statement (EIS) assesses the project by examining the detrimental effects it may have, taking into account the socioeconomic advantages that would be lost if the project did not proceed. The evaluation of the environmental cost-benefit ratio considers both the negative and positive impacts. Despite the project's potential financial and social benefits, the environmental consequences can be effectively alleviated. The financial resources necessary for mitigating the adverse effects are relatively minimal in comparison to the overall investment required.

11. Decommissioning

Decommissioning will occur in the far future, hence the precise circumstances for mitigation are typically unpredictable. As a result, precise mitigation strategies for the environmental effects of decommissioning activity cannot be recommended at this time with a high degree of assurance. A decommissioning plan that considers environmental issues shall be prepared by the developer prior to the decommissioning works. Should it be done, decommissioning may entail change of use (functional changes), or demolition triggered by change of land use.

12. Summary and Conclusion

Summary

Environmental and Social Impact Assessment (ESIA) for the proposed construction project at SUA-MPCC was conducted to evaluate the potential environmental and social consequences of the proposed project. The assessment considered various aspects such as land use, air quality, noise, water resources, biodiversity, cultural heritage, and community well-being.

During the ESIA process, a comprehensive analysis of the project's potential impacts was undertaken. It was found that the construction and operation of the new buildings would have both positive and negative effects on the environment and local communities.

On the positive side, the project would provide additional facilities for students and faculty, enhancing the educational experience and academic programs at the university. The construction phase would generate employment opportunities and stimulate the local economy. The new buildings would also contribute to the development of infrastructure in the area.

However, the ESIA identified several potential negative impacts that need to be addressed and mitigated. These included land disturbance and habitat fragmentation during the construction phase, increased traffic congestion, noise pollution, and potential impacts on the local water resources.

The assessment also considered the potential disruption to the surrounding community, including noise and dust from construction activities. Several measures and recommendations were proposed to mitigate these potential negative impacts. These included proper waste management practices, dust and noise control measures during construction, and the implementation of water conservation strategies. The assessment also emphasized the importance of engaging with local communities and stakeholders throughout the project's lifecycle, ensuring their concerns are addressed and their input is considered.

Conclusion

Generally, the ESIA report for the proposed building project at SUA-MPCC highlighted both the positive and negative impacts. By implementing the recommended mitigation measures and actively involving local communities, the project can minimize its adverse effects on the environment and social well-being. This assessment provides valuable guidance for decision-makers, planners, and developers to ensure that the construction project proceeds in a sustainable and socially responsible manner.

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LIST OF ABBREVIATION

AIDS	Acquired Immune Deficiency Syndrome
C-ESMP	Contractor Environmental and Social
CSO	Civil Society Organization
CSR	Community Social Responsibility
CRDB	Cooperative and Rural Development Bank
DED	District Executive Director
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EIS	Environmental Impact Statement
EMA	Environmental Management Act
ESMP	Environmental and Social Management Plan
ESMF	Environmental and Social Management
GA	Government Authority/Agency
GBV	Gender Based Violence
GHOs	Grievance Handling Officer
GRIC	Grievance Redress Integrity Committee
GRM	Grievance Redress Mechanism
HEET	Higher Education for Economic
HIV	Human Immunodeficiency Virus
HSE	Health, Safety and Environment
ILO	International Labour Organization
LGA	Local Government Authority
MoEST	Ministry of Education, Science and
MPCC	Mizengo Pinda Campus College
NBS	National Bureau of Statistics
NEMC	National Environment Management Council
NGOs	Non – Government Organization
OSHA	Occupational Safety and Health Authority
PAD	Project Appraisal Document
PAPs	Project Affected Person
PIT	Project Implementation Team
POM	Project Operational Manual
RUWASA	Rural Water Supply
SEA	Sexual Exploitation and Abuse
SEP	Stakeholders Engagement Plan
SOP	Standard Operating Procedure
SUA	Sokoine University of Agriculture
TANESCO	Tanzania Electricity Supply Company
ToR	Terms of Reference
TZS	Tanzanian Shillings
TTCL	Tanzania Telecommunications Company
UPIU	University Project Implementation Unit
URT	United Republic of Tanzania
VEO	Village Executive Officer

WB	World Bank
WEO	Ward Executive Officer

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CHAPTER 1: BACKGROUND INFORMATION

1.1 Introduction

Sokoine University of Agriculture (SUA) is a public Higher Learning Institution in Tanzania, located in Morogoro. Sokoine University of Agriculture was first established on the 1st of July 1984 by Parliamentary Act No. 14 of 1984 through the amendment of Parliamentary Act No 6 of the same year. Following repealing of the Act, the university is now operating through the SUA Charter, 2007 through the broad framework of the Universities Act, 2005. Also, SUA was established a college in 2020 called Mizengo Pinda Campus College located in Katavi region, Mpimbwe District Council to offer various degree and non-degree program in Agriculture.

SUA has received funding to support its strategic development plans through the Higher Education for Economic Transformation (HEET) Project (P166415). The HEET project is supported by the Government of the United Republic of Tanzania (GoT) through the World Bank financing. The Project Development Objective (PDO) is strengthening the learning environment and labor market alignment of priority programs at beneficiary higher education institutions and improve the management of the higher education system. This is done under seven (7) strategic focus areas namely:

i. Increasing enrolment capacity in degree programs in priority disciplines
ii. Upgrading learning resources and equipment
iii. Promoting applied Research and innovation capacity
iv. Building functional linkages with private sector/industry
v. Strengthening use of digital technology
vi. Promote self-generated income
vii. Building capacity of academic staff and university leadership

In strengthening the learning environments and labour market orientation of programs in priority disciplines the University plans to focus on seven strategic focus areas under HEET project. However, three strategic focus areas (Increasing enrolment capacity in degree programs in priority disciplines, promoting applied Research and Innovation capacity and developing options for self-generating income) will involve construction projects.

Hence, in order to increase enrolment capacity in degree programs in priority disciplines and to promote applied research and innovation capacity, SUA is planning to use part of the funds to establish academic buildings, students' hostel and cafeteria that promote accessibility for those with special needs and address gender considerations as well as safety concerns in its MPCC. These buildings will be established within SUA-MPCC premises.

It should be noted further that according to the World Bank Environmental and Social Framework with Environmental and Social Standards (ESS), and Environmental Management (Environmental Impact Assessment and Audit) Act No. 20 of 2004 and (Amendment) Regulations of 2018, before undertaking these activities project developers are required to carry out an Environmental and Social Impact Assessment (ESIA) prior to project implementation. Therefore, SUA consulted Earth Environmental Experts Limited of P.O.Box 35413, Dar Es Salaam to conduct the ESIA study.

1.2 Rationale and Objectives of the HEET project

1.2.1 Project Rationale

Tanzania has made significant strides in improving basic education access since 2015, with primary enrollment rising by 24.5% from 2015 to 2018, reaching over 10 million pupils in 2019.

Secondary enrollment also increased, but challenges persist in transitioning graduates to higher education. The higher education sector faces issues like mismatched skills, low STEM enrollment, inadequate infrastructure, and limited research capacity. Urgent needs include investing in infrastructure and quality assurance in fields like engineering and medical sciences. Gender disparities persist, with only 35% of higher education students being female. To tackle these challenges, the World Bank initiated the Higher Education for Economic Transformation (HEET) project, addressing issues outlined in the HEET's Environmental and Social Management Framework of 2021.

HEET Project Appraisal Document of 2021 points out a number of challenges in the current higher education system. These include:

- Gender inequality in lower levels of education (especially upper secondary) that persists up to the university level, although the gender parity index in higher education has improved from 56.5 percent in 2013 to 67.4 percent in 2018.
- University graduates struggle to find jobs, at least in part due to skills mismatches.
- Demand-side considerations underscore the need for greater numbers of students in disciplines and programs sought after by employers, such as engineering, agribusiness, tourism, and climate change. The overall quality of post-secondary academic programs is low and does not prepare university graduates adequately for current and future formal jobs or self-employment.
- Shortage of well-trained lecturers, and the majority of academic staff use traditional teaching methodologies
- Most of higher education institutions are not currently able to access or use modern technologies to deliver training.
- The global pandemic has reinforced the need for higher education institutions to develop thoughtful resiliency plans.

Tanzania can enhance its productive sectors and generate employment opportunities for the increasing number of young people joining the workforce by implementing a more strategic combination of education, skills, and technology (PAD, 2021).

To support the nation's swift economic transformation, the Higher Education for Economic Transformation (HEET) Project will provide funding for the expansion of higher education's facilities, faculty, and quality control procedures. By enhancing each institution's unique institutional visions, missions, objectives, and core values, the Government of the United Republic of Tanzania hopes to provide public universities with the necessary operational capacity to enable them to be dependable catalysts for economic transformation through the HEET project. Therefore, the decision to build these university facilities at SUA-MPCC stems from the recognition of a widespread shortage of modern and sufficient accommodations, dining facilities, academic buildings with laboratories for soil, herbarium, biotechnology, and food processing, as well as other essential amenities required for universities to operate at their full capacity. The inadequacy of lecture theatres and suitable hostels at SUA-MPCC is adversely affecting student enrollment and academic performance. Due to the absence of a hostel, some classrooms are repurposed as dormitories for a limited number of students, and the lack of laboratories and lecture rooms restricts the college from enrolling a larger number of students.

The anticipation is that the project will contribute to increased student enrollment and improved academic performance by providing modern facilities and creating additional bed spaces to

accommodate more students on campus. Recognizing that the construction activities associated with the proposed project will have various impacts on the physical and socio-economic environment within and beyond the project area, an Environmental and Social Impact Assessment (ESIA) study was conducted. This study aimed to prepare an ESIA report, an associated Environmental and Social Management Plan, and an Environmental and Social Monitoring Plan for the project.

1.2.2 Objectives of the SUA-MPCC HEET project

As per the Project Appraisal Document (PAD) from the HEET Project in 2021, the project aims to enhance enrollment capacity in priority degree programs and foster applied research and innovation while creating opportunities for self-generated income. This goal will be realized through the construction of academic buildings, student hostels, and cafeterias at MPCC, with a focus on ensuring accessibility for individuals with special needs and addressing gender and safety considerations. Upon completion of construction activities, SUA will fortify learning environments and align programs with labor market needs in priority disciplines. Also, the proposed project is being developed with the main objective. The following are specific objectives

- Expand the enrolment capacity of degree programs in priority disciplines to accommodate a larger number of students, thereby contributing to the growth and development of human capital in these fields.
- Foster a culture of applied research and innovation within the academic setting, enhancing the institution's capability to address contemporary challenges and contribute to advancements in priority disciplines.
- Create sustainable revenue streams by implementing initiatives that generate income within the MPCC, ensuring financial self-sufficiency and reducing dependency on external funding sources.
- Ensure that the academic programs offered are aligned with the needs of the labor market, preparing students with the skills and knowledge required for successful integration into the workforce upon graduation.
- Enhance the overall quality of learning environments by investing in modern facilities, technology, and resources that align with the labor market requirements in priority disciplines.
- Design and implement infrastructure that promotes accessibility for individuals with special needs, ensuring that the educational environment is inclusive and supportive for all students.
- Incorporate measures to address gender considerations, promoting equal opportunities for male and female students and creating an inclusive learning environment that fosters diversity and equality.

In complying with World Bank's ESF (ESMF, POM, ESCP, SEP, LMP) and Standards as well as the provisions of the Environment Impact Assessment and Audit Regulations, (GN) No.474 of 2018, the project beneficiary SUA-MPCC has prepared this ESIA report which address: the nature of the project; its location; main processes; materials use, by products and their disposal; environmental impacts; and their mitigation measures. It also analyses the economical and socio-cultural impact of the project to the local community and the nation at large.

1.3 Scope of the ESIA study

This study entailed the following: -

- To provide description of the relevant parts of the project including project location, design, components and activities;
- To review of policies, legislation, standards and regulations governing Environment at International, Regional and Local levels;
- To assemble, evaluate, and present baseline data on the relevant environmental and social characteristics of the project area;
- To address social mitigation including Gender Based Violence (GBV) and Grievance Redress Mechanism (GRM).
- To make consultation with Government agencies, local communities and the private sector operating near the project area;
- To assess and quantify the potential environmental impacts resulting from the building development, especially within the zone of influence of the project;
- Describe alternatives that were examined in the course of developing the proposed project and identify other alternatives, which would achieve the same objectives;
- To develop an Environmental and Social Management Plan (ESMP) detailing actions and responsibilities for impacts mitigation and monitoring.

1.4 Objective of ESIA Study

The objective of the ESIA study was to predict all of the environmental, social, and economic implications of the proposed building construction before the project implementation. In order to prevent or minimize negative effects, the study has addressed the social, economic, and environmental challenges related to the project. It has also produced an appropriate plan for mitigation. The specific objectives of conducting the Environment and Social Impact Assessment study with respect to the project was:

- To carry out environmental screening and scooping study to identify social and environmental risks and impacts in the project site and nearby environment.
- To identify, analyse and assess environmental and social risks and impacts of the proposed construction project.
- To describe the pertinent regulations and standards governing, environmental quality, health and safety, protection of sensitive areas, protections of endangered species and land use control at international, national regional and local levels.
- To recommend cost-effective measures for minimizing or eliminating adverse impacts of the proposed design, construction, operation, and maintenance of the project; and
- To prepare Environmental and Social Management Plan, including and Health and Safety Management for design, construction, operation, and maintenance phases of the Project.

1.5 Nature and scope of the construction work

The project will construct academic building, cafeteria building and student hostel building. The activities for the project will be implemented in four phases namely, mobilization, construction, demobilization, operation, and maintenance phase.

Activities under planning phase include obtaining different permits and approvals for the project, conducting perimeter and topographic surveys, conducting feasibility studies, detailed engineering designs and environmental and social impact assessment studies.

Activities under construction phase shall include site establishment; mobilization of workers, transportation of equipment (bull dozers, caterpillars, heavy duty vehicles, etc.), transportation of construction materials (e.g. stone aggregates, steel, cement blocks, sand, cement, gravel, fibre

cement boards, pressed metal door frames, Masonite faced flush panel solid core doors, and natural anodized aluminium windows etc.); construction of workers' camp; clearing of access roads and diversions; excavation and stockpiling of excavated materials (gravel and aggregate stone); cordoning; fencing the area within which access will be limited to construction workers and people working at the campus; construction of the camp structures; and construction hostel facilities.

Activities under demobilization phase will include laying off workforce employed during construction phase; demobilization of equipment; demolition of workers and Contractor's camp; rehabilitation/restoration of access roads; closure and restoration of materials storage yards; removal of construction wastes; re-vegetating areas that were cleared by the Contractor along the access roads and restoration of damaged areas; and places occupied by the project construction facilities to other beneficial uses.

1.6 Methodology and ESIA Team

The ESIA investigation utilized various participatory approaches to engage all relevant stakeholders. The methods employed align with the guidelines outlined in the Environmental Management Act, Cap 191, and the Environmental Management (Environment Impact Assessment and Audit) (Amendment) Regulations of 2018.

The ESIA being a multidisciplinary field involved a team of experts, the key ones being EIA Expert (Team Leader), Environmental Engineer, Civil Engineer, Gender specialist, Air quality, pressure noise level expert and Sociologist.

The ESIA study for the project was carried out in accordance with the Terms of Reference that were provided by SUA as client. The study was undertaken between May and June 2023 included the following methodology.

1.6.1 Literature Review

Literature review involved acquisition and review of project documents, reports maps and drawings relevant to the project. Other documents reviewed included different pieces of national legislation, policies, guidelines and regulations as well as international policies and guidelines and procedures. Also, it involved reading the HEET Environmental and Social Management Framework (ESMF) report literature and documentation. This ESIA completely complied with the World Bank Environmental and Social Standards on Assessment and Management of Environmental and Social Risks and Impacts (ESS1) and the ESMF (2021). ESIA, according to ESS1, is a tool to identify and evaluate potential environmental consequences of a project proposal, assess alternative.

1.6.2 Site visits

The objectives of site visits were to observe and collecting baseline data on the existing biophysical and socio-economic environment of the project area. In addition to that, the visits provided an opportunity to consult different stakeholders, this including community surrounding the project area, students, staffs, non-Government organization (NGOs) and senior government officials at District level on their views regarding the project and its potential impacts. Data collected during scoping allowed the study team to determine more detailed information on environmental conditions at the development site and its surroundings are needed and where such information can be obtained.

1.6.3 Stakeholders' involvement

The research employed various participatory approaches to engage a wide range of stakeholders. Individual interviews were conducted, guided by a set of general topics or questions, and partly shaped by open discussions. Additionally, focused group discussions were utilized to collect information. The stakeholders involved in the planning of new facilities encompassed government authorities, local officials, and residents in the vicinity of the proposed site. Below are some of the stakeholders pertinent to the ESIA study, and the consulted stakeholders are enumerated in the following list.

- SUA-MPCC Staff both Academic and Administrative
- SUA-MPCC Students
- SUA-MPCC Gender unit
- Kibaoni Ward
- Mpimbwe District Council.
- Tanzania Commission for Universities (TCU)
- Ministry of Education, Science and Technology (MoEST)
- Occupational Safety and Health Authority (OSHA)
- Fire and Rescue Force
- Tanzania National Electric Supply Company (TANESCO)
- Rural Water Supply and Sanitation Agency (RUWASA)
- NGOs and CBOs

1.7 Project Impact Assessment

The environmental assessment has been undertaken in order to ensure the positive and negative impacts of the project are considered. Environmental consequences of many alternatives have been assessed in this approach. Several project alternatives were considered including that of not implementing the project. The fundamental environmental protection strategy and environmental considerations influencing engineering design were incorporated.

1.7.1 Project impacts identification

Identification of potential effects of the proposed project was made possible by superimposing project components onto the current social and environmental natural conditions. Additionally, the method of an environmental impact matrix was used to determine the effects of significant concerns. A major guiding assumption in this study is that the project will be planned, built, and operated with adequate consideration for safety and environmental issues using current and useful engineering standards.

1.7.2 Impact Assessment

The actions undertaken to determine the significance of potential project impacts involved the following three key steps:

i. **Prediction**: What will happen to the status of specific receptors as a consequence of this project activities (primarily; what is the magnitude of the impact?);
ii. **Evaluation of significance**: How significant is the impact to the identified receptors namely, affected communities and the wider environment – land, air and water? What is its relative significance when compared to other impacts?

iii. **Residual Impacts**: After mitigation, are the impacts still of concern and/or significant? If yes, the process needs to be repeated at least once before the 'final' determination of residual impact significance occurs.

Potential impacts arising from planned activities, cumulative impacts with other developments and unplanned events (e.g., accidents, natural disasters, etc.) were also assessed. Stakeholder engagement is done throughout the planned project's execution to give affected and interested parties a chance to learn about it, express their opinions about potential effects, and suggest ways to mitigate those effects.

1.8 Baseline Data and Information

Environmental consultants have identified foundational data necessary for conducting the environmental impact assessment. Information regarding the bio-physical, socio-economic environment, institutional and legal frameworks was gathered from diverse sources, including project documents, general literature reviews, visual inspections, expert opinions, and consultations with specific stakeholders. Identified data and information gaps have been acknowledged, and plans have been devised to address these gaps by implementing strategies for data collection before or during the environmental impact statement study. (Chapter 4).

1.8.1.1 Baseline data on Air quality, Noise, and Vibration

On-site assessments were conducted to determine the current levels of noise, ambient pollutant gases, and dust at the project site, tailored to the proposed project's characteristics. A digital sound level meter was employed to capture noise levels in accordance with ISO standards 19961:2003 and ISO 3095:2001. Additionally, both ambient pollutant gases and dust, categorized as particulate matter (PM10 & PM2.5), were measured on-site using Dust and Pollutant Gases Monitors, capable of detecting dust particles of various sizes (10, 5.0, 2.5, <1.0, 0.3, and >10 microns). Also, data logger vibrometer was utilized to quantify the ground vibration at sampling location, representing the onsite and offsite receptors. The device has an accuracy of ±5%, acceleration of 200 m/s^2, a wide frequency ranges of 10 Hz to 1 kHz capable for capturing almost all possible vibration levels at working environment. The device was designed to measure vibration at the workplace according to European standard EN 14253:2003.

All equipment complies with the EMC Directive 89/336/EEC of the European Union in accordance with manufacturer procedure and applicable local standards and/or international environmental guidelines. The devices have been tested according to the standard delivery schedule and complies with the EN 50081-1:1992 and EN 50081-2:1993 standards.

1.9 Structure of the report

The report is presented in accordance with the format given in Section 18 (1 and 2) of the Environmental Impact Assessment and Audit Regulations, 2005. This report is structured in the following style:

- Executive Summary
- Table of Contents
- Acknowledgement
- List of Acronyms

Chapter 1, Introduction; This chapter provides the general overview of the project including how the project background and justification, objectives and scope of the study and methodology used for conducting the study.

Chapter 2, Project description; This chapter details the project components and further outlines activities and materials used in all phases of the project i.e. (mobilization, construction and demobilization and operation phases).

Chapter 3, Policy, Legal and Institutional Framework; This chapter provides details of important policies, acts and regulations that govern the project.

Chapter 4, Baseline Environmental and Social condition; This chapter elaborates the project influence area and boundaries. It also describes the baseline / existing conditions of the study area.

Chapter 5, Stakeholder Engagement Plan and Grievance redress mechanism; This chapter explains how the stakeholders were involved during the ESIA process and presents their views regarding the project. This chapter also, provides a procedure on how to manage the potential grievances related to any aspect of the project, to enable community members to raise concerns about possible negative impacts and to give opportunity to address those concerns.

Chapter 6, Identification and Assessment of Impacts and Project Alternatives Identification; This chapter discusses environmental and social impacts associated with the project analyzed according to impacts significance as well as alternative projects that are more suitable to the proposed one while serving the same purpose.

Chapter 7, Environmental and Social Management Plan; The Environmental and Social Management Plan (ESMP) presents how the identified impacts during all project phases will be managed to avoid, minimize or offset any adverse significant impacts of the proposed development.

Chapter 8, Environmental and Social Monitoring Plan; Environmental and Social Monitoring Plan elaborates how the implementation of the ESMP will be monitored throughout the phases of the project. It is a plan to monitor the efficiency of the proposed project mitigation measures.

Chapter 9, Cost Benefit Analysis; In this chapter, the Environmental cost benefit analysis is assessed in terms of the negative versus positive impacts. The potential benefits of the project, in terms of financial and social benefit are substantial.

Chapter 10, Decommissioning Plan; This chapter presents the activities involved when the proposed project is no longer operational and potential impacts to be managed.

Chapter 11, Summary and Conclusions; Summary and conclusion summarizes findings concerning how feasible, viable and environmentally acceptable the project is and provides recommendations to the proponent on the feasibility of the project.

In addition, the report presents references and appendices that are attached herein.

CHAPTER 2: PROJECT DESCRIPTION

2.1 Location and Accessibility of the project

At the national setting, Katavi Region is located below the equator and between latitudes -5.5‟ and 30.25‟. Longitudinally the region is situated between -7.5‟ and 31.5‟ east of Greenwich. MPCC is located at1160 km from the Main campus in Morogoro through Mbeya-Tunduma-Sumbawanga–Mpanda road, about 152 km from Sumbawanga, 106.7 km from Mpanda and Tabora via Sikonge 350 km. Katavi National Park is to the North, about 12 km. Furthermore, the MPC via Sumbawanga Road which is tarmac road connects the Tabora Road. Therefore, MPC is accessible from Mpanda town through either the Mpanda – Tabora Road or through the Mpanda – Sumbawanga Road.

At the regional setting, the MPCC is located in Kibaoni village, Kibaoni ward at Mpimbwe District Council at the distance of about 70 km from Mizengo Pinda Bus Stand through the Sumbawanga Road. This bus stand connects MPCC with the rest of Katavi region through the inter-district bus services. The same bus stand is based inter-regional bus services that connects Mpanda and more specifically MPCC, with Dar es Salaam City, Kigoma, Tabora and the rest of the country. Figure 2.1 shows the location and accessibility of the MPCC at the national and regional levels.

2.2 Major Adjacent developments

The SUA-MPCC bordered Mizengo Pinda Secondary school on the north-western side about 1.31km, Kibaoni center on the western side about 0.58km and Kibaoni Roman Catholic church on the south-western side. Also, the proposed project bordered by residential houses and can be accessed by Gwambina road.

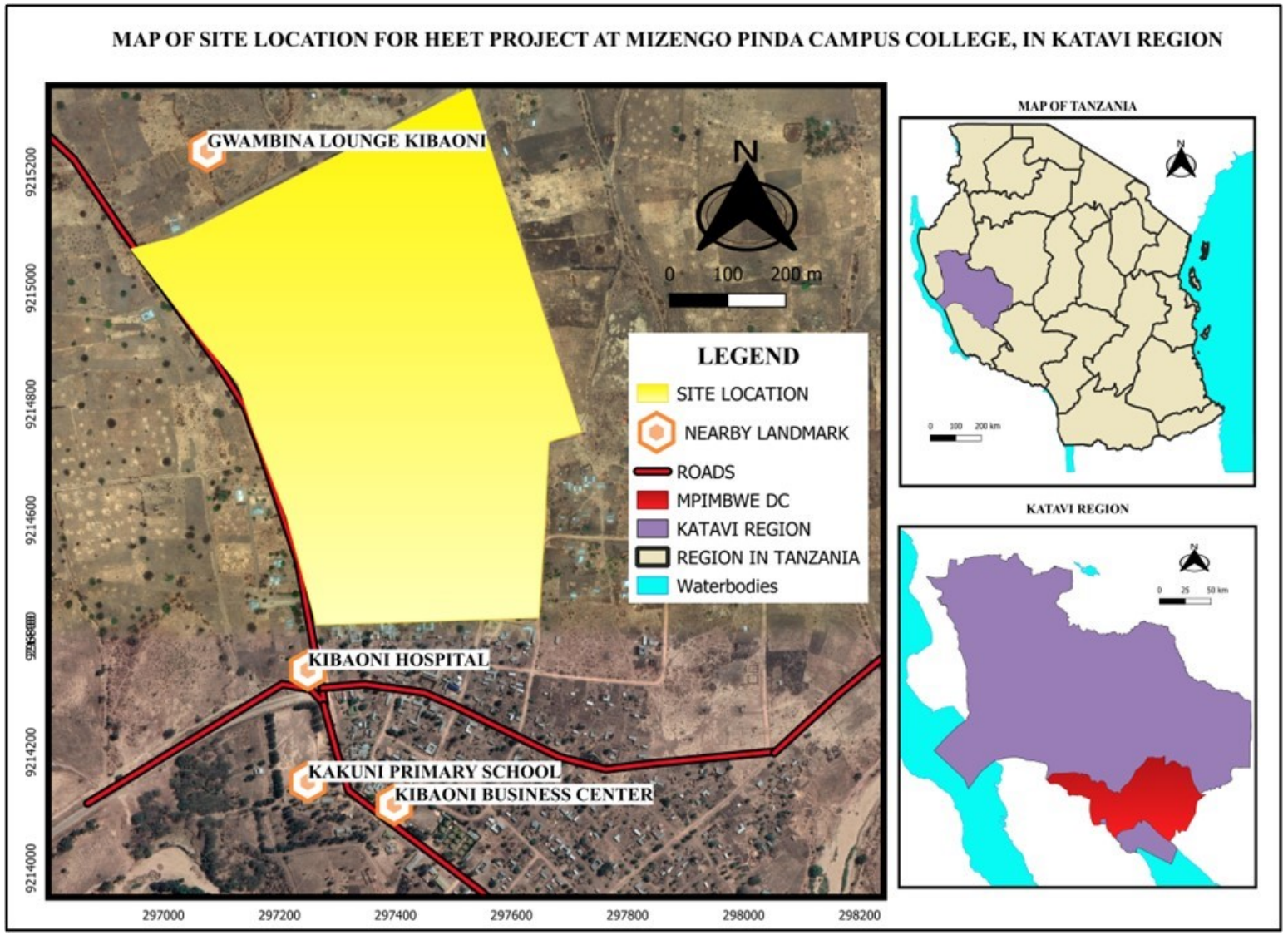


Figure 2.1: Map of proposed project in Mpimbwe District (Source: 3EEE GIS drawing, 2023)

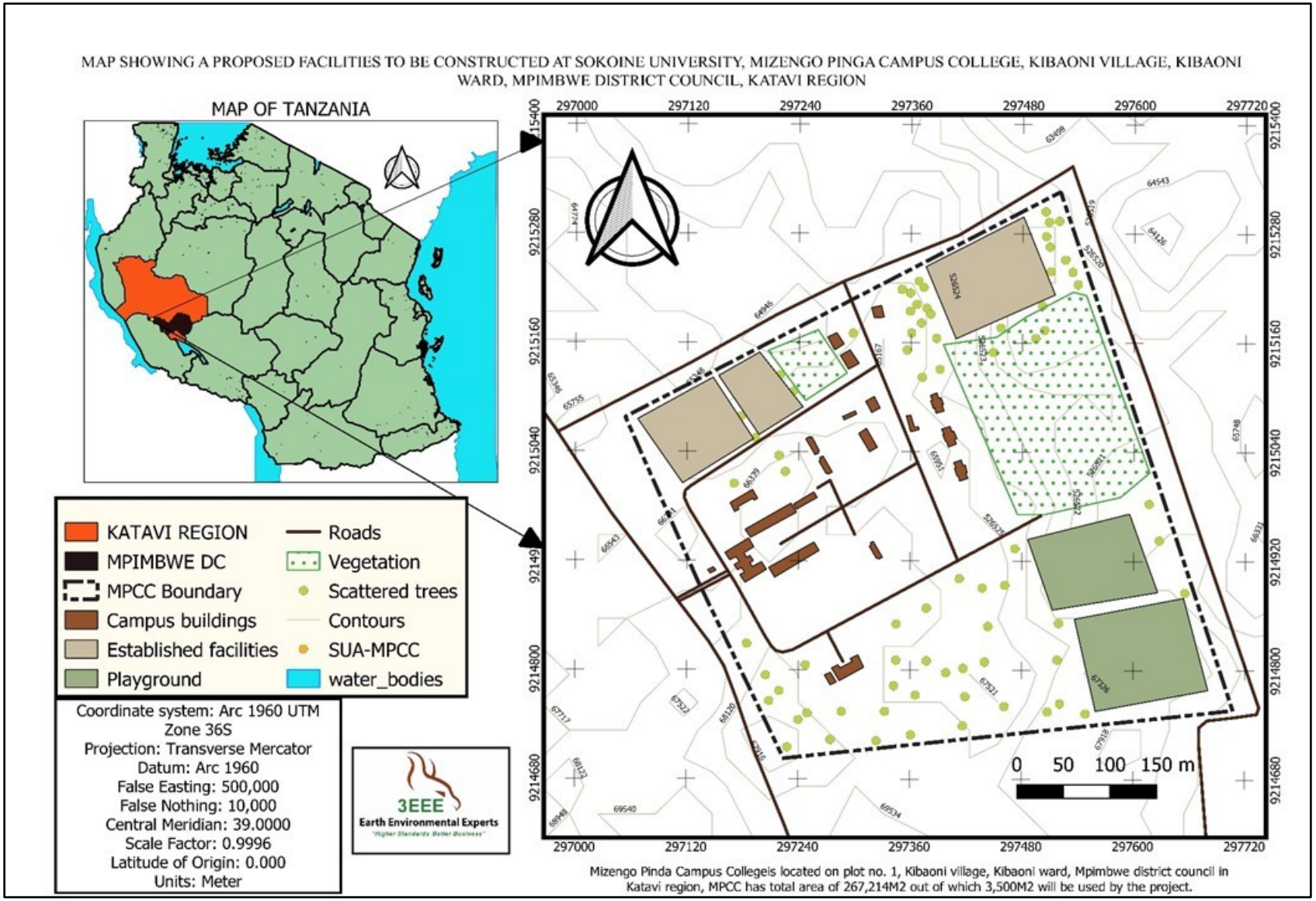


Figure 2.2: Map of proposed project at SUA-MPCC in Mpimbwe District (Source: 3EEE GIS drawing, 2023)

2.3 Project site description

MPCC landscape is moderately flat terrain with gentle slopes and dominated by sandy clay loam soil-type. The built- up area of two buildings is found in the flat area near administration building where current administrative activities take place. The proposed site is surrounded by residential buildings and exotic vegetation, and perennial vegetation covers. Indigenous vegetation has been long cleared to pave way for anthropogenic activities. The academic building and cafeteria will be constructed at flat area. However, the construction of hostel building may not necessitate the demolition of the staff quarter because there is enough bare land for construction. Currently, the campus has a lecture theater capacity that can accommodate only 154 students at maximum. On the hostel side, they are not in modern conditions, which does not attract many students. It is estimated that only about 40% of the students live in the campus hostels.

2.4 Land ownership

Land for the project belongs to SUA-MPCC, which is about 267,214.008m^2 out of which 4200m^2 will used by the proposed project. Therefore, the proposed project at MPCC will not require any additional land out of the SUA-MPCC area hence no issues of land resettlement and compensation will arise, as the project will only use land that belongs to the SUA-MPCC. Also, the land shall be used for public buildings and places of assembly purposes only. Use Group "H" use classes (a), (c), (e), (f) and (h) as defined in the Town and Country Planning (Use classes) Regulation Regulations 1960 as amended in 1993 (Appendix 2).

2.5 Project Components

Due to the site's asymmetrical design, a high-rise development is permitted under the redevelopment plan of the Mpimbwe District Council. The site's strategic location and excellent connections to the community's public and private transportation options support its claim to sustainability.

SUA-MPCC will establish academic buildings, hostels building and cafeteria to address the immediate and long-term needs. The proposed projects are planned to be implemented concurrently within first two years for various logical reasons. First, to reduce the overall negative effects that construction projects will have on the environment and society. Second is to achieve to the earliest increase in quality and enrolment of students within the specified project period of five years.

Site 1: Academic Building

The building will be of 4-Storey and it will consist of one lecture theatre with a capacity of at least 500 students each, multi-disability resource center, ramp, stairs and right wing should include the following laboratories each with a capacity of 50 for students zoology, hebarium, biotechnology, food processing pilot plant, library, including reading rooms and offices for atleast 200 people, three lecture theatres, one classroom (collapsible into five parts each with capacity of 100 students), one computer laboratory with a capacity of at least 200 computers, electronic workshop, one video conference room, 18 staff offices (senior staff), 12 staff offices (junior staff), tea room/kitchen, toilets and bathrooms. The estimated each floor area is 1,400 sqm. Also, the proposed site is located about 80m to the existing administration buildings (Plate 2.1).

Site 2: Cafeteria Building

Ground building with a sitting capacity of 370 people for students, staff and visitors and executive lounge will be constructed for cafeteria use. The building will consist of a cooking area, food preparation area, washing area (utensils, selling counter, dining hall, food store (cold and dry), general store, washrooms and changing rooms, cashiers' office, corridor/circulation. This site is located near proposed academic building within MPCC. There are existing TANESCO power lines near the proposed site that will be reallocated during construction. The estimated area for each floor is 1,400 sqm. The site for the proposed project is only covered by grasses (Plate 2.2).

Site 3: Hostel Buildings

A building for hostel of three storeys ground floor it will consists of warden's office, tearoom, janitor's office, hired services supervisor's office, maintenance store, toilets, bathrooms and laundries, 33 rooms each with capacity of 4 students and reading space, staircases, ramps and elevator. For first and second floor, 35 rooms with capacity of 4 students each floor with a reading space in each room, staircases, ramps and elevator. This site is located behind the staff houses and borehole. The estimated area for each floor is 1,400 sqm. The site for the proposed building (Plate 2.3) is covered by herbs, grasses, sunflower crops (*Helianthus giganteus*) and one trees species called *Balanite aegyptiaca* (Desert date) (Plate 2.3).

2.6 Project design considerations

The overall design of the buildings will promote use of construction materials, which are environmentally friendly, durable, and vandal-proof and those which require minimal periodic maintenance. The construction in Katavi area presents unique challenges due to the potential for significant seismic activity. Building construction in earthquake-prone areas requires meticulous planning, design, and implementation to ensure the safety and resilience of structures and the people who use them. The general design considerations will incorporate aspects of modern architecture, the current local government building policy guidelines and the latest standards developed by Contractor Registration Board (CRB) and the Tanzania Commission of Universities (TCU) Architectural Metric Handbook which will include:

- **Seismic design codes and regulations:** Familiarize the building design with the local seismic design codes and regulations. These guidelines dictate the minimum requirements for designing and constructing buildings to withstand seismic forces.
- **Geotechnical investigation:** Contractor should conduct a thorough geotechnical investigation to understand the soil and geological conditions of the site. Different soil types and geological features can significantly affect a building's response to earthquakes.
- **Foundation and structural design:** The building's foundation design must accommodate ground movements during earthquakes. Consider techniques such as base isolation or damping systems to reduce seismic forces transmitted to the structure. Employ earthquake-resistant structural systems, such as reinforced concrete or steel frames, that can absorb and dissipate seismic energy. Ensure that the building's lateral load-resisting system is appropriately designed for the expected seismic forces.
- **Building height and mass:** Tall and heavy buildings are more susceptible to swaying during earthquakes. An architect must consider the height, mass distribution, and architectural features that might affect the building's stability during the design.

- **Bracing and shear walls:** Incorporate bracing elements and shear walls into the design to enhance the building's lateral stability. These components help distribute seismic forces and prevent excessive deformation.
- **Construction materials:** Use high-quality construction materials that meet seismic design requirements. Properly reinforce concrete and select appropriate steel grades for structural components.
- **Emergency exit and evacuation routes:** Plan and design clear emergency exits and evacuation routes. These pathways should remain accessible even after an earthquake and should lead to safe assembly areas.
- **Ventilation:** The design will cater for natural ventilation with features that encourage natural air circulation (including use of permanent air vents above all doors and windows);
- **Lighting**: The design caters for various types of energy efficient luminaries including fluorescent lamps and natural lighting through glass windows and doors as appropriate for both security and lighting;
- **Lightning arrester:** The design involve the placement of a device to protect the insulation and conductors of the system from the damaging effects of lightning in the building.
- **Sanitary:** The number of toilets and wash hand basins will corresponds based on the number of students and workers who will be using these facilities.
- **Climate change adaptation:** To reduce its carbon impact, the building's design should put an emphasis on energy efficiency and sustainable materials. The use of energy-intensive cooling or heating can be reduced by using enough insulation and natural ventilation systems to control indoor temperatures. Water scarcity during dry spells can be lessened by installing rainwater harvesting devices.
- **Waste water management:** Wastewater will be connected to the central septic tank and soak away pit system which will be constructed on the special project area.
- **Sustainable resource use:** The design of the buildings will incorporate landscaped gardens which will be planted with suitable species of trees / shrubs and grass to prevent ecological deterioration and improve aesthetic value of the site. Part of the excavated soil will be used for landscaping therefore reducing the amount of soil to be transported away from the site;
- **Solid waste management:** The campus management will be required to contract a waste handler for proper collection and disposal;
- **Fire protections:** The design of the buildings will incorporate fire- fighting equipment to be installed in each building.
- **Inclusivity and accessibility:** The structure should be made to accommodate all users' demands, especially those of elderly and disabled people. The adoption of universal design principles makes sure that the structure is open to everyone and encourages equal opportunity. This includes taking different mobility demands into account and providing barrier-free entrances and accessible restrooms.

2.7 Description of main project activities

Activities for the project shall be implemented in four phases namely planning, construction, demobilization, and operation and maintenance phases. Details of each of the phases are provided in the sections that follow.

2.7.1 Mobilization/Planning Phase

This is the initial phase of project implementation. This phase commences when all necessary permits 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 offices on site, assembling equipment, as well as construction materials and workforce. Also,

a) Topographical Survey

A thorough examination of the natural and artificial characteristics of a specific area, known as a topographical survey, involves detailed mapping. This survey yields precise elevation information, often depicted through contour lines, revealing the land contours and inclines. This data is essential for construction endeavors, ensuring adequate drainage, appropriate grading, overall site suitability, and environmental awareness.

Surveyors conducted a topographical survey for upcoming projects to define boundaries and ground levels accurately. This process ensures compliance with property limits and aids in identifying and addressing potential environmental and social impacts highlighted in the ESIA report.

b) Geotechnical investigations

The examination of the proposed facilities to be established at SUA-MPCC involved conducting a geotechnical investigation through excavation trial pits and in-situ testing with for each building. This investigation is crucial for evaluating the subsurface conditions in the project area and guaranteeing the structural integrity, stability, and safety of the intended construction. By analyzing soil and rock properties, groundwater conditions, and potential geohazards, the geotechnical investigation offers valuable insights for designing foundations capable of withstanding the specific geological challenges at the location. The acquired data assists in optimizing construction techniques, mitigating risks, and ensuring the durability and resilience of the proposed structures. Essentially, a comprehensive geotechnical investigation is an essential step in the pre-construction phase, significantly contributing to the overall success and sustainability of the planned building.

c) Architectural, Structural and Services Designs

The functionality and efficiency of a building are influenced by its architectural and structural designs, ensuring alignment with its intended purpose. Carefully planned architectural blueprints contribute to creating a conducive and purposeful environment, particularly for headquarters buildings. Additionally, the structural designs play a crucial role in guaranteeing the safety and long-term durability of the structure. Adequate engineering and structural considerations are indispensable to withstand environmental elements, natural disasters, and the passage of time.

d) Acquisition of various permits/ certificates

The procurement of different permits and certificates required for the planned project relies on the Environmental and Social Impact Assessment (ESIA) conducted at MU-Main campus. This encompasses obtaining certifications such as the ESIA certificate, building permit, land use permit, water resource use permit, waste management permit, Fire and Rescue certificate, and occupational health and safety certificate

2.7.2 Construction phase

Different considerations will be given when constructing different project structures. These will aim to provide stability and durability of the structures. This phase will be commenced within 18 months after contract signed by awarded contractor. Some of the considerations are discussed in the sections that follow.

a) Founding conditions

The hostels will require foundation on a good and uniform soil to avoid deferential settlement. A full geotechnical investigation shall be conducted to ascertain the exact founding conditions of the structures for the hostels. A soil raft of min 300mm thick G5 material which have high physical strength, good caustic-resistance, flame-resistant and excellent arc resistance will be used.

b) Durability of the concrete

Durability of any concrete is dependent on the cement being used, aggregates, admixtures, concrete mix design and curing. Ordinary Portland Cements (OPC) of strength 42.5 shall be used to construct the hostels. Rapid hardening cements will be avoided due to greater evolution of heat which can lead to increased shrinkage cracking.

Local quarries will be inspected and aggregates which will be used will be tested and certified. Care shall be taken not to use admixtures containing calcium or chlorides, as these will increase the risk of reinforcement corrosion. Plasticizers will be considered, as increased workability is advantageous when working with complex shaped structures and structural forms.

Construction activities will take 18 months starting from January 2024 – July 2025. Over 150 people will be employed to work at the site when construction activities begin and at least 35 percent will be women. Construction activities will involve land clearing; landscaping; grading; excavation; compacting; trenching; construction of service infrastructure such access roads and a car park, construction of a workers' camp which will provide hostels to workers, storage facilities and an office facility; backfilling with compaction consolidation; levelling and earth marking; transportation of building materials; and construction of different infrastructures and other related buildings. Other infrastructure such as drainages and utility reticulation shall also be constructed.

2.7.2.1 Construction activities

a. Site Preparation activities

The site preparation will include land clearing, grading and excavation, construction of auxiliary structures where necessary such as site evaluation, development of site design plan, site clearance, access roads, leveling and earth marking.

b. Construction of the workers' camp

The project contractor will build a workers' camp at the project site which will be used to provide residence for 40 or 50 workers as well as act as project administration offices, storage facilities for different building materials and equipment, workshop for servicing the vehicles and construction machinery. However, not all of the people engaged in the proposed project are housed in the worker camps. Most workers (unskilled and semiskilled) will be sourced from Kibaoni Ward which are closed to the proposed project area at SUA-MPCC. A number of factors will be considered when selecting the camp site. The factors shall include topography of the site, accessibility of project site and availability of water and wastewater system.

Toilets as well as bathrooms shall be constructed on the site for use by the workforce. The ground shall be covered with aggregate stone to minimize dust and prevent mud when it rains. Retention bunds shall be constructed around fuel and oil storage areas and all drainages and effluents from the workers' camp shall be treated before being discharged into the drainage system.

c. Construction materials

Different raw materials will be required during construction phase. Materials such as sand, gravel and quarry stone will be outsourced from different places. The building materials such as quarry stone, gravel and sand will be collected from approved sites in Katavi region.

Use of concrete blocks for construction of different infrastructures will be more environmentally friendly than use of burnt bricks, which contribute to deforestation. Other materials such as cement, concrete block, paints, timber, roofing materials, windows, doors and other joinery, tilt and roller doors, wallboard and plasterboard, light fittings, fuel and oil, electricity, water, ceramic tiles, steel, pipes, adhesives, copper wires, gas (acetylene and oxygen), cardboard will also be outsourced for the project.
Whoever contractor that will be awarded the construction bid will adhere to Health, safety and Environmental (HSE) standards as per construction. SUA will have the Key personal who will be checking the HSE Standard operation procedures (SOP) to comply with the legal requirement.

d. Transportation of materials

The contractor will be responsible for the transportation of all construction materials and equipment from point of sourcing to the site mainly by Sumbawanga Road. The Community Health and Safety (ESS4) Environmental and Social Standards must be considered when transporting materials.

2.7.3 Demobilization phase

The main activities to be undertaken during demobilization phase shall include demolition of the storage facility (Worker camp). Rubble from construction activities, and other waste from construction activities will used as fillers during foundations. Any leftover solid materials likely to be composed of bricks and crumbles of cement will be disposed by levelling off other degraded areas within the project area and within the surrounding communities.
Demobilization will further involve laying off construction workers, removal of construction equipment and leftover materials, dismantling of workers' camp and levelling the site, landscaping and filling of borrow pits.

2.7.4 Operational and Maintenance Phase

During this phase different wastes both solid and liquid waste will be generated within the same period, which will need proper management. The activities that are expected to be done during the operation phase will include;
The activities that are expected to be done during the operation phase will include;

- Daily teaching and training operations
- Utilization of cafeteria for food services
- Management, maintenance and operation of wastewater treatment plant Management, maintenance and operation of solid waste dump site
- Maintenance of water supply facilities

The proposed development will also comprise of several student activities such as cooking, washing, leisure and recreational activities will thus accompany residence.

2.7.5 Decommissioning Phase

Decommissioning occurs when a project reaches its conclusion. However, currently there is no fixed timeframe setting for decommissioning of the proposed buildings, eventually, when the project reaches its end, all the buildings and related infrastructure will be dismantled. This process will include the removal and demolition of buildings and equipment used, or even the complete demolition of the entire area, followed by the clearance of the site and transportation of all waste and debris to a disposal site. Subsequently, site restoration efforts will be undertaken to ensure

that the area reverts to its original condition as it existed prior to the construction of the proposed buildings.

2.8 Manpower and Utility Requirements

2.8.1 Manpower Requirements

The proposed project will temporarily employ about 150 people during construction phase. Employment during construction phase will be under contractor and will be in the form of skilled as well as unskilled laborers considering all gender types. For the semiskilled and unskilled laborers, the contractor will employ people from the nearby communities as a way of making sure that the project becomes beneficial and brings a sense of community ownership. The exact number of workers to be employed in each phase will be determined by contractor during project execution.

The contractor is required to adhere to the Wage Order (2013) of the Labor Institution, ensuring payment in accordance with relevant labor laws to prevent conflicts during the construction phase. Draft contracts must be collaboratively prepared by the Contractor and the client, gaining approval from the WB and Labor Officer. Additionally, the contractor has been provided with the laws outlined in POM 2021 to prevent the involvement of child labor.

2.8.2 Energy supply

The project will be supplied by TANESCO from the national grid network and on top of that backup generator of 150KVA will be used during emergency. Electricity and gas will be used as a source of energy for cooking activities in order to protect the environment.

The increased energy demand for the project, supplied by TANESCO from the national grid network, may have social implications for the residents of Kibaoni ward. If not managed properly, could lead to electricity shortages, affecting residents' access to energy for domestic use, businesses, and other essential services. This could potentially impact their livelihoods and daily activities. Also, backup generator from contractor is a crucial aspect of the project, ensuring uninterrupted power supply during emergencies. However, its operation may lead to noise pollution, affecting the well-being and peace of the local community.

On the other hand, the increased demand for electricity is likely to have positive impacts on the daily lives of the local community. Access to a reliable power supply can enhance the overall quality of life by facilitating improved lighting, communication, and access to educational resources for the residents of Kibaoni ward.

2.8.3 Water supply

The major water source is boreholes within the campus and RUWASA. The borehole has a depth of 150m and is located near existing staff residential houses and the proposed area for the establishment of a student’s hostel building. Water will be used for construction activities and for domestic purposes (flushing of toilets), and cleaning activities during construction and operation phases. It is expected that about 80,000 liters per day of water will be used during construction phase. The projected population during operation will be 2,500, and the expected water use is about 150,000 liters per day.

In addition to that, the availability of an adequate water supply is important for the well-being of the local community in Kibaoni Ward. Water usage during construction period may impact the accessibility and availability of water for the local residents, potentially causing temporary shortages or inconveniences. Additionally, the increased water demand during the operational

phase could strain the existing water infrastructure, leading to potential challenges in meeting the needs of both the university community and the surrounding villages.

2.9 Construction Products, By Products and Wastes

2.9.1 Products

The objective of the project is to increase enrolment capacity in degree programs in priority disciplines and to promote applied research and innovation capacity and develop options for self-generating income. These objectives should be achieved through construction of academic buildings, students' hostel and cafeteria. Therefore, when construction activities are completed, SUA will strengthen the learning environments and labour market orientation in priority disciplines. The final product will be a 2500 student's capacity.

2.9.2 By-products

The by-products will be disposed-off as follows:

- **Soil;** the soil excavated will be reused elsewhere in the project area (if the need arises). Unusable soil will be transported for disposal at designated dumping sites.
- **Pieces of timber/wood;** large pieces of timber/wood generated during the construction phase will be transported back to the contractor 's yard for reuse in future while the small pieces of timber/wood will be disposed-off for use as fuel for cooking and heating.
- **Empty cans and drums**: These will be used to store water during construction. The damaged ones will be disposed-off to registered scrap metal and plastic waste dealers.
- **Excess sand, ballast, and stockpiles:** These can be used for future construction activities for example during the renovations. Upon completion of the project, these will be moved by the contractor to a suitable yard.

2.10 Waste Management

2.10.1 Solid Waste

2.10.1.1 Construction phase

Major wastes generation associated with the project construction and their treatment/ disposal methods are described in table 2.3.

Table 2.1: Waste generation and treatment during construction Phase

Activity	Waste type	Amount	Treatment/ Disposal Method(s)
Clearing of topsoil	Spoil Soil	Significant	This soil shall be stockpiled along the foundation trenches for all structures and backfilled for pipes laying. The soils shall be used to reinstatement site at the end of the project, the spoiled materials shall be disposed to designated disposal sites
Biodegradable solid waste	Food remains	Not Significant	Collected and stored temporary through a dustbin then disposed at designated area based on permit from Mpimbwe District Council due to absence of authorized

			dumpsite in the district. These solid wastes are organic in nature and thus proper management is required in time to avoid bad odor if they are not disposed in time
Actual Construction	Rubbles	Not Significant	Will be stockpiled and used to fill cut sections
	Scrap metals	Not Significant	Sell to recyclers
	Timber	Not Significant	Provided to locals for re-use
	Cement bags	Not Significant	Sell to recyclers

2.10.1.2 Operation phase

The main solid wastes that will be generated at the site are biodegradable and non-biodegradable solid waste. Biodegradable solid waste will include vegetation, food remains, cardboards and papers, which will be collected in waste collection points ready for disposal at the designated dumpsite based on permit from District Council due to absence of District dumpsite. Non-biodegradable solid waste will include demolition waste like spoil soil, scrap metals, drums, tins, glasses and plastics which will be collected in waste collection points and sold to registered contractors. The total amount of solid waste generated is expected to be 750 kg/day based on generation rates of 0.3kg/day/person and population projection about 2500 people.

2.10.2 Liquid wastes

2.10.2.1 Construction phase

Assuming that;

- There will be 150 people (Worst case scenario)
- Water consumption = 40L/Capital/Day
- 80% wastewater discharge factor (from design manual for water supply and wastewater disposal 2009, 4th edition of 2020).
- 100% of the workers shall use University toilets
- Wastewater generation per day = 150 x 40 x 0.8

Therefore, about 4.8 m^3 per day of liquid waste will be produced from the site during construction period. The wastewater will be collected and treated through the onsite wastewater treatment facilities such as soak away pit.

2.10.2.2 Operation phase

Assuming that;

- There will be 2,500 people (Population projection) (Worst case scenario)
- Water consumption = 60L/Capital/Day
- 80% wastewater discharge factor (from design manual for water supply and wastewater disposal of 2020).
- 100% of the students and workers shall use University toilets
- Wastewater generation per day = 2,500 x 60 x 0.8

Therefore, about 120 m^3 per day of liquid waste will be produced from the site during Operation period. The generated wastewater will be collected, managed and treated direct through septic

tank and soak away pit. Due to increase in the number of students and staff members during operational phase it can lead to a significant rise in wastewater, hence, the septic tank and soak away pit system may become overwhelmed and unable to handle the increased volume of wastewater. Therefore, SUA planned to establish and implement a WSP (Wastewater Stabilization Ponds) system to control all wastewater generated at MPCC.

However, during operational phase, wastewater will be generated, from laboratories which requiring a distinct management independent of the sewage system. SUA-MPCC plans to create structures for retaining laboratory effluent, consisting of two consecutive retention ponds. These ponds will facilitate the dilution of the effluent before it is ultimately discharged into the proposed WSP or open environment. Rigorous monitoring of the effluent in the retention ponds will be conducted to guarantee its safety before final disposal.

2.10.3 Hazardous waste

The primary category of hazardous waste anticipated during construction phase involves hydrocarbons like used oil and diesel utilized to operate diesel-powered machinery. Additionally, there will be leftover paint containers. A dedicated temporary storage facility, complete with a bund wall to prevent leaks or spills in case of incidents, will be erected. Once a substantial quantity of used oil accumulates or upon completion of construction during the demobilization phase, the oils and other hazardous wastes will be transferred to the designated area by an authorized agent responsible for managing such waste. Other main hazardous wastes that will be generated at the project area are electrical equipment, concrete additives, tins, scrap metal etc. This waste will be collected within the designated temporary storage area and finally disposed by an authorized contractor.

During the course of operations, there is a potential for the creation of hazardous waste, particularly involving expired chemicals and their container for packaging if proper precautions are not observed. Chemicals, whether in liquid or solid form, may reach their expiration dates and necessitate appropriate handling and disposal procedures to mitigate risks to human health and prevent environmental pollution. The MPCC management will implement a comprehensive chemical management system, which includes procuring only the necessary quantities for short-term use to prevent accumulation and expiration. This system will also incorporate the First in First Out (FIFO) principle to prioritize the consumption of older chemicals, thereby minimizing the likelihood of chemical expiration before utilization. In the event that chemicals are approaching expiration, they will be appropriately stockpiled based on their characteristics, and certified agents will be enlisted for their proper disposal.

Furthermore, the operational phase will produce dangerous waste such as sanitary pad, medical waste from the dispensary, oils, greases, chemicals, scrap metal, tins, and glass. The medical waste from SUA-MPCC Health center undergo proper treatment in an incinerator located at the health center. SUA PIT will appropriately handle and dispose of other hazardous waste, utilizing an authorized contractor responsible for waste management. Additionally, electronic wastes such as computers, printers, and toners will be disposed of in accordance with the 2021 Environmental Management (Control and Management of Electrical and Electronic Equipment Waste) Regulations.

2.10.4 Cleaning

The proponent will be responsible for regular washing and cleaning of the pavements and communal areas. Individual tenants will be responsible for washing and cleaning their own premises/ residences. Cleaning operations will involve the use of substantial amounts of water, disinfectants, and detergents.

2.10.5 General repair and maintenance

The houses and associated facilities will be repaired and maintained regularly during the operational phase of the project. Such activities will include repair of building walls and floors, repairs and maintenance of electrical gadgets and equipment, repairs of refrigeration equipment, repairs of leaking water pipes, painting, and replacement of worn-out materials among others.

2.11 Occupational health and safety

SUA will ensure the well-being of workers throughout the duration of the project in accordance with Environmental and Social Standards, specifically ESS2 (Labor Working Conditions) and ESS4 (Community Health and Safety).

2.11.1 OHS During construction phase

SUA-MPCC with support from the supervision consultant will ensure regular training to permanent and temporary workers (including community workers) on occupational health and safety to workers and information relevant to health risk including Cholera, HIV/AIDS, COVID-19, and impacts of dust to workers health will be provided to workers. During the construction period the contractor shall provide, equip and maintain adequate personal protective equipment, first-aid stations and sign boards directing where these services are situated and transport in case of emergency. Appropriate protective gear including, but not limited to helmets, heavy duty gloves, safety jackets and boots, shall be provided to site workers and visitors.

Training related to traffic hazard management will be provided to students especially through SUASO Leaders so that each student will not be affected with traffics during construction. The speed limits for vehicles shall not exceeding the default speed limit (not exceeding 50 km/h), except within a speed zone in which a higher speed is permitted. The speed limit in the shared zone should not exceed 10 km/h. Contractors shall make sure that all of these issues are well known to their employed drivers to prevent unnecessary complications and accidents during project execution. However, the entrance and exit points have been provided.
Also, it explains the mitigation measures for hazards and risks associated with health and safety which include the following;

2.11.1.1 Slips and falls

- Maintain a clean and organized workplace by promptly cleaning up spills, debris, and clutter.
- Regularly sweep, mop, and vacuum floors to remove dust, dirt, and liquids that can create slip hazards.
- Repair or replace damaged flooring promptly to eliminate tripping hazards.
- Choose flooring materials with appropriate slip resistance for different areas. For example, use non-slip flooring in areas where liquids are commonly present.
- Clearly mark wet floors or areas under maintenance with warning signs and cones to alert workers and visitors.

- Use high-visibility tape or paint to mark steps, ramps, and changes in floor level.
- Ensure adequate lighting in all work areas, including stairwells and hallways, to improve visibility and reduce tripping hazards.
- Provide regular training to employees about slip and fall hazards and the importance of following safety procedures.
- Encourage workers to report hazards promptly so that they can be addressed.
- Maintain walking surfaces, including outdoor walkways and parking lots, to prevent uneven surfaces and tripping hazards.
- Conduct regular workplace inspections to identify and address potential slip and fall hazards promptly.
- Use scaffolds, ladders, and elevated platforms with proper guardrails and fall protection equipment.
- Establish clear evacuation routes and procedures in case of an emergency to prevent panic and rushing that could lead to slips and falls.

2.11.1.2 Working at height

- Erect and dismantle scaffolds according to manufacturer guidelines and industry standards.
- Regularly inspect scaffolding for stability and structural integrity.
- Install safety nets where feasible to catch falling workers or objects.
- Regularly inspect equipment, scaffolding, and other structures for damage, wear, or defects.
- Select the right ladder for the job and ensure it's in good condition.
- Place ladders on stable, level surfaces and secure them to prevent slipping.
- Provide workers with appropriate personal protective equipment (PPE) such as helmets, gloves, and footwear designed for working at heights.
- Train workers on the proper use of fall protection equipment, safe work practices, and emergency procedures.
- Assign a competent supervisor to oversee work at heights and ensure safety procedures are followed.
- Establish effective communication methods between workers at different heights and ground level.

2.11.1.3 Moving machinery

- Install appropriate guards, barriers, and shields on machinery to prevent workers from coming into contact with moving parts.
- Ensure that guards are properly designed, secured, and in place before starting any machine.
- Provide comprehensive training to operators and maintenance personnel on safe machine operation, maintenance procedures, and hazard recognition.
- Conduct regular inspections of machinery to identify worn-out parts, malfunctioning components, or potential hazards.
- Follow manufacturer recommendations for routine maintenance and ensure that machinery is serviced by qualified technicians.
- Conduct thorough risk assessments before implementing new machinery or making changes to existing processes to identify potential hazards.
- Establish a reporting system for near misses, incidents, and safety concerns related to machinery. Investigate these reports and take corrective actions as needed.

- Provide appropriate PPE such as gloves, goggles, helmets, and hearing protection based on the machinery's hazards.

2.11.1.3 Diseases prevention

- Encourage frequent handwashing with soap and water for at least 20 seconds. Provide hand sanitizers in common areas.
- Promote proper respiratory etiquette by covering coughs and sneezes with a tissue or the inside of the elbow.
- Regularly clean and disinfect frequently touched surfaces, such as doorknobs, light switches, shared equipment, and restrooms.
- Maintain good indoor air quality by ensuring proper ventilation and air circulation within the workplace.
- Conduct health screenings, including temperature checks and symptom assessments, for employees and visitors before they enter the workplace.
- Implement safety measures in cafeteria, such as limiting the number of occupants and maintaining physical distancing and good housekeeping.
- Provide education and training to employees about disease prevention, proper hygiene practices, and the importance of adhering to safety protocols.
- Create a comprehensive COVID-19 safety plan tailored to your project, including policies, procedures, and protocols.
- Conduct a thorough risk assessment specific to the construction site.
- Assign a responsible person or team to oversee and enforce COVID-19 safety measures.
- Require all workers to wear appropriate personal protective equipment (PPE), including masks, gloves, and eye protection.
- Set up handwashing stations or hand sanitizing stations at key locations on-site.
- Encourage frequent handwashing and provide hand sanitizer.
- Increase the frequency and thoroughness of cleaning and disinfecting common areas, tools, and equipment.
- Improve ventilation in enclosed spaces to increase air circulation.
- Implement daily health screenings for all workers, subcontractors, and visitors. This may include temperature checks and symptom questionnaires.
- Encourage workers to report symptoms or exposure to COVID-19 immediately.
- Maintain open lines of communication with workers, subcontractors, and stakeholders about COVID-19 developments and safety measures.

2.11.1.4 Being struck by objects

- Regularly inspect the environment to identify potential hazards related to falling objects.
- Assess the risk associated with each hazard, taking into account factors such as object weight, height, and frequency of exposure.
- Use warning signs, cones, and barricades to alert individuals to the presence of falling object hazards.
- Clearly mark exclusion zones in areas where there's a risk of objects falling.
- Use toe boards on scaffolding and elevated platforms to prevent tools and materials from slipping off.
- Conduct regular inspections of equipment, storage areas, and structures to identify and address potential hazards.
- Ensure that any damaged or deteriorating structures are repaired promptly.

- Keep work areas clean and organized to minimize the risk of tripping over objects or inadvertently causing objects to fall.
- Ensure that objects are stored securely when not in use.
- Use appropriate personal protective equipment (PPE) such as hard hats, safety goggles, and steel-toed boots in areas with falling object hazards.
- Ensure that PPE is in good condition and worn consistently.

2.11.1.5 Over-exertion

- Conduct ergonomic assessments of workstations and tasks to identify potential over-exertion risks.
- Modify workstations and equipment to minimize physical strain and discomfort
- Contractor should train employees on proper lifting techniques, including bending at the knees, keeping the load close to the body, and using leg muscles instead of back muscles.
- Reduce the weight of materials, tools, or equipment when possible.
- Provide mechanical aids such as lifting devices, conveyor belts, or adjustable height workstations to reduce manual lifting and carrying.
- Design workstations and workflows to minimize the need for repetitive or forceful movements.
- Contractor should make a job rotation or task alternation to reduce the repetitive nature of physically demanding tasks and provide rest periods.
- Employees should ensure to maintain good posture while working, which includes sitting or standing with a straight back and avoiding excessive twisting or bending.

2.11.1.6 Ergonomics injuries and illness

- Ensure that workstations are designed with ergonomics in mind, taking into account the user's body size, shape, and tasks.
- Provide adjustable chairs, desks, and computer monitors to accommodate various users and allow for proper positioning.
- Implement stretching and exercise programs tailored to the specific needs of employees to improve flexibility and reduce muscle tension.
- Implement job rotation or task variation to reduce repetitive motions that can lead to overuse injuries.
- Encourage short, frequent breaks to allow employees to rest, stretch, and change positions during the workday.
- Provide ergonomic tools and accessories such as ergonomic keyboards, chairs and footrests to reduce strain on wrists and hands.
- Develop and enforce safe lifting and material handling procedures, including the use of appropriate lifting equipment like dollies or forklifts for heavy objects.
- Conduct regular health screenings and assessments to identify and address ergonomic-related health issues early.
- Offer access to healthcare professionals who can provide guidance on managing and treating ergonomic injuries and illnesses.

2.11.2 OHS During operation phase

All the emergency situations associated with building operations will be included as part of the design aspects including allocation of emergency assembly point. Emergency plans procedures will be developed to prevent and mitigate likely consequences associated with each incident. The document that details potential emergencies and response to such situations and how to prevent

and mitigate the environmental aspects will be in place. Occupational Health and Safety hazards related to the daily operations of the like exposure to eruption disease, risks of fire explosion and security will be given due considerations. Fire extinguishers of powder foam type and fire hose reel will be placed in several strategic areas at the site and serviced on time.

2.12 Disaster risk management

DRM plays a crucial role in the proposed development of an academic building, students' hostels, and a cafeteria at the existing MPCC. The ESIA report integrates comprehensive DRM strategies to enhance the project's resilience and mitigate potential risks. The geographical location, climate, and socio-economic conditions of the Kibaoni Village in the Mpimbwe District Council, Katavi Region, demand a meticulous approach to disaster preparedness. The ESIA report identifies and assesses potential natural and man-made hazards such as floods, earthquakes, and fire, considering their likelihood and impact on the proposed development.

To address these risks, the DRM plan incorporates site-specific measures, including the utilization of resilient construction materials, implementation of early warning systems, and development of evacuation protocols. Additionally, the report emphasizes community engagement and capacity building to ensure that local stakeholders are well-informed and prepared for potential disasters. The proposed academic building, students' hostels, and cafeteria are designed with climate-resilient features to withstand extreme weather events. Furthermore, the project integrates sustainable land use planning and infrastructure design, considering the region's vulnerability to environmental changes.

2.13 Gender inclusivity

The ESIA report for the proposed development at MPCC emphasizes a commitment to gender inclusivity. The project recognizes the importance of ensuring equal opportunities, benefits, and participation for all genders throughout its planning, implementation, and operational phases. The ESIA report highlights strategies to address gender-related concerns, including the equitable distribution of resources, access to facilities, and opportunities for both male and female stakeholders.

To promote gender inclusivity, the project integrates measures such as gender-sensitive design and planning, ensuring the safety and accessibility of infrastructure for all genders. The report also outlines plans for inclusive hiring practices and providing training and capacity-building programs that cater to diverse gender needs. Additionally, the project aims to foster an inclusive environment within the academic and residential spaces, promoting awareness of gender issues and encouraging a supportive atmosphere for all students, staff, and community members. Furthermore, the ESIA report underscores the importance of engaging with local communities, including women and other marginalized groups, in decision-making processes. By incorporating diverse perspectives, the project aims to address any potential adverse social impacts and promote positive contributions to gender equality in the region. Overall, the commitment to gender inclusivity in the proposed development aligns with sustainable and socially responsible practices, ensuring that the benefits of the project are shared equitably among all members of the community.

2.14 Gender analysis and mainstreaming

The constitution of Tanzania, Act No. 15 of 1984 clearly stipulates equal rights for both men and women and prohibits any form of discrimination based on gender, colour, tribe, religion or station

in life. Tanzania has signed and ratified both international and Regional Instruments such as the Elimination of All Forms of Discrimination against Women in 1987; the African Charter on Human and Peoples' Rights on the Rights on Women in Africa in 2005. Currently, Tanzania has achieved gender parity at primary school enrolment rates, this can be attributed by free education policy introduced through the Circular 5 of 2015 which implements the Education and Training Policy of 2014. This circular was responding to strategies of eliminating discrimination based on gender.

In the same context, MPCC has a deliberate policy to encourage equal employment opportunity for both men and women. The contractor of the project will also align with the policies to ensure equal employment opportunities for both men and women.

2.15 Project Boundaries

Determination of project boundaries refers to an identification of impact zones institutionally, temporal and spatially, within which the project impacts will reach. This process involves determination of the extent impacts that would spread away from the core project site. The following project boundaries have been identified;

2.15.1 Institutional boundaries

Institutional boundaries refer to those institutions and sectorial boundaries in which the project lies or rests. These will be determined from political boundaries, Acts, regulations and institutional mandates and administrative structures. The proposed development is about the construction of three buildings at SUA-MPCC. The key institutions that will oversee the implementation of the project activities will include;

- Ministry of Education Science and Technology
- Mpimbwe District Council
- Tanzania Commission of Universities (TCU)
- Fire and Rescue Force
- Occupational Safety and Health Authority (OSHA)
- RUWASA
- TANESCO
- Local government (Kibaoni Ward) and associated Villages ((Kibaoni, Ilalangulu and Mirumba Villages)

These institutions will be consulted in this ESIA process, as they are key stakeholders with interest in the development at SUA for environment and economic prosperity of the local people and Tanzanians in general.

2.15.2 Temporal boundaries

Temporal boundaries refer to the lifespan and reversibility of impacts. For example, the effects of the affordable housing project's construction activity might be short-lived, but the structures' presence on the chosen site might have effects that last until decommissioning is undertaken. In addition, consideration needs to be given to what happens when the project ends, where there is a need for site restoration and decommissioning of the water supply system. Therefore, some of the impacts that may occur during construction, e.g., noise caused by bulldozers will disappear as soon as the construction phase will be completed. The construction period will last for not more than eighteen (18) months while the operational phase will be designed for several years based on the design period standards for the buildings unless unforeseen event occur.

In addition to that, consideration needs to be given to what happens when the project ends, where there is a need for decommissioning of the project and site restoration. Some of the impacts that will occur during decommissioning such as increase in noise and dusts levels to be caused by demolition activities and disappear as soon as decommissioning is finished. However, some impacts will remain irreversible even after the closure of the project. The ESIA process will address all impacts taking into account their temporal dimensions in various stages of the project.

2.15.3 Spatial boundary

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. Two zones of impacts namely core impact zone and influence impact zone are considered.

1. Starting with the **core impact area** (where the project is located). In this case, the core impact area for the project will be Kibaoni Village (where project will be located) and its nearby areas (Ilalangulu and Mirumba Villages) as where the impact will be felt.
2. The second area is the **immediate impact area.** This is the area surrounding the core area and bears relatively some of the impacts. In case of the proposed project, the immediate impact area will be the neighboring area within Mpimbwe District Council in general which will benefit from revenues paid by the investor and from different social economic activities.
3. The other area is area known as the area of influence. In terms of spatial dimension, this is the outer most area that consists of centers of decision making that can influence the development of proposed project. These centers of decision-making include Ministry of Education Science and Technology (MoEST), and Tanzania Commission of Universities (TCU).

2.16 Project cost

SUA has received financial support of **TZS 11,044,550,000** from the World Bank (WB) through the Ministry of Education, Science and Technology (MoEST) under the project named Higher Education for Economic Transformation (HEET). Specifically, under this project, the SUA intends to use part of the funds received to construct academic buildings, students' hostel and cafeteria building at MPCC. The total budget for the proposed project at MPCC is summarized as follow.

CHAPTER 3: POLICY, ADMINISTRATIVE AND LEGAL FRAMEWORK

3.1 Environmental management regulation in Tanzania

Every Tanzanian citizen has a fundamental right to live in a secure and clean environment. Two state entities control the majority of the country's environmental management regulations, the National Environment Management Council (NEMC) and the Division of Environment (DoE) in the office of the Vice President. The NEMC undertakes enforcement, compliance, and review of environmental impact statements whereas the DoE provides the policy formulations and technical back-up and executes the overall mandate for environmental management in the country. The EIA certificate is issued by the minister responsible for the environment. There are many policies and

pieces of legislation on environmental management in Tanzania, the relevant ones to this project are briefly discussed below.

3.2 Policies relevant to the project

There are number of sectoral policies that consider EIA as one of the planning tools for facilitating and promoting sustainable development. These policies foresee that it is possible to avoid/minimize impacts associated to project implementation and that may have negative effects to the environment by integrating environmental considerations in the decision-making process. Table 3.1 outlines the policies relevant to the project.

Table 3.1 Policies relevant to the project

	POLICY	DESCRIPTION	COMPLIANCE
1	**The National Environment Policy for Mainland (NEP 2021)**	The policy requires that implementation of development projects to be done in a way that does not compromise environmental integrity. It is mandatory to undertake EIA before any development project is authorized which is likely to have significant environmental impacts. The proposed project shall ensure mitigation of the adverse impacts during project implementation.	*Through this ESIA, MPCC is working to lessen the unfavorable environmental and social impacts of the policy as stated in its commitment.*
2	**The National Land Policy (1997)**	The National Land Policy states that, "the overall aim of a National Land Policy is to promote and ensure a secure land tenure system, to encourage the optimal use of land resources, and to facilitate broad - based social and economic development without upsetting or endangering the ecological balance of the environment".	*This project complies with these criteria because it calls for the employment of cutting-edge technology both during construction and throughout operation.*
3	**The Construction Industry Policy (2003)**	This policy promotes among other things, application of the cost effective and innovative technologies and practices to support socio-economic development including utilities and ensure application practices, technologies and products which are not harmful to both the environment and human health.	*This EIA is undertaken to ensure that the project proponent uses technologies and products not harmful to both the environmental and human health by providing feasible alternatives and appropriate mitigation measure.*
4	**The National Gender Policy (2002)**	While the policy aims at establishing strategies to eradicate poverty, it is relevant to the project as it puts emphasis on gender quality and equal	*At every stage of the project, from planning to execution, both genders*

	POLICY	DESCRIPTION	COMPLIANCE
		opportunity of both men and women to participate in development undertakings and to value the role-played by each member of society.	*will be adequately involved.*
5	**The Energy Policy (2015)**	The policy advocates the adoption of renewable energy options.	*This project shall intend to integrate renewable energy (solar power) and gas as part of the energy source were found feasible.*
6	**The National Water Policy (URT, 2002)**	Policy directs concerted efforts in the protection of water sources and catchments. The policy also advocates the conservation, wise-use and minimization of water uses.	*The proposed project is planned to utilize the least amount of water possible. Additionally, during the phases of development and operation, pollution of water sources will be avoided or reduced.*
7	**The National Health Policy (URT, 2003)**	The policy encourages safe basic hygienic practices in workplaces, promotes sound use of water, promotes construction of latrines and their use, encourages maintenance of clean environment; working environment which is conducive to satisfactory work performance.	*By keeping the workers in clean conditions and continuing to provide them with the proper PPE based on their working sectors, the Contractor shall adhere to this policy.*
8	**Education Training Policy (2014)**	The education training policy, 2014 stressed that for improvement of the quality of education in Tanzania by modernizing education training and use of state-of-the-art equipment for training.	*MPCC through HEET will increase accommodation, teaching and learning infrastructure and use of the state-of-the-art equipments.*
9	**National Mineral Policy (2009)**	The National Mineral Policy also addresses that the mining activities should be undertaken in a sustainable manner.	*The project proponent will not engage in any mining operations inside the project area. Fine and coarse aggregates for the proposed project will be strictly purchased from authorized vendors.*
10	**The National Employment Policy, 2008**	The policy stimulates national productivity to attain full, gainful and freely chosen productive employment, in order to reduce unemployment, underemployment	*The project proponent will involve employees with special needs but who are capable by creating a friendly*

	POLICY	DESCRIPTION	COMPLIANCE
		rates and enhance labour productivity. Also, the government and employer will be responsible for providing special facilities and equipments to enhance the capacity of people with disabilities to enter the world of work as employees or self-employed.	*environment for them to work with quality like other people.*
11	**National HIV and AIDS Policy, 2001**	This policy identifies HIV/AIDS as a global disaster, hence requiring concerted and unprecedented initiatives at national and global levels. It recognizes HIV/AIDS as an impediment to development in all sectors, in terms of social and economic development, with serious and direct implications for social services and welfare.	*The project proponent and contractor will provide education to students and villagers on the effects of HIV/AIDS and how to protect themselves from infection, especially during the construction phase due to the presence and interaction of people from different areas.*

3.3 Legal Framework

This section addresses the legal conditions that are relevant to the proposed project. This ESIA has been prepared in general compliance with the legislations outlined in table 3.2.

Table 3.2: National legal frameworks relevant to the project

	LEGAL FRAMEWORK	DESCRIPTION	COMPLIANCE
1	**Environmental Management Act (EMA), 2004**	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.	*All sections shall continue to be observed by Proponent in order to protect the environment against any sort of pollution (refer to the Environmental Management Plan of this report).*
2	**The Land Act, 1999, CAP 113 R.E. 2019**	The law as amended in 2004 recognizes the role of land in economic and urban development. The law provides for technical procedures for preparing land use plans, detailed schemes and urban development conditions in conformity with land use plan and schemes.	*The proponent will adhere to the Act during project implementation. The project proponent has undertaken the ESIA as a first step to direct project operations.*

	LEGAL FRAMEWORK	DESCRIPTION	COMPLIANCE
3	**The Urban Planning Act (2007)**	The law provides for the orderly and sustainable development of land in urban areas, to preserve and improve amenities; to provide for the grant of consent to develop land and powers of control over the use of land and to provide for other related matters.	*The project will seek planning consent and building permits from relevant authorities.*
4	**Occupational Health and Safety Act (2003)**	The law requires employers to adhere to a legally acceptable working environment for workers in order to safeguard their health.	To comply with the legislation, the Proponent/ Contractor will get an OSHA certificate of registration of a workplace.
5	**Engineers Registration Act and its Amendments 1997 and 2007**	The Acts regulate the engineering practice in Tanzania by registering engineers and monitoring their conduct. Laws require any foreigner engineer to register with ERB before practicing in the country. Foreign engineers who will be involved in this MPCC project shall abide by the law requirements.	*The project construction sites are required to implement registered engineers, regulations and precautions should be adhered to during the project phase.*
6	**The Contractors Registration Act (1997)**	The Contractors Registration Act requires contractors to be registered by the Contractors Board (CRB) before engaging in the practice. It requires foreign contractors to be registered by the Board before gaining contracts in Tanzania. implementation.	*The proponent shall comply with the law requirements during the recruitment of contractors for MPCC project*
7	**The Architects and Quantity Surveyors Act (1997)**	Similarly require architects and quantity surveyors (QS) to be registered with AQRB before practicing.	*Only registered architects and quantity surveyors shall be involved in the implementation of the proposed project.*
8	**Public Health Act 2009**	This Act is relevant to the project especial through Section 66 of the Act state that: *(1) A block or premises shall not be erected without first submitting the plans, sections and specifications of the block site for scrutiny on compliance with public health requirements and approval from the Authority.*	*The project proponent should ensure public health during the all the phases of the project.*
9	**Fire and Rescue Act (2015)**	The Act obliges the owners and managers of the structures to set aside places with free means of escape and install fire alarm	*By requiring that the selected Contractor and its staff complete fire and*

	LEGAL FRAMEWORK	DESCRIPTION	COMPLIANCE
		and detection systems, fire hydrants or such other escape and rescue modalities in the event of fire.	*rescue training and obtain a certificate of conformity, and making sure that the Fire and Rescue Force receives and approves all design structures and site layout plans The Proponent will comply with this Act.*
10	**Employment and Labor Relations Act (No.6), 2004**	The Act prohibits forced labor and discrimination of any kind in the workplace. It provides employment standards such as contracts with employees, hours of work, remuneration, leave, unfair termination of employment, and other incidents of termination. The Act strictly prohibits child labor and discrimination.	*The project operators shall ensure all labor discrimination at workplace will be prohibited during the all the phases of the project, which will bring economic justice to the employees and labor rights to be observed.*
11	**Workers Compensation Act (No.20), 2008**	The Act focuses on the provision for adequate and equitable compensation and rehabilitation 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 to their dependents.	*The proposed MPCC projects will operate within the requirements of this legislation and abide by all relevant sections provided by this Act.*
12	**The Law of the Child Act, 2019**	An act to provide for the reform and consolidation of laws pertaining to children, to specify children's rights, to advance, safeguard, and maintain a child's welfare in order to give effect to international and regional conventions on children's rights; to further regulate employment, apprenticeship; to make provisions with regard to a child in conflict with the law; and to provide for related matters.	*The contractor, in collaboration with SUA-MPCC, will take measures to ensure that no child under the age of fourteen is engaged as an employee in any work throughout the project's execution.*
13	**Prevention and Control of HIV/AIDS Act (No.28), 2008**	The act among others provides details to promote public awareness on the cause, mode of transmission, consequences, prevention and controls of HIV and AIDS.	*The Proponent shall operate within the requirements of this legislation in addition to those of the HIV policy.*
14	**Standard Act of 2009**	National Environmental Standards Compendium (NESC) established by this	*MPCC shall observe this Act and regulatory*

	LEGAL FRAMEWORK	DESCRIPTION	COMPLIANCE
		Act comprises of standards that require compulsory compliance. It covers specific standard for Tolerance Limits of Emissions discharge including water quality, discharge of effluent into water, air quality, control of noise and vibration pollution, subsonic vibrations, soil quality, control of noxious smells among others.	*requirements and apply the mitigation methods suggested in this document. The project must also follow all the guidelines established by environmental best practices.*
15	**Universities Act No. 7 of 2005**	Universities Act No. 7 of 2005 provides for the establishment of the Tanzania Commission for Universities (TCU) to provide the procedure for accreditation of institutions of higher learning and other related matters.	*The proposed MPCC projects will be regulated by the Tanzania Commission for Universities (TCU) for ensuring that quality education is offered, which meets the needs of all the stakeholders in line with this Act.*

3.4 Relevant Regulations and Guidelines

This section addresses the National Regulations and Guidelines which are relevant to the proposed project. This ESIA has been conducted in general compliance with the outlined regulations and guidelines in table 3.3.

Table 3.3: National regulation and guidelines relevant to the project

	LEGAL FRAMEWORK	DESCRIPTION	COMPLIANCE
1	**Environmental Impact Assessment and Audit (Amendment) Regulations (2018)**	These Regulations set out the EIA procedure and regulatory system for carrying out EIA in Tanzania that requires every Developer to follow. Part IV Regulation 13(1) requires the Project Proponent to conduct EIA in accordance with the general environmental impact assessment guidelines and in accordance with the steps outlined in the Fourth Schedule of the regulations.	*SUA-MPCC has conducted the Environmental and Social Impact Assessment (ESIA), thus adhering to the stipulations outlined in these regulations.*
2	**Environmental Management (Air Quality**	The objective of this standard is to set baseline parameters for air quality and emissions within acceptable standards. It	*The proponent will ensure that all emissions will be*

	LEGAL FRAMEWORK	DESCRIPTION	COMPLIANCE
	Standards) Regulations, 2007	enforces minimum air quality standards prescribed by NEMC to industrialists.	*within recommended standard level.*
3	**Environmental Management (Soil Quality Standards) Regulations, 2007**	The objective of this standard is to set limits for soil contaminants in agriculture and habitat. It enforces minimum soil quality standards prescribed by NEMC to maintain, restore and enhance the sustainable productivity of the soil.	*MPCC will make sure that all vehicles and excavators used for loading and transporting raw materials are properly maintained. Additionally, make sure that wastewater is directed to the appropriate treatment.*
4	**Environmental Management (Water Quality Standards) Regulations, 2007**	The objective of this standard is to enforce minimum water quality standards prescribed by the NEMC. It ensures all discharges of pollutants take account the ability of the receiving waters to accommodate contaminants without detriment to the uses specified for the waters concerned, so as to protect human health and conservation of the environment.	*By guaranteeing that all liquid waste produced by the planned project and existing infrastructures is disposed correctly through the appropriate treatment without harming the environment, MPCC will comply with this rule.*
5	**he Environmental Management (Standards for Control of Noise and Vibration Pollution) Regulations, 2015**	The regulation prohibits a person to make any loud, unreasonable, and unnecessary noise that annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and of the environment. It describes the permissible noise levels from different facilities.	*MPCC ensures that these regulations are adhered by ensuring noise and vibrations produced during construction period are within acceptable limit.*
6	**The Urban Planning (Application for Planning Consent) Regulations, 2018**	The regulation state that no person shall carry out any development within the Planning Area without a planning consent granted by the Planning Authority under section 32 of the Act and these Regulations. Also, these regulations declare that where the proposed development involves any building or engineering or mining work in, on, under or over any land or premise the site plans and building plans shall be submitted.	*MPCC ensures that these regulations are adhered by seeking planning approval as per the regulations.*
7	**The Urban Planning**	The Urban Planning Space Standards provides guidance on space utilization in	*The project at MPCC has adopted adequate project*

	LEGAL FRAMEWORK	DESCRIPTION	COMPLIANCE
	Regulations (Space Standards), 2018	order to achieve harmony and sustainable development. Space standards provide suitable heights for buildings according to their use, guide space to be reserved between one building and another (setbacks), plot coverage and plot ratio. It also guides provision of space to accommodate both motorized and non-motorized transport systems such as roads, parking and footpaths / pedestrian walkways.	*area utilization during its implementation and has taken into account the needs of urban planning space standards from its conception and design of buildings to be developed.*
8	**The Urban Planning (Zoning of Land Uses) Regulations, 2018**	The regulations were formulated under section 77(1)(d) of the Urban Planning Act (Cap. 355). For the purposes of these Regulations, uses of land that are permitted and those that may be permitted under special circumstances by the planning authority in different zones of the local planning area shall be as follows: Residential, Commercial, Industrial, Institutional, Public Utilities among others.	*The Proponent will abide to the requirement of the regulations during design and construction period.*
9	**The Urban Planning (Use Group and Use Classes) Regulations, 2018**	For the purposes of planning and the control of development, all uses of land and buildings are categorized in the use groups and use classes in the First Schedule of this regulation. The making of any change of use of any land or buildings from a purpose within any use class prescribed under Part I of the regulations to the use thereof for any other purpose within the same use class shall not be deemed to be "development".	*MPCC ensures that these regulations are adhered by ensuring the purpose of the land and its use for college development as stated in the certificate of occupancy.*
10	**The Environmental (Solid Waste Management), 2009 Regulations as Amended in 2016**	This regulation provides the principle to every school, offices, hospitals, and other institutions that may be designated by local government authorities, shall strategically place waste storage receptacles at all points where people working or living in the institutions congregate and set aside for storage and collection solid wastes sorted according to categories prescribed by local government authority.	*In order to comply with this rule, Contractor and MPCC will provide storage facilities for solid wastes at the site during construction and operation and must make a proper schedule for the removal of wastes from the site to the damping site.*

	LEGAL FRAMEWORK	DESCRIPTION	COMPLIANCE
11	**The Environmental Management (Control and Management of Electrical and Electronic Equipment Waste) Regulations, 2021**	The Regulations apply 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.	*MPCC shall ensure compliance with all these requirements during the implementation of the project.*

3.5 Relevant National Plans/Strategies

In order to guide national development more effectively and systematically, Tanzania has prepared a number of strategies aiming at operationalizing the various policies in key sectors. Some of the strategies that have a bearing on the proposed project are described in table 3.4.

Table 3.4: Relevant National plans/strategies

	PLAN/STRATEGY	DESCRIPTION	COMPLIANCE
1	**The Tanzania Development Vision 2025**	The Composite Development Goal for the Tanzania Development Vision 2025 foresees the alleviation of poverty through improved socio-economic opportunities, good governance, transparency, and improved public sector performance. These objectives not only deal with economic issues, but also include social challenges such as education, health, the environment and increasing involvement of the people in working for their own development.	*SUA-MPCC project will contribute to the attainment of the 2025 Vision through improvement of education and provision of adequate skilled labor force for implementing various development plans.*
2	**The National Five-Year Development Plan (FYDP III) 2021/22-2025/26**	In implementing the Third Five Year National Development Plan the Government will focus on stimulating an inclusive and competitive economy, strengthening industrial production capabilities and service delivery, promoting investment and trade, bringing development to our citizens and building human resource capacity.	*SUA-MPCC project will contribute to the attainment of the Five-Year development plan through provision of adequate skilled labor force for implementing various development plans.*
3	**Project Operational Manual (POM)**	This Project Operational Manual (POM) sets forth all the operational and procedural steps which will guide the implementation of the Higher Education for Economic Transformation Project (HEET) in Tanzania. The Operational Manual offers a brief description of the components, details the results expected to be achieved through HEET and outlines the operational and	*SUA-MPCC project will be implemented using the POM*

	PLAN/STRATEGY	DESCRIPTION	COMPLIANCE
		financial reporting arrangements, procurement and disbursement processes, standard formats for biannual and annual reporting and amendment procedures.	
4	Project Appraisal Document (PAD)	This document provides the project formulation underpinning. It describes the strategic context, project description including its project development objectives, components, beneficiaries and rationale for the World Bank involvement and role of partners.	*The projects under SUA will be implemented in line with the requirements by PAD.*

3.6 Institutional Framework for the Management of the Environment

Tanzania is among countries in East Africa with an Act for environmental management legislation. The legislation, Environmental Management Act (EMA) (2004), provides a legal and institution framework that guides the implementation of environmental management activities. The framework provides a pre-requisite for effective implementation of Environment Policy at all levels (National, Region, Council, and Village/Mtaa/Hamlet). According to the Environmental Management Act (EMA) (2004), there is the Environmental Management Committee established at the Hamlet/Village/Mtaa, Ward, and Council and at National level with the responsibility for the proper management of the environment in respect of the area in which they are established. The functions and responsibility of these committees are well explained in the Act. The proposed project will include all governance levels in the management of the environment during HEET execution as shown in Table 3.5.

Table 3.5: Key institutions of ESIA process during HEET Project Execution

Level	Institution	Role and responsibility
National level	Vice President's Office (Division of Environment,)	• Authorization of ESIA certificate
	Vice President's Office – NEMC	• Co-ordination of the ESIA process • Approve the ToR and review of ESIA reports • Issuing of ESIA certificate • Environmental auditing and monitoring
	Ministry of Education Science and Technology	• Issuing policy guidance • Providing legal frameworks • Project monitoring. • Capacity building to project implementers
	Tanzania Commission for Universities (TCU)	• Provide regulations which sets standards for academic buildings and learning environment
	Occupation Safety and Health Authority OSHA	• Review and Approval of building plans for the proposed project with regards to health and safety. • Audit and monitoring Health and Safety of workers in working premises
	Bank	• Project financing • Provide regulations and standards for environmental management • Provide capacity building to project implementers • Project monitoring
Regional level	Fire and Rescue Force	• Provide training to contractor and workers on fire and safety • Review and Approval of building plans for the proposed project with regards to fire and safety
	Katavi Regional administrative office	• Oversee general development plans for the region. • Provide information on regional scale and coordination to the local government • Technical support & advice
Local Governments Authorities and Communities	Kibaoni Ward Office	• Oversee general development plans for the Ward. • Provide information on local situation and extension services • Technical support & advice • Project Monitoring
	Mpimbwe District office	• Oversee general development plans for the District. • Provide information on local situation and extension services • Technical support & advice

Level	Institution	Role and responsibility
		• Project Monitoring
	Kibaoni community	• Information on local social, economic and environemental situation • View on socio-economic and cultural value of the sites and on proposed plant operations • Rendering assistance and advice on the implementation of the project • Project Monitoring (watchdog for the environment, ensure well-being of residents and participate in project activities.
Institutional Level-SUA	SUA UPIU	**Environmental specialist** i. Advise HEET project on environmental approaches, policies, and technical issues during the preparation and implementation of the HEET project activities. ii. Under the supervision of the project coordinator, monitor compliance of HEET project activities on environmental safeguards. iii. Participate in conducting design reviews to meet environmental safeguards standards and supervisions of projects, preparing reports, and disseminating lessons learned. iv. To ensure all contractors/subcontractors and primary suppliers comply with all applicable provisions of ESSs and other relevant sections of the ESF and national law. v. Ensure contractor's compliance to the C-ESMP vi. Regular monitoring and reporting of the progress on the implementation of the ESMP. vii. Promptly notification of any significant environmental, health and safety incident related to the project, which has, or is likely to have, a significant adverse effect viii. To ensure the contractor has prepared C-ESMPs) ; Code of Ethical Conduct (CEC) ; Health and Safety Plans (HSE) ; and Emergency Response Plan (ERP) ; HIV/AIDS Management Plan and Traffic Management Plan **Social specialist** i. To ensure the contractor's employees and laborers have signed the Code of Ethical Conduct and have been trained on gender, SEA/SH and HIV/AIDS awareness. ii. Under the supervision of the project coordinator, monitor compliance of HEET project activities on social safeguards. iii. Participate in conducting design reviews to meet social safeguards standards and supervisions of projects, preparing reports, and disseminating lessons learned. iv. In collaboration with other specialists ensure labour and working conditions of labourers in the HEET project related activities follow the agreed national standards. v. To prepare Grievance Redress Mechanism (GRM) and report progress on the grievances reported.

Level	Institution	Role and responsibility
		vi. Promptly notification of any significant social incident related to the project, which has, or is likely to have, a significant adverse effect vii. To prepare and disclose the SEP, LMP and stakeholders' engagement reports.
	ESIA Consultant	**Environmental specialist** i. Assist the PIU in preparing documentation to obtain certification from NEMC for the ESIAs and ESMPs. ii. Propose capacity building plan for the implementation of the sub-projects for all actors involved with cost estimates and schedule iii. Prepare the ESIAs and ESMPs based on the procedures described in the ESMF including carrying out an alignment walk, alternatives analysis and baselines studies, identifying the Environmental risks and impacts, developing mitigation measures and monitorings plans iv. Conduct initial site visits with the UPIU to understand the sub-project environmental setting and site-specific requirements **Social specialist** i. Carry out public consultations and stakeholder consultations ii. Prepare the ESIAs and ESMPs based on the procedures described in the ESMF including carrying out social baselines studies, identifying the social risks and impacts, developing mitigation measures and monitorings plans. iii. Conduct initial site visits with the UPIU to understand the sub-project social setting and site-specific requirements **Health and Safety specialist** i. Carrying out health and safety baselines studies, identifying the health and safety risks and impacts, developing mitigation measures and monitorings plans. ii. Propose health and safety alternatives to the HEET project activities iii. Conduct initial site visits with the UPIU to understand the site-specific requirements for health and safety
	Design Consultant	**Environmental specialist** i. Ensure compliance with the Environmental Impact Statement (EIS) and the Construction-Environmental and Social Management Plan (C-ESMP).

Level	Institution	Role and responsibility
		ii. Ensure the design complies with the environmental safeguards requirement as per the ESMP and ESMF iii. Routine supervision of all environmental issues and compliances on site throughout the construction period **Social specialist** i. Ensure the design complies with the social safeguards requirement as per the ESMP and ESMF ii. Routine supervision of all social issues and compliances on site throughout the construction period iii. Prepare, review and approve Code of Conduct of the contractor. **Health and Safety specialist** i. Ensure the design complies with the health and safety requirement as per the ESMP ii. Ensure the contractor complies with the OHS plans iii. Routine supervision of all health and safety issues and compliances on site throughout the construction period iv. Ensure the labourers are provided with safety gears throughout the construction period
	Contractor	**Environmental specialist** i. Ensure the project is in full compliance with the Environmental and Social Impact Assessment (ESIA) mitigation measures outlined in the Environmental and Social Management Plan (ESMP) ii. Prepare and submit a comprehensive work site plan that adheres to national environmental guidelines, along with C-ESMP tailored for various phases of the work. iii. Routine supervision of all environmental issues and compliances on site throughout the construction period iv. Regular reporting on the progress of the implementaion of the C-ESMP v. Report promptly any environmental risk or incident which has, or is likely to have, a significant adverse effect

Level	Institution	Role and responsibility
		Social specialist i. Organize consultations with stakeholders at critical project stages, establish a liaison group at the project site, and monitor contractor compliance with the ESMP. ii. Organise and conduct awareness campains on HIV/AIDS, SEA/SH to the labourers and project affected persons. iii. Make sure the contractors labourers and employees signs the Code of Conduct. iv. Maintain regular communication and collaboration with the Sokoine University of Agriculture (SUA) Safeguard specialists to ensure the contractor's adherence to the ESMP throughout the contract duration. v. Report promptly any social incident which has, or is likely to have, a significant adverse effect **Health and Safety specialist** i. Prepare and submit a comprehensive C-OHS plan tailored for various phases of the work. ii. Organise and conduct awareness campains on health and safety to the labourers and project affected persons. iii. Ensure the project complies with the OHS plans iv. Maintain regular communication and collaboration with the Sokoine University of Agriculture (SUA) Safeguard specialists to ensure the contractor's adherence to the ESMP throughout the contract duration. v. Report promptly any health and safety incident which has, or is likely to have, a significant adverse effect

3.7 Environmental and Social Framework (ESF)

The World Bank Environmental and Social Framework for Investment Project Financing sets out the requirements that the Bank must follow regarding projects it supports through Investment Project Financing. The Environmental and Social Safeguards Standards define what is expected of Borrowers in terms of identifying, evaluating, and mitigating environmental and social risks, impacts, and measures in connection with projects that the Bank supports through Investment Project Financing. In that context, the World Bank has set out the E&S standards (table 3.6) that must be complied with in the implementation of any project. These standards among others aim to;

- Support borrowers in achieving good international practice relating to environmental and social sustainability,

- Assist borrowers in fulfilling their national and international environmental and social obligations,
- Enhance non-discrimination, transparency, participation, accountability and governance; and
- Enhance the sustainable development outcomes of projects through ongoing stakeholder engagement.

Table 3.6: World Bank Environmental and Social Standard applicable to HEET project at MPCC

Environmental and Social Standards (ESS)	Objectives	Applicability	Requirements
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	○ Identify project E&S risks and impacts ○ Improve performance through an Environmental and Social Management System (ESMS) ○ Engagement with Affected Communities, other stakeholders through project cycle, includes communication, grievance mechanisms.	YES	The project at SUA-EMC will use this requirement to strengthen the environmental and social framework for the assessment, development, and implementation of World Bank-financed projects where appropriate.
ESS2: Labor and Working Conditions	○ Fair treatment, non-discrimination, equal opportunity ○ Good worker – management relationship ○ Comply with national employment and labor laws ○ Protect workers, in particular vulnerable categories ○ Promote safety and health ○ Avoid use of forced labor or child labor	YES	The guideline includes SUA-EMC to ensure that no child under fourteen years is involved as an employee in any kind of work during the project implementation. Additionally, it demands equal opportunity, non-discrimination, and fair terms and conditions of employment, as well as worker groups. Provisions relating to forced labor and child labor. Requirements on occupational health and safety, in keeping with the World Bank Group's Environmental, Health, and Safety Guidelines (EHSG).
ESS3: Resource Efficiency and Pollution Prevention and Management	○ Avoid, minimize, and reduce project-related pollution ○ More sustainable use of resources, including energy and water ○ Reduced project-related Greenhouse Gas (GHG) emissions	YES	Requires an estimate of gross greenhouse gas emissions resulting from projects (unless minor), where technically and financially feasible. Requirements on management of wastes, chemical and hazardous materials, and contains provisions to address historical pollution.

Environmental and Social Standards (ESS)	Objectives	Applicability	Requirements
ESS4: Community Health and Safety	○ To anticipate and avoid adverse impacts on the health and safety of the Affected Community ○ To safeguard personnel and property in accordance with relevant human rights principles.	YES	Requires infrastructure to take into account safety and climate change and apply the concept of universal access which is technically and financially feasible. It necessitates additional traffic and road safety measures, such as road safety monitoring and assessments. Measures to reduce the risk of water-related diseases, both communicable and non-communicable. Requirements to assess risks associated with security personnel, and review and report unlawful and abusive acts to relevant authorities. The project operators should ensure HIV&AIDS education is provided to the people related on the project to avoid high transmission of the disease.
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	○ Improve or restore livelihoods and standards of living ○ Improve living conditions among displaced persons ○ Adequate housing and Security of tenure	NO	This standard is not applicable in this proposed project because land is legally owned by SUA (Appendix 2)
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources		NO	This standard is not applicable in this project because there is not any requirement related to ESS6.
ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved		NO	This standard is not applicable in this project because there is not any requirement related to ESS7.

Environmental and Social Standards (ESS)	Objectives	Applicability	Requirements
Traditional Local Communities			
ESS8: Cultural Heritage		YES	The requirements of this ESS8 will apply to all projects that are likely to have risks or impacts on cultural heritage. This will include a project which involves excavations, demolition, movement of earth, flooding, or other changes in the physical environment. This standard is applicable in this project because there are excavations for the new buildings which might impact cultural heritage through chance find.
ESS9: Financial Intermediaries (FIs)		NO	This standard is not applicable in this project because there is not any requirement related to ESS9.
ESS10: Stakeholder Engagement and Information Disclosure	o Ensuring understanding o Building relationships o Ensuring Compliance o Engaging vulnerable groups o Managing stakeholder expectations	YES	The standard calls for stakeholder engagement throughout the project life cycle, and preparation and implementation of a Stakeholder Engagement Plan (SEP). It requires early identification of stakeholders, both project-affected parties and other interested parties, and clarification on how effective engagement takes place. Stakeholder engagement from the project area was conducted in a manner proportionate to the nature, scale, risks and impacts of the project, and appropriate to stakeholders' interests.

3.8 Environmental, Health and Safety General Guidelines

The World Bank Groups Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry specific examples of Good International Industry Practice (GIIP). EHS Guidelines are applied as required by their respective policies and standards. These industry sector EHS guidelines are designed to be used together with the General EHS Guidelines document, which provides guidance to users on common EHS issues potentially applicable to all industry sectors. The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. The applicability of the EHS Guidelines should be tailored to the hazards and risks established for the project in accordance with the proposed project activities. The circumstances that skilled and experienced professionals may find when evaluating the range of pollution prevention and control techniques available to a project may include, but are not limited to, varying levels of environmental degradation and environmental assimilative capacity as well as varying levels of technical feasibility. The applicability of specific technical recommendations should be based on the professional opinion of qualified and experienced persons. Other World Banks instruments applicable to this Project are the following:

- Community Health and Safety: http://documents.worldbank.org/curated/en/290471530216994899/ESF-Guidance-Note-4-Community-Health-and-Safety-English.pdf
- Gender based violence: http://documents.worldbank.org/curated/en/399881538336159607/Environment-and-Social-Framework-ESF-Good-Practice-Note-on-Gender-based-Violence-English.pd

CHAPTER 4: BASELINE ENVIROMENTAL AND SOCIAL CONDITIONS

4.1 Introduction

This Chapter presents the descriptions of the biophysical and socio-economic environment of the project area. A study of the existing environment for the project has been carried out on the physical, biological and socio-economic environment of the project impact areas. The study has provided a measure of the existing state of the environment against which future changes imposed by the project activities will be measured and monitored. The physical and biological environment that have been studied included climate, topography and geology, soils, hydrology, flora and fauna and socio-economic factors among others.

4.2 Biophysical Environment

4.2.1Climatic Condition

Climatic conditions include temperature, rainfall, humidity and wind. The establishment and functioning of MPCC facilities could bring about alterations in the regional climate as a result of heightened urbanization, modified land utilization, and the possible occurrence of deforestation or disruption to habitats. Specifically, the reservoir tank may influence nearby water systems and play a role in modifying hydrological patterns. Furthermore, elevated human activity and the expansion of infrastructure may lead to increased energy consumption, the generation of waste, and air pollution. It is crucial to take into account the social impact on the community, as the project has the potential to bring about both positive and negative outcomes, affecting local demographics, employment opportunities, and community dynamics.

4.2.1.1 Temperature

Temperature in Katavi region the Southern Highlands experiences long rainfall and short dry seasons which more often are cool with high winds. MPCC in Kibaoni village in general is influenced by altitude that is relatively low throughout the year. The hot season lasts for 2.3 months, from August 23 to November 1, with an average daily high temperature above 91°F. The hottest month of the year in Mpimbwe is October, with an average high of 93°F and low of 70°F. The cool season lasts for 2.8 months, from December 12 to March 7, with an average daily high temperature below 84°F. The coldest month of the year in Mpimbwe is July, with an average low of 60°F and high of 89°F.

The architectural and construction decisions for buildings will be shaped by the local temperature patterns, with particular attention to the prevailing climate conditions in the region. Whether it's extreme heat or cold, these temperature variations can impact the energy efficiency of structures, necessitating the implementation of suitable insulation and ventilation systems. Additionally, the well-being of occupants is influenced by temperature, leading to considerations such as the installation of air conditioning or heating systems. Furthermore, temperature fluctuations can affect the functionality and water storage capacity of the reservoir tank, influencing the overall sustainability and resilience of the project in the face of environmental conditions. A comprehensive evaluation of temperature-related factors is essential to ensure the prolonged success and adaptability of the proposed infrastructure in the specified location.

4.2.1.2 Rainfall

MPCC in Kibaoni village general experiences only one rainy season, from October to May. The rainy period of the year lasts for 7.4 months, from October 4 to May 16, with a sliding 31-

day rainfall of at least 0.5 inches. The month with the most rain in Mpimbwe is December, with an average rainfall of 5.9 inches. The rainless period of the year lasts for 4.6 months, from May 16 to October 4. The month with the least rain in Mpimbwe is July, with an average rainfall of 0.0 inches. The rains are reliable and favors the greenery of the campus and district at large.

Rainfall can impact various project aspects, like construction, water management, and the ecosystem. Excessive rain during construction may cause delays, soil erosion, and infrastructure damage. The reservoir's efficiency must align with regional rainfall for a sustainable water supply. Environmental and social impact assessments (ESIA) address local concerns, including changes in water flow, soil erosion, and structural resilience to weather challenges. Integrating mitigation and adaptation measures into project planning is crucial for minimizing adverse effects on implementation and long-term sustainability.

4.2.1.3 Humidity

Kibaoni village experiences some seasonal variation in the perceived humidity. The muggier period of the year lasts for 5.2 months, from November 22 to April 27, during which time the comfort level is muggy, oppressive, or miserable at least 7% of the time. The month with the muggiest days in Mpanda is March, with 8.3 days that are muggy or worse. The least muggy day of the year is August 4 when muggy conditions are essentially unheard of.

The assessment for the proposed development in MPCC highlights the significant role of humidity, particularly in construction and maintenance challenges. High humidity, common in the region, can lead to structural issues and affect indoor air quality. Design and material selection, along with effective ventilation, are crucial for long-term project success in the specific climatic conditions of the area.

4.2.1.4 Wind

The average hourly wind speed in Kibaoni village experiences significant seasonal variation over the course of the year. The windier part of the year lasts for 6.2 months, from April 24 to October 31, with average wind speeds of more than 7.3 miles per hour. The windiest month of the year in Mpanda is August, with an average hourly wind speed of 9.8 miles per hour. The calmer time of year lasts for 5.8 months, from October 31 to April 24. The calmest month of the year in Mpimbwe is January, with an average hourly wind speed of 4.7 miles per hour. Hence the air is relatively calm and as a result, pollutants discharge into air remains in the layer especially within nearby housing areas of the town center.

The wind is a crucial factor in the environmental and social impact of proposed infrastructures at MPCC. Considerations include wind load on structures, dispersion of pollutants, and effects on ecosystems. The design and construction of various facilities must account for local wind patterns for safety. Wind may also impact airborne pollutant dispersion and require erosion control measures in landscape planning for environmental protection at MPCC.

4.3 Soils and Geology

Kibaoni village characterized by flat alluvial plains with homogenous sedimentation patterns. Major soils are imperfectlyto poorly drained, deep, dark grey or grey brown, often mottled clays (clay 40-70%), more compact and contain fewer sandy strata. Natural fertility status is high for wide variety of crops.

The area is mainly well drained, flat to rolling plains, low altitude developed on intermediate

metamorphic rocks. Major soils are well drained, moderately deep to deep, reddish and yellowish sandy clay loams, sand clays and fine sand, often with more sandy topsoil, with weak structure and high natural fertility; and somewhat excessively to moderately well drained, moderately deep to deep, reddish, brown or grey loamy sands, sandy loams and sandy clay loams with weak structure and low natural fertility. *(Source: Strategic Plan for Mpimbwe District Council, 2016).*

4.4 Topography and Drainage

The Kibaoni village is characterized by highlands, small mountain peaks, steep hills, gentle plateaus and plains.

The larger part of MPCC is characterized by large plain land and the whole site is plain. Noted, as well that the area is suitable for all kinds of development, and it does not need additional costs in terms of grading for construction of houses and infrastructure facilities. A study on air quality was done in three different locations at MPCC where the project will be constructed. Results of air quality measurements taken discussed hereunder.

4.5 The Biological Environmental

4.5.1 Flora and Fauna

The proposed area for project implementation has no variety of plants species except only grasses and few trees were observed. During general searches it was observed that there is no species of the amphibians and reptiles that are included in the IUCN Red list of threatened species. The plants species covered the project area it includes herbs, grasses, sunflower crops (*Helianthus giganteus*) and one trees species called *Balanite aegyptiaca* (Desert date). Miombo woodlands species includes *Brachystegia*, *Julbernardia*, *Isoberlinia* are the most predominantly vegetation in the region.

4.5.2 Unique and Endangered species

There are neither unique nor endangered species of concern that were observed during site assessment.

4.6 Baseline environmental data

4.6.1 Methodology for baseline data on air quality, noise and vibrations

The measured three 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.

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

4.6.2 Dust as particulate matter in terms of PM10 and PM2.5

Dust levels were measured by using Aeroqual series 500 monitors (S-500). Particulate matter (PM10 and PM2.5) were measured in accordance with manufactured procedure that meets ISO

9835:1993 and ISO 9835:1993 Protocols for PM10 and PM2.5. 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 measured at the established station during the daytime and night-time hours. The recorded data were then averaged and compared with National Environmental (TBS) and WB Group guidelines to check for their compliance.

The highest daily average concentration detected at Mizengo Pinda Campus College was 26 µg/m³ for PM10 and 14.3 µg/m³ for PM2.5 was measured at station AQMS3 (Table 4.1 in appendix 4). However, none of the measured PM10 and PM2.5 values were found to be above the prescribed TBS limit and WB Group guidelines criteria.

4.6.3 Ambient Gaseous Pollutants levels

Ambient gases concentrations (i.e. CO, NO_2, SO_2, H_2S, and VOCs) were measured using "Aeroqual series 500 monitors (S-500)". 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 during the day and night hours. The measured gases levels were then compared with their respective TBS-NES limits and WBG guidelines to check their compliance.

The measured Sulphur dioxide (SO_2), Volatile Organic Compounds (VOCs), and Nitrogen dioxide (NO_2) concentrations were minimal and in conformity with their respective prescribed TBS and WBG limits. Similarly, the recorded CO concentrations found complying with both TBS limit of 15 mg/m^3 and WB guideline value of 30 mg/m^3. However, highest Hydrogen sulphide (H_2S) concentration of 0.009 mg/m^3 was very low with its impacts considered insignificant, taking into account that H_2S has no limit specified in WBG 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 WB-wide objectives (table 4.2 in appendix 4).

4.6.4 Noise Levels

Baseline noise data were recorded the established station during the daytime (Lday) in accordance with 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 hours noise values at the established station. The averaged Lday values were calculated and compared with their respective local standards and international guidelines.

The recorded noise levels ranged from 33.6dBA to 44 dBA (Table 4.3 in appendix4). These measured levels are acoustically safe for people residing nearby the project site as the recorded noise levels are found to be well outside the WBG General EHS Guidelines level of 55 and TBS limit of 52 dB(A) prescribed for institutional areas.

4.6.5 Ground Vibration

Ground vibrations were measured 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. Periodic measurements were taken during the day and night hours. The mean value of all recorded data was calculated and used to represent that particular station. The average value recorded at the station was then compared with National Environmental (TBS), Human detection level for vibration, and British vibration standard to check for their compliance.

The recorded vibration levels at measured three stations are considered insignificant as the measured levels do not exceed 0.15 mm/sec PPV criteria established to evaluate the extent that can easily be detected by human, TBS and British Standard limits (table 4.4 in appendix 4). In that regard, the measured ground vibration levels are very minimal and thus is not likely to negatively impact any sensitive receptors.

4.7 Potential natural disaster risks

The proposed development at MPCC in Kibaoni Village may led to the occurrence of potential natural disaster risks, including earthquakes, and environmental degradation. The campus is situated in an area prone to frequent earthquakes, with recent occurrences of small-scale earthquakes observed, as exemplified by the event on April 20, 2023. This geographical vulnerability poses a direct social risk to the campus and the residents of Kibaoni Ward.

In the event of a significant earthquake, both the campus and the local community may experience adverse impacts, including structural damage, potential injuries, and disruptions to daily life. The social aspect involves direct socio-economic consequences, as earthquakes can lead to the displacement of individuals, damage to infrastructure, food scarcity and economic losses, thereby affecting the overall well-being and livelihoods of those in the vicinity. The potential natural disaster risks, particularly earthquakes, highlight the importance of implementing robust mitigation measures and disaster preparedness strategies to safeguard the social and economic aspects of the campus and the surrounding community.

4.8 Climate change risk in the project area

The establishment of new facilities at SUA-MPCC introduces climate change risks associated with various activities, including vegetation clearance, pavement installation, and emissions. The direct social-economic impacts involve the removal of vegetation, disrupting the local climate balance, while pavement installation contributes to the creation of heat islands, potentially affecting the well-being of the community. Ineffective stormwater management during these activities poses an indirect risk, potentially leading to flooding.

The project addresses these risks through climate resilience strategies, emphasizing advanced stormwater management and the use of energy-efficient materials in the design of environmentally friendly academic buildings, hostels, and cafeteria conversion. These measures

not only mitigate direct environmental impacts but also enhance the facilities' ability to adapt to climate-related challenges. Additionally, emissions from activities within the computer room and electronic workshop contribute to greenhouse gases, indicating a direct impact on the environment. The implementation of systems for storing and disposing of hazardous electronic waste shall be crucial for mitigating this impact and preserving the overall environmental sustainability of the University.

4.9 Socio-Economic Environment

The Socio-economic aspects that were studied in the project area are presented in section below;

4.9.1 Population

The social landscape of Mpimbwe District, particularly in Kibaoni ward, is characterized by a population of 28,769 people, with a relatively equal distribution of males (14,097) and females (14,672). The district, with a total population of 215,438 according to the 2022 National population census, experiences a population growth rate of 3.2% from 2012 to 2022. The dominant ethnic groups are Sukuma (64%), Wapimbwe (16%), and Wafipa (8%), with smaller ethnic groups like Wabende, Ngoni, and Chagga comprising 12% of the population. The region's socio-economic status is largely low, with unskilled labor for construction activities expected to be sourced from the surrounding areas of Kibaoni ward (NBS, 2022).

The proposed development at SUA-MPCC is projected to have direct socio-economic impacts on the local population, particularly in terms of employment opportunities. The influx of workers during the construction phase will likely lead to a temporary population increase, affecting the dynamics of the local community. After completion, the growing student population at MPCC, projected to reach 2,500 students from 201 students, will contribute to increased demand for local services and potentially influence the socio-economic fabric of Kibaoni ward. The employment projections about 340 and 300 for academic and administrative staff further underscore the project's potential to bring long-term socio-economic changes to the district. Overall, the social impact is both direct and indirect, with direct implications on employment and migration patterns, and indirect consequences on local services and community dynamics as a result of the expanding educational institution.

4.9.2 Health

The health aspect in Katavi region, as reflected in the health infrastructure, availability of health practitioners, preventive measures, and access to medicine and medical supplies, is critical for ensuring the well-being of the community. The region has 2 health centers and 10 dispensaries, including a private facility named Mdende and one owned by a Faith-based organization called Upendo wa Mungu *(Source: Strategic Plan for Mpimbwe District Council, 2016).* However, In Kibaoni ward there are two dispensaries including Ilalangulu and Mirumba dispensary about 2km from MPCC, and two (2) health center such as Kibaoni Health center about 0.6km from MPCC and 0.24km from Kibaoni center, and MPCC Health center within MPCC.

MPCC Health center it provides services to about five thousand people in total, which includes personnel, students, and the local community. Notably, the center offers services twenty-four hours a day, seven days a week. To achieve that goal, emphasis was maintained on treating the most prevalent illnesses, such as respiratory conditions, Malaria Diagnosis and Treatment, Health Promotion and Disease Prevention, Diagnostic Services, Reproductive and Child Health Care

Services, General Clinical Services and other unsettling diseases, as well as on expanding hospital equipment.

The prevalent diseases reported from MPCC Health Centre include malaria, flu, diarrhea, UTI, and cough. There is a concern about the outbreak of infectious diseases due to microbial contamination, posing risks such as diarrhea, typhoid, cholera, and infectious hepatitis to the community. The campus has implemented measures to combat disease transmission, emphasizing environmental cleanliness and personal hygiene, with daily waste collection and toilet maintenance. The introduction of handwashing systems and sanitizers during the COVID-19 crisis reflects adaptive measures. The social impact is direct, as the health status directly influences the community, both on campus and in the surrounding areas. The economic aspect is indirect, as the health of the population influences productivity and overall community well-being. The associated impact is significant, as the prevalence and prevention of diseases directly correlate with the quality of life and socio-economic development in the region.

4.9.3 Gender issues at MPCC

To ensure that there is control over issues of harassment within the campus, there is a gender desk that handles all gender-related matters. This department conducts seminars, especially for first-year students during the orientation week and regularly for all students. The main goal is to increase awareness among students about how to avoid gender-based harassment and to encourage them to freely report any incidents to the relevant department if they experience harassment. They also organize ethics seminars for staff to enhance work ethics and reduce or completely eliminate instances of gender-based harassment, especially towards students. As of the current statistics, there have been no reported incidents of harassment against students. With the increasing diversity of people coming from various areas during the construction phase, it is also crucial to collaborate with the community and law enforcement agencies to ensure the safety of students and prevent gender-based harassment from occurring outside of the campus. Conducting regular assessments of the system for controlling gender-based harassment within the campus will help identify areas for improvement and ensure that the measures being taken yield positive results.

4.9.4 Education

a. Primary Education

The primary education sector in Mpimbwe District Council plays a pivotal role in providing services for pre-primary, primary, and adult education. Collaborating with the Teachers Service and School Inspectorate Departments, the primary education department oversees 29 primary schools in the district. Currently, the government schools in Mpimbwe district have an enrollment of 20,308 pupils, with a fairly balanced distribution of 49.5% girls and 50.5% boys.

Additionally, there are 3,072 children attending pre-primary classes, of which 1,547 are girls and 1,525 are boys, supported by 4,393 desks. However, in Kibaoni Ward there are seven primary schools. This data reflects a direct impact on the educational landscape, emphasizing the significance of primary education in the region. The balanced enrollment figures indicate a positive aspect of gender inclusivity. However, potential indirect impacts may arise concerning resource allocation, infrastructure development, and educational outcomes, with implications for social-economic issues such as gender equality and community development *(Source: Strategic Plan for Mpimbwe District Council, 2016)*.

b. Secondary Education

In Mpimbwe District, the state of secondary education is outlined with a total of four government-owned secondary schools, accommodating 1,612 students, of which 974 are boys and 638 are girls. Additionally, the district houses two secondary schools offering form 5 and 6 education, with Usevya Boy's Secondary School having 216 students and Mizengo Pinda Secondary School spanning from form one to form 6. The district aims to align with educational policy goals by ensuring the enrollment and completion of secondary education for all selected students. Emphasis is placed on enhancing the working infrastructure of secondary schools, with a focus on both the quantity and quality of physical structures to facilitate efficient teaching and learning processes.

The district's strategy involves increasing the number of classrooms, teacher's houses, toilets, and the procurement of teaching materials. There is also a phased plan for the construction of science laboratories and girls' hostels. This impact on education is a direct one, as the district actively works towards improving infrastructure and facilities to enhance the learning environment. The social-economic impact is significant, as a well-equipped and accessible secondary education system contributes to the development of human capital and economic growth in the region *(Source: Strategic Plan for Mpimbwe District Council, 2016)*.

4.9.5 Occupation and Income

The Kibaoni ward is characterized as an agricultural area as many farming activities have been conducted in the area. Most of the people in the project area involve themselves as either employed or self-employed. In that case the adjacent buildings in the project area have different uses i.e., residential, institutional and commercial and others by private or individuals where most of them deal with business and community services. Some of economic activities involved in the project area are:

- Lodge/Guest houses
- Agriculture (maize, rice, sunflower, cassava, sorghum, sweet potatoes as a food crops and ground nuts, simsim, cashew nuts, cow peas as cash crop)
- Livestock keeping especially chicken and cattle
- Transportation services e.g., public buses (daladala), and Motorcycle (bodaboda)
- Shops
- Mpesa, and Halopesa agent
- Bee keeping

4.9.6 Water and Sanitation

The water and sanitation scenario in Mpimbwe District reveals that approximately 42% of the rural population has access to clean and safe drinking water. The district relies on nine (9) deep borehole wells with water pump schemes, three gravity schemes, and 14 shallow wells. Seasonal rivers, including Msadya, Mbede, and Kavuu, serve as additional water sources, with Kavuu River located approximately 1.5 km from the project site. During the rainy season, Kavuu River can be utilized to mitigate dust on the road. Groundwater quality varies, with some areas suitable for boreholes and shallow wells for domestic use, while others contain minerals making it unsuitable for human consumption. Efforts are underway to increase access to clean water, with 53% of the district population currently benefiting (Source: Strategic Plan for Mpimbwe District Council, 2016).

The expansion of facilities at MPCC is expected to contribute positively, ensuring that the increased community has access to clean water during both the construction and operation phases. This represents a direct socio-economic impact as the project actively contributes to improving water accessibility and quality for the local population, fostering community well-being.

4.9.7 Religion

The absence of formal worship spaces at MPCC leads to students utilizing classrooms and certain rooms within existing buildings for religious activities, resulting in a chaotic environment for students not belonging to the same religious sect. The introduction of worship centers on or around the campus is proposed to address this demand and provide dedicated spaces for diverse religious practices. However, there is an existing Kibaoni Roman Catholic Church located approximately 0.84km away from MPCC. This may directly impact the campus community, alleviating tensions and fostering a more inclusive environment for various religious groups. The socio-economic impact is primarily indirect, influencing the campus culture and interpersonal dynamics, with potential long-term benefits in promoting religious tolerance and diversity within the academic setting.

4.9.8 Security

On this campus, there is a security post site with only two gate areas where there are small buildings for the guards. The security department has a total of 13 auxiliary police, with 5 being permanent employees and 8 being village guards on contract. Currently, the security department lacks an office for storing equipment and documents. Incidents of theft on campus are rare and usually involve students stealing from each other. Most of these cases involve minor thefts of personal items and money, and they are reported to the security department. Occasionally, members of the local community bring their livestock onto the university grounds for grazing, which can result in damage to some of the crops grown and make disturbance within the campus.

4.9.9 Solid and liquid waste management

The MPCC currently employs a waste management system for both solid and liquid waste. Solid waste is disposed of in an open pit, with a designated collection point equipped with dustbins within the campus for temporary storage. The liquid waste is managed through a septic tank and soak pit system, a suitable approach given the current student population. While the existing waste management practices are commendable, the plan to increase student enrollment necessitates a forward-looking perspective. To address the anticipated rise in demand, there is a need for improvements in wastewater management infrastructure. This highlights a direct socio-economic impact, as enhanced waste management facilities will be crucial for accommodating the growing student population, ensuring a clean and healthy environment, and indirectly contributing to the overall well-being and satisfaction of the student community.

4.9.10 Storm water drainage

Due to minimum number of buildings, rainwater runoff and infiltration are significant, and the drainage system here are not enough drains to control rainwater, especially during heavy rainfall periods on the campus environment. There is a seasonal river located about 1 km from the campus. Given the plan to increase buildings, rainwater management systems must be carefully considered and properly developed. The design will accommodate stormwater management system at the site as it will increase more stormwater. However, construction activities will be done during dry

season. Also, the drainage system will be constructed to accommodate the envisaged storm water to be generated from the proposed buildings.

4.10 Economic Infrastructure

4.10.1 Road network

Mpimbwe district has poor road density because the network has no required length. The district is crossed by Mpanda- Tabora road as well as Mpanda-Sumbawanga road and thus enables motorcars to pass over throughout the year. This has played a big part in attracting investors to the district.

Roadworthiness in Mpimbwe is particularly unsatisfactory especially for the highways which pass through the district and the feeder roads towards the ward headquarters and village centers long distance is graveled. Hence, investment in opening up new feeder roads and improving road surfaces and bridges will open up many areas to agricultural production and investment in other sectors in the rural Mpimbwe district.

4.10.2 Energy and Power Supply

Electricity supplied in the district is through National Grid. About 70% of all the wards of Mpimbwe are serviced with electricity. Other sources of energy are solar, biogas, kerosene, firewood and charcoal.

4.10.3 Transport

Residence of Kibaoni ward in Mpimbwe district use road transport systems such as bicycles, motorcycles, and public buses for daily movement. For long-distance road transport, buses are commonly used to facilitate transportation service. It was observed that the residents of Kibaoni ward, students and staffs of MPCC use motorcycle to move from one area to another.

4.10.4 Communications

The district has a good mobile phone connection through Airtel, Vodacom, Halotel, TTCL and TTCL landlines services. Coverage of communication services is progressively extending to cover the whole District. However, during the visit at SUA-MPCC and report from the community, it was observed that Airtel and Tigo Mobile operator (MIC Tanzania Limited) has very limited services and not available most of the time at Kibaoni ward.

4.10.5 Financial Institutions

Financial services in Kibaoni village are insufficient to cope with the growing populations and economic activities. NMB and CRDB are only Banks which provide financial services, CRDB has installed the Automatic Teller Machine (ATM) at the MPCC which will serve the SUA students, staff and other service provider, and nearly community. In additional, mobile money agents such as M-PESA, Halopesa and Airtel Money are available, although at limited connectively around Kibaoni village.

CHAPTER 5: STAKEHOLDER ENGAGEMENT PLAN AND GRIEVANCE REDRESS MECHANISM

5.1 Introduction

This chapter gives an overview of the stakeholder engagement efforts conducted thus far including the process of identifying stakeholders. It highlights the stakeholders who have been identified and consulted, the methods used for consultation, and the concerns and issues raised by stakeholders regarding the construction activities of various facilities at SUA-MPCC and conclude with a review of how these issues have been addressed. The primary objective of stakeholder engagement is to outline how SUA-MPCC will involve stakeholders throughout the development of the proposed project.

Recognizing the importance of public participation in project development, the proposed establishment of new facilities at SUA-MPCC adheres to the World Bank's Environmental and Social Framework (ESF), specifically Environmental and Social Standard (ESS) 10 on Stakeholder Engagement and Information Disclosure. This standard emphasizes open and transparent communication as crucial for enhancing project sustainability, acceptance, and success.

Aligned with ESS10 and Tanzanian regulations, including the Environmental Management Act (Cap 191) and the Environmental Management (EIA and Audit) (Amendment) Regulations (2018), a comprehensive public involvement plan was implemented early in the project design. Local communities, leaders, and key stakeholders were informed about the project objectives, technologies, and potential impacts through various channels, including:

- Consultative meetings: Facilitating direct dialogue and feedback exchange.
- Key informant interviews: Gathering in-depth insights from relevant individuals.
- Email communication: Providing readily accessible information updates.
- Public meetings: Offering broader information dissemination and discussion opportunities.
- Telephone calls: Addressing individual concerns and ensuring accessibility.

During these engagements, stakeholders were briefed on the project details, potential impacts, and grievance redressal mechanisms, including the University's dedicated grievance desk. They were encouraged to ask questions and clarify any misunderstandings. This comprehensive approach ensured inclusive participation and informed decision-making throughout the project development process Furthermore, the engagement activities enable the relevant authorities to ensure that concerns and comments from various stakeholders are considered while developing Environmental and Social Management Plan (ESMP) and an Environmental Monitoring Plan for the project. Stakeholder consultation will continue during the disclosure of the ESIA report and throughout the implementation of the proposed project.

5.2 Stakeholders Identification and Analysis

Stakeholders include all individuals, groups or organizations that might be affected or might affect the proposed project (positively or negatively) in one way or the other. A Public consultation process has been conducted during the scoping report preparation for the proposed project to be located within MPCC at Kibaoni ward. This process allowed the creation of a channel of communication for consultation from the local and national level. National and local authorities including leaders in the area of influence of the project have been involved in the process.

Also, stakeholder identification and involvement adhered to guidelines specified in the Environmental Impact Assessment (EIA) and Audit Regulations (2005, as amended in 2018), World Bank Environmental and Social Standards (ESS10), and the Stakeholders Engagement Plan (SEP). Public consultations entailed the sharing of project details, comprehension of stakeholder concerns, and cultivation of community relationships. Key stakeholders were pinpointed based on their roles, significance, influence, and potential impact on the project. The Stakeholders Engagement Plan (SEP) encompassed both national and sub-national levels, with a particular emphasis on sub-national stakeholders. It delineated the specifics of engagement pertaining to project activities, encompassing stakeholders at regional, district, and village tiers. The project aspired to inclusivity by involving women, vulnerable populations, and individuals with special needs. Consultations occurred throughout the project's duration, and mechanisms were instituted to address issues such as Gender-based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH).

The consulted stakeholders are found at regional, district and local levels as follows .

i. Public and private institutions who have interest on the project- The identified stakeholders under this study were, Tanzania National Electric Supply company (TANESCO), Rural Water Supply and Sanitation Authority (RUWASA), Mpanda District Council, Tanzania Commission for Universities (TCU), Occupation and Safety Authority (OSHA) regional office, Fire and Rescue Army, Kibaoni Ward Office, Kibaoni Village Office, Service providers within and outside the University that provide goods and services to the Sokoine University of Agriculture community

ii. Project Affected Communities-Sokoine University Mizengo Pinda College Campus Students including Students Organization (SUASO), Academic and Administrative staffs through their respective organizations, and local communities of Kibaoni ward.

Table 5.1 shows the rate of interest of different stakeholders

Table 5.1: List of Stakeholders identified, their roles and the rate of interest in the Project

Authority	Role of the stakeholder	Rate of Interest
Katavi Regional Administrative Secretary	Political and administrative issues	**HIGH**
Mpimbwe District Council	Overall advice on both professional works (land, Planning, environments, social, economics) with regards to the execution of the project at SUA-MPCC	**HIGH**
Tanzania Commission for Universities (TCU)	Provides advice on all work-related safety measures to the project	**LOW**
Occupational Safety and Health Authority (OSHA)	Oversees the provision, availability and control of power in the project area at MPCC and the surrounding communities of Kibaoni ward	**LOW**
Tanzania Electricity Supply Company (TANESCO)	Power supply	**HIGH**
RURAL Water and Sanitation Agency (RUWASA)	Plan, design, construct and supervise rural water supply projects	**LOW**

Authority	Role of the stakeholder	Rate of Interest
Fire and Rescue Force	Oversee fire risk and hazards associated with the project	**LOW**
TTCL	Data provider	**HIGH**
Kibaoni Ward	Beneficiaries of the MPCC in Katavi Region	**HIGH**
NON-STATE ACTORS (NGOs, CBOs, FBOs) and PRIVATE SECTOR	Employment opportunities associated with project	**HIGH**
SUASO	Building users	**HIGH**
SUA staff	Building users	**HIGH**

5.3 Requirement of Stakeholder Engagement

According to the Environmental Management Act Cap 191, the Environmental Management (Environment Impact Assessment and Audit) (Amendment) Regulations of 2018, and the World Bank ESS10 (Stakeholder Engagement and Information Disclosure), it's necessary to include Stakeholder Engagement and Information Disclosure as integral parts of project planning and implementation in order to develop good relationships and gather their views on issues that could affect the project throughout the project life.

The Environmental Management (Environment Impact Assessment and Audit) (Amendment) Regulations of 2018 along with the ESIA emphasize the importance of stakeholder engagement and provide the guidelines on when and how the public should be notified during key stages of the ESIA process. Specifically, stakeholder engagement is required during the ESIA Scoping stage and after the completion of impact analyze. The project proponent is also obligated to inform the public at the commencement of scoping activities and upon submission of the Draft ESIA to NEMC (National Environmental Management Council).

5.4 Objectives of the Public Participation

The objectives of the public participation exercise were to:

- The project's potential advantages should be explained to stakeholders, and environmental and social issues related to the project should be discussed as well. Stakeholders should also be asked for their opinions on these matters.
- Collect relevant information for the project design and their concern.
- To identify and mitigate impacts before the project gets underway.
- To prevent problems through early and ongoing discussion of concerns during the project's existence.
- To ensure that any fears or apprehension about the nature, scale and impacts of the project have been fully addressed.

This process involved mapping of the key stakeholders, which is a process of identifying and categorizing them.

5.5 Methodology used in the public participation

The Public Participation (PP) process is a policy requirement by the Government of Tanzania and a mandatory procedure stipulated by 2004 EMA of Tanzania, on conducting of Environmental Impact Assessment for the purpose of achieving the fundamental principles of sustainable

development. The public participation was conducted on the 9th of May 2023, at Kibaoni village center and conducted in different ways, namely;

- Meetings with the proponent.
- Interviews and discussion,
- Field surveys and observations
- Validation of the findings.

The purpose of the interviews was to identify positive and negative impacts and subsequently promote proposals on the best practices to be adopted and mitigate the negative impacts respectively. Additionally, it assisted in detecting any other unrelated problems that can cause conflicts if project execution goes as anticipated.

5.5.1 Community Meetings

This method facilitates sustained information exchange between the proponent and the relevant public, including women and vulnerable groups. Community meetings were organized to disseminate information to individuals who could potentially be impacted by the project, as well as to gather their comments and address any queries they may have. These meetings involved a presentation followed by a session for questions and answers. The main goals were to clarify the project details and seek opinions regarding both positive and negative impacts of the project.

5.5.2 Formal Meetings

Formal meetings with elected officials and government functionaries were held to provide information about the project to agency representatives, and to solicit their comments and questions. The meetings consisted of a short formal presentation followed by a question-and-answer period.

5.5.3 Focus Group Discussions

MPCC will employ FGD when aiming to bring together stakeholders with the same interests or common characteristics into a meeting to discuss specific topics or project components in a focused manner. FGD will be employed to explore issues that are relevant to specific groups or sub-groups of a community – such as youth, the elderly, women, students and people with special needs. The intention of using this approach is centered upon establishing of similarities and differences among people of the same or different groups.

5.5.4 One on one interviews

The interviews will aim to give chance to individuals to air concerns on project depending on the issues to be addressed.

5.5.5 Site visits

These visits are focused to identify and discuss stakeholder concerns and to disclose project information within communities.

5.5.6 Disclosure

- MPCC will made accessibility of ESIA report, along with other pertinent project documents to the public.
- The complete set of documents will be physically accessible in local offices and project offices. Electronically copies will be available on the MPCC website.

- Summary information will also be provided at Ward and village offices situated in the project area.

The stakeholders' engagement under this construction project of MPCC buildings was conducted for the following reasons;

- To identify stakeholders, build and maintain a constructive relationship with them, in particular project-affected parties.
- To enable stakeholders' views to be taken into account in project design and environmental and social performance
- To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken into account in project design and environmental and social performance.
- To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.

5.6 Stakeholder concerns/observations

The objectives of the project were made known to the stakeholders. A major concern expressed at District level in the project area is safety issues and youth employment in both the construction and operations phases of the project. Summary of stakeholder concerns is provided in table 5.2 and a detailed stakeholder concerns is in Appendix

Table 5.2: Summary of Stakeholders concerns (Source; Consultation with stakeholders in April 2023)

Level	Organization/ Institution	Comment	Response section
National level	**Tanzania Commission of Universities (TCU)**	○ Buildings should generally be equipped to decrease noise pollution, especially in classrooms.	○ Design team should review it accordingly
Regional level	**(TANESCO)**	○ The client should request for large transformer to serve the new buildings taking into consideration an increased population and should have the systems to overcome lightning and thunderstorm problems in the new buildings.	○ MPCC administration write official letter for the request of large transformer. ○ Designs include appropriate earth installation system to overcome lightning problems
	Occupation safety and health authority (OSHA)	○ There should be trained First Aiders at all project phases, as well as First Aid Kits with all necessary facilities and all workers should be provided with sufficient Personal Protective Equipment (PPEs) during all project phases. ○ They should have a registered and qualified health and safety person in the project construction phase and provision of safety signs at the project site during construction and operation	○ MPCC and contractor shall adhere to the health and safety of workers and provide PPE at all times. ○ Enough signs shall be provided
	RUWASA	○ We will be able to supply sufficient water and of good quality to meet the water requirements of the college during construction and operation.	○ Consultation to RUWASA for any challenges to water scarcity during project implementation
	Fire and Rescue Force	○ Contractor should consider constructing a fire hydrant and horse drill around the new buildings and provide fire detectors in all buildings . ○ The proponent should provide fire awareness training to all workers and students. ○ There should be no grilled windows in hostels for easy escape during fire emergency ○ Two files of all architectural drawings should be submitted at Fire and Rescue Force office for payment and to be reviewed, signed and approved.	○ Design team should review the designs to incorporate stakeholder concerns accordingly. ○ Designs should adhere to all fire and safety requirements.
Local level	**Mpimbwe District Council** (DED, Environmental Management Officer,	○ The project is very positive as it will bring changes and development in the education sector within the district therefore bring economic development in the Mpimbwe district.	○ Contractor provides regular awareness on HIV/AIDS, Covid 19 to workers

Level	Organization/ Institution	Comment	Response section
	Town Planning Officer, Community Development Officer) **Ward Office – (Kibaoni ward)** (Ward Executive Officer, Village chairmen, community representative leaders)	○ Pressed on giving out health education during the pre-construction period to the community and workers who will be in the construction phase and students about HIV/AIDS, Covid 19. ○ During the construction phase the contractor must control the noise and dust emission from the site and wastewater from the buildings should be well planned and designed to prevent the outbreak of diseases. ○ During the construction phase the local community should get first priority in job opportunities for both skilled and unskilled labor and service provision. ○ Geotechnical survey and soil characteristics investigation should be conducted before construction, since Katavi region is prone to earthquakes.	○ Contractor shall be insisted to employ local community especially for non-skilled force ○ MPCC has a good wastewater management treatment system.
	Mizengo Pinda Campus College (MPCC) (Administrative and Academic staff) (MPCC Students, SUASO and Services providers)	○ The project will increase students' enrollment for the campus and provision of enough car parking which is well designed and represented to users with a permanent sun shed. The construction of student's hostels will improve accommodation facilities to the students. ○ Should ensure the availability of clean water and emphasize the use of alternative sources of energy (e.g., solar energy, gas). ○ Buildings should provide washrooms and toilets with enough space and consideration of people with special needs. ○ Focus on proper liquid waste management by providing accessible duct of the good plumbing system for easy maintenance. ○ The design of the new buildings must include well designed and furnished open air study junction (vimbweta) and walkways with sunshade, pavement and light. Library should havespecial discussion rooms. Also, fixed chairs for the library should be in place as an attempt to manage noise pollution.	○ Design team should review the designs to incorporate stakeholder concerns accordingly.

5.7 Stakeholders Engagement Plan (SEP)

Effective stakeholder engagement improves the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation. The proposed project has engaged stakeholders as per SEP developed for HEET project. The engagement plan will be reviewed and updated throughout the project implementation. During

this process, the focus and scope of the SEP may change to reflect the varying stages of project implementation and to encompass any changes in project design and lessons learnt from previous phases of the Project (Table 5.3)

Table 5.3: Stakeholders Engagement Plan

Stakeholder Name	Stakeholder Type	Engagement Objective	Engagement Method	Frequency/Timing	Expected Outcome
MPCC (Administrative & Academic staff)	Internal	Ensure project aligns with university goals and objectives.	Meetings Regular progress update	Throughout project duration	○ Clear communication channels, support for project objectives
MPCC Students	Internal	Provide a safe and conductive learning environment	Information sessions & surveys	Mobilization phase	○ Awareness of potential disruption
Local community (Kibaoni ward)	External	Minimize construction related inconvenience	Community meeting	Mobilization and Construction phase	○ Mitigation measure for dust, noise and traffic. ○ Responsiveness to concerns
Construction Contractor	External	Efficient and timely project delivery	Regular progress meeting. Site visits	Throughout construction phase	○ Clear project requirement. ○ Adherence to construction schedule
Government Authorities (TCU, TANESCO, OSHA, FIRE, RUWASA, Mpimbwe District Council)	External	Comply with regulations and obtain necessary permits.	Project registration. Permit application process. Regular updates	Mobilization phase	○ Timely approval of permits, adherence to regulations
Environmental Agencies (Division of Environment, and NEMC)	External	Minimize Environmental and Social Impact	Environmental and Social Impact Assessment, consultation sessions	Mobilization phase	○ Mitigation measure for Environmental concerns. ○ Compliance with regulation
Donors/Funding Agencies (World Bank)	External	Accountability and transparency in fund utilization	Reporting mechanisms. Project presentations	Throughout project duration	○ Clear financial reporting, alignment with World Bank requirement.

5.8 Grievance redress mechanism

5.8.1 Introduction

A Grievance Redress Mechanism (GRM) is a formal system established to address and resolve complaints or grievances raised by stakeholders or affected group. This is designed to provide an avenue for stakeholders or affected group to engage with the project on issues of concern or unaddressed impacts. In order to make this aim a reality, SUA-MPCC will develop a grievance handling mechanisms and procedures to address grievances associated with the construction of university facility and rehabilitation of existing water supply system including grievances related to PAP and contractor's grievances.

Grievances are any complaints or suggestions about the way a project is being implemented, and they may take the form of specific complaints for damages/injury, concerns around resettlement and compensation, concerns about routine project activities, or perceived incidents or impacts. Stakeholder engagement operates as a bidirectional procedure. Thus, it is crucial to establish a feedback mechanism system that allows stakeholders who are impacted by or have an interest in the proposed project to express their input (like opinions, requests, suggestions, and grievances) for review and, if necessary, seek resolution. It is important to acknowledge that not all grievances may be considered valid or applicable to the proposed project context. Nonetheless, the feedback mechanism should operate in a non-judgmental manner and document all received feedback.
The implementation of a Grievance Mechanism Procedure guarantees that complaints are properly documented and treated well with fairness and appropriateness. SUA-MPCC strives for ongoing enhancements to this procedure. The Grievance Mechanism was communicated to the relevant parties during the public consultation sessions. The Grievance Handling Officer (GHO) appointed by SUA-MPCC has the responsibility for handling all types of grievances arising from implementation of all projects and sub-projects under the HEET project including work related grievances and managing the Grievance Register. Complaints can be submitted in written or verbal form either directly by the complaint or through SUA-MPCC employees, Contractor, Consultant and Mpimbwe District Council.

5.8.2 Grievance mechanism process or procedures

The responsibility of managing the grievance mechanism at SUA-MPCC will rest with Project Coordinator, who will allocate resources to the Grievance Handling Officer for handling correspondence, facilitating internal resolutions, maintaining a record of grievances, and providing reports both internally and externally. The Grievance Handling Officer will collaborate, assist, and cooperate with other work groups to develop appropriate solutions and responses. It is crucial to follow the approval process for external communication and reporting to ensure consistency with SUA policies and approved key messages. The following are procedures that should be followed throughout the entire process to ensure complete resolutions of a grievance;

5.8.2.1 Receive and Register/Logging Grievance

Every grievance will be registered using the Grievance Receipt and Resolution Form for HEET Project Affected Person (PAPs). PAPs shall file the grievance through a special e-mail established for receiving grievances, suggestion boxes, and meetings or directly to the GHO who will record grievances/complaints receipt and resolution form and MoEST GHO. The GHO is responsible for reading and explaining the recorded information to the complaint to ensure accurate representation of the complaint or grievance. If a grievance is reported to someone other than the

GHO, all forms must be promptly transferred to the GHO within 24 hours of receipt or as soon as practically possible.
In situations where the grievance is of an urgent nature and demands immediate action, it is important to guide the complaint to the GHO and promptly inform the Project Coordinator. Such urgent matters may include environmental concerns, safety issues, or complaints regarding human rights violations related to security. Each grievance will be assigned a unique case number, and all communication and consultations related to the grievance will be documented and securely stored. Regular monitoring of the database will enable the identification of recurring grievances, facilitating the development of suitable measures for addressing them effectively.

5.8.2.2 Acknowledging Receipt of a Grievance

The GHO will promptly acknowledge receipt of any complaint or grievance, ensuring that is done within a maximum of 5 day from the submission date. The complaint will be informed of the expected timeframe for receiving a response. The Grievance Acknowledge the resolution form should certain a unique reference number and contact information, such as a phone number or alternative method for reaching the SUA-MPCC. Additionally, the project commits to providing a response within a specified period which is about 2 weeks after the grievance is logged. The acknowledgement will include a summary of the grievance, details of how the SUA-MPCC intends to address it, and an estimated timeframe for delivering the final response.
Also, the response will either accept or refute responsibility for the grievance and next step will be the investigation and resolution or immediate actions to be taken.

- **Screen**

Upon receiving a grievance, it will undergo a screening process ranging from level 1 to 3, as defined in table below, to ascertain the suitable course of action. The GHO will be in charge of assigning a grievance owner who will be responsible for engaging with the external stakeholder and finding a resolution. The screening of grievances will depend on their level of severity, determining the appropriate grievance owner and approach for addressing the grievance.
Therefore, The University has no Grievance redress mechanism that is connected with the building projects. The grievance redress mechanisms at SUA-MPCC will involve three levels which are described in table 5.4.

Table 5.4: Grievance Screening

Level	Issue Description	Management Approach
Level 1	A grievance that is limited in scope, occurring as a single occurrence and primarily affecting a specific location and involving one person filing the complaint. Please note that certain isolated grievances, despite being singular in nature, may be deemed substantial enough to be classified as level 1 grievances, such as instances where a violation of national or international law has taken place.	Grievance Handling Officer will notify the management of SUA-MPCC and subsequently employ authorized solutions to address and manage the response.
Level 2	A grievance that arises repeatedly within the local community or region and is deemed to	Develop a plan for addressing grievances and create a

Level	Issue Description	Management Approach
	have the potential to disrupt MPCC operations or generate unfavorable attention from local information or other stakeholders.	response to be reviewed and approved by SUA-MPCC and other relevant management.
Level 3	A grievance that is extensive and recurring, causing long-lasting harm and/or receiving unfavorable attention from local media, or is perceived to have the possibility of generating negative media on SUA-MPCC operations and comments from local stakeholders.	Give priority to issues management, legislative and regulatory advocacy processes, and establish a suitable management strategy.

5.8.2.3 Assess and Investigating a Grievance

The Grievance Handling Officer will conduct a thorough investigation of all submitted grievances, engaging other departments, contractor and SUA-MPCC management as necessary to fully comprehend the circumstances that give rise to the grievance. The GHOs aims at completing investigation within two (2) weeks of the grievance first being logged and will involve the aggrieved person or people in this investigation to ensure their views are incorporated. Also, the GHO is responsible for keeping the complainant informed about the progress the progress of the review. If additional time is required to examine the grievance, the complainant will be notified in writing, along with an indication of when a resolution will be provided.

5.8.2.4 Grievance Resolution

Based on the findings from the investigation, the GHO attempts to resolve the grievance through dialogue, negotiation or other appropriate means. The objective is to find a satisfactory solution that addresses the concerns raised. However, if complainant is satisfied, the GHO should seek their sign off and determine if any follow up is needed to monitor resolution implementation. Once the measures have been implemented the grievance should be closed. Also, if the grievance still stands then the GHO will initiate further investigation and determine the steps for future action. And If the PAP is not satisfied with decision of GHOs, the grievance is referred to the Grievance Redress Integrity Committee (GRIC) respond within 2 weeks' time from the submission.

5.8.2.5 Third party appeal

If the complainant is dissatisfied with the solution proposed by the Grievance Redress Integrity Committee (GRIC) and requires broader consultation, grievances will be referred to an impartial third party for review and final decision. The Chairman of the GRIC, in consultation with the project coordinator, will forward the issue to the next level (third party). This third party should be neutral, respected, and agreed upon by both SUA-MPCC and the affected parties. Potential third-party reviewers may include public defenders, District Commissioners, Regional Commissioners, Legal Advisors, local or international NGOs, or technical experts.

The third party will assess the case and determine if further reasonable actions can be taken. If all reasonable and justifiable corrective actions have been exhausted, a written notice will be provided to the complainant, formally closing their grievance. The notice may include supporting documents such as paid invoices, written agreements, photographs, emails, etc., as evidence of

the resolution actions taken and adherence to the Grievance Mechanism Procedure. In cases where the complainant's address is unavailable, they may be notified by telephone or in person.

5.8.2.6 Follow up and Close Out

Once resolutions have been approved and agreed upon by the complainant, it is the responsibility of the GHOs to promptly initiate the administrative process to redress the grievance. The details of the resolution, including the action plan, and the target timeframe for closure must be updated in the Complaint/Grievance Register. The case is considered "resolved" only when the agreed resolution has been implemented, and it then transitions to a "closed" status.

To acknowledge the receipt of the resolution, the GHOs must request the complainant to sign the form in three designated places. The complainant's signature signifies their acknowledgment of the receipt, satisfaction with the outcome (or notification of alternative escalation mechanisms if unsatisfied, with a maximum activation timeframe of 30 days), and confirmation that they have been respectfully informed about the outcome of the reviews without objections.

In situations where complainants are hesitant to sign any forms or when no forms are used, the GHOs verbally seeks feedback on the satisfaction with the process and outcome. For example, they may ask if there are any suggestions for process improvement or if the complainant is content with how the process was handled. With the consent of all parties present, this interaction can be recorded on a voice recorder.

5.8.3 Monitoring and Reporting

It is important to consistently monitor and evaluate the performance of the grievance mechanism throughout the duration of the project. This monitoring aims to enhance both the system itself and the overall project. All reported grievances should be promptly recorded in the designated system, along with the corresponding target resolution dates. The management of SUA-MPCC will routinely monitor grievances as part of their broader project management responsibilities, maintaining comprehensive records of raised complaints throughout the project's lifecycle. Upon receiving grievances, electronic notifications must be distributed to the management team. Grievance records should be accessible to management at all times. The GHOs will compile monthly internal reports, which will be shared with the management team. These reports will include the following information:

- The number of grievances logged in the previous period, categorized by level and type.
- The number of stakeholders who have expressed dissatisfaction with the resolution after 30 days.
- The number of grievances that remain unresolved after 60 days, categorized by level and type.
- The number of grievances resolved directly between the GHOs and the complainant, without the involvement of legal or third-party mediators, categorized by level and type.
- The number of grievances concerning the same or similar issues.
- The Grievance Officer's responses to the concerns raised by various stakeholders.
- The actions taken to incorporate these responses into the project's design and implementation.

These reports, along with other relevant records, will be available for external review if necessary. A suitable grievance report should be included in SUA-MPCC annual reporting, which will be

accessible to the public. A hard copy of the report will be kept at the SUA-MPCC offices, and an electronic version will be made available online.

5.8.4 Storing of Grievance

SUA-MPCC will securely file all records, such as grievance forms, investigation notes, interview records, and meeting minutes, to uphold the privacy and confidentiality of all parties involved.

CHAPTER 6: ASSESSMENT OF IMPACTS AND IDENTIFICATION OF PROJECT ALTERNATIVES

6.1 Introduction

This section outlines the process of impact identification and assessment of the impacts in each stage of the proposed project. Construction and operation of the students' hostels, cafeteria and academic building, MPCC is expected to generate a range of impacts in the project area and beyond. The anticipated impacts will be on a range of biophysical and socio-economic aspects of the environment. Some of the impacts are expected to be positive while others may be negative. The proposed mitigation measures are outlined in the next chapter seven of which Ministry of Educational Science and Technology (MoEST) through MPCC is committed to undertake so as to prevent or reduce the identified adverse impacts.

The positive measures if properly enhanced will contribute towards social and economic development of the area and the country as a whole. Measures will be put in place to mitigate the negative impacts in order to prevent degradation of both the social and bio-physical environment in the project area. Specifically, the chapter is aimed at the following:

a. Predict the potential environmental and social impacts that will arise from implementation of the project;
b. Assess the possible extent /severity of the predicted impacts (both positive and negative);
c. Assess the significance of the predicted impacts; and
d. Recommend measures for mitigating the negative impacts and enhancing the positive impacts.

The ESIA report aim to envisaging a road map to ensure the investments to be financed under this project are designed and implemented in an environmentally sound and socially acceptable manner that meets both requirements of World Bank Environmental Standards (ESS) and the Government of Tanzania (GoT) legislations.

- Environmental risks and impacts assessment done included:
  (i) Those defined by the WB Environmental Health and Safety Guidelines, EHSGs;
  (ii) Those related to climate change
  (iii) Any material threat to the protection, conservation, maintenance and restoration of natural habitats and biodiversity; and
  (iv) Those related to ecosystem services and the use of living natural resources;

- Social risks and impacts assessment done included:
  i) Threats to human security through crime or violence;
  ii) Those related to community health and safety;
  iii) Risks that project impacts fall disproportionately on individuals and groups who, because of their particular circumstances, may be disadvantaged or vulnerable; and
  iv) Negative economic and social impacts relating to the involuntary taking of land or restrictions on land use.

6.2 Identification of Impacts

Potential direct environmental and social impacts are a result of interactions between subprojects' activities with the relevant baseline aspects. Principles guiding impact identification involve; Impacts identification link to causes of impacts (cause-effect interactions) and identification shall extend through entire project cycle, and all valued receptors – physical, chemical, biological, built

or human on project area, immediate vicinity or off-site locations needs to be considered as required during the planning, designing and implementing stages of projects. The impacts were categorized as direct or indirect and whether positive or negative table 6.5 gives the summary ratings of the impacts.

6.2.1 Nature of Impact

There are two basic natures of impacts; impacts that tends to be beneficial or useful to the environment or social-economic aspects are termed as Positive Impacts and those which tends to affect the environment or social-economic aspects in a negative way are termed as Negative Impacts.

6.2.2 Duration of Impact

The duration of impacts defines the timeframe by which the impact will be felt or the time by which the positive or negative impacts related to the project will continue to occur. In other writings, they are termed as temporal scale. This duration can either be short term, medium term, long Term or permanent.

6.3 Environmental Impact Rating Scale

In order to guarantee a fair and accurate comparison among different studies conducted by ESIA teams, a uniform assessment approach was employed to evaluate the significance of the identified impacts. The assessment of impact significance, which refers to the importance of the impact within the larger context of the affected system, was based on specific criteria.

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

The impact assessment involves analyzing of the overall effect within the surrounding environment to determine the significant of the impact. This assessment considers various factors such as social, cultural, historical, economic, political and ecological aspects. As a result, the severity or benefit of an impact is initially assessed within a specific field of expertise before evaluating its significance on a larger scale. This requires two separate rating scales, one to determine the severity or benefit and another to determine the environmental significance.

6.3.1 Severity/Benefit

The severity of impacts is determined by experts who use their professional judgement to assess the degree of change that negative impact would have on the existing conditions, or the level of benefits that positive impacts would bring to a specific affected system or specific affected group (Table 6.1).

Table 6.1: Severity rating scale

Negative Impacts	Positive Impacts
Very severe An irreversible and permanent change to the affected system(s) or party(ies) which cannot be mitigated. For example, change in topography.	**Very Beneficial** A permanent and very substantial benefit to the affected system(s) or party (ies), with no alternative to achieve this benefit. For example, the creation of a large number of long-term jobs.
Severe Long-term impacts on the affected system(s) or party(ies) that could be mitigated. However, this mitigation would be difficult, expensive or time consuming or some combination of these.	**Beneficial** A long-term impact and substantial benefit to the affected system(s) or party(ies). Alternative ways of achieving this benefit would be difficult, expensive or time consuming, or some combination of these. For example, an increase in the local economy.
Moderately severe Medium- to long-term impact on the affected system(s) or party(ies), that could be mitigated. For example, constructing a narrow road with an area with low conservation value.	**Moderately beneficial** A medium- to long-term impact of real benefit to the affected system(s) or party(ies). Other ways of optimising are equally difficult, expensive and time consuming (or a combination of these), as achieving them in this way.
Slight Medium- to short term impacts on the affected system(s) or party(ies). Mitigation is very easy, cheap, less time consuming or not necessary.	**Slightly beneficial** A short- to medium-term impact and negligible benefit to the affected system(s) or party(ies). Other ways of optimising the beneficial effects are easier, cheaper and quicker, or some combination of these.
No effect The system(s) or party(ies) is not affected by the proposed development.	**Don't know/Can't know** In certain cases, it may not be possible to determine the severity of the impact.

The extent of the impacts can be assessed both with and without measures to minimize them in order to illustrate the gravity of the impact if no action is taken. The term mitigation encompasses more than just compensation and encompasses concepts of control and remedy. When it comes to positive effects, optimization refers to any approach that can enhance those benefit. Both mitigation and optimization should be realistic, technically feasible and economically viable.

6.3.2 Spatial scale

The Spatial scale defines the extent or area over which the impact will take place. Environmental Impacts due to the proposed underground transmission cables can affect the environment or social-economic aspects at Household level, Localized, at a study area, District, Regional, National or International Level. See Table 6.2.

Table 6.2: Spatial scale

Individual	Individuals in the area that could be affected
Households	Households in the area could be affected
Localized	A few hectares in extent (from the site). The specific area to which this scale refers is defined for the impact to which it refers.
Study Area	Includes the entire project area.
District	Includes areas around the project includes Kibaoni ward within Mpimbwe District Council.
Regional	The impacts will be of such a nature that it may affect the Katavi Region.
National	The impacts will be of such a nature that it may affect the entire Tanzania.
International	The impact would affect resources and processes outside the borders of Tanzania.

6.3.3 Temporal scale

The temporal scale defines the times over which the impacts would continue to occur (Table 6.3).

Table 6.3: Temporal scale

Temporal scale	Explanation
Short term	Less than 5 years.
Medium term	Between 5 and 20 years
Long term	Between 20 and 40 years, and from a human perspective essentially permanent
Permanent	More than 40 years and resulting in a permanent and lasting change.

- **Phase-** During which phase of the construction is the impact likely to occur. The phases included Mobilization, Construction, Demobilization and Operation.
- **Reversibility of the impact-** Every impact was checked if its effect can be reversed or not. Letter R was used to denote reversible impacts while IR was used to denote Irreversible impacts
- **Cumulative Impacts-** These are impacts that cause changes to the environment that are caused by an action in combination with other past, present and future human actions.
- **Residual Impacts-** These are lasting effects or consequences that remain after a project or activity has been completed

6.3.4 Criteria and Significance Rating

The significance of the impact, considering all the assessment criteria mentioned earlier, serve as an indication of its overall importance (Table 6.4). The assessment of significance was conducted within the appropriate context, recognizing that an impact can be relevant to the ecological environment, the social-economic environment. This can be achieved by ensuring that all ESIA team followed the mentioned objective criteria, subjectivity was minimized to the greatest extent possible. Nevertheless, it is important to acknowledge that there will always be an element of judgement involved that cannot be entirely eliminated from the assessment of significance.

The importance of an impact does not always correlate directly with its severity, even though one would anticipate a direct relationship, meaning that a severe impact would typically be considered

highly significant. However, this is not always true. For instance, alterations to the geology could be significant in terms of their severity, but their significance is perceived as low because society does not consider the environmental changes to be important.

Table 6.4: Significance of an Impacts

Significance	Explanation
High	These impacts will usually result in long-term effects on the natural and/or social environment that will only be mitigated over very long periods of time. At times, this is not possible, and it is up to the government to decide if this is acceptable when considering the benefits of the Project.
Moderate	These impacts will usually result in medium to long term effects on the natural and/or social environment. These impacts do exist but not substantial, and usually result in moderately severe effects or moderately beneficial effects. The emphasis for moderate impact is on signifying that the impact has been reduced to a level that is as low and reasonably practicable
Minor	These impacts will usually result in medium to short term effects on the natural and/or social environment. The environmental and/or social conditions will be affected, but the impact is small enough that it is unlikely to be a concern to the government, communities and organizations.
Negligible	There are no primary or secondary effects at all that are significant to scientists or the public. Also, this means that the existing environmental and social conditions will not be affected, or the effect is not detectable. A negligible impact is likely to be of no concern to the government, communities and organizations.

6.4 Potential Impacts During the Preparatory Phase

6.4.1 Positive Social Impacts

6.4.1.1 Job Creation and employment opportunities

During this phase, around 150 persons will be employed by the contractor for tasks such as constructing campsites, quarrying, material extraction, and transportation activities. This employment opportunity is expected to enhance the income of those who are engaged in the mobilization works. Additionally, the engagement of a qualified contractor may lead to employment for individuals both within and outside the project area. The increased demand for goods and services during this phase is likely to stimulate self-employment, particularly in the food industry, with an anticipated rise in the number of restaurants and food vendors (mama lishe) to cater to the growing workforce, transportation services like motorcycle (bodaboda), accommodation provider, and financial services (Mpesa, Halopesa etc) in Kibaoni ward.

6.4.1.2 Increased market opportunities and sources of income

The influx of skilled and unskilled laborers will create increased market opportunities for local businesses. This is a direct and short-term impact, providing immediate economic benefits. As

workers arrive, local food vendors, accommodation providers, and shop owners will experience heightened demand for their goods and services.

6.4.1.3 Increased Revenues to local authorities

Within the vicinity of Kibaoni, Ilalangulu and Mirumba Villages, where residents engage in diverse economic pursuits such as agriculture, livestock keeping (with a focus on chicken and cattle), transportation services (including public buses and motorcycles), shops, Mpesa and Halopesa agency operations, and beekeeping, the ripple effect of construction-related activities is expected to be palpable. As construction gains momentum, there will be an upswing in economic transactions, translating into augmented local tax revenues for the municipal council. The boost in economic exchanges is particularly significant given the spectrum of livelihoods in Kibaoni, and it is poised to be a short to medium-term phenomenon. This impact, characterized as indirect, predominantly local, and likely of a short to medium-term duration, stems from the anticipation of heightened economic activity during the mobilization phase.

6.4.2 Negative Social Impacts

6.4.2.1 Disruption of Economic and Social Activities

The designated area, traditionally employed by SUA-MPCC staff for various economic activities, notably cultivation, is slated for transformation. This transformation, while promising enhanced educational infrastructure, carries the weight of repercussions for the staff economic pursuits since they cannot use the area for cultivation anymore. Also, the mobilization process will bring forth a series of challenges as truck movements along the roads interfere with the daily routines of the local populace. Notably affected groups encompass food vendors, passengers reliant on public transportation, private vehicle drivers, as well as the students and staff of SUA-MPCC.

6.4.2.2 Poor communication services

The observed deficiency in communication services, particularly with the limited availability of Airtel and Tigo Mobile operator (MIC Tanzania Limited), has profound social implications. In a Kibaoni community (Kibaoni, Ilalangulu and Mirumba Villages) where agriculture, livestock keeping, and transportation services are prevalent, effective communication is paramount for coordinating activities, sharing information, and mobilizing resources. The proposed academic building with its associated facilities requires seamless communication for successful mobilization during its establishment phase.

6.4.2.3 Prevalence of Communicable diseases

The influx of job seekers during the mobilization phase is expected to increase social interactions in the Kibaoni village and its surrounding villages such as Ilalangulu and Mirumba Villages. This heightened interaction may elevate the risk of contracting communicable diseases, particularly HIV/AIDS. The establishment of trading centers may attract individuals engaging in risky behaviors, potentially contributing to an upsurge in prostitution.

6.4.3 Negative Environmental Impacts

6.4.3.1 Loss of vegetation due to exploitation of borrow pits/quarries and other natural resources

The extraction of building materials, such as sand, gravel, fill materials, and stones/aggregates, may lead to a loss of vegetation. This impact is expected to occur as the project initiates activities like setting up borrow pits and quarries for sourcing construction materials.

6.4.3.2 Contamination and /impaired quality of receiving body – land and water

The proposed project involves the clearance of vegetation, removal of topsoil, and the generation of domestic waste from quarries. This process may lead to the contamination of land and water due to the presence of various types of wastes, including solid and liquid waste. This impact is deemed minor, localized, and short-term. It directly affects the quality of land and water in the project area. The significance of the impact lies in its potential to disrupt local environmental conditions temporarily.

6.5 Potential Impacts During the Construction Phase

6.5.1 Positive Social Impacts

6.5.1.1 Job Creation and employment opportunities

The construction phase of the project will actively involve approximately 150 individuals employed by the contractor to undertake various tasks such as constructing campsites and building, quarrying, material extraction, and transportation activities. This engagement will significantly boost the income of those employed, providing financial stability to a considerable portion of the community. The selection of a qualified contractor(s) for the project is anticipated to lead to the employment of both skilled (50 people) and non-skilled laborers (100 people) from Kibaoni, Ilalangulu and Mirumba Villages and outside. Builders, artisans, and laborers from the community will find employment opportunities, contributing not only to individual livelihoods but also fostering a sense of community participation. This inclusive approach ensures that the benefits of the project are distributed across different skill levels within the local community.

6.5.1.2 Income to local suppliers and service providers

Kibaoni, Ilalangulu and Mirumba Villagers, deeply rooted in agriculture, livestock keeping, transportation services, retail, and financial services, will find a surge in demand for their products and services. The construction phase will necessitate a steady supply of building materials, benefiting local suppliers and fostering economic interdependence. Additionally, food services at Kibaoni, Ilalangulu and Mirumba Villages will experience heightened demand, offering local eateries an opportunity to cater to the needs of the expanding workforce.

6.5.1.3 Increased skills and impart knowledge to local communities

During the construction period, a diverse range of employment opportunities will be generated, catering to both skilled and non-skilled laborers. This presents a unique prospect for local individuals from Kibaoni, Ilalangulu and Mirumba Villages to engage in the project, especially those aspiring to become technicians and machine operators. The hands-on experience gained in this endeavor will equip them with essential skills that extend beyond the construction site, contributing significantly to their personal and professional development.

6.5.1.4 Improved quality of life and living standard

The proposed project is poised to serve as a catalyst for an enhanced quality of life and elevated living standards within the construction phase. This is primarily attributed to the surge in employment opportunities, both in formal and informal sectors, which is expected to usher in an era of increased wages for the local population engaged in diverse activities such as agriculture, livestock keeping, transportation services, small businesses, and beekeeping.

6.5.2 Negative Social Impacts

6.5.2.1 Labour influx

The demand for skilled, semi-skilled, and unskilled labor will draw individuals from various backgrounds. While a preference exists for recruiting from local communities such as Kibaoni ward, there is an anticipation that job seekers from outside these areas will migrate in pursuit of employment. This influx of labor may result in heightened competition for available job openings, potentially impacting the local residents negatively. The repercussions of this phenomenon are categorized as regional, extending their influence beyond the immediate vicinity. This impact is viewed as negative, with a short-term duration, and holds significant importance in the overall scheme of the project.

6.5.2.2 Disruption of Economic and Social Activities

The proposed project holds the potential to significantly alter the social dynamics of Kibaoni village, where the residents are actively engaged in diverse activities such as agriculture, livestock keeping, transportation services (public buses, bicycle and motorcycles), shops, Money mobile agents (Mpesa, Halopesa agents) and beekeeping. The influx of construction activities may lead to temporary disruptions in the daily lives of the villagers, affecting their routines and possibly creating conflicts related to noise, dust, and changes in the local environment.

6.5.2.3 Occupational Safety and Health impacts

The proposed construction project brings to the forefront the heightened risks and challenges faced by construction workers on a daily basis. Despite their training and awareness of basic safety measures, the inherent dangers associated with construction work make it challenging to maintain accident-free job sites. Construction-related accidents may stem from factors such as defective or collapsing scaffolds, electrocutions, falls, malfunctions of machinery (forklifts, conveyors, hoists, cranes), and the use of faulty tools and equipment. These accidents can result in severe injuries or even fatalities.

6.5.2.4 Community Health, Safety and Security impacts

Technological advancements and labor-saving equipment will necessitate a workforce, comprising both skilled and non-skilled labor. Skilled construction workers from outside the local area will be brought in, residing in labor camps, while a smaller number of local low-skilled jobs may be created for tasks like protecting and guarding construction properties. Also, the increased number of workers and their concentration near construction sites may negatively affect local communities. Uncontrolled movement of workers could disrupt the daily lives of residents, necessitating proper training and adherence to a labor code of conduct. The influx of job seekers may make it challenging to identify strangers within the community.

Furthermore, the rise in construction activities may lead to an increased risk of communicable diseases like COVID-19 and HIV/AIDS. The in-migration of job seekers and opportunistic businesses could contribute to the spread of diseases, posing a health risk to both the construction workers and the local population. Also, the project's implementation within a university campus may result in heightened social interactions between construction workers and the local community. This interaction could lead to an inherent increased risk of sexually transmitted diseases, HIV/AIDS, COVID-19, and other contagious diseases.

6.5.2.5 Gender Based Violence

In the context of gender-based violence, the social and cultural dynamics introduced by the project may trigger implications for gender relations within the community. Gender-based violence, defined as violence directed against an individual based on their gender, can manifest in various forms. While both men and women may experience gender-based violence, a significant portion of such violence is often directed towards women and girls, often perpetrated by men. The power imbalances inherent in societal structures can contribute to various forms of violence against women.

6.5.2.6 Gender Discrimination

The construction phase may introduce a dynamic where men receive more favorable treatment or benefits compared to their female counterparts. The existing societal roles and norms within Kibaoni Ward might inadvertently lead to preferential treatment for men, affecting the overall gender balance. Despite the regulatory framework in Tanzania advocating for equal opportunities for both genders, the practical application within the project's construction dynamics may not align seamlessly with these principles.

6.5.2.7 Child labor

The implementation of the proposed at SUA-MPCC may inadvertently lead to the occurrence of child labor during the construction phase. Hence, there is a potential risk of children becoming engaged in project-related activities.

6.5.2.8 Food Scarcity

The genesis of the projected Food Scarcity can be traced to the potential surge in population drawn to the area during the construction phase. Discussions with community members from Kibaoni Ward and village councils have unveiled concerns regarding the strain on available food sources. The argument posited is that the allure of income-generating opportunities spawned by the development project will attract a substantial influx of people seeking settlement around the university. As a consequence, the heightened demand for food and services is expected to create a scenario marked by chaos and inflation in prices, particularly concerning essential goods like food.

6.5.2.9 Increased level of crimes

The commencement of the aforementioned project is poised to have a distinctive effect—specifically, a surge in criminal incidents throughout the construction period. This phenomenon can be attributed to the influx of both skilled and unskilled labor from the local vicinity and beyond, drawn to the project. Moreover, the initiative is likely to attract individuals seeking business opportunities in the provisioning of goods and services. The envisaged surge in population during this phase is anticipated to spur the growth of commercial hubs in the project's proximity. Drawing on experiences and sociological insights, areas characterized by a dense mix of people from diverse backgrounds often witness heightened levels of criminal activities and alterations in social norms and behavior. The trading centers, particularly Kibaoni, are expected to be impacted in a similar manner. This effect is categorized as moderate, localized, and projected to endure over the long term.

6.5.2.10 Poor Communication services

The deficient communication services experienced during the construction phase of the proposed project, particularly affects the local community's social fabric and economic activities. The impact is multifaceted, directly influencing the daily lives of MPCC students, staff and Kibaoni villagers. In the short term, the disrupted mobile phone services from Airtel and Tigo Mobile operators limit villagers' ability to coordinate agricultural activities, manage livestock, and run businesses efficiently. The inadequacy of communication services may result in missed opportunities for transportation services, affecting the operation of public buses (daladala) and motorcycle taxis (bodaboda).

6.5.3 Negative Environmental Impacts

The ESS3 ‘Resource Efficiency and Pollution Prevention and Management’ recognizes that development projects often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services and the environment. Impacts caused by pollution are described hereunder:

6.5.3.1 Impairment of air quality due to dust and gases emission

Measurements conducted in twelve locations around the proposed sites have indicated that PM2.5 and PM10 concentrations fall within acceptable limits set by the World Health Organization (WHO) and Tanzania Emission Limits. However, during the construction phase, it is anticipated that air quality will temporarily decline, posing a potential threat to the health and well-being of both workers at the construction sites and the general public. Respirable particulates generated during construction activities can be a public health hazard, causing temporary disturbances and nuisances.

6.5.3.2 Contribution to Climate Changes

The project will contribute to climate change during its construction phase in two primary ways. Firstly, the construction activities are anticipated to generate Greenhouse Gas (GHG) emissions, including methane (CH4), nitrogen oxides (NOx), carbon dioxide (CO2), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SFx). These emissions can result from the use of construction machinery, transportation of materials, and energy consumption during the building process.

Secondly, the project is expected to reduce carbon dioxide sequestration due to the reduction of vegetated areas on the campus. The clearing of land for construction purposes will lead to the removal of trees and other vegetation, which play a crucial role in absorbing and storing carbon dioxide from the atmosphere. This reduction in green cover exacerbates the carbon footprint of the project.

6.5.3.3 Increased Noise level at the campus

The baseline measurements conducted across various locations surrounding the project sites reveal that daytime and nighttime noise levels currently range between 33.6 dB (A) and 44 dB (A). While these readings fall within the permissible range according to Tanzanian Standard limits (TZS) guidelines, which mandate noise emission levels to be below 55 dBA during the day within residential and institutional areas, the impending construction activities are poised to tip the scales. The amalgamation of sounds emanating from construction machinery, vehicles, and the bustling construction crew is expected to introduce a discernable surge in noise.

The ramifications of elevated noise levels are not to be underestimated. Beyond a certain threshold, specifically 70 dBA, noise transforms from a mere inconvenience to a palpable nuisance, necessitating avoidance or mitigation measures. As the proposed project unfolds, the heightened noise is projected to disrupt normal university operations, with a pronounced impact on the construction of the academic building. It's worth noting that the hostel facilities, situated at a considerable distance from the bustling campus activities, are likely to experience a less pronounced effect.

6.5.3.4 Increased vibration

Given that Kibaoni villagers are actively engaged in diverse activities such as agriculture, livestock keeping (especially chicken and cattle), transportation services (including public buses and motorcycles), shops, mobile money services (Mpesa and Halopesa agent), and beekeeping, the increased vibration during the construction phase is expected to intersect with these livelihoods. The construction-related vibrations, emanating from the movement of vehicles, plant and machinery, delivery and processing of materials, as well as the actual construction work, may disrupt the daily routines of the MPCC staff, students and kibaoni villagers.

6.5.3.5 Generation of Solid waste

Construction activities inherently produce solid waste, sourced from activities like clearing vegetation, topsoil removal, disposal of scrap metals, remnants of timbers, and domestic waste from construction crews. In the context of Kibaoni village, this waste generation may pose specific challenges. The community's involvement in diverse livelihoods, such as agriculture and livestock keeping, makes them particularly sensitive to environmental changes.

Also, solid waste from the cafeteria and offices will add to the overall waste generated. The improper disposal or management of this waste could contaminate the land and potentially find its way into local surface and ground water resources. This poses a risk to the quality of these water bodies, which are crucial for agricultural and livestock activities in the kibaoni ward. Furthermore, the construction-generated waste, if not managed appropriately, can attract flies and increase the local bird population, drawn by food waste. This may have implications for the health and hygiene of the surrounding areas, affecting both humans and livestock.

6.5.3.6 Generation of liquid waste

The liquid waste generated during the construction activities encompasses various forms, namely sewage, greywater, and process water. Sewage effluent will emanate from the sanitary facilities within the construction site, potentially posing health risks if not properly managed. The disposal of septic waste in scattered locations may exacerbate these health concerns, especially if left untreated or released directly into the environment. Grey sewage, while less directly impactful on human health, will be produced in substantial quantities at SUA-MPCC.

Moreover, process water and wastewater from activities such as batching plants and equipment maintenance centers will contribute to the overall liquid waste generation. The discharge of such wastewater into the natural environment has the potential to pollute the surroundings, creating unhygienic conditions and causing disturbances to human well-being. In the context of Kibaoni Ward, where residents are engaged in diverse activities such as agriculture, livestock keeping and other small businesses, the implications of liquid waste generation during construction can reverberate across various facets of daily life.

6.5.3.7 Erosion of Exposed Surfaces

The erosion of exposed surfaces, a direct consequence of inadequate compaction and resurfacing exacerbated by factors like rain, trampling, and vegetation clearance, is a tangible concern. The erosion may lead to an increased sediment load in runoffs, particularly if construction activities coincide with the rainy seasons. This impact is expected to be moderate in intensity, primarily localized to the construction site, and has the potential to persist over the long term.

6.5.3.8 Loss of vegetation

The potential loss of vegetation during the construction phase of this project holds multifaceted implications, extending beyond the alteration of the area's scenic beauty. The area of the proposed project is currently adorned with a few diverse arrays of natural vegetation, including few trees, bushes, and shrubs. The proposed clearance of this vegetation, particularly the felling of indigenous trees, is anticipated to reshape the ecological dynamics of the site and its immediate environs. This alteration not only modifies the visual aesthetics of the area but also renders it vulnerable to various environmental stressors.

The consequences of this vegetation clearance are not limited to the aesthetic realm. The act of felling trees and clearing vegetation, especially through aggressive methods like bulldozing, poses a threat to local ecosystems. Beyond the evident loss of green cover, there is a looming risk of habitat disruption and damage to environment. The removal of vegetation cover may expose the area to agents of soil erosion, such as wind and water, amplifying the vulnerability of the land to environmental degradation.

6.5.3.9 Loss of visual Aesthetics

The proposed project will directly impact the visual appeal of the area, affecting the scenic views from homes and public spaces. The transformation of the landscape through the removal of

natural features and the introduction of artificial elements will fundamentally alter the character of the locality, imbuing it with a more urban feel. Furthermore, the possibility of construction activities taking place at night adds an element of concern, contributing to heightened light pollution. This visual transformation carries significant consequences for both the environment and social fabric of the community. Physically, the project will affect geological formations, landforms, and the local ecology. Aesthetically, aspects such as proportion, scale, and color views will be compromised, leading to a lasting change in the visual identity of the area.

6.6 Possible Potential Impacts During Demobilization Phase

6.6.1 Positive Social Impact

6.6.1.1 Reduced noise levels

There will be need to demolish the temporary structures that will be used for storage and pit latrines for the construction workers. The construction rubble and construction wastes will have to be cleared from the site in readiness for the operation phase of the project.
The reduction of noise levels during the demobilization phase emerges as a crucial aspect of the proposed project. As the construction workers and heavy machinery depart upon completion of the project, the noise pollution in the project site area is expected to significantly diminish. This reduction in noise levels will directly benefit the communities of Kibaoni ward within Mpimbwe District Council, creating a more serene and peaceful local environment.

6.6.2 Negative Social Impact

6.6.2.1 Loss of employment

The immediate and palpable repercussion would be the loss of employment for approximately 100 workers hailing from Kibaoni ward in the Mpimbwe District Council.
The impact is not merely numerical; it permeates the fabric of the local community, manifesting as a direct and short-term blow to the socio-economic stability of the affected households. The sudden unemployment of these workers, who are integral to the local workforce, could lead to a ripple effect, affecting families and communities that depend on their income.

6.6.2.2 Loss of business opportunities

The proposed project at SUA-MPCC is expected to usher in a direct and short-term disruption, primarily impacting local entrepreneurs engaged in the construction material trade and small-scale food vendors catering to the needs of construction workers. As the construction activities wind down, these local traders from Kibaoni, Ilalangulu and Mirumba Villages will experience a palpable decline in demand for their products and services.

6.6.3 Negative Environmental Impacts

6.6.3.1 Dust and noise pollution from demobilization works.

As the demobilization activities commence, the use of heavy machinery such as excavators, electric grinders, and mixers is inevitable. This mechanical operation is expected to release a considerable amount of dust particles into the air, affecting the overall air quality in the vicinity.

The introduction of these particulate matters (PM) into the atmosphere poses a notable threat to both the health of on-site workers and the well-being of residents residing in neighboring areas. Furthermore, the operation of such machinery is bound to generate significant noise pollution, creating an auditory disturbance for the surrounding community. The collective sounds from the various demobilization activities may result in a disruptive environment, impacting the daily lives of MPCC students, MPCC staff and locals from Kibaoni Ward particularly Kibaoni Village.

6.7 Potential Impacts During the Operation Phase

6.7.1 Positive Social Impacts

6.7.1.1 Increase of Admission of Students to MPCC

The envisioned result of this project is a noticeable surge in the admission of students to MPCC. By providing much-needed academic facilities, the project aims to attract students from local high schools and other colleges. This increased accessibility to higher education is anticipated to have a profound impact on the community, contributing to the intellectual and skill development of individuals. Consequently, this educational empowerment is expected to yield benefits not only for the immediate community but also for the country at large.

6.7.1.2 Improve teaching and learning environment to students and tutor respectively

During the operational phase of the academic building, the impact on the teaching and learning environment will be manifold. The increase in modern lecture theaters will not only provide essential spaces for academic activities but also contribute to an overall improvement in campus infrastructure. The inclusion of offices, boardrooms, and well-equipped laboratories with modern learning facilities will create an environment conducive to effective teaching. Also, the provision of reliable systems such as electricity and water ensure that the learning environment is not only modern but also functional, addressing basic needs that are crucial for the smooth operation of academic activities. Adequate seating arrangements and other amenities further contribute to the enhancement of the overall learning experience for both students and tutors.

6.7.1.3 Increase of revenue to MPCC

The proposed project, aimed at increasing revenue for MPCC during the operational phase, will not only contribute to the educational development of the region but will also bring about a significant economic boost. The increase in student enrollment at MPCC, driven by the new facilities, is expected to result in a substantial rise in revenue generated through university fees. This influx of funds will not only strengthen the financial position of the academic institution but will also facilitate improved governance and efficient management of the college. As the financial standing of MPCC improves, it will have the resources to invest in quality education, faculty development, and state-of-the-art infrastructure, further reinforcing its role as a center for knowledge dissemination. Consequently, the educational goals of MPCC will be actualized, as it becomes a hub for seeking and sharing knowledge across a broad spectrum of beneficiaries at both regional and national levels.

6.7.1.4 Job creation

In terms of job creation during the operational phase, the impact can be analyzed in two dimensions: direct and indirect employment opportunities. Direct jobs will encompass roles

related to operational services, teaching, cleanliness, catering, and stationery management. These positions are directly tied to the day-to-day functioning of the academic institution. On the other hand, indirect jobs will stem from the positive influence of the institution on various economic sectors, notably agriculture, livestock, energy, and water.

6.7.1.5 Increased commercial and social activities around project location

The construction and subsequent operational phase of the academic facility are expected to act as catalysts for increased commercial and social activities in the vicinity. The influx of students, faculty, and staff, along with the growing demand for goods and services to sustain the college, is likely to stimulate economic opportunities for the residents of Kibaoni Ward**.** The villagers, primarily engaged in diverse activities such as agriculture, livestock keeping, transportation services, shops, and financial services, stand to benefit from the burgeoning demand.

6.7.1.6 Growth of Trade and Increased Investment

The proposed project is anticipated to lead to an upswing in student enrollments, consequently attracting investors both locally and externally who will seek to cater to the burgeoning needs of the expanded population in the area.
This potential influx of investors is expected to spur the growth of trade in the region. Service providers, including food vendors and shops, are likely to emerge during the construction phase to cater to the needs of both skilled and unskilled laborers engaged in the project. This not only creates immediate economic opportunities but also establishes a foundation for sustained growth in the long term. The impact is both direct, as it directly affects the local economy through increased economic activities, and indirect, as it catalyzes the development of support services required for the functioning of the academic infrastructure.

6.7.1.7 Production of skilled labor force for implementing various development policies, plans and goals for sustainable social and economic growth of the Nation

This endeavor is expected to significantly enhance the educational infrastructure and subsequently boost enrollment, fostering the development of a cadre of qualified professionals. The envisaged MPCC project holds the potential to play a pivotal role in the realization of the Second Five-Year Development Plan (FYDP II) by actively contributing to the generation of a skilled workforce. The impact extends beyond mere academic advancement, as it aligns with broader national objectives of industrialization. The graduates produced by this initiative are poised to meet the dynamic demands of the labor market, thus making a substantial contribution to the Tanzanian economy.

6.7.1.8 The growth of banking activities in the project area

In the operational phase of the project, as student enrolments rise and employment opportunities expand, the income of individuals residing in the vicinity or employed in the project is anticipated to witness a considerable boost. This economic upswing is expected to attract commercial banks to establish branches in the area, filling the current void in comprehensive banking services at MPCC. While there is currently only one CRDB Automated Teller Machine (ATM) providing

limited teller services, the anticipated growth in economic activities will prompt other banks to set up branches to cater to the financial needs of the community.

6.7.2 Negative social impacts

6.7.2.1 Increased incidences of diseases and ill health

The surge in diseases and deterioration of health conditions during the operational phase of the proposed project at SUA-MPCC in Kibaoni ward, may stem from the heightened population density in the area. Local persons from Kibaoni ward, engaged in diverse activities ranging from agriculture and livestock keeping to transportation services and small businesses, may experience an uptick in communicable diseases, including Sexually Transmitted Diseases (STDs), HIV/AIDS, TB, COVID-19, and other ailments. The congregation of individuals from various locations intensifies the risk of disease transmission. This impact holds significant social implications, requiring proactive measures from the gender department of the campus to impart education and awareness among students and workers. By doing so, the project aims to mitigate the transmission of diseases, emphasizing the importance of long-term health improvements in the local community.

6.7.2.2 Increased pressure on social services and utilities

The presence of dispensary at SUA-MPCC is aimed at addressing the challenges faced by residents in accessing infrastructural health services. However, with the expected increase in student enrollments in the project area, there is a foreseeable escalation in pressure on the already limited social infrastructure. The heightened demand for services is likely to place an additional burden on the existing service delivery system, potentially straining resources and impacting the local community's well-being.

Moreover, the proposed establishment at MPCC has the potential to increase pressure on essential utilities, including electricity and water. The surge in demand for these services may strain the existing delivery systems, leading to potential challenges in meeting the heightened needs. The influx of both students and individuals seeking employment opportunities is expected to contribute to a rise in the local population, further exacerbating the strain on existing social services.

6.7.2.3 Incidence of Gender Based Violence

The influx of students and increased activities associated with the academic facility could potentially lead to a rise in GBV incidents within the local community. Factors such as altered demographics, cultural clashes, and economic disparities might contribute to an environment where gender-based violence becomes more prevalent. The significance of this impact extends beyond the immediate community, influencing neighboring areas in Kibaoni ward within Mpimbwe District Council, highlighting the indirect and cumulative nature of the repercussions. Moreover, the consequences are likely to manifest in the short and medium term, potentially creating a ripple effect that is not easily reversible.

6.7.2.4 Disruption of traffic flow

The proposed project is anticipated to lead to a surge in vehicular and pedestrian movement, primarily in proximity to the university entrances. This heightened activity raises concerns about

traffic congestion and safety in the surrounding areas, affecting not only commuters but also the businesses and services operated by the villagers. The social implications are considerable, given that efficient transportation is integral to their daily lives and economic activities.

6.7.2.5 Health and safety risks due to fire hazards

The incorporation of combustible materials and machinery in the construction process elevates the vulnerability to fire incidents. Given the prevalent use of electrical systems in Tanzanian buildings, the risk of electrical faults emerges as a noteworthy concern, with the potential to result in fire consequences such as loss of lives, severe injuries, and substantial property damage. The immediate impact is underscored by the inherent dangers associated with environments like laboratories and training workshops, where the presence of certain chemicals further exacerbates the potential for fire outbreaks.

6.7.2.6 Increased level of crimes

The introduction of this project is anticipated to trigger an upswing in criminal activities during its operational phase. This surge is foreseen as a byproduct of the projected population growth, driven by the recruitment of staff and students, alongside the influx of individuals attracted to invest in the burgeoning array of goods and services in the area. Persons from Kibaoni ward, deeply entrenched in diverse activities are likely to witness a transformation in social norms and behaviors due to the amalgamation of people from different backgrounds. This shift is expected to manifest as a rise in criminal activities, posing significant challenges to the sociological fabric of Kibaoni, Ilalangulu and Mirumba Villages.

6.7.3 Negative Environmental Impacts

6.7.3.1 Increased water pollution

Currently, the SUA-MPCC manage wastewater into a septic tank and soak-away pit through a network of pipelines within the campus. Despite the existing system, there is a warning against the direct discharge of hazardous liquid waste from the proposed laboratories. It is advised that the college should contain this liquid waste to assess its potential chemical parameters before releasing it into the wastewater system, aiming to prevent any harm to the receiving environment. The social implications of this proposed project are significant, considering the diverse activities undertaken by the persons from Kibaoni ward. The potential increase in water pollution could directly affect the villagers' access to clean water, impacting their health and well-being. Indirectly, it may harm agricultural activities, livestock health, and the overall economic stability of the community.

6.7.3.2 Increased Storm Water Generation and Overflow

As the development takes shape, the introduction of pavements, concrete surfaces, and buildings, including parking spaces and roofs, is anticipated to give rise to substantial stormwater runoff. This runoff poses a potential threat to the land's natural infiltration capacity, leading to downstream consequences such as compromising the integrity of structures, contributing to soil erosion, and degrading water quality in the surrounding environment. The implications of this impact extend to the local community of Kibaoni, Ilalangulu and Mirumba Villages, where

residents are actively engaged in diverse activities such as agriculture, livestock keeping, transportation services, retail businesses, and beekeeping.

6.7.3.3 Contribution to Climate Change

The operational phase of the project will result in both direct and indirect CO2 emissions into the atmosphere, adding to the existing greenhouse gas emissions from activities such as cooking and waste management.
The materials consumed at MPCC, including cooking fuels such as charcoal, firewood, and natural gas, as well as resources like electricity, water, paper, timber, and foodstuffs, are all contributors to carbon emissions. The anticipated changes in consumption behavior, propelled by technological advancement and modernisation, are likely to intensify these emissions. Importantly, the impact is not confined to the immediate vicinity but extends beyond, marking it as a moderate, international concern with long-term consequences.

6.7.3.4 Risks of collapsing of the buildings

The region's susceptibility to earthquakes, attributed to the passing of the rift valley, amplifies the risk of structural failure if stringent building codes and standards are not adhered to during construction. In the event of a building collapse, the repercussions would reverberate through the community, impacting not only the academic institution but also disrupting the livelihoods of those engaged in various economic activities.

6.7.3.5 Generation of solid and hazardous wastes

The construction and subsequent functioning of the proposed buildings at MPCC are anticipated to produce substantial volumes of waste materials, ranging from papers, boxes, foils, and food leftovers to plastic bottles, bags, and voucher materials.

6.8 Impacts During Decommissioning Phase

6.8.1 Negative Social Impacts

6.8.1.1 Loss of employment and business opportunities

People employed by the project will lose their jobs which will have a significant impact on these people and their families. Other dependents of the project, such as suppliers of various services (e.g., security and cleaning companies) and goods (such as food stuff and stationaries) will lose their business opportunities. This impact is considered negative, long term and of moderate significance. This impact is high, local and will be moderate term.

6.8.1.2 Loss of revenue to institutions and the government

As discussed above both district and government will be receiving revenue from the project. In case of the decommissioning of the project, the revenue generated will cease and hence the revenue base of local and central governments will shrink. This impact is high, local and will be long term.

6.8.2 Positive environmental impacts

6.8.2.1 Improved Air Quality and Noise level

If the buildings are abandoned, air quality is expected to improve and less noise to be emitted. In the event of demolition, particulate matter is expected to increase, but only temporarily. This impact is therefore considered to be positive, long-term duration and of moderate positive significance.

6.8.3 Negative Environmental Impacts

6.8.3.1 Loss of aesthetic value due to haphazard disposal of demolished waste

In the event of future rehabilitations and upgrading, the buildings may need to be demolished necessitating disposal of demolish wastes. Haphazard disposal may cause contamination of soil and water bodies. This impact is moderate, local and will be medium term. This impact is moderate, local and will be long term.

6.8.3.2 Dust and noise pollution from demolishing works

In the event of future rehabilitations and upgrading, the building needs to be demolished necessitating disposal of demolition waste. The noise pollution and air quality will be most affected during the demolition work with the emission of dust particles from machinery like excavators, electric grinders and mixers. The impact receptors are likely to include site workers and residents in the neighboring areas. The substances which will most significantly contribute to air pollution will be particulate matter (PM). PM may cause health hazards when inhaled in significant amounts and can also reduce the visibility. This impact is moderate, local and will be short term.

6.9 Cumulative impacts

Cumulative impacts are incremental changes caused by the project together with other presently ongoing or reasonably foreseeable future planned actions/projects within the Project Area. Cumulative impacts act with others in such a way that the sum is greater than the parts. This is, however, not always the case – sometimes they will simply be the sum of the parts, but that sum becomes significant. The project will have both positive and negative cumulative impacts during its implementation as a direct result of the project. The nature of cumulative impacts can be both temporary in nature (restricted to the construction phase) and permanent (occurring in both the construction and operation phases).

This subsection presents cumulative impacts of the proposed projects at MPCC. The mitigation measures to either prevent or minimize risks related to potential cumulative impacts have already been planned in chapter seven.

6.9.1 Cumulative Socio-Economic Impacts

a. Positive Cumulative Socio-Economic Impacts

The proposed academic building, cafeteria and student hostel etc. are likely to have similar impacts to existing classrooms and cafeteria during the operation phase. Thus, the proposed project will increase students' enrolment, revenue collection and enhanced learning environment during the operation phase as follows;

- If well operated, the cafeteria will address the immediate need for convenient dining options for students but also presents an economic opportunity for local farmers. The agricultural community in Kibaoni ward could potentially become suppliers of fresh produce to the cafeteria, fostering a mutually beneficial relationship between the academic

institution and local farmers. Apart from that, the project will increase revenue collection to SUA-MPCC, and boost the economy of those operating the cafeteria, hence cumulative economic benefits.

- Student hostels is likely to spur growth in the local hospitality and services sector. With an influx of students, there may be increased demand for various goods and services, ranging from transportation (such as bus and bodaboda services) to shops, Mpesa, and Halopesa agents. This surge in demand can lead to the expansion of existing businesses and the emergence of new entrepreneurial ventures, creating a more vibrant local economy.
- The academic building has the potential to be a transformative force, not only in the educational landscape but also in the socio-economic fabric of Kibaoni ward. It has the capacity to stimulate growth, create employment opportunities, and foster collaboration between academia and the local community, thereby contributing to the holistic development of the region.
- Socio economic Issues; The cumulative impact on the Tanzania and Katavi economy will be strongly a positive one. Significant additional resources will be realized by the result of this project, which is consistent with the government's long term development plan. The additional licensing income, among other sources of additional income, will add to the already increasing government revenues and economic growth resulting from expanded and diversified business development in Mpimbwe district Council.

Collectively, these three factors will enhance revenue collection at SUA, fostering growth and competitiveness in the market. Additionally, the study area has not revealed any other developments that could contribute to increased student enrollment or improve the learning environment.

b. Negative Cumulative Socio-Economic Impacts

The proposed project will definitely increase the population at MPCC.

- **Economic Disruption;** The construction phase may disrupt the local economy by displacing existing businesses, such as shops, transportation services, and mobile money agents. This could result in loss of income and economic instability for the affected individuals.
- **Health Concerns;** The influx of people associated with the academic facilities might increase the risk of communicable diseases. The increased population density and potential inadequate sanitation facilities could contribute to the spread of illnesses.
- **Infrastructure Strain;** The introduction of new academic facilities may strain existing infrastructure such as roads, water supply, and electricity. This could result in increased competition for resources and potential degradation of services.
- **Increase of traffic congestion;** Increase of traffic congestion will be a result from increased number of cars of people who will be living in proposed project. This impact will add the present problem of traffic on road leading to the site. To manage this impact the proponent should install appropriate traffic warning signs instructing occupants and visitors to reduce speed, will be placed at the vicinity of the entrance to the site.
- **Cultural and Social Disruption;** The construction of academic buildings and hostels may lead to changes in the cultural and social fabric of the community. The influx of students and faculty may alter the dynamics of the village, potentially leading to a loss of traditional practices and community cohesion.

- **Social Inequity;** There may be social inequities arising from the development project, with certain segments of the community benefiting more than others. This could lead to resentment and dissatisfaction among those who feel left behind or marginalized.
- **Increased Demand on Services;** The establishment of academic facilities may increase the demand for local services, such as healthcare, education, and public transportation. If these services are not adequately expanded to meet the growing population's needs, it could lead to a decline in overall well-being.

6.9.2 Cumulative Impacts on Bio-physical Environmental

a. Cumulative impacts of liquid and solid waste

Ongoing activities at the campus generated significant solid and liquid wastes. The increased number of people at the campus will result in a cumulative increase to generation of both liquid and solid waste at the campus. This will increase deterioration of soil and water bodies.

b. Incremental noise and air pollution

The main sources of noise and air emissions at the campus are traffic and standby power generators. The proposed project shall definitely contribute to increased traffic flow within the campus, both during construction and operation. The proposed infrastructure shall be provided with standby power generators. These shall cumulatively increase noise levels and exhaust gas emissions within the campus during operation.

c. Greenhouse Gas Emissions and Climate Change

Greenhouse gas emissions have a major influence on climate. Naturally occurring greenhouse gases such as Carbon dioxide (CO_2), Methane (CH_4), Nitrous oxide (N_2O) and hydrofluorocarbons (HFCs) play a key role in trapping the sun’s heat, thereby maintaining the earth’s temperature range necessary for life. Project implementation activities contribute to greenhouse gas emissions using equipment, plants, and vehicles during the construction phase. Also, the electricity use is associated with greenhouse gas emissions since the electricity generation is met by hydropower and thermal generation plants.

Table 6.45: Summary of Potential Environmental and Socio-economic Impacts

S/N	Impact	Category	Mobilization phase	Construction Phase	Demobilization Phase	Operation Phase	Decommissioning Phase
1	Job Creation and employment opportunities	S	+2	+2	0	+3	0
2	Increased market opportunities and sources of income	S	+2	+3	0	+3	0
3	Disruption of Economic and Social Activities	S	-2	-2	0	0	0
4	Poor communication services	S	-2	-2	0	-2	0
5	Prevalence of Communicable diseases	S	-2	-2	0	-2	0
6	Income to local suppliers and service providers	S	+2	+3	0	+2	0
7	Increased skills and impart knowledge to local communities	S	+1	+2	0	+2	0
8	Population/Labour influx	S	-1	-2	0	-2	0
9	Occupational Safety and Health impacts	S	0	-2	0	-2	-2
10	Community Health, Safety and Security impacts	S	0	-2	0	-2	0
11	Incidence of Gender Based Violence	S	0	-2	0	-2	0
12	Gender discrimination	S	0	-2	0	-2	0
13	Disruption of traffic flow	S	0	-2	0	-2	-1
14	Child labor	S	0	-2	0	0	0
15	Food Scarcity	S	0	-2	0	-1	0
16	Increased level of crimes	S	0	-2	0	-2	0
17	Loss of employment and business opportunities	S	0	0	-2	0	-3
18	Increase of Admission of Students to SUA-MPCC	S	0	0	0	+3	0
19	Increase of revenue to MPCC	S	0	0	0	+3	0
20	Growth of Trade and Increased Investment	S	0	+2	0	+2	0
21	Production of skilled labor force for implementing various development policies, plans and goals for sustainable social and economic growth of the Nation	S	0	+2	0	+3	0

S/N	Impact	Category	Mobilization phase	Construction Phase	Demobilization Phase	Operation Phase	Decommissioning Phase
22	Increased pressure on social services and utilities	S	0	-2	0	-2	0
23	Loss of revenue to institutions and the government	S	0	0	0	0	-3
24	Loss of flora and fauna and other natural resources	B	-1	-1	0	0	0
25	Contamination and /impaired quality of receiving body – land and water	B	0	-2	0	-1	0
26	Impairment of air quality due to dust and gases emission	B	0	-2	-2	0	-2
27	Contribution to Climate Changes	B	0	-2	0	-2	-2
28	Increased Noise level at the campus	B	0	-2	0	-2	0
29	Increased vibration	B	0	-2	0	-1	-2
30	Generation of Solid and Hazardous waste	B	0	-2	0	-2	-2
31	Generation of liquid waste	B	0	-2	0	-2	0
32	Erosion of Exposed Surfaces	B	0	-3	0	0	-2
33	Loss of visual Aesthetics	B	0	-1	0	0	-2
34	Increased water pollution	B	0	0	0	-1	0
35	Increased Storm Water Generation and Overflow	B	0	-2	0	-2	0
36	Risks of collapsing of the buildings	B	0	0	0	-2	0
37	Loss of aesthetic value due to haphazard disposal of demolished waste	B	0	0	0	0	-2

KEY

S	Socio-Economic Impact	**B**	Biophysical Impacts
+1	Minor positive impact	**-**	Minor negative impact
+2	Moderate positive impacts	**-2**	Moderate negative impacts
+3	High positive impacts	**-3**	High negative impacts
0	Negligible		

6.10 Analysis of Project Alternatives

Consideration of project implementation alternatives is crucial in ensuring that the developer and decision-makers have a wider base from which they can choose the most appropriate option. The planning stage of this project considered the No project alternative, alternative site, alternative energy sources, alternative waste management technologies, alternative construction materials and alternative roofing materials. These are explained hereunder;

6.10.1 No project alternative

The no project alternative entails retaining the current status quo (No construction of the proposed six building structures at SUA Campus). Adopting the No Project alternative, this option would mean avoiding the predicted impacts of the project implementation and missing the predicted positive impacts of the project. The HEET project at SUA is designed to revitalize and expand the capacity of the University to contribute to key areas for innovation, economic development and labor market relevance. The proposed modern infrastructure is expected to enable effective teaching and research and produce graduates who could become a catalytic force for the new industrial based economy of Tanzania.

Based on the enormous benefit of the proposed project at national level, the No project alternative was abandoned. It is clear that identified impacts associated with project implementation are mostly temporary, and shorter, and are manageable at the University level.

6.10.2 Alternative Site

The Alternative site option means the relocation of the current proposed site to another site, the proposed three building structures will be located within the SUA-MPCC premises. The option of utilizing an alternative site out of the campus was considered but over-weighted by the existing land at the campus due to the following advantages over others;

- The site is within SUA - MPCC (No need to buy a new piece of land);
- The selected area is compatible with the land use proposed by the MPCC master plan;
- The site is located on a favorable piece of land; large area with a clear view
- The site is well served with road network, and it is easily accessible to public transport; and
- Availability of water and electricity mains supply.

Even within the campus, several locations were considered against provision/availability of services such as waste management, water and power supply; location with respect to location of other structures and environmental protection. The following are the advantages of the selected sites over any other location within the campus;

- The selected corridor allows integrated management of generated solid and liquid wastes (both onsite and offsite);
- Accessibility to water and energy: to be taped from a main towards the existing new hostel;
- Site selection considered areas, which have less vegetation cover, and avoided densely dares. The proposed site is already a disturbed area.

6.10.3 Alternative Energy Sources

The main source of energy for the university is Electricity, supplied by the national grid. For the proposed infrastructure, the University considered four alternative sources of energy namely; electricity, diesel power generators, compressed natural gas (CNG) and solar energy.

6.10.3.1 Alternative one with electricity

As it is the case in most developing countries, supply of electricity from national grids is not reliable as it mostly originates from hydroelectric power generators, which depend on rainfall frequency, intensity and pattern.

6.10.3.2 Alternative two with Diesel generators

These utilize fossil fuels, which tend to emit greenhouse gases especially when operated for a long time. As such, diesel generators are used as standby power supply during outages. The pros of using diesel generator are durability, steady power supply, availability and durability. The cons include noise, vibration, emission of NOx, higher maintenance cost and smaller load efficiency.

6.10.3.3 Alternative three with Compressed Natural Gas (CNG)

The University considered the used of CNG, especially in the laboratories. CNG is the cleanest gas, thus its utilization would reduce environmental pollution. However, the University is currently not connected to such service. Some of the pros of CNG includes low emissions, reduced smog formation, cost saving and less engine wear. The cons include limited availability, low energy density, low power and high initial cost to integrate with the existing system.

6.10.3.4 Alternative four with solar energy

The last alternative considered was the installation of solar panels to harvest solar energy. It is intended that the solar energy be used for lighting within the buildings. It is also intended to install solar lights in various locations along the roads within the Kibaoni Ward. They have several pros includes reduction of carbon emissions, lower air pollution, cost saving and on-site power generation. The cons high initial cost, weather dependency, space requirements and periodic repair.

Conclusions: an evaluation of the four alternatives based on capital costs, availability of adequate supply, reliability, and environmental protection revealed that at least three options could be used together. Therefore, it is planned to connect the proposed infrastructure to electricity from the National grid as a basic power supply and the backup generator. Provisions of space will be made on the roof of the buildings for installing solar panels and connections within the building to CNG in the future.

6.10.4 Water supply Alternative

6.10.4.1 Alternative one: Water Supply (surface water) from the operating water utility company

Water supply from RUWASA is the option considered to be appropriate as the water supply network is within the campus and therefore can guarantee reliable, clean and safe water supply to the proposed buildings.

6.10.4.2 Alternative two: Groundwater Extraction

Statistics from Mpimbwe district and within the vicinity of the proposed project area suggest that groundwater is another alternative option for water supply and can supplement the water supply at the project site at such times of water shortage and scarcity. At SUA-MPCC there is a borehole of about 150m depth within the campus that has enough water which will produce about 5280l/h with a pump of capacity power 1.5kW ensure availability of water during the project construction

even now not working as it is at the final stage. The geological study was done to determine the availability of water in the aquifer and result shows there is enough water as shown during the pump test. It has to be noted that before establishing the groundwater as sources of water supply, there was an investigation in terms of groundwater quantity and quality that was thoroughly carried out and ascertained. Further, based on water quality data from nearby communities in the Kibaoni ward, utilization of ground water will necessitate investing in water treatment plants/equipment.

Conclusion: *The University opted to use a combination of two water sources namely piped water supply from RUWASA and borehole.*
RUWASA water, although relatively expensive, is of the most reliable quality. Therefore, RUWASA water will be used for domestic purposes and in the running of laboratories.
The borehole at the campus with enough and quality water will be used in laboratory and domestic use in hostel, cafeteria, and staff houses. Also, will be used for cleaning and garden maintenance.

CHAPTER 7: ENVIROMENTAL AND SOCIAL MANAGEMENT PLAN

7.1 Introduction

Plans for the implementation of mitigation measures for the proposed project are provided in this Chapter. The Plans indicate institutional responsibilities, time to take the action, monitoring frequency and estimated costs (Table 7.2). The proposed costs are only indicative, should the proposed development proceed with the suggested changes, the developer will estimate actual costs and include them in the overall cost of the project. Based on the EMA, (URT 2004), NEMC is required to have Social Impact Management Plan (ESMP). ESMP has been prepared based on performing similar work to estimate the costs required during the monitoring of the environmental and social impacts of this project.

7.2 Implementation Responsibility of the Management Plan

The environmental and social mitigation measures incorporated in the detailed engineering design shall be handed over to the contractor during construction period. The Contractor shall take stock of the contents of the Environmental and Social Management Plan of the Project. SUA holds the ultimate responsibility for meeting the requirements outlined in EMA 2004, Tanzania's Environmental Legislation. The primary obligation for executing these requirements rests with the contractor, who will appoint safeguard specialists overseen by a contractor resident engineer. The project proponent is tasked with ensuring the presence of adequate resources, skills, training, capacity-building programs, communication processes, and documentation control systems to ensure the effective implementation and integration of ESMP requirements. This involves having competent staff with sufficient training and experience to cover the ESIA requirements for the HEET project in the designated project area.

SUA Project Implementation Team (PIT) is responsible for assessing the management and execution of the ESMP through monitoring and environmental audits. Any identified non-compliance during the evaluation requires corrective action by the contractor. The PIT oversees the implementation and monitoring of the ESMP, with overall responsibility for supervising all environmental management activities, aided by consultants (WB POM, 2021).
It is essential to note that the ESMP is not the sole document or management system tasked with addressing project impacts. Instead, each project-related subcontractor or material supplier must establish their own management systems to minimize and prevent environmental and social risks.

Therefore, the contractor must integrate the ESMP into their "project management system," which serves as the framework for managing their activities and prepare C-ESMP. This system defines responsibilities, internal reporting requirements, relationships for mitigation and monitoring actions related to the ESMP, and precise mechanisms for monitoring and evaluating the implementation of various ESMP requirements. The contractor is also obligated to ensure that project implementation complies with national and international EHS legislation and regulations, as well as contractual technical and quality specifications in line with the project's quality plan if required. Also, the contractor shall appoint an Environmental, Social, Health and Safety Officer to oversee the E&S aspects who are familiar with the compliance requirements, including WB EHS guidelines (WB POM, 2021).

The successful execution of this plan will necessitate extensive self-monitoring and regular reporting to the PIT. It is anticipated that, throughout the project implementation stage

(construction), both the SUA and contractor will enlist the services of consultants, including environmental and social specialists, as well as environmental health and safety officers (EHS). These personnel will be appointed based on the specifications outlined in the following table for effective management and monitoring. Roles and responsibilities of the project implementation teams and consultants are discussed in section 3.6.

7.3 Environmental and Social Cost

The costs for implementing the mitigation measures have been estimated based on previous similar projects and engineering judgment. The estimated cost for environmental and social management of an establishment is to be included in the Contractor's Bill of Quantities (BOQ) during decommissioning. Also, the principal environmental and social cost includes the cost for implementing the mitigation measures proposed. Additional costs for implementing environmental and social management measures have been estimated and SUA shall cover all the costs proposed in the ESMP.

Table 7.1: Proposed Environmental Social Management Plan (ESMP for planning/Mobilization phase, construction phase, demobilization phase and operation phase.

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
PRE-CONSTRUCTION/MOBILISATION PHASE				
POSITVE SOCIAL IMPACT				
1	Job Creation and employment opportunities	○ The contractor will be urged to hire as much local labor that is unemployed but willing to work hard as possible, up to a maximum of 50% unskilled labor. This will guarantee that the initiative benefits the local population better. ○ Employment should be based on the idea that everyone should have equal access to opportunities. ○ Develop and implement Labour Management Plan ○ Communities close to the project site will be urged to develop high-quality goods and services. ○ Opportunities for employment will be made available in accordance with qualifications, accepted interviewing procedures, and grading systems. ○ Conduct fair and transparent recruitment processes to ensure equal opportunities for all interested individuals, promoting inclusivity and diversity Local communities shall be encouraged to produce quality goods and services for the project. ○ Implement training programs to enhance the skills of the local workforce, ensuring they acquire the necessary qualifications for available job opportunities. ○ Ensure strict adherence to labor standards and regulations, providing a safe and supportive working environment for all employees ○ Both professional and unskilled laborers hired for the project should receive fair remuneration.	Contractor/ PIT/ Consultant	N/A Part of its project
2	Increased market opportunities	○ Ensure monitoring of labor standards among contractors, sub-contractors, workers and service providers. ○ Qualified local vendors/ entrepreneurs should be given priorities to supply different goods and services to the project.	Contractor/ PIT/ Consultant	N/A Part of its project

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
	and sources of income	○ Encourage the project to prioritize the procurement of goods and services from local businesses. This can include construction materials, equipment, and various services required during the mobilization phase. ○ Implement training programs to equip local residents with skills relevant to emerging market opportunities. This can include workshops on entrepreneurship, vocational training, and business management. ○ Promote environmentally and socially sustainable business practices to ensure that the increased market opportunities contribute to long-term economic and community well-being		
3	Increased Revenues to local authorities	○ Local authorities can strategically plan and implement tax structures that ensure optimal revenue collection during the peak construction activities. This may involve revising tax rates on construction-related transactions and services ○ Promote local economic development projects that align with the construction activities to sustain economic transactions beyond the construction phase. ○ Encourage local businesses to provide goods and services required for the construction, fostering a symbiotic relationship. ○ Awareness creation for the people in the area on the importance of paying revenues.	Contractor/ PIT/ Consultant	N/A Part of its project
NEGATIVE SOCIAL IMPACT				
4	Disruption of Economic and Social Activities	○ Inclusion of local leaders (Ward/sub-ward chairpersons/executive officers or /and councilors. ○ Contractor shall Develop and implement a comprehensive traffic management plan to minimize disruptions along the road. This plan should include designated routes for construction vehicles and scheduling deliveries during non-peak hours ○ Contractor shall conduct awareness programs for the local community, including food vendors, passengers, drivers, and students, to inform them	Contractor/ PIT/ Consultant	10,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		about the upcoming disruptions. Provide information on alternative routes and timing to minimize inconvenience o Environmental and Social Safeguard Specialists of SUA should explore the possibility of temporarily relocating key services, such as food vendors or public transportation, to less affected areas during the mobilization phase. This can help maintain essential services without significant interruption o Establish effective communication channels between the construction team and the local community to address concerns and provide real-time updates on construction activities. This fosters transparency and community engagement. o Introduction of traffic management plan and routing traffic flow to alternative roads will reduce the impact. o Prior information to the SUA staff who previously used designated construction area for cultivation shall be provided so that the land is left unused for construction. The staff shall be relocated to the unused land.		
5	Poor communication services	o SUA shall collaborate with telecommunications companies and local authorities to facilitate the establishment of additional communication infrastructure o SUA/Contractor shall enhance community-based initiatives aimed at promoting digital literacy and the use of alternative communication channels, such as community radio or local information hubs, can empower residents to adapt to the existing communication limitations. Training programs and workshops can be organized to educate community members on utilizing available resources effectively. o Integration alternative communication technologies, like satellite-based services, can provide a supplementary means of communication, ensuring that the MPCC students, staff and local from Kibaoni ward is not solely reliant on a specific mobile operator. Diversifying communication options can enhance resilience and mitigate the impact of service deficiencies.	Contractor/ PIT/ Consultant	20,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
6	Prevalence of Communicable diseases	○ Provide awareness to the public on pathways for communicable diseases. ○ Provide Voluntary Counseling and Testing (VCT) centers for HIV/AIDS at MPCC and the surrounding communities. ○ Provide more healthcare services and medical equipment for treatment. ○ Work close to government and private institutions that deal with the spread of communicable diseases. ○ Provide easy access to free or affordable condoms on the construction site and within the local communities to encourage safe sexual practices and reduce the risk of STDs, including HIV/AIDS. ○ Establish regular health screening programs for construction workers to detect and address any potential communicable diseases early. This can include HIV testing, counseling, and access to medical care. ○ Foster community involvement in promoting health awareness and responsible behavior. Engage community leaders to support initiatives that discourage risky behaviors and emphasize the importance of health in the long term. ○ Implement campaigns to reduce the stigma associated with HIV/AIDS and other communicable diseases. This can help create a supportive environment for affected individuals to seek testing and treatment without fear of discrimination. ○ Increase security measures to discourage the influx of sex workers to the construction area. This may involve collaboration with local law enforcement to maintain a safe and secure environment.	Contractor/ PIT/ Consultant	5,000,000
NEGATIVE ENVIRONMENTAL IMPACT				
7	Loss of vegetation due to exploitation of borrow pits/quarries and	○ Develop a comprehensive reforestation plan to replace cleared vegetation. ○ Implement environmental conservation initiatives, focusing on the replanting of native species to encourage environmental recovery. ○ Close supervision of earthworks shall be observed in order to confine land clearance within the project site.	Contractor/ PIT/ Consultant	N/A Part of its project

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
	other natural resources	○ The contractor shall be instructed to give the uprooted trees to the residents through ward/village governments or any other arrangement may seem convenient provided he does not contravene the Forest Acts 2002. ○ Appropriate landscaping programs must be planned and put into action in order to aid in the re-vegetation of a portion of the project area following construction shall be designed and implemented. ○ Encourage the retention of vegetative cover by avoiding complete bulldozing to ground level. ○ Implement low-impact construction methods that minimize disturbance to existing vegetation. ○ Implement efficient resource management practices to minimize the extraction of building materials. ○ Ensure that building materials are sourced from legitimate and sustainable suppliers to prevent unauthorized exploitation of natural resources ○ Monitor and control water and energy use to minimize additional demands on these resources. ○ Explore alternative sources for building supplies to reduce the impact on vegetation ○ Implement reforestation and restoration programs post-construction to rehabilitate affected areas and enhance environment. ○ Raise awareness among local communities about the importance of preserving natural resources and involve them in conservation efforts. ○ Ensure strict adherence to environmental regulations and guidelines to prevent overexploitation and degradation of natural resources		
8	Contamination and /impaired quality of receiving body – land and water	○ Efficient collection and disposal system based on the principles of reduction, re-use and recycling of materials, shall be instituted at project areas. ○ Introduction of waste disposal bins, warning notices, posted at strategic points	Contractor/ PIT/ Consultant	20,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Wastewater from toilets should be well managed through the proper managed septic tank and soak pit treatment. ○ No, on site burial or open burning of solid waste shall be permitted. ○ Wastes not suitable for incinerations and general municipal waste dumping (e.g., plastics, rubbers, tyres, etc.) shall be removed for recycling, treatment, and/or disposal by licensed contractor as appropriate; and ○ Instructions to contractor to put on his/her methodologies for handling hazardous waste such as oils, lubricants and non-combustible waste during bidding process.		
CONSTRUCTION PHASE				
POSITVE SOCIAL IMPACT				
1	Job Creation and employment opportunities	○ Ensure that the contractor prioritizes the hiring of local residents, both skilled and non-skilled, from Kibaoni ward. ○ Collaborate with local employment agencies to identify qualified candidates within the community. ○ Implement training programs to enhance the skills of the local workforce, enabling them to qualify for skilled positions and fostering long-term employability ○ Establish contractual agreements with the contractor to adhere to the employment targets, ensuring the stipulated number of skilled and non-skilled laborers are hired from the local community ○ Facilitate the growth of self-employment opportunities by encouraging the establishment of businesses such as restaurants and food vendors to meet the increased demand generated by the project ○ Encourage the contractor to contribute to community economic development initiatives, such as supporting local businesses and entrepreneurs, thereby fostering long-term economic resilience	Contractor/ PIT/ Consultant	N/A Part of its project

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Implement a monitoring and reporting system to track the employment impact throughout the construction phase, ensuring compliance with the outlined measures		
2	Income to local suppliers and service providers	○ Purchasing materials from as many local suppliers. ○ Prioritize hiring local workers for various construction-related tasks, contributing to increased employment opportunities in Kibaoni ward. ○ Provide training and support to local suppliers and service providers to enhance their capacity to meet the increased demand ○ Actively involve and engage local suppliers for construction materials needed during the establishment phase. ○ Provide training and support to local suppliers and service providers to enhance their capacity to meet the increased demand ○ Implement fair and transparent procurement processes to ensure that local suppliers have equal opportunities to participate in supplying materials and services for the project ○ Integrate environmentally sustainable practices in construction to minimize negative impacts on the local environment, ensuring long-term benefits for the community. ○ Maintain open and transparent communication with local suppliers and service providers to address any concerns and ensure that they are well-informed about project developments	Contractor/ PIT/ Consultant	N/A Part of its project
3	Increased skills and impart knowledge to local communities	○ Develop and implement structured training programs for both skilled and non-skilled laborers in the local communities. ○ Contractor shall provide on job skills and training. ○ Actively engage the local workforce in construction activities, providing hands-on experience with new equipment and technologies ○ Implement capacity building initiatives to equip individuals with essential skills required for their roles in the construction process ○ Establish a system for continuous monitoring and evaluation of the training programs to ensure their effectiveness	Contractor/ PIT/ Consultant	N/A Part of its project

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Involve local communities in the planning and execution of skill development initiatives to ensure relevance and sustainability. ○ Implement a monitoring and evaluation system to track the effectiveness of the skills transfer programs. ○ Regularly assess the impact on individuals and the community to make necessary adjustments for continuous improvement.		
4	Improved quality of life and living standard	○ Creating awareness to the workers on employment schemes and work-related rights. ○ Provide awareness to the local communities to use the opportunities available to improve their lives. ○ Paying workers reasonable wages. ○ Local suppliers from the community should be given priority. ○ Supporting the local communities to access quality and affordable social services in the project area.	Contractor/ PIT/ Consultant	N/A Part of its project
NEGATIVE SOCIAL IMPACT				
5	Labour influx	○ Enhance efforts to prioritize hiring from local communities (Kibaoni ward) to minimize external migration for employment. ○ Implement skills training programs for the local population to enhance their employability and competitiveness for construction-related jobs ○ Organize job fairs and information sessions to ensure transparent communication about employment opportunities, reducing misinformation and speculation ○ Establish regular communication channels with the local communities to address concerns, provide updates, and gather feedback on employment-related issues ○ Collaborate with local authorities to develop and enforce policies that regulate the influx of people during construction, ensuring a balanced impact on the local population.	Contractor/ PIT/ Consultant	N/A Part of its project

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Implement monitoring mechanisms to ensure fair hiring practices and adherence to the preference for local employment, with penalties for non-compliance. ○ Implement job rotation programs and skill development initiatives to ensure a diverse range of individuals can participate in the construction activities, reducing intense competition for specific roles		
6	Occupational Safety and Health impacts	○ Institute good site practices include preventing public access to the construction site by securing equipment and demarcating excavation, using warning signs with appropriate text (local language) and graphic displays. ○ Contractor shall establish and implement C-ESMP ○ Contractor should have registered and qualified health and safety personnel in the project during construction phase. ○ Implement traffic management and safety initiatives, such as heavy truck operator and driver training and testing, speed limit enforcement, maximum load limitations, and adherence to all Tanzanian transportation laws and standards. ○ Awareness campaigns /Education on HIV and STDs shall be provided to workers; ○ Appropriate working gear (such as nose, ear and mouth mask and clothing) and good construction site management shall be provided. ○ The contractor is responsible for barricading the building site, maintaining it hygienically, and providing enough facilities, such as trash cans, fire extinguishers, and a clean, safe water supply. ○ A well-stocked First Aid kit (administered by medical personnel) shall be maintained at the construction site. The medical personnel shall also be responsible for primary treatment of ailments and other minor medical cases as well as providing health education to the workforce.	Contractor/ PIT/ Consultant	25,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ The establishment of reporting systems for the public to voice concerns or grievances over perceived hazards to their health and safety caused by the construction operation. ○ There will be proper signs on site to warn workers of safety requirements as regards machines with moving parts and other equipment at site. ○ Develop and implement an emergency plan including spill response. ○ Safe scaffoldings and railings will be provided at heights. ○ Creating a thorough health and safety plan and educating all contractor employees on it.		
7	Community Health, Safety and Security impacts	○ Contractor should have registered and qualified health and safety personnel in the project during construction phase. ○ Develop and implement community health and safety management plan. ○ on-site during demolition and construction. ○ Establish a health and safety monitoring system to ensure that workers comply with health protocols and minimize the risk of communicable diseases, including regular health check-ups and screenings. ○ Implement a comprehensive training program for all construction workers, emphasizing the importance of adhering to safety protocols, respecting local communities, and following a code of conduct to minimize negative impacts. ○ Contractor shall establish and implement C-ESMP ○ Implement disease prevention programs, including awareness campaigns and access to healthcare facilities, to address potential increases in diseases such as COVID-19 and HIV/AIDS. ○ Collaborate with local law enforcement to enhance security around construction sites, addressing concerns related to crime, prostitution, and alcohol abuse. Implement security measures within labor camps to ensure the safety of workers and the community. ○ Develop a comprehensive traffic management plan to mitigate the risks associated with increased traffic volume during the construction phase.	Contractor/ PIT/ Consultant	25,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		This includes speed limits, road signage, and coordination with local authorities to enforce safety measures. o Conduct regular health impact assessments to monitor and address any emerging health issues within the project area, ensuring a prompt response to potential risks. o Properly manage labor camps to ensure adequate living conditions, sanitation facilities, and medical services for imported skilled workers, reducing the likelihood of negative impacts on local communities. o Work closely with local authorities to monitor and regulate prices of goods and services to prevent unjustified increases, ensuring that the local community is not adversely affected by inflation. o Foster collaboration with local authorities, community leaders, and relevant stakeholders to jointly address emerging challenges, promote transparency, and ensure that the project's social impacts are effectively managed.		
8	Gender based violence	o Conduct awareness campaigns within the local community and among project workers to educate them about gender-based violence, its forms, and consequences. o Promote a culture of respect and gender equality through workshops and training sessions. o The project will prepare a GBV Action Plan that ensures project awareness raising strategy (for workers and community members), a list of GBV service Providers to which GBV survivors will be referred, revisions to the GRM to ensure it can address GBV complaints, and information on GBV allegation procedures in the workplace. o Establish safe spaces within the project area where individuals can report incidents of gender-based violence confidentially and seek support. o Provide gender sensitization training for project staff, contractors, and community members to foster a deeper understanding of gender dynamics and encourage respectful behavior.	Contractor/ PIT/ Consultant	5,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Integrate gender-sensitive design principles into the construction project, ensuring that the physical layout and amenities promote safety and inclusivity for all genders. ○ Enhance security measures in and around the project area, particularly during the construction phase, to deter and respond to any potential incidents of gender-based violence. ○ Implement and enforce clear workplace policies that explicitly prohibit gender-based violence and harassment, emphasizing a zero-tolerance approach.		
9	Gender discrimination	○ Conduct awareness programs for all project stakeholders, including workers, community members, and decision-makers, emphasizing the importance of gender equality and discouraging discriminatory practices. ○ Develop and implement GRM ○ This project will ensure that there is involvement of women in project activities. ○ Provide specific training sessions for project staff on recognizing and addressing gender biases. This includes promoting fair treatment and equal opportunities for both men and women. ○ Implement transparent and inclusive hiring practices that ensure equal opportunities for men and women in employment and project-related activities.	Contractor/ PIT/ Consultant	5,000,000
10	Child labor	○ MPCC will conduct regular monitoring of project workers in relation to health, working conditions, hours of work, minimum age, and the other requirements of national law. ○ Develop and enforce a comprehensive Labor Management Plan that strictly adheres to local and international labor laws and standards, particularly those related to the employment of minors. ○ Establish educational support programs to encourage children to stay in school and pursue their education. This can include scholarships,	Contractor/ PIT/ Consultant	5,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		tutoring services, and awareness campaigns promoting the value of education. o Control school dropout by collaborating with the local government and schools in the Kibaoni area. o Cooperate with relevant authorities like Ministry of Labor to control child labor o Create awareness raising to the communities on the importance of education to the children. o The local authorities should develop bylaws to control the engagement of children in petty business or work in project related activities		
11	Food Scarcity	o Provide support through agricultural extension services to educate local farmers on modern farming techniques, crop diversification, and sustainable practices. o Facilitate the establishment of community-based agriculture initiatives to ensure a sustainable and diversified local food supply. o Implement income-generating programs that are not solely reliant on agriculture, encouraging local residents to explore alternative livelihoods. o Encourage traders to supply food and other products to the project area. o Sensitizing the neighborhood groups to the employment and income-generating opportunities that the proposed project will provide. o Provide more avenues for service providers e.g., cafeteria and restaurants	Contractor/ PIT/ Consultant	N/A
12	Increased level of crimes	o Deploy trained security personnel to monitor the construction site, deterring potential thieves and enhancing overall security. o Install surveillance cameras strategically across the construction site to monitor activities and provide evidence in case of theft or security incidents o Implement strict access control measures, limiting entry points and ensuring that only authorized personnel have access to the construction site.	Contractor/ PIT/ Consultant	2,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Install adequate lighting around the construction site to minimize areas of darkness, reducing the likelihood of unauthorized access and theft. ○ Foster a positive relationship with the local communities by involving them in the construction process, creating a sense of ownership and reducing the likelihood of theft. ○ Establish secure storage facilities for construction materials and equipment, ensuring they are locked and well-protected when not in use. ○ Conduct regular security audits to identify vulnerabilities and make necessary improvements to the security infrastructure		
NEGATIVE ENVIRONMENTAL IMPACT				
13	Impairment of air quality due to dust and gases emission	○ Implement effective dust suppression techniques, such as using water sprays or dust suppressants on construction sites to minimize the release of fugitive dust. ○ Prioritize the preservation of existing vegetation during construction to reduce the need for extensive clearance, minimizing the disturbance that contributes to dust emission. ○ Cover sand and aggregate stockpiles to prevent wind erosion and reduce the dispersion of particulate matter into the air. ○ Opt for construction practices that minimize soil disturbance and dust generation, such as limiting heavy machinery movement. ○ Provide workers with appropriate PPE, including masks and respiratory protection, to safeguard their health against potential exposure to airborne particulate matter. ○ Conduct awareness programs for the local community to educate them about the temporary nature of the air quality impact, its potential health risks, and the implemented mitigation measures. ○ Establish a monitoring system to regularly assess air quality during construction, ensuring that concentrations of PM2.5 and PM10 remain within acceptable limits.	Contractor/ PIT/ Consultant	10,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Develop a responsive action plan to promptly address any exceedance of emission limits or unexpected air quality issues, ensuring a proactive approach to mitigation.		
14	Contribution to Climate Changes	○ Equipment must be kept in good working order, and it is forbidden to utilize any equipment that produces an excessive amount of black smoke. ○ Implement energy-efficient technologies and practices in the design and operation of the academic building, hostel, and cafeteria to minimize carbon emissions ○ Incorporate renewable energy sources such as solar, wind, or biomass to meet a portion of the energy needs, reducing dependence on fossil fuels and lowering greenhouse gas emissions. ○ Develop and implement climate change adaptation strategies to address potential climate-related challenges that may arise in the future, ensuring the long-term resilience of the campus. ○ Raise awareness among students, staff, and the local community about the project's climate impact and the importance of adopting sustainable practices in their daily lives. ○ Turn off engines to reduce idling. ○ Green spaces shall be maximized in project areas	Contractor/ PIT/ Consultant	N/A
15	Increased Noise level at the campus	○ Implement construction activities during specific time windows to minimize disruption during sensitive hours, such as early mornings or late evenings when community activities are at a minimum. ○ Install temporary acoustic barriers or soundproofing measures around noisy machinery and construction sites to contain and reduce the propagation of noise. ○ Ensure that all construction equipment undergoes regular maintenance to reduce noise emissions. Well-maintained machinery tends to operate more quietly. ○ Providing ear protection materials for the workers in noisy area.	Contractor/ PIT/ Consultant	5,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Proactively communicate construction schedules and potential noise impacts to the local community. Seek feedback and address concerns to foster understanding and cooperation ○ Provide training to construction workers on the importance of minimizing noise pollution and adopting practices that contribute to a quieter working environment		
16	Increased vibration	○ Explore and implement advanced construction techniques that minimize vibrations. This may include the use of specialized equipment designed to reduce ground vibrations during activities like blasting and impact pile driving. ○ Establish effective communication channels with the local community to provide timely information about construction schedules and activities that may cause vibrations. This helps residents to take necessary precautions and prepares them for potential disruptions. ○ Install vibration monitoring devices in key locations to continuously monitor ground vibrations during construction. This real-time data can be used to assess the impact and adjust construction methods accordingly to stay within acceptable limits ○ Modify construction methods to minimize vibration generation. For example, consider alternative pile driving techniques or adjust blasting procedures to reduce the intensity of vibrations ○ Foster an open dialogue with the local community to address concerns and gather feedback. This engagement can help in refining mitigation measures based on community input and building a collaborative approach to managing the impact	Contractor/ PIT/ Consultant	2,000,000
17	Generation of Solid waste	○ Contractor shall provide waste handling facilities such as waste bins and skips for temporarily holding domestic waste generated at the site. ○ Maintaining cleanliness on site to reduce the amount of solid and liquid waste produced during construction and associated tasks.	Contractor/ PIT/ Consultant	1,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Implement a comprehensive waste segregation system to separate recyclable materials from hazardous and non-biodegradable waste. ○ Employ certified waste disposal services to ensure safe handling of hazardous waste, ○ Biodegradable waste will be gathered and disposed of by an authorized contractor, then taken to an authorized dumpsite based on permit from Mpimbwe District Council. Plastics and other materials suitable for recycling will be collected separately and sent for recycling ○ Develop a detailed waste management plan that outlines proper disposal methods, recycling procedures, and strategies for reducing waste generation. ○ Implement a comprehensive waste segregation system to separate recyclable materials from hazardous and non-biodegradable waste. ○ Adhere to proper disposal methods for hazardous substances and materials, following established guidelines and regulations. ○ Employ certified waste disposal services to ensure safe handling of hazardous waste ○ A special focus on waste minimization will be made in order to cut down on the amount of solid waste generated during site preparation and construction. ○ Topsoil shall be stockpiled and used for reclamation or re-vegetation at the site during landscaping. ○ Develop a detailed waste management plan that outlines proper disposal methods, recycling procedures, and strategies for reducing waste generation. ○ Ensure adherence to the waste management plan throughout the construction and operational phases. ○ Conduct training sessions for construction and operational staff on proper waste handling, segregation, and disposal practices.		

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Unusable construction trash, including broken pipes, formwork, and other building supplies, will be disposed at a designated area.		
18	Generation of liquid waste	○ Wastewater will be discharged directly to the septic tank and soak pit through the existing wastewater system at campus. ○ Contractor shall be instructed to put in place acceptable procedure for handling hazardous waste such as oils, lubricants and non-combustible waste. ○ Training on waste management shall be done to all personnel, operators and service providers on the rationale of using the sanitary facilities. ○ Adequate sanitary facilities for workers with appropriate sanitary arrangement to prevent runoff will be in place. ○ Develop and implement emergency response plans to address any accidental spills or releases of hazardous substances into the wastewater system. ○ Conduct regular drills to ensure that SUA-MPCC staff is well-prepared to respond to emergencies promptly.	Contractor/ PIT/ Consultant	1,000,000
19	Erosion of Exposed Surfaces	○ Low bumps shall be placed around the piles of sand and marl and/ or tarpaulin used to cover open piles of these materials to prevent them from being washed away when it rains heavily. ○ Implement thorough compaction and resurfacing techniques during construction to minimize exposed surfaces prone to erosion. ○ Introduce erosion control measures such as the use of erosion control blankets, sediment barriers, and vegetative cover to reduce the impact of rain, trampling, and vegetation clearance. ○ Re-vegetation of exposed soils with grass and other ground cover will be done as soon as practicable. ○ Unnecessary ground clearance and sensitive re-alignments shall be avoid ○ Directing flow to properly designated channels. ○ Leveling of the project site to reduce run-off velocity and increase infiltration of storm water into the soil.	Contractor/ PIT/ Consultant	N/A Part of its project

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
20	Loss of vegetation	○ Implement a comprehensive plan for revegetation and reforestation in and around the construction site to restore the vegetation. ○ Integrate green construction practices to minimize the need for extensive clearing of natural vegetation. ○ Explore alternative construction methods that reduce the ecological footprint. ○ Close supervision of earthworks shall be observed in order to confine land clearance within the project site. ○ Implement erosion control measures, such as the installation of sedimentation barriers and erosion control blankets, to prevent soil erosion from wind and water. ○ Conduct awareness programs to educate the local community about the importance of preserving environment and the ongoing mitigation measures. ○ Regularly review and update the environmental management plan based on monitoring and feedback.	Contractor/ PIT/ Consultant	N/A
21	Loss of Visual Aesthetics	○ Integrate landscaping initiatives and create green spaces within and around the project site. Planting trees and maintaining natural elements will help preserve the visual appeal and soften the urbanized look. ○ Implement visual barriers such as construction fences, temporary screens, or artistic panels to shield construction activities from direct view. This will minimize the visual intrusion experienced by residents ○ Enforce strict construction schedules to limit noisy and visually disruptive activities to specific hours, reducing the impact on the community during peak times. ○ Foster open communication with the local community to gather feedback and address concerns related to visual changes. This involvement can help tailor mitigation efforts to meet community expectations.	Contractor/ PIT/ Consultant	N/A Part of its project

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ If nighttime construction is necessary, use low-impact lighting to minimize light pollution. Shielding and directing lights away from residential areas will preserve the night sky's visual quality. ○ Develop comprehensive plans for the post-construction period, including the restoration of altered landscapes. This may involve replanting native vegetation and restoring natural features to enhance the visual aesthetics		
DEMOBILISATION PHASE				
POSITIVE SOCIAL IMPACT				
1	Reduced noise level	○ Removing all working and damaged construction mechanical equipment's	Contractor/ PIT/ Consultant	5,000,000
NEGATIVE SOCIAL IMPACT				
2	Loss of employment	○ Implement skill development programs to enhance the employability of the affected workers. ○ Provide training in areas with high demand in the local job market. ○ Informing workers, the project duration when employing them ○ Establish job placement services to assist displaced workers in finding alternative employment opportunities. ○ Educating the labour force on the need to save part of their wages. ○ Paying severance benefit to all laid off workers according to the provision of the labour laws. ○ Establish community support programs to provide financial assistance or counseling services to those facing immediate economic challenges.	Contractor/ PIT/ Consultant	N/A Part of its project
3	Loss of business opportunities	○ Offer training programs to local traders and entrepreneurs to diversify their products and services. This can help them adapt to changing circumstances and explore alternative business opportunities beyond construction-related activities. ○ Establish clear communication channels between the construction project management and local businesses. This ensures that businesses	Contractor/ PIT/ Consultant	N/A Part of its project

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		are informed about the project timeline, allowing them to plan for potential disruptions and adjust their operations accordingly. o Encourage collaboration among local businesses to create a network that can collectively address challenges and explore new business opportunities. This can foster resilience and community support o Facilitate the establishment of support services for construction workers, such as designated areas for purchasing food from local entrepreneurs. This ensures that some business activities can continue despite the temporary disruptions. o Advocate for and facilitate access to government assistance programs for affected businesses. This could include tax relief, low-interest loans, or other financial support measures. o Work with local authorities and businesses to develop long-term plans for economic resilience, considering potential future construction projects and identifying strategies to minimize the impact on local businesses.		
NEGATIVE ENVIRONMENTAL IMPACT				
4	Dust and noise pollution from demolition works	o Employ dust control technologies such as water spraying systems to minimize the release of dust particles during demolition activities. This will help maintain better air quality o Implement noise reduction strategies, including the use of sound barriers, noise-dampening equipment, and scheduling noisy activities during specific times to minimize disruption to nearby residents. o Provide workers with personal protective equipment (PPE) such as masks and ear protection to mitigate health risks associated with dust inhalation and prolonged exposure to high noise levels o Conduct awareness programs for local residents, informing them about the demolition schedule, potential impacts, and measures being taken to mitigate dust and noise pollution. This foster understanding and cooperation	Contractor/ PIT/ Consultant	4,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Establish a monitoring system to regularly assess air quality and noise levels. Implement a reporting mechanism to promptly address any deviations from acceptable standards, allowing for quick corrective actions ○ Explore and utilize demolition methods that generate less dust and noise, such as mechanical methods that are more controlled and produce fewer airborne particles.		
OPERATIONAL AND MAINTANANCE PHASE				
POSITIVE SOCIAL IMPACT				
1	Increase of admission of students to SUA-MPCC	○ Gender and disabled groups will be considered during the student's selection process ○ SUA shall increase advertisement to attract more students to study the priority programs for the Nation	PIT/ SUA	N/A
2	Increase of revenue to SUA	○ Innovate business activities linked with academic activities for enhancing income of the University ○ Implement robust financial management practices to ensure that the increased revenue is allocated efficiently and effectively. ○ Establish financial reserves for unforeseen circumstances and to secure the long-term financial stability of SUA ○ Develop a comprehensive risk management plan to identify and mitigate potential risks that could impact the financial stability and success of SUA ○ Implement a robust monitoring and evaluation system to track the outcomes and impacts of the new buildings and other initiatives ○ Develop and expand online education programs to reach a wider audience and attract students from different geographic locations.	PIT/ SUA	N/A
3	Job creation	○ Implement skill development programs and training initiatives to enhance the employability of local residents. This could include vocational training in areas relevant to the institution's operations, such as hospitality, agriculture, and business management	PIT/ SUA	N/A

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Prioritize the hiring of local residents for various positions within the institution. This can be facilitated through collaboration with local employment agencies or community outreach programs to connect potential employees with job opportunities ○ Foster partnerships with local businesses in the cleanliness, stationery, catering, and commercial sectors to ensure a mutually beneficial relationship. This can stimulate economic growth in the community and create additional job opportunities ○ Establish initiatives or support existing programs that promote entrepreneurship within the community. This could involve providing mentorship, or resources to aspiring entrepreneurs, thereby creating new businesses and job opportunities ○ Engage with the local community through regular communication channels to inform them about job opportunities, skill development programs, and other initiatives. Educate the community on the long-term benefits of the institution and how they can actively participate in and benefit from its operations.		
4	Increased commercial and social activities around project location	○ Establish platforms for ongoing dialogue between the university and local businesses to understand their needs and concerns ○ Offer training programs and workshops to local residents to enhance their skills and make them more employable in the growing market. ○ Collaborate with local vocational institutions to provide specialized training in areas related to the services and goods in demand ○ Organize cultural and social events on the university campus that attract residents from the surrounding areas, fostering a sense of community and promoting local businesses. ○ Develop and implement policies that prioritize the procurement of goods and services from local businesses, thereby supporting the local economy.	PIT/ SUA	N/A

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
5	Growth of Trade and Increased Investment	○ Sensitize the community to invest to accommodate business opportunities inclined by the increasing students' enrolment.	PIT/ SUA	N/A
6	Production of skilled labor force for implementing various development policies, plans and goals for sustainable social and economic growth of the Nation	○ The project aims to boost student enrollment, indicating a proactive approach to meet the growing demand for skilled professionals in alignment with national development policies. ○ SUA is committed to providing high-quality education to its students, ensuring that graduates possess the necessary skills and knowledge to contribute effectively to the nation's development goals ○ The project emphasizes aligning its curriculum and training programs with the priorities outlined in national development policies. This ensures that graduates are well-prepared to address the specific needs and challenges of the country. ○ SUA recognizes its crucial role in supporting Tanzania's industrialization efforts. By tailoring its educational programs to meet the demands of the labor market, the institution directly contributes to the development of a skilled workforce that can drive economic growth in the industrial sector	PIT/ SUA	N/A
7	The growth of banking activities in the project area	○ The project anticipates a surge in banking institutions establishing offices in the area. This growth is attributed to the overall expansion of banking activities driven by factors such as population growth, increased investments, and heightened trading activities ○ Factors like the rise in student enrollment at SUA, the creation of employment opportunities, and increased income for residents and workers are expected to contribute to the circulation of funds in the local economy. This, in turn, makes the area more attractive for additional banking institutions. ○ The expectation is that both skilled and unskilled employees at SUA will receive their payments through the banking system. This integration of the payment system is likely to further incentivize banks to operate in the area	PIT/ SUA	N/A

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
NEGATIVE SOCIAL IMPACT				
8	Increased incidences of diseases and ill health	○ A safety, health and environment induction course shall be conducted to all students and workers, putting more emphasis on HIV/AIDS, which has become a national disaster as well as other emerging pandemics such as COVID 19 and dengue fever. ○ The project shall include information education and communication components (IEC) in its budget. This will help to raise more awareness on HIV/AIDS and means to suppress its incidence. ○ Environmental sanitation systems shall be improved. ○ To meet population demand, enough medical services must be made accessible at the SUA-MPCC Health center	PIT/ SUA	40,000,000
9	Increased pressure on social services and utilities	○ Use of water conservatively by instituting technologies (e.g., self-lock water taps) and awareness raising notices to users, etc.; ○ Construction of underground water reserve tank and introducing rainwater harvest system; ○ Investing in training and capacity building programs for local service providers to enhance their ability to cope with increased demand. This could involve training healthcare professionals, utility workers, and other service providers to efficiently manage the rising needs of the community. ○ Conducting outreach programs to involve the local community in the planning and implementation process. This engagement helps in identifying specific needs and concerns of the community, ensuring that the development initiatives are culturally sensitive and well-received. ○ Implementing employment generation programs that focus on local hiring. By prioritizing the employment of local residents, the impact on housing, transportation, and other services can be mitigated, reducing the strain on social services. ○ Implementing measures to optimize the use of resources, such as energy-efficient technologies and water conservation practices. This can	PIT/ SUA	10,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		contribute to reducing the overall demand on utilities, making them more sustainable in the face of increased pressure. o Establishing strong partnerships with local government authorities to jointly plan and implement infrastructure projects. This collaboration ensures that the development aligns with the overall growth strategy of the area and leverages available resources efficiently. Extraction of underground water resources;		
10	Incidence of Gender Based Violence	o Plan that ensures project awareness raising strategy (for workers and community members), a list of GBV service Providers to which GBV survivors will be referred, revisions to the GRM to ensure it can address GBV complaints, and information on GBV allegation procedures in the workplace. o Implement comprehensive awareness programs within Kibaoni ward to educate residents about the importance of gender equality, consent, and the prevention of GBV. o Promote community dialogues to address cultural norms contributing to GBV and encourage positive behavioral changes o Establish and enforce clear institutional policies at MPCC to prevent and address GBV among students and staff. o Provide support services such as counseling and helplines within MPCC to assist those affected by GBV. o Conduct training sessions for MPCC students and staff on recognizing and responding to signs of GBV. o Equip community leaders and relevant stakeholders with the skills to identify and address GBV issues effectively. o Create safe spaces within MPCC and the surrounding community where individuals can seek refuge and support. o Implement security measures to enhance the safety of students and residents, particularly during vulnerable times.	PIT/ SUA	10,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Establish a robust monitoring and evaluation system to track the effectiveness of interventions in reducing GBV. ○ Regularly assess the incidence of GBV and adjust strategies accordingly to address emerging challenges. ○ Collaborate with local authorities and law enforcement to ensure a swift response to reported cases of GBV. Also, foster partnerships with local organizations working on GBV prevention to leverage resources and expertise ○ Empower students with the knowledge and skills to advocate against GBV and contribute to a safer community. ○ Support community-led initiatives that empower individuals, especially women, to challenge and overcome GBV		
11	Disruption of traffic flow	○ Develop a comprehensive traffic management plan that considers the anticipated increase in vehicular and non-motorized traffic during the operational phase. This plan should outline specific measures to mitigate congestion and enhance safety in the surrounding areas. ○ Strategically place additional signboards to guide and inform road users about the changes in traffic patterns, entrances, and other relevant information. Clear signage can help prevent confusion and improve overall traffic flow. ○ Implement coordinated traffic control measures to optimize the flow of vehicles and ensure smooth operation near university entrances. This may involve the deployment of traffic personnel during peak hours or special events to manage the increased traffic. ○ Launch a public awareness campaign to inform the community, including students, faculty, and local residents, about the expected changes in traffic conditions. This could include distributing informational materials, organizing workshops, and using digital platforms to educate the public. ○ Explore the use of technology, such as smart traffic lights or traffic monitoring systems, to enhance traffic flow efficiency. These solutions	PIT/ SUA	10,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		can be integrated with the existing infrastructure to dynamically manage traffic based on real-time conditions. o Establish a feedback mechanism for the community to report any issues related to traffic disruption. This allows for continuous monitoring and adjustment of the traffic management plan based on feedback from the users.		
12	Health and safety risks due to fire hazards	o Adequate number of portable fire extinguishers shall be placed at strategic locations. o . o Regular fire and other disaster drills and awareness training shall be conducted. o Fire detectors and sprinkler systems shall be installed in the buildings. o The proponent shall insure buildings against fire Hazards. o Workers will be sensitized on appropriate fire prevention measures o Good housekeeping shall be maintained at all sites to reduce the fire risk. o The design of the buildings shall strictly adhere to the Fire Safety Standards.	PIT/ SUA	10,000,000
13	Increased level of crimes	o Increase the presence of law enforcement and security personnel in the affected areas. o Implement advanced surveillance systems and technologies to monitor and respond to criminal activities. o Establish community policing programs to foster collaboration between law enforcement and local residents. o Develop and implement community outreach programs to raise awareness about crime prevention strategies. o Encourage community members to actively participate in crime prevention through neighborhood watch programs. o Conduct regular awareness campaigns to educate residents about the potential risks and how to protect themselves	PIT/ SUA	20,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Strengthen partnerships with local government agencies, community leaders, and NGOs to create a coordinated response to crime. And establish communication channels for sharing information and coordinating efforts to address security concerns. ○ Introduce social programs and initiatives aimed at addressing the root causes of crime, such as unemployment, poverty, and lack of educational opportunities. ○ Support community development projects that contribute to a positive and inclusive social environment		
NEGATIVE ENVIRONMENTAL IMPACT				
14	Increased water pollution	○ Wastewater will be discharged directly to the septic tank and soak pit through the existing wastewater system at campus. Also, WSP will be established in future to manage all wastewater generated at MPCC due to increase of population during operation phase. ○ Upgrade the laboratory wastewater containment systems to prevent the discharge of hazardous liquid waste into septic tanks and soak pit ○ Implement advanced treatment technologies to ensure that wastewater, especially from laboratories, undergoes proper treatment before being released ○ Implement strict compliance measures to ensure that the hazardous liquid waste meets acceptable environmental standards before disposal ○ Conduct educational programs within MPCC to raise awareness among laboratory staff and students about the potential environmental impact of improper wastewater disposal. ○ Promote responsible laboratory practices and waste management to reduce the generation of hazardous liquid waste ○ Collaborate with local communities in Kibaoni ward to create awareness about the environmental consequences of water pollution. And involve community members in monitoring activities and reporting any observed anomalies in water quality	PIT/ SUA	5,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Develop and implement emergency response plans to address any accidental spills or releases of hazardous substances into the wastewater system.		
15	Increased storm water generation and overflow	○ The design of storm water drainage will be given a high priority for the new buildings. ○ The design shall provide sufficient greenery area for facilitating soil infiltration. ○ Creating rainwater management systems can help prevent runoff and promote infiltration. This may include the use of rainwater harvesting tanks, drainage systems, and water retention areas for collecting and distributing rainwater ○ Installing permeable pavements to promote infiltration and reduce runoff. ○ Constructing retention and detention basins to temporarily store stormwater and control the release of runoff into the drainage system ○ Incorporating vegetative swales and buffer strips to slow down and filter stormwater, promoting natural infiltration and reducing soil erosion ○ Utilizing green roofs on buildings to absorb and slow stormwater runoff, reducing the volume and velocity of water entering the drainage system	PIT/ SUA	N/A Part of its project
16	Risks of collapsing of the buildings	○ Design and construct a robust foundation that can withstand the forces exerted by seismic activity. The foundation should be anchored securely to prevent shifting or tilting during an earthquake. ○ Incorporate earthquake-resistant design principles, such as using appropriate bracing systems and shear walls, to distribute seismic forces throughout the building. ○ Ensure that the building is designed and constructed in compliance with local building codes and seismic standards. ○ Educate building occupants about clear evacuation plans, earthquake safety measures and what to do during and after an earthquake.	PIT/ SUA	15,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Conduct regular structural inspections to identify and address any signs of wear, damage, or weakening that could compromise the building's seismic integrity.		
17	Generation of solid and hazardous wastes	○ Provision of dust bins or rubbish pits for the wastes produced ○ Implement a comprehensive waste segregation system to categorize different types of waste materials. ○ Establish recycling facilities to process recyclable materials such as paper, cardboard, plastics, and metals. ○ Implement a waste segregation system that separates waste into different categories such as recyclables (paper, plastic, glass, metal), organic waste (food scraps, yard waste), and non-recyclables. Provide clearly labeled bins for each category in easily accessible areas. ○ Conduct awareness campaigns and workshops to educate students, faculty, and staff about the importance of waste management, proper segregation, and the benefits of recycling and composting. ○ Establish a composting system for organic waste generated in cafeterias areas. The compost produced can be used for landscaping and gardening projects on campus. ○ Implement a system for collecting and properly disposing of electronic waste (e-waste) such as old computers, printers, and other electronic devices. ○ Provide training for staff on safe handling and storage of hazardous materials to reduce the risk of accidents and spills. ○ Implement secure storage facilities with appropriate containment measures to prevent leaks or contamination ○ Regularly monitor waste generation, segregation, and disposal practices on campus.	PIT/ SUA	10,000,000
DECOMMISSIONING PHASE				
POSITIVE IMPACT				

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
1	Improved Air Quality and Noise level	○ Implement dust control measures such as wetting down the site to minimize the generation and spread of particulate matter. ○ Encourage the use of low-emission construction equipment to reduce air pollutants during demolition. ○ Promote the planting of greenery and vegetation in the area to absorb pollutants and enhance air quality. ○ Implement a proper waste management plan to prevent the release of harmful substances into the air during the decommissioning process ○ Schedule demolition activities during non-peak hours to minimize disruption to the local community. ○ Use noise barriers or soundproofing materials to contain and reduce the noise generated during demolition. ○ Provide communication channels to inform the local community about the demolition schedule to allow them to plan accordingly	Contractor/PIT/ Consultant	15,000,000
NEGATIVE IMPACT				
2	Loss of employment and business opportunities	○ Seminars shall be conducted on alternative means of livelihood after termination of job. ○ Implement comprehensive employment transition programs for affected workers, including skill development and retraining initiatives to enhance their employability in alternative sectors. ○ Establish a support mechanism for local businesses affected by the decommissioning, providing training, and resources to adapt to new market conditions ○ Conduct regular and transparent communication with stakeholders, including affected communities, to keep them informed about the decommissioning process, potential impacts, and mitigation measures. ○ Work closely with local government authorities to identify and implement measures to offset the negative impact on the affected persons, such as creating alternative employment opportunities or initiating community development projects	Contractor/PIT/ Consultant	N/A Part of its project

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
3	Loss of revenue to institutions and the government	○ Explore alternative revenue streams to compensate for the loss incurred from the discontinued project. ○ Identify and develop new projects or initiatives that can generate income for both institutions and the government. ○ Implement economic development programs in Kibaoni ward to stimulate local economic opportunities. ○ Encourage entrepreneurship and job creation to offset the negative economic impact on residents. ○ Engage with the affected communities to understand their needs and concerns. ○ Implement social support programs or initiatives to assist individuals and businesses impacted by the loss of economic opportunities	Contractor/PIT/ Consultant	N/A
4	Loss of aesthetic value due to haphazard disposal of demolished waste	○ Formulate a comprehensive waste management plan specifically tailored for the decommissioning phase. And clearly outline procedures for the segregation, collection, transportation, and disposal of demolished waste. ○ Implement demolition techniques that minimize the generation of waste and reduce environmental impact. ○ Opt for methods that allow for the salvage and reuse of materials, thereby decreasing the amount of waste generated. ○ Conduct a thorough site characterization and assessment to identify potential environmental sensitivities and vulnerabilities. This will aid in determining appropriate disposal methods and areas, preventing contamination of soil and water bodies. ○ Identify and designate specific areas for waste disposal, ensuring they are environmentally suitable and comply with regulations. ○ Implement measures to prevent leachate from entering soil and water bodies. ○ Establish a monitoring and inspection program to assess the effectiveness of waste disposal measures.	Contractor/PIT/ Consultant	N/A Part of its project

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
		○ Regularly inspect the disposal areas to identify and address any issues promptly. ○ Establish a monitoring and inspection program to assess the effectiveness of waste disposal measures. ○ Engage with the local community to raise awareness about the importance of proper waste disposal during decommissioning. Also, encourage community participation in waste management initiatives		
5	Dust and noise pollution from demolishing works	○ Restrict demolition activities to specific time periods during the day when noise impact is likely to be less disruptive, such as during normal working hours. This can help minimize the disturbance to both site workers and residents ○ Inform and engage with residents and workers in the surrounding areas about the timing and nature of the demolition work. Providing regular updates and addressing concerns can contribute to better community understanding and cooperation. ○ Implement a comprehensive air quality monitoring system to track the emission of dust particles during demolition. This can help identify any exceedances of air quality standards and trigger immediate corrective actions. ○ Dust suppression techniques, such as water spraying or misting systems, to control the release of dust particles into the air. This can help mitigate the impact on air quality and reduce potential health hazards. ○ Provide site workers with appropriate PPE, such as masks or respirators, to minimize their exposure to airborne particulate matter and protect their health during the demolition activities. ○ Ensure strict adherence to local regulations and standards related to noise and air quality during demolition. This includes obtaining necessary permits and approvals, as well as complying with established limits for noise and air pollutant emissions	Contractor/PIT/ Consultant	10,000,000

S/N	Environmental & Social concerns	Mitigation/Management/ Enhancement measures	Responsible part	Annual Estimated cost (TZS)
6	Health hazards to workers from demolishing work	○ Personal protective equipment (PPE), e.g., helmets, boots, goggles, earplugs, gloves and others will be provided, and their use enforced to all workers involved in demolishing of structures during closure. ○ Contractor shall have registered and qualified HSE personnel to ensure health and safety of workers within the project area. ○ All workers involved in the demolishing work will be provided with training on health and safety matters ○ In case of injuries, a well-equipped first aid kit will be onsite and injured workers will be provided first aid service by a trained first aider ○ Hygienic conditions within the working areas will be maintained and enforced	Contractor/PIT/ Consultant	10,000,000
	Total of mitigation measure (TZS)			**315,000,000**

CHAPTER 8: ENVIRONMENTAL AND SOCIAL MONITORING PLAN

8.1 Introduction

Monitoring refers to the systematic collection of data through a series of repetitive measurements over a long period of time to provide information on characteristics and functioning of environmental and social variables in specific areas over time. There are four types of monitoring that are relevant to this EIA.

- **Baseline monitoring**: the measurement of environmental parameters during a pre-project period and operation period to determine the nature and ranges of natural variations and where possible establish the process of change.
- **Impact/effect monitoring** involves the measurement of parameters (performance indicators) during establishment, operation and decommissioning phase in order to detect and quantify environmental and social change, which may have occurred as a result of the project. This monitoring provides experience for future projects and lessons that can be used to improve implementation methods and techniques.
- **Compliance monitoring**: takes the form of periodic sampling and continuous measurement of relevant parameter levels for checking compliance with standards and thresholds – e.g., for waste discharge, air pollution.
- **Mitigation monitoring** aims to determine the suitability and effectiveness of mitigation programs designed to diminish or compensate for adverse effects of the project.

To ensure that mitigation measures are properly done, monitoring is essential. Table 9.1 provides details of the attributes to be monitored, frequency, and institutional responsibility and estimated costs. These costs are only approximations and therefore indicative. Costs that are to be covered by the developer are to be included in the project cost.

8.2 Cumulative impact monitoring

This development over time will result in a variety of changes. The most evident of these changes may be:

- This development will see a significant change in the land cover and landscape of the area; and
- The general culture of the area would change. A more likely result is a formal urban setting with the associated physical infrastructure and amenities.
- MPCC shall monitor landscape and cultural changes with time, in order to device management mechanism.

8.3 Monitoring frequency and reporting

Monitoring frequency is proposed for each critical parameter depending on the likelihood and level of change over time. Some parameters take longer time to show changes while others would change in very short time. Ambient air levels of pollutant gases in and around the project should be measured annually. Air emissions should be monitored after the air pollution control device for particulate matter (or alternatively an opacity level of less than 10%). Frequent sampling for parameters should be undertaken during start-up and continue throughout the operation and demobilization phase. Some monitoring may have to continue even beyond demobilization for impacts such as effects of the wastewater discharged into the environment. Other parameters such as income, revenue, employment, changes in livelihoods, use of resources (water, energy) and changes in norms and values will be monitored on annual basis, so as to allow for change to take place.

Monitoring data should be analyzed and reviewed at regular intervals and compared with the operating standards so that any necessary corrective actions should be taken. Proponent is

required to maintain records of air emission, effluents, hazardous waste sent off site as well as other parameters, fires, emergencies, accidents and ill health that may impact on the environment or workers. Records of monitoring results should be kept in an acceptable format and easily accessible, and information reviewed and evaluated to improve the effectiveness of the environmental protection.

8.4 Monitoring plan

The proposed monitoring plan (Table 8.1) will be used by the proponent or the hired consultant for monitoring the proposed facilities during construction period and contains the following;

- The predicted impacts to be monitored as per schedule.
- Main parameters to be monitored.
- The sampling area.
- Where possible units or methods to be applied are indicated.
- The levels or target standards to be observed are also shown.
- The approximate costs. However, costs might change with the fluctuations of the shilling and cost escalations.

8.5 Monitoring Responsibility

The Ministry of Education, Science and Technology has established a dedicated Project Implementing Unit (PIU) consisting of its own personnel for the implementation of all supported subprojects under HEET. The PIU shall hire an independent firm which has a Supervision Engineer, Environmental Specialist, Social Specialist, Occupational Health and Safety Specialist to monitor and review on site implementation of the Environmental and Social measure. The overall activities of PIU will be supervision of implementation, monitoring and reporting, review of project implementation reports and reporting to MoEST

The monitoring of environmental and social parameters during the construction phase shall be carried out by the Contractor's safeguard team. (i.e., Environmental, social and safety experts), under the supervision of the Consultant's safeguard team. They will conduct mitigation monitoring as part of the regular works inspections. The contractor shall appoint an Environmental, Social, Health and Safety Officer to oversee the E&S aspects. The EHS officer of the contractor will participate in the joint site inspections with the PIU and Environmental Supervision Engineer/consultant; A monthly Environmental and Social Compliance Report will be produced following each inspection and will incorporate any actions identified during inspections and site meetings. The inspection report will summarize the status of the site's compliance and include photographic records if appropriate.

The responsibility for mitigation and monitoring during the operation phase will lie with the SUA Estate Department. SUA shall be responsible for producing reports on environmental and social compliance during operation, as part of their annual progress reports and annual EHS monitoring/Audit reports. Depending on the implementation status and sensitivity of any emerging issues, OSHA and /or NEMC will perform annual EHS reviews in which environmental concerns raised will be reviewed alongside project implementation.

Table 8.1: Proposed Environmental and Social Monitoring Plan (ESMP) for mobilization/planning phase, construction phase, demobilization phase and operation phase

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
MOBILISATION PHASE							
Disruption of social activities	Number of complaints	○ Regularly assess the effectiveness of communication channels between the project management and the local community ○ Conduct periodic assessments to identify and evaluate any unforeseen disruptions to social activities caused by the mobilization activities. ○ Engage with community representatives to gather feedback on the perceived impact on their daily routines and activities. ○ Monitor the effects of mobilization on local livelihoods, especially those dependent on activities that might be temporarily interrupted (e.g., agriculture, small businesses, transportation services). ○ Establish and maintain an accessible and transparent grievance mechanism to address concerns raised by the community regarding disruptions to social activities	Daily	Observation	No disrupted activities	PIT/ Consultant	N/A

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
Job Creation and Employment Opportunities	Number of local consultants employed	○ Systematic monitoring of the recruitment processes, ensuring compliance with employment quotas for local residents, and verifying that job opportunities are accessible to both formal and informal sectors ○ Assessing the fulfillment of commitments made in the ESIA report regarding job creation during the mobilization phase. ○ Regular reporting and documentation of employment data, including the number of jobs created, the demographic profile of the workforce, and any challenges faced	Once, on commence ment of assignment	Employment records	N/A	PIT/Consultant	N/A
Noise and dust generation	Noise levels	○ Continuous monitoring of noise levels and dust emissions at the construction site. ○ Implementing dust control measures, such as water spraying and installing noise barriers, as well as scheduling noisy activities during times that minimize disruption to the local community ○ Periodic reporting and analysis of monitoring data will inform	Daily	Inspection	In compliance with WB and TBS standards: • Daytime noise levels < 60 dB • Night-time noise levels < 50 Db TBS / WHO Standard (PM_{10}< 0.05-0.15 mg/m3 &	PIT/Consultant	1,000,000

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
		adjustments to the construction process to ensure compliance with environmental standards and regulations.			$PM_{2.5}$<0.025-0.075 mg/m3)		
Increased Traffic and road accidents	Number of accidents or near miss	○ Regular monitoring of road infrastructure, traffic flow, and accident occurrences ○ Monitoring team will analyze data on traffic volume, road conditions, and incidents to identify trends and potential risks associated with the increased activity during the mobilization phase. ○ Implementing traffic management plans, enhancing road safety measures, and conducting awareness campaigns, may be initiated based on the monitoring findings to minimize the impact of increased traffic and reduce the likelihood of road accidents.	Daily	Observation	No traffic/Accidents	PIT/Consultant	1,000,000
Safety and health risks	Number and type of safety equipment such as mask, helmet gloves, safety	○ Regular inspections of the construction site, equipment, and work practices to identify and mitigate potential hazards. ○ Safety protocols and procedures will be monitored for adherence,	Weekly	Observation	Zero incidence/ accident	PIT/Consultant	2,000,000

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
	boot and earplugs	and any deviations will be addressed promptly. o Health monitoring of workers will be conducted to detect and manage any occupational health issues. o Emergency response plans will be reviewed and tested, and feedback from workers and the local community will be actively sought to enhance the overall safety performance.					
Generation of solid and liquid wastes	Solid and Liquid waste (Kg for Solid waste, Litres for Liquid waste)	o Monitoring the types and quantities of solid and liquid waste generated during the mobilization activities related to the establishment of the academic building, students' hostels, and cafeteria. o Assess compliance with waste disposal regulations and environmental standards, ensuring that proper waste handling procedures are followed to minimize adverse impacts on the surrounding environment and communities.	weekly	Observation	Environmental compliance with The Environmental Management (Solid Waste Management) Regulation, 2009 as amended in 2016	PIT/Consultant	2,000,000
CONSTRUCTION PHASE							

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
Conflicts and grievances	-Number of meetings held during the mobilization Phase and throughout the project Phases -Number of complains and Incidences - Number and types of grievance reported and solved	○ Regular monitoring of community feedback, conducting stakeholder consultations, and maintaining open communication channels to promptly address and resolve any disputes. ○ The monitoring team will document and analyze reported conflicts, implementing mitigation measures as necessary, and ensuring that grievance resolution is fair, transparent, and culturally sensitive	Weekly	-Observation of records of complains -Analyses records of workers and community grievance	No complains	PIT/Consultant	3,000,000
Impact on gender during employment	-Number of men and women employed - Number of complains	○ Ongoing data collection on the number of male and female workers employed, their job roles, and the wages they receive. ○ Assessing the working conditions to guarantee a safe and inclusive environment for all genders. ○ Periodic reviews should be conducted to identify any gender-specific challenges or issues that	Monthly	Observation of records of complains	No Violations and harassments to vulnerable groups	PIT/Consultant	2,000,000

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
		may arise during the construction activities					
Air pollution from noxious gasses	Measurement of ambient gaseous/ Noxious gasses (CO, CO_2, NO, NO_X, SO_X)	○ The continuous measurement and analysis of emissions from construction activities that may release noxious gases into the atmosphere. ○ Monitoring stations will be strategically placed to capture data on air pollutants, and real-time monitoring devices will be employed to track levels of harmful gases. ○ Periodic site inspections and air quality assessments to ensure compliance with established environmental standards and regulations. ○ If elevated levels of noxious gases are detected, immediate corrective actions should be implemented to mitigate the impact, and adjustments to construction practices may be made to minimize air pollution. ○ Regular reporting and communication of monitoring results to relevant stakeholders	Quarterly	Measurement of ambient gaseous	TBS / WHO Guidelines TBS / WHO Guidelines • SO2< 0.5mg/m3 • CO < 10 - 30mg/m3 CO2 <500-600 • NOx< 0.12-0.2 Conforming to EC directive 89/336/EEC and ISO 12103-1	PIT/Consultant	3,000,000

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
		will be integral to maintaining transparency and accountability throughout the construction phase					
Air pollution from dust emission	Measurement of particulate matter (PM_{10} & $PM_{2.5}$)	○ The implementation of air quality monitoring stations strategically placed to measure particulate matter and dust concentrations. ○ Frequent inspections of dust control measures, such as water spraying and dust suppression systems, to ensure their effectiveness. ○ Real-time monitoring tools and periodic site visits will be employed to promptly identify any exceedances of acceptable dust levels through visual inspection. Also, the data collected shall inform timely corrective measures and adjustments to mitigate the impact of dust emissions on air quality, safeguarding both the environment and the well-being of the local community.	Daily	Visual Inspection/Measurement of particulate matter	TBS / WHO Standard (PM_{10}< 0.05-0.15 mg/m3 & $PM_{2.5}$<0.025-0.075 mg/m3)	PIT/Consultant	3,000,000
Noise generation	Day and night noise levels	○ The use of sound measuring devices positioned strategically across the construction site and its immediate surroundings.	Monthly	Inspection	In compliance with WB and TBS standards: • Daytime noise	PIT/Consultant	2,000,000

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
		○ Track variations in noise levels to ensure compliance with established environmental regulations and standards. ○ Identification and implementation of mitigation measures if noise levels exceed permissible limits.			levels < 60 dB • Night-time noise levels < 50 dB		
Solid and liquid waste generation	Solid and Liquid waste (Kg for Solid waste, Litres for Liquid waste)	○ Continuous observation and documentation of waste disposal practices, both solid and liquid, to assess their impact on the surrounding environment. ○ Routine inspections, data collection on waste quantities and types, and verification of adherence to waste management protocols. ○ Immediate corrective measures should be implemented if any deviations or non-compliance are identified, with ongoing reporting and communication to stakeholders to maintain transparency throughout the construction phase.	Daily	Observation	Environmental compliance	PIT/Consultant	2,000,000
Health and Safety impact	- Number and type of safety equipment	○ Ongoing surveillance of construction activities to identify and mitigate potential hazards to	Daily	Inspection; Voluntary testing;	Zero incidence/ accident	PIT/Consultant	7,000,000

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
	such as mask, helmet gloves and earplugs	both workers and the surrounding community. o Regular site inspections, safety audits, and the enforcement of safety protocols to ensure compliance with health and safety standards. o Emergency response plans should be in place, and incidents should be documented and analyzed for continuous improvement. o Community engagement should be implemented, with feedback mechanisms to address any health and safety concerns raised by local residents					
Impact on natural resource (Energy and water)	Amount of water and energy consumed	o Monitoring the usage patterns, identifying potential sources of inefficiency or waste, and implementing measures to optimize resource utilization. o Track the project's adherence to sustainable practices, ensuring that energy is sourced efficiently, and water usage is minimized.	Monthly	Measurement/ records / Observation	Efficient use of water	PIT/Consultant	2,000,000
Increase in accident incidences	-Number of humps on the local road;	o Implementing safety protocols, conducting regular safety audits,	Quarterly	Inspection	Zero incidence/ accident	PIT/Consultant	3,000,000

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
	-Number of accidents/ injuries Number of complaints raised by local community. -Number of people using PPEs; -Number of people trained Presence of a first aid kit	and maintaining incident reporting mechanisms. o Encompass on-site safety measures, adherence to construction standards, and the use of personal protective equipment. o Tracking accident statistics, analyzing root causes, and promptly addressing any emerging safety concerns. o Continuous communication and training programs for construction workers are essential to ensure awareness of safety practices					
DEMOBILISATION PHASE							
Reduced noise levels	All equipment removed and noise level	o Monitoring noise levels during the dismantling and removal of construction equipment and structures. o The monitoring team will use sound measuring devices to quantify noise levels and compare them against predetermined standards and regulations.	Once upon Decommissioning	Inspection	TBS / WHO Standard	PIT/Consultant	1,000,000

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
Air pollution from dust emission	Measurement of particulate matter (PM_{10} & $PM_{2.5}$)	○ Continuous air quality monitoring to detect any increase in dust levels. ○ Monitoring mechanisms may include the use of air quality monitoring stations strategically placed around the construction site. ○ Routine inspections, data collection, and analysis should be conducted to identify sources of dust emissions and assess the effectiveness of dust control measures. ○ Corrective actions to be taken if dust levels exceed permissible limits, ensuring that appropriate measures are promptly implemented to mitigate the impact on air quality and prevent harm to the environment and local communities	Daily	Visual Inspection/Measurement of particulate matter	TBS / WHO Standard	PIT/Consultant	2,000,000
Loss of employment	Severance benefits	○ Regular assessments to quantify the number of individuals affected, identify the reasons for demobilization, and assess the socio-economic consequences on the local community.	Once upon Decommissioning	Inspection	N/A	PIT/Consultant	N/A

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
		○ Implementation of mitigation measures to address any adverse effects, ensuring a proactive and responsive approach to minimize the impact of employment loss during the demobilization phase. ○ Regular reporting and feedback mechanisms should be established to facilitate continuous improvement and adaptability in addressing emerging challenges related to employment dynamics					
Loss of business opportunities	Materials paid for	○ Identifying any adverse effects on existing enterprises, especially those closely tied to the construction activities. Key indicators may include changes in revenue, employment levels, and overall economic activity in the project area. ○ Address any negative consequences, implement mitigation measures, and ensure that the demobilization phase minimally disrupts local business activities.	Once upon Decommissioning	Records	N/A	PIT/Consultant	N/A

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
Poor solid waste management	Site clear of construction wastes and scrap metal (Kg for Solid waste)	○ Assessing whether waste generated during the construction phase is appropriately collected, segregated, and disposed of in compliance with environmental regulations. ○ Monitoring teams should track waste management procedures to ensure that potential environmental and social impacts are minimized.	Once upon Decommissioning	Inspection	Environmental compliance	PIT/Consultant	1,000,000
OPERATIONAL AND MAINTANANCE PHASE							
Job Creation and Employment Opportunities	-Number of local people employed -Number of women employed	○ Regularly assessing and documenting the number and types of jobs generated, ensuring compliance with agreed-upon employment targets, and evaluating the socio-economic impact on local communities. ○ Monitoring should extend to the maintenance of a diverse and inclusive workforce, with attention to gender equality and the involvement of local residents. The monitoring process will also track any potential adverse effects on employment conditions and community well-being, allowing	Annually	Records	N/A	SUA-MPCC (Environmental and Social Specialists)	N/A

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
		for timely adjustments and interventions to maximize positive impacts and address any emerging issues					
Community Health and Safety	-Inspection of the emergency and detection systems; - Inspection of available health facility in the dispensary; -Number of accidents and incidents recorded	○ Regular inspections of infrastructure and facilities, health impact assessments, and continuous air and water quality monitoring. Emergency response drills and training sessions should be conducted to prepare for any unforeseen incidents. ○ Additionally, community feedback mechanisms and grievance redress processes should be established to address any health or safety concerns raised by the local population promptly.	Quarterly	Measurement of ambient gaseous	Zero incidence/ accident	SUA-MPCC (Environmental and Social Specialists)	2,000,000
Solid and liquid waste generation	Solid and Liquid waste (Kg for Solid waste, Litres for Liquid waste)	○ Monitoring the quantity and types of solid and liquid waste produced, tracking disposal methods, and ensuring compliance with environmental regulations. ○ Identify any deviations from the approved waste management strategies outlined in the ESIA report.	Weekly	Observation	Environmental compliance with The Environmental Management (Solid Waste Management) Regulation, 2009 as	SUA-MPCC (Environmental and Social Specialists)	1,000,000

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
		○ Continuous surveillance and periodic audits should be conducted to assess the effectiveness of waste management measures, mitigate potential environmental impacts, and promote sustainable practices throughout the project's lifecycle.			amended in 2016		
Health and Safety impact	- Number and type of safety equipment such as mask, helmet gloves and earplugs	○ Ongoing assessment of workplace conditions, machinery safety, emergency response procedures, and the overall well-being of workers, students, and the local community. ○ Identify and address any potential health and safety risks promptly, fostering a secure and healthy environment throughout the project's operational lifecycle.	Quarterly	Inspection; Voluntary testing;	Zero incidence/ accident	SUA-MPCC (Environmental and Social Specialists)	5,000,000
Impact due to Fire hazard	-Records of authorized HSE; -Presence of fire alarm; -Presence of firefighting equipment	○ Regular inspections of electrical systems, fire suppression equipment, and potential ignition sources. ○ Continuous monitoring of fire risks and readiness to address emergencies is crucial. ○ Training staff, students, and nearby communities on fire safety	Quarterly	Inspection & Observation	Fire and Rescue Force Regulations Zero incidence/ accident	SUA-MPCC (Environmental and Social Specialists)	1,000,000

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
	and records of servicing; -Presence of fire hazard signs; - Presence of fire exit signs -Presence of emergency response plan	protocols and conducting regular drills would contribute to effective preparedness. o Maintaining communication channels with local emergency services and periodically reviewing and updating the Fire Prevention and Emergency Response Plan to ensure its relevance and efficiency in mitigating fire hazards. o Regular reporting and documentation of fire-related incidents, near misses, and corrective actions taken should be part of the monitoring system to enhance accountability and continual improvement.					
Increase in Energy Demand	-Availability and condition of solar panels; - Presence of energy conserving electric lamps	o Ensure that the increased energy demand aligns with the projected estimates and complies with environmental standards. o Assessing the efficiency of energy use, identifying areas for potential optimization, and implementing measures to enhance energy sustainability	Quarterly	Inspection	Efficient use of Energy	SUA-MPCC (Environmental and Social Specialists)	5,000,000

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
Increase in water demand	-Presence of water conserving taps; -Presence of gutters on roofs; -Presence of notices on water reserve tanks	○ Monitoring the water usage within the academic building, students' hostels, and cafeteria to ensure compliance with established standards and sustainable practices. ○ Assessing water extraction rates, usage efficiency, and the potential impact on local water sources. Additionally, monitoring should extend to the surrounding areas to identify any unintended consequences on the water supply for nearby communities.	Quarterly	Inspection and measurement	Efficient use of water	SUA-MPCC (Environmental and Social Specialists)	5,000,000
Prevalence of Communicable diseases	-Number of people tested by gender and Condoms distributed to end users/ -Number of people who have undergone HIV/AIDS test	○ Ongoing surveillance of water quality, sanitation practices, and healthcare accessibility. ○ Regular health assessments of the local population, assessing the incidence of communicable diseases. ○ In case of any adverse trends, immediate corrective measures and interventions should be implemented, such as improving sanitation facilities, enhancing healthcare services, and conducting awareness campaigns.	Annually	Observation of medical records	All workers reached with testing services and condoms	SUA-MPCC (Environmental and Social Specialists)	3,000,000

Potential Impacts	Monitoring Indicator	Monitoring Action	Monitoring Frequency	Means of verification	Target level/Standards	Responsibility	Estimated cost (TZS) per annum
		○ Identify and address potential health risks, ensuring the well-being of the community and preventing the escalation of communicable diseases during the project's operational and maintenance phases					
Total							**59,000,000**

CHAPTER 9: COST BENEFIT ANALYSIS OF THE PROJECT

9.1 Introduction

This chapter presents the cost benefit analysis (CBA) of the proposed three (3) new building structures (academic building, cafeteria and students hostel) to be built at MPCC. The details are not disclosed since they are still confidential in accordance with the Tanzania Procurement Act that prevents a detailed cost benefits analysis to be undertaken before the tendering process. In that situation, the costs and advantages described in this section are illustrative and simply qualitative. The indicative expenses for implementing mitigating measures as well as the cost of monitoring have been factored into the overall operation cost.

9.2 Benefits related to the project

Benefits from the proposed three new building projects at the campus can be classified as direct benefits and indirect benefits to university, neighbor and the government. However, primary benefits of this project are further classified as direct benefits and indirect benefits. Though they are typically insignificant in comparison to the positive benefits, building construction projects occasionally have unfavorable effects. Some of those impacts are non- quantifiable thus cannot be used in the benefit-cost analysis estimations. Generally, the benefits of the project are experienced in all phases from mobilization, construction, operation to decommissioning phase. To mention a few, both the building and operating phases will generate job opportunities and public benefits. Regarding revenue creation and the multiplier effects connected with links with local and national economies, there are several advantages linked with the proposed development at both the local and national levels.

Direct benefits: The proposed project will create job opportunities, good aesthetic view at the campus, good environments for students in their studies, entrepreneurial opportunities to the surrounding community as well as increase the number of skilled labourers due to increase in the enrolment and presence of conducive environment for self-studies. Most of the non-quantifiable impacts are directly beneficial to the project receptors.

Indirect Benefits: Indirect benefits from a proposed project mainly include increase in government revenue through different sectors like; TANESCO, RUWASA, TRA, cultural interactions, infrastructural development, and economic growth. But since the construction project requires inputs from other sectors to produce this output, and the other sectors subsequently require inputs themselves, there will be multiple rounds of interaction among the sectors resulting in additional output from each sector of the economy.

9.2.1 Benefits to MPC

The proposed project has positive impacts to MPCC since its benefit is a lifetime process throughout the project life span. The completion of these projects will be one of the pooling factors for increased number of students' enrolment thus in monetary cost its value has potential to increase annually. MPCC financial capacity and sustainability are going to improve by far. Further, the improved financial standing is not only going to promote enrolment but also good governance and efficient running of the university campus. Teaching, research and public service and its envisioned center of excellence in knowledge and dissemination to a wide spectrum of beneficiaries at national and regional levels are ones among the benefits.

9.2.2 Benefit to the Neighborhood

The proposed construction of new buildings meant to increase the capacity of MPCC in infrastructure. This improvement may lead to the increase in staff requirement that is technical, administrators and academicians. During and after the construction phase the project is going to provide additional employment opportunities for people surrounding MPCC related to operation and maintenance. However, non-skilled labourers will benefit from the daily wages by providing services like transportation as bodaboda (Motorcycles). Campus will also create business opportunities in the vicinity of the campus. Business opportunities will be supporting government initiatives to create employment opportunities for Tanzanians as advocated by the current Government. Notwithstanding that now salaries are yet to be specified, it is envisaged that from employment, workers will get incomes, which will improve quality of their lives and perhaps improve their lifestyles. However, employment opportunities and income from salaries provided will extend beyond the workers and benefit many other people including dependents.

Additionally, the availability of appropriately skilled local workers who can fill positions will determine the availability of employment opportunities and the perks that come with them. So, in order to reap these benefits, capacity building is necessary. Alongside capacity building, there shall be a need for putting in place deliberate policies that would compel developers in the real estate economic sector to employ local labor with the requisite skills and experience. The initiative will also provide the following social and economic advantages:

- Utilization of locally available resources;
- Revenue to the Government will increase through payment of the various taxes (indirect and direct).
- Contribute to the development of housing infrastructure and settlements as well as the commercial real estate industry in Kibaoni ward.

9.2.3 Benefit to the Government

The project will benefit the government in different aspects. This includes budget saving due to the relatively decrease in MPCC financial dependence on the government. It is projected that the project will increase MPCC's financial capability and sustainability as a result of project earnings during the operation period. For that case, the government will have the opportunity to use the share of the budget which was supposed to go to MPCC for other government development plans. Further, the ability of MPCC in contributing towards the realization of National Policies such as Education Reforms through expansion of enrolment of students into various degree programs is going to increase. The institution's financial capability will improve as more students enroll, indicating an increase in enrollment.

However, the government will gain from the rise in the number of specialists in important fields who will graduate from MPCC such as in agriculture and beekeeping. This will create the potential of the government to use internal resources (home country experts) in different future projects rather than contracting foreign experts.

9.3 Costs related to the project

The estimated costs for implementing enhancement measures, impact management as well as monitoring process as outlined in Chapters 8 and 9 is about TZS 374,000,000 per annum. The environmental costs could not be precisely calculated; hence they are not included in the anticipated expenditures for mitigation. The expenditures for these will also be short term because

some of the effects won't be seen until the construction phase, especially if mitigation measures are fully adopted. The construction costs for all the projects are detailed in Bills of Quantities.

9.3.1 Costs to community

The neighboring communities will bear the costs of the project's adverse environmental and social effects, such as noise pollution, deteriorated air quality, and safety and health hazards. However, implementing mitigation strategies will reduce the expected effects. Apart from the above, no community activities will be disrupted. MPCC is committed to mitigate the negative social and environmental impacts to nearby communities.

9.3.2 Costs to Government

The Government of the United Republic of Tanzania through the Ministry of Education, Science and Technology (MoEST) has secured funds from the World Bank to promote higher education as a catalytic force in the new Tanzanian economy. The project is designed to revitalize the key areas for innovation, economic development, and labor market relevance. Also as already mentioned the Government will directly and indirectly benefit from taxes generated during both phases of the project. Apart from tax generation, the investment will also enhance the economic growth, enhancement of industrialization and businesses.

9.3.3 Environmental Cost

Environmental cost benefit analysis is assessed in terms of the negative and positive impacts. Additionally, the research looks at how easily the effects may be mitigated and how acceptable the expenses are. The total cost for the mitigation of identified impacts and monitoring will be TZS. 315,000,000 and 59,000,000 per year, respectively.

9.4 Project cost benefit analysis

As it has been mentioned in Chapters 6 – 8, the potential benefits of the project, in terms of financial and social benefit are substantial. When compared to the necessary investment, the financial resources needed to mitigate negative effects are only moderately more than the environmental damages, which are reasonably mitigatable. However, the benefit cost ratio concluded the project to have more benefits compared to the total cost of the project, this implies that the project is viable, and the proponent is encouraged to develop it.

CHAPTER 10: DECOMISSIONING PLAN

10.1 Introduction

As decommissioning will take place in the remote future, the specific conditions for mitigation are generally inherently uncertain. In view of this, specific mitigation measures pertaining to environmental impacts of decommissioning works can be proposed.

A detailed decommissioning plan that takes environmental issues into consideration shall be prepared by the proponent prior to the decommissioning works. Should it occur, decommissioning may entail change of use (functional changes) or demolition triggered by change of land use. Therefore what is presented here is just a Preliminary Deccommissioning Plan which merely sheds some light on what shall be done if the need for decommissioning arise.

10.2 Preliminary Plan

10.2.1 Project Removal Methodology and Schedule

The Proponent is responsible for financing and carrying out all aspects of project decommissioning, which includes engineering, environmental assessment, permitting, construction, and mitigation activities related to the removal of the building facilities, as outlined in this Plan. By immediately responding to specified events during the monitoring phase, the Proponent must also address the environmental impacts before, during, and after the project is removed.

Furthermore, the university is obligated to safely remove the facilities and its accompanying structures in a manner that:

- Minimizes any adverse environmental effects.
- Meets the company's obligations under the Environmental Management Act (2004).
- Restores the site to a condition suitable for various uses.
- Pays all outstanding dues to workers, the government, suppliers, and other relevant parties.

The process of project removal will commence six months after closure and extend for a period of 2 years. During the initial six months following closure, the proponent will conduct an inventory of all components requiring removal or disposal. This inventory will encompass the identification of buildings and structures, to be demolished. Additionally, the method of disposal will be finalized. This information will be crucial for the development of the final decommissioning plan, which will then undergo approval by NEMC.

Upon approval of the decommissioning plan, the removal of metal parts will be prioritized within the first month to prevent any potential vandalism. Subsequently, in the second month of the decommissioning process, the focus will shift towards removing concrete structures and foundations. The resulting debris will be repurposed as fill material for rural roads.

10.2.2 Component to be demolished

The elements of the project that need to be demolished are typically built using load-bearing masonry walls along with roofs made of steel or timber frames, as well as metal roofs.

a) Buildings and other infrastructure

- To guarantee safety, all construction elements, including any structures, pillars, platforms, or ramps that support machinery or equipment, shall be taken down and secured. If necessary, the lands that these buildings once occupied will be repaired and replaced with vegetation.
- Equipment that is no longer functional will be sold through an auction process to scrap dealers.

- The future utilization of the water supply infrastructure (pipeline) will be determined in collaboration with the National and District Closure Committees. The project aims to transfer the pipeline infrastructure to the district for its ongoing use.

All disturbed areas will be landscaped and re-vegetated using indigenous trees

10.2.3 Decommissioning Phase

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.

The initial three phases will occur before the Project is removed, specifically within the first six months. The fourth phase, which involves the removal of the project and necessary protective measures, will take place six months after project closure. The fifth phase will commence after complete removal of the project, and due to its medium scale and relatively moderate impacts, it will continue for at least two years.

The following description outlines the activities that will occur in each phase:

a. **Pre-removal monitoring:** In this phase, the project's and its surroundings' socioeconomic and environmental conditions are evaluated. Prior to acquiring closure permits, it is intended to identify any environmental or social liabilities that need to be resolved. Additionally, this period will include inventorying all assets and facilities that require disposal and preparing a final decommissioning plan for approval by the National Environment Management Council (NEMC).
b. **Permitting:** The proponent will acquire all necessary permits required for the project's removal. This includes permits from MoEST, TCU, NEMC, Local Government Authorities, and others as necessary.
c. **Interim Protective Actions:** During this stage, the main goal is to put any temporary safeguards in place to protect public health and the environment.
d. **Project Removal:** As mentioned earlier, the project will be completely removed within a six-month timeframe.
e. **Post-Removal Activities:** Following the project's removal, monitoring activities will continue for a period of two years to assess any lingering impacts.

Detailed information regarding the decommissioning of the project and its associated impacts, as well as proposed measures to restore the site to its former state, are provided in Table 10.1. The estimated cost for the decommissioning plan is TZS 150,000,000, which is subject to change based on currency value and other economic factors at that time.

Table 10.1: Decommissioning and Closure Plan

Activity	Closure Plan	Responsibility	Estimated Budget (TZS)
Take apart all the equipment and dismantle the structures.	○ Take apart electrical devices such as air conditioners, generators, and other machinery. ○ Consult with TANESCO (Tanzania Electric Supply Company) to disconnect the power supply for the building project. ○ All concrete and metal structures, including offices, washrooms, and pavements, will be demolished. ○ Warning signs will be displayed, and a fence will be erected around all commercial buildings. ○ Qualified engineers will supervise all disassembling and demolition activities. ○ The Closure Committee will oversee and monitor all closure activities to ensure proper execution. ○ Technical assistance during the closure phase will be sought by consulting relevant stakeholders.	MPCC and Closure Committee	100,000,000
Personal Protective Equipment (PPE)	○ During the closure phase, it is mandatory for all workers to wear suitable personal protective equipment (PPE) such as a helmet, safety boots, dust mask, safety gloves, goggles, protective garments, and a safety vest.	MPCC and Closure Committee	30,000,000
Waste Management	○ During the closure phase, proper waste sorting will be implemented for efficient management. ○ A review process will be established to regularly update the waste management plan to adapt to changes in building plans, schedules, community standards, and recognized best practices. ○ Instead of being dumped on land, debris can be utilized to fill feeder roads, providing an alternative use. ○ Metal materials will be collected and transported to steel factories for recycling and subsequent metal production. ○ All hazardous wastes discovered during the decommissioning of the building will be cleaned up and disposed of in accordance with regulations. ○ The closure committee will ensure that no waste is disposed of in water bodies.	MPCC and Closure Committee	10,000,000
Rehabilitation of project site	○ A suitable re-vegetation plan will be executed to restore the site to its original condition.	MPCC and Closure Committee	10,000,000

Activity	Closure Plan	Responsibility	Estimated Budget (TZS)
	○ Measures will be implemented during the vegetation period to control surface water runoff and prevent erosion. ○ Regular monitoring and inspection of the area will be carried out to identify any signs of erosion, and necessary actions will be taken to rectify any occurrences. ○ Fencing and signage will be installed to limit access and minimize disturbances in newly vegetated areas.		
TOTAL			**150,000,000**

CHAPTER 11: SUMMARY AND CONCLUSION

11.1 Summary

The project involves the ESIA for the proposed development of an academic building, students' hostels, and a cafeteria at the SUA-MPCC. The rationale behind this project stems from the remarkable progress in basic education in Tanzania, particularly the significant increase in primary level enrollment. This rise has led to a growing demand for higher education, posing a challenge for the existing infrastructure's capacity to absorb the increasing number of graduates.

The Higher Education for Economic Transformation (HEET) project is introduced as a strategic initiative to address these challenges. It aims to provide funding for the development of infrastructure, faculties, and quality assurance systems in higher education, focusing on fields such as Engineering, Medical Science and Technology, Agriculture, Energy, Forestry, and Natural Resource Management. The overarching goal is to facilitate swift economic transformation in the country by strengthening the operational capacities of public universities.

11.2 Conclusion

In conclusion, the proposed development project at the Sokoine University of Agriculture aligns with the broader vision of the Higher Education for Economic Transformation (HEET) project initiated by the Government of the United Republic of Tanzania. The focus on enhancing infrastructure, faculties, and quality assurance systems is critical to meet the rising demand for higher education, particularly in key sectors that are essential for economic development. The ESIA serves as a crucial step in ensuring that the proposed development complies with environmental and social standards. As the country strives for economic transformation, investing in higher education infrastructure becomes paramount, and this project is a step towards realizing that vision.

REFERENCE

1. Ahmad Y. J. and Sammy G. K., 1987: Guidelines to Environmental Impact Assessment in Developing Countries, UNEP Regional Seas Reports and Studies No. 85, UNEP, 1987.
2. Ceureca East Africa Limited and NETWAS (T) LTD. (January, 2018). Consultancy Servicers for review and Update of documents for improvement of water and Sanitation services in Morogoro Municipality.
3. CHARIS. (June 2022). Environmental and social impact assessment for the cross-border roads-Southwestern Lot (131.046Km) in Rusizi and Nyaruguru Districts. Rwanda.
4. Community Development Policy (1996), Dar es Salaam, Ministry of Community Development, Women Affairs and Children
5. Energy Policy, (2003), Dar es Salaam, Ministry of Energy and Minerals
6. Environmental Impact Assessment and Audit (Amendment) Regulations (G.N. No. 474) of 2018
7. URT(1999), Land Act No.4, Government Press, Dar es Salaam,Tanzania.
8. European Commission, 1999: Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions. Luxembourg, 172 pp
9. Farkwa Dam, Feasibility Study Interim Report No 1
10. Gebert, R. (2015): Policy, Laws and Regulations and the UNFCCC Cancun Safeguards: Frameworks and Gaps in the Lao PDR.
11. Gibson, G. (2022). Environmental and Social Impact Assessment (ESIA) report for Rusumo Health Center. Ngara.
12. IFC. (2012). International Finance Corporation, Performance Standards on Environmental and Social Sustainability, World Bank Group.
13. IFC/WBG Guidelines: Air Emissions and Ambient Air Quality.
14. IFC/WBG Guidelines: Noise Management
15. IFC/WBG Guidelines: Occupational Health and Safety.
16. International Association for Impact Assessment, 1999: Principles of Environmental Impact Assessment Best Practice, UK. 20 pp
17. International Finance Corporation (IFC) (2012), Performance Standards on Environmental and Social Sustainability, World Bank Group
18. Martin W Hodget and Hugh Synge. (November 1992). The Future of IUCN. Switzerland
19. Modak P. & Biswas A. K., 1999: Conducting Environmental Impact Assessment for Developing Countries, United Nations University press.
20. MoEST, 2021. Environmental and Social Management Framework (ESMF) for the Higher Education for Economic Transformation Project (Heet).
21. MoEST, 2021. The Project Operation Manual (POM) for HEET project, Tanzania.
22. Morris P and Therivel R., (eds), 1995: Methods of environmental impact assessment, UCL press, London.
23. Murthy V. Krishna, Majumder Ahmad Kamruzzaman, Khanal Sanjay Nath, and Subedi Deepak Prasad: Assessment of Traffic Noise Pollution in Banepa, a Semi Urban Town of Nepal. Kathmandu University Journal of Science, Engineering and Technology vol. I, No. IV, August, 2007
24. Mutemba S., 1996: Public participation in environmental assessment for banks supported projects in sub-Saharan Africa, in Environmental Assessment in Africa: A World Bank commitment, Environmental Department, World Bank Washington DC.
25. National Health Policy, (2003), Dar es salaam: Ministry of Health and welfare.

26. National Water Policy. Government printer, Dar es salaam, Tanzania,
27. NBS. (2022). Population and Housing Census - Administrative units Population Distribution and Age and Sex Distribution Reports.
28. Sokoine University of Agriculture prospectus 2021-2023. Morogoro.
29. TANROAD. (2022). Environmental and Social Management Framework for Tanzania Cities Transforming Infrastructure and Compititiveness. Dar es Salaam.
30. Tanzania Bureau of Standards, 2008; National Environmental Standards Compendium
31. The Environmental Impact Assessment and Audit Regulations, (2005).
32. The Environmental Management (Water Quality Standards) Regulations, (2007).
33. The World Bank Environmental and Social Framework (2017). World Bank, Washington, DC.
34. UDSM. (2021). Effects of Climate Changes on Water Resources: A Case of Mindu Dam in Morogoro Municipality, Tanzania. Tanzania Journal of Science, 47(3): 1252-1265.
35. URT, The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Tractebel Engineering S.A (2013):
36. Village Land Act No. 5, (1999), Ministry of Lands, Dar es Salaam, Housing and Human Settlement Development,
37. WHO Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen dioxide and Sulfur dioxide, (2007).
38. World bank 1999: Good practices: Environmental Assessment, Operational Manual, GP 4.01, and Environment Department World bank, Washington DC.
39. Yekom Consulting Engineers and FBNE Limited (2012): Integrated Water Resources Management and Development Plan (IWRMDP) for Internal Drainage Basin (IDB) - Water Resources Assessment Vol. 1 Water availability (Interim Report - Draft)

APPENDICES
Appendix 1: Approved Terms of Reference

THE UNITED REPUBLIC OF TANZANIA

VICE PRESIDENT'S OFFICE

NATIONAL ENVIRONMENT MANAGEMENT COUNCIL (NEMC)

In reply please quote:
Ref: HG.145/435/03/01 **Date:** 19/05/2023

Sokoine University of Agriculture,
P.O. Box 3000,
MOROGORO.

RE: APPROVAL OF TERMS OF REFERENCE (ToR) ON THE PROPOSED CONSTRUCTION OF ACADEMIC BUILDINGS, STUDENTS HOSTEL'S BUILDINGS AND CAFETERIA TO BE BUILT AT SOKOINE UNIVERSITY OF AGRICULTURE, MIZENGO PINDA CAMPUS, LOCATED ON PLOT NO.1, KIBAONI VILLAGE, KIBAONI WARD, MPIMBWE DISTRICT COUNCIL IN KATAVI REGION

Refer to the above captioned subject.

2. The National Environment Management Council (NEMC) through its Western Zone (WZ) Office acknowledges receipt of a dully filled registration form (Form No.1), Scoping Report and Terms of Reference for undertaking ESIA for the above mentioned project that was issued with Registration No. EC/EIA/2023/3511 on 23rd April 2023.

3. Following the review of the submitted documents, the Council has reached a decision that the project **falls under type A projects which require full EIA to be undertaken** and the submitted ToR are generally adequate enough and thus can be used to guide Environmental and Social Impact Assessment (ESIA) study of the named project. Therefore, after completion of the study, the ESIA Report has to be prepared and submitted to the Council through the Online Project Management System for review.

4. The ESIA Report to be prepared should be smartly structured to conforms with the requirements of Regulation 18(1) and (2) of the Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations, 2018 that is read as one with the Environmental Impact Assessment and Audit Regulations, 2005 hereinafter is referred to as the "Principal Regulations". The submitted ESIA Report should take into account **but not limited** to the following:-

a) Ensure the ESIA Report format conforms with the requirements of Environmental Impact Assessment (EIA) and Audit Regulations of 2005 as

Western Zone Office, 1st Floor NSSF Mafao House, Mnarani Street, P.O.Box 974, Kigoma /Ujiji, Tanzania,
Phone: +255 738 037307; e-mail: nemckigoma@nemc.or.tz Website: www.nemc.or.tz

amended in 2018 specifically Regulation 18 (2) (a) (b), 18 (3) and 19 (1) and (2);

b) Ensure to append the Land Ownership Document with the land use plan that is compatible with the intended activity;

c) Ensure to append all relevant Certificates, Permits, Licences and other documents related to the proposed project;

d) Ensure to provide the Registration No. of the firm of Experts who conducted the ESIA study and all Experts involved in the ESIA study should provide original signatures in the Report as the law requires;

e) Ensure to provide a detailed description of the project activities during all phases of the project;

f) Ensure to include all the project components in line with their number, type structural/engineering designs, and site layout plan;

g) Ensure to use site-specific and most current baseline data on the physical, biological, socio-economic and cultural environment, also, provide the respective sources of the used data;

h) Ensure project-related stakeholders such as but not limited to TBA and OSHA are consulted during the ESIA study and their views/concerns are presented in the ESIA Report. Take note also that minutes of meetings and related correspondences are provided in the Report. Likewise, consultation forms should bear **dates**, and each consulted stakeholder should **sign** against his/her **name** as the law requires.

5. Upon resubmission of the ESIA Report, you will be required to pay review charges to the Council as indicated in the Profoma Invoice which will be generated by the system. The review charges exclude transport cost of three NEMC Officers to and from the project site during Site Verification. The transport cost shall be incurred by the project proponent and the Council will inform you the dates for the site verification after confirming payment of the review charges.

6. Thank you for your continued collaborative initiatives on Environmental Management.

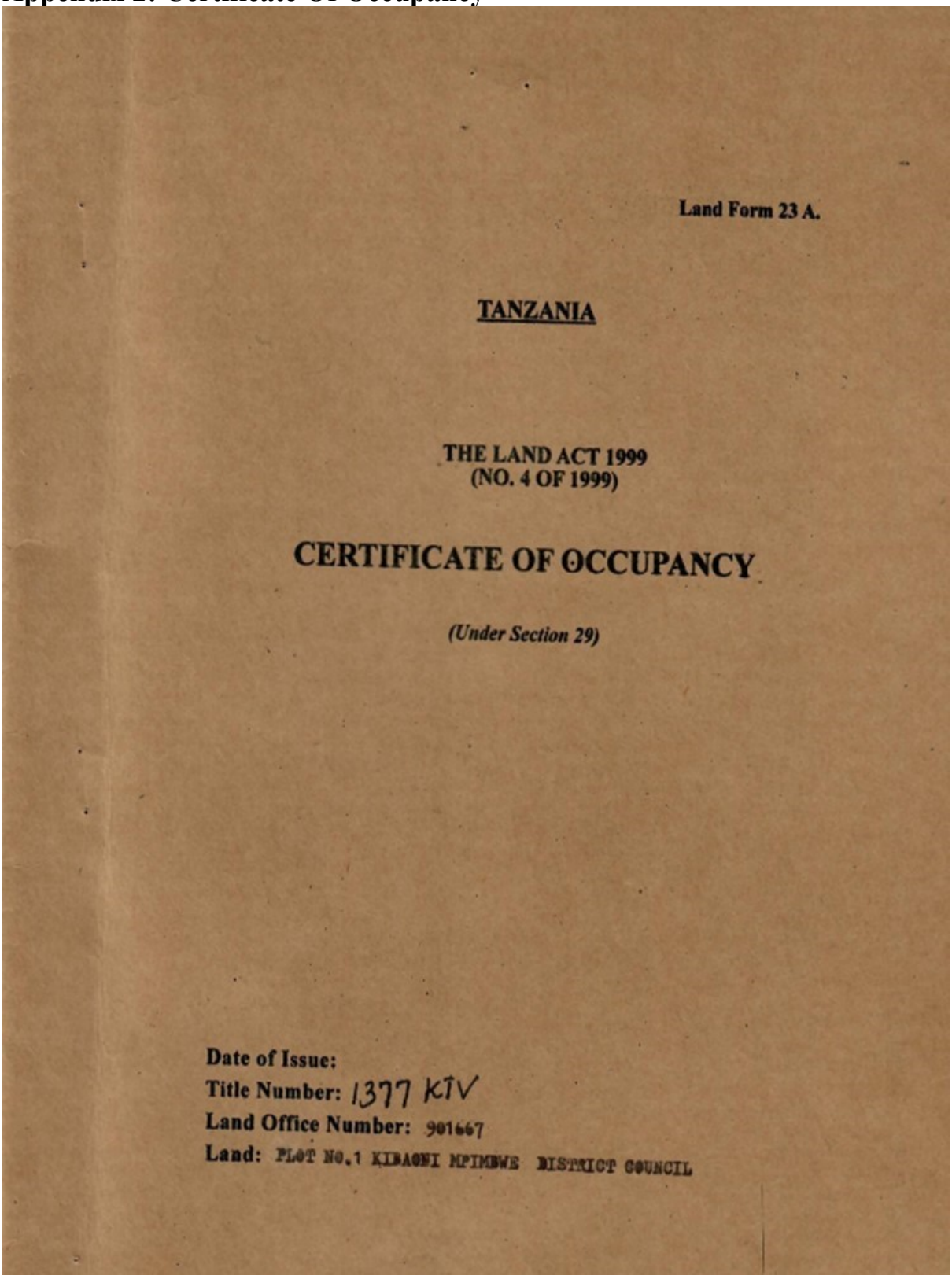
Daud Buyagu
For: Zonal Manager
NEMC WESTERN ZONE

For: Zonal manager (NEMC)
Western Zonal Office. NSSF House, 1st Floor
P.O. Box 974
Kigoma /Ujiji

Consultant for action

Copy: Earth Environmental Experts Ltd,
P.O. Box35413,
DAR ES SALAAM.

Appendix 2: Certificate Of Occupancy



Land Form 23 A.

TANZANIA

THE LAND ACT 1999
(NO. 4 OF 1999)

CERTIFICATE OF OCCUPANCY

(Under Section 29)

Date of Issue:
Title Number: 1377 KTV
Land Office Number: 901667
Land: PLOT NO.1 KIBAONI MPIMBWE DISTRICT COUNCIL

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF LANDS, HOUSING AND HUMAN SETTLEMENTS DEVELOPMENT

Telegrams: LANDS
Telephone: 2121241-9
In reply please quote:
Ref. No. LR/T 1377

LAND REGISTRY,
P.O Box 1191,
Dar es salaam.
Date: 29 Jun, 2022

SOKOINE UNIVERSITY OF AGRICULTURE
P.O Box 3000 MOROGORO
MPIMBWE
Sir/Gentlemen/Madam,

RE: TITLE NO: 1377 LAND OFFICE NO: 901667
PLOT NO. 1 BLOCK "X" AT KIBAONI

I have the honour to enclose herewith duplicate of the Certificate of Title Numbered as above please.

Ag/. REGISTRAR OF TITLES

Copy to: Commisioner for Lands
Your LD File No: KTV/MPDC/1/KIBAONI refers

TITLE No: 1377 KTV
REGISTERED ON: 29.06.2022
AT: 01:00 P.M
Senior Asst. Registrar of Titles

TANGANYIKA STAMP DUTY ACT
Stamp Duty Shs: 312,761/= Paid
On Original Receipt No: 920291087920086
Land Form No. 22
of: 17-10-2020
Stamp Duty Officer

TANGANYIKA STAMP DUTY ACT
Stamp Duty Shs: 100/= Paid
Receipt No: 920291013792086
of: 17-10-2020
Stamp Duty Officer

THE UNITED REPUBLIC OF TANZANIA
THE LAND ACT, 1999
NO. 4 OF 1999

CERTIFICATE OF OCCUPANCY
(Under Section 29)

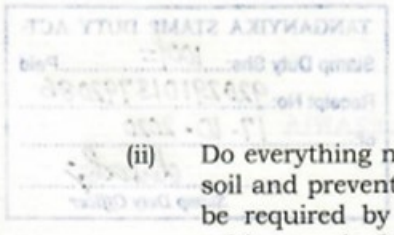
Title No. 1377 KTV
L.O. No.901667
KTV/MPDC/1/ /KIBAONI

The 08th day of June 2022

THIS IS TO CERTIFY that **SOKOINE UNIVERSITY OF AGRICULTURE, Established under Sokoine University of Agriculture Charter, 2007 granted under Universities Act No 7 of 2005** of **P.O. Box 3000, MOROGORO** (hereinafter called "the occupier") is entitled to a Right of Occupancy (hereinafter called the Right) in and over the land described in the schedule hereto (hereinafter called "the Land") for a term of **Ninety Nine (99)** years from the first day of **October, Two Thousand and Twenty** according to the true intent and meaning of the Land Act and subject to the provisions thereof and any regulations made hereunder and to any enactment in substitutions therefore of amendment thereof and to the following special conditions:-

1. The occupier having paid rent up to the thirtieth day of June **2021** shall thereafter pay rent of shillings **Five Thousand Only (5,000/=)** a year in advance on the first day of July in every year of the term without deduction **PROVIDED** that the rent may be revised by the Commissioner for Lands.

2. The Occupier shall:-
   (i) Be responsible for the protection of all beacons on the land throughout the term of the Right. Missing beacons will to be re-established at any time at the occupier's expenses as assessed by the Director responsible for Surveys and Mapping



(ii) Do everything necessary to preserve the environment and protect the soil and prevent soil erosion on the land and do all things which may be required by the authorities responsible for environment and to achieve such objectives.

(iii) Construct the buildings in permanent materials.

(iv) Submit Building plans to the **Mpimbwe District Council** within six months from the commencement of the Right.

(v) Begin building construction within six months after approval of the plans.

(vi) Complete Buildings within thirty six months from the commencement of the Right.

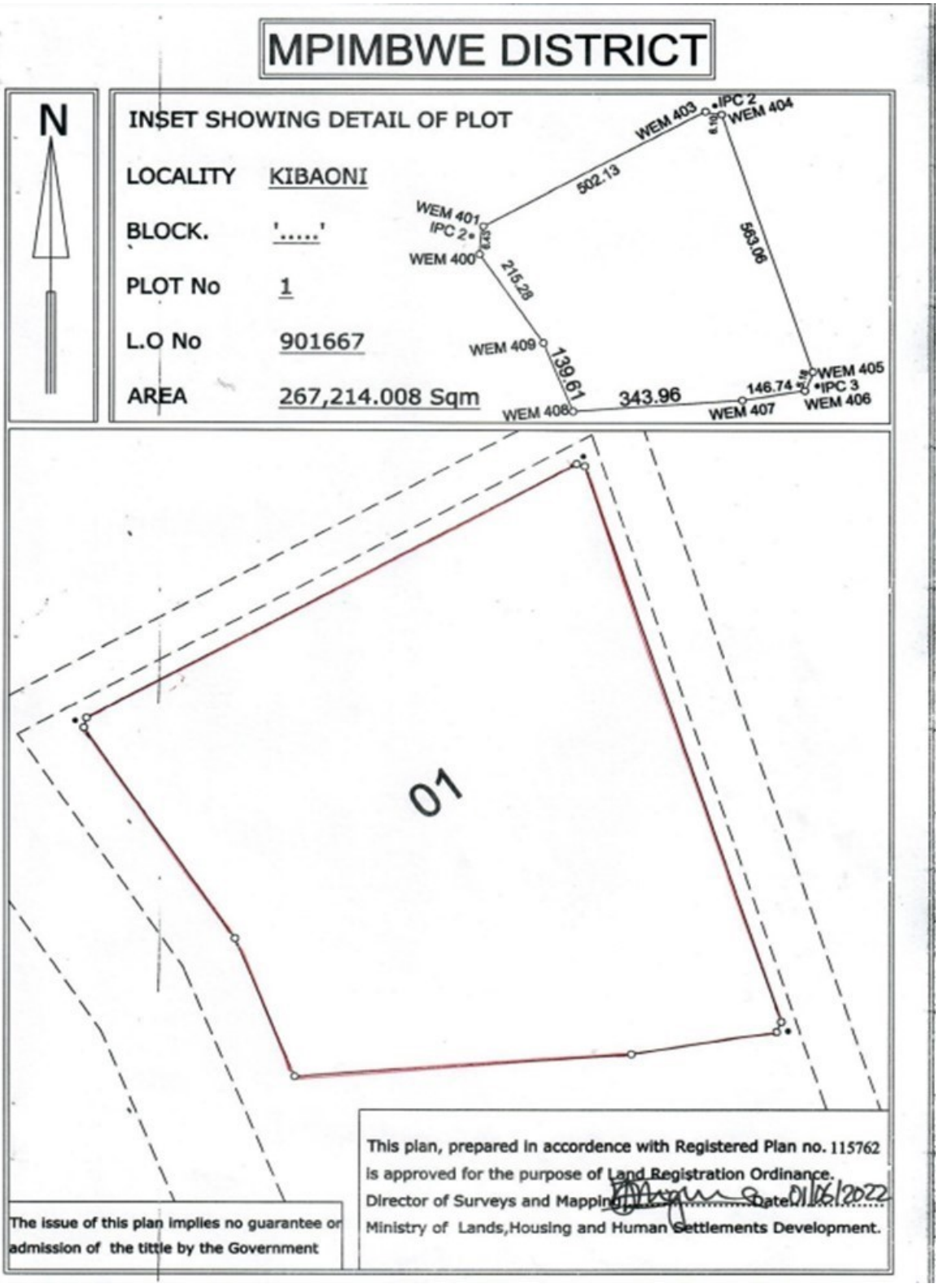
3. **USER:** The land shall be used for **Public Buildings and Places of Assembly Purposes only**. Use Group **'H'** Use Classes **(a), (c) (e) (f)** and **(h)** as defined in the Town and Country Planning (Use Classes) Regulations, 1960 as amended in 1993.

4. The Occupier shall not assign the Right within three years of the date there of without the prior approval of the Commissioner.

5. The Occupier shall deliver to the Commissioner notification of disposition in prescribed form before or at the time the disposition is carried out together with the payment of all premia, taxes and dues prescribed in connection with that disposition.

6. The president may revoke the Right for good cause or in public interest.

MPIMBWE DISTRICT



SCHEDULE

ALL that Land known as Plot No. **1** situated at **Kibaoni** in **Mpimbwe District Council** containing **two hunded sixty seven thousand two hundred fourteen (267,214) square metres** shown for identification only edged **red** on the plan attached to this Certificate and defined on the registered Survey Plan Numbered **115762** deposited at the Office of the Director for Surveys and Mapping at Dar es Salaam.

Given under my hand and my official seal the day and year first above written.

ASSISTANT COMMISSIONER FOR LANDS

The within named **SOKOINE UNIVERSITY OF AGRICULTURE Established under Sokoine University of Agriculture Charter, 2007 granted under Universities Act No. 7 of 2005** hereby accept the terms and conditions contained in the foregoing Certificate of Occupancy.

SEALED with the **COMMON SEAL** of the said
THE SOKOINE UNIVERSITY OF AGRICULTURE
and Delivered in the presence of us this 04th
.....day of MARCH,.....2021

Name PROF. RAPHAEL T. CHIBUNDA

Signature.....

Postal Address: 3000 MOROGORO

.....

Qualification: VICE CHANCELLOR

Name LUNYAMADZO GILLAH

Signature.....

Postal Address: 3000 MOROGORO

.....

Qualification: LAW OFFICER

Appendix 3: Detailed stakeholder concerns

Level	Organization/ Institution	Comment	Response section
National level	**Tanzania Commission of Universities (TCU)**	○ Construction activities should be assessed so that they should not affect University learning activities. ○ Prior to building, a soil study and research should be conducted. ○ The campus needs to consider difficulties with solid waste management, and sewerage systems need to be built and operated correctly. ○ Buildings should generally be equipped to decrease noise pollution, especially in classrooms.	○ Contractor shall provide work plan during construction activities ○ Contractor should conduct soil analysis before the construction phase start. ○ Contactor and MPCC should develop system for waste management during the operation phase ○ Design team should review it accordingly
Regional level	**(TANESCO)**	○ Natural disaster i.e., Earthquakes consideration during the project design and construction. ○ The client should request for large transformer so that to serve the new buildings and increased population. ○ The multistory buildings should have the system to overcome against lighting and thunderstorm problems.	○ Contractor has cooperated it in design and must conduct geotechnical study. ○ MPCC administration write official letter for the request of large transformer. ○ Contractor provides the appropriate instillation system to overcome the outcomes
	Occupation safety and health authority (OSHA)	○ There should be trained First Aiders at all project phases, as well as First Aid Kits with all necessary facilities. ○ Giving out health and safety awareness. ○ They should have a registered and qualified health and safety person in the project construction phase. ○ The contractor should conduct pre-medical examination of their workers.	○ MPCC shall have safety and health management plan for all project phases. ○ Contractor shall have plan for health and safety training. ○ MPCC and contractor shall adhere it for the health and safety of workers. ○ Workers shall be tested their fitness as per OSHA regulations. ○ PPE are inevitably to be provided due to nature of the construction activities and associated risks.

Level	Organization/ Institution	Comment	Response section
		○ The proponent should conduct Risk Assessment before construction and prepare a Risk Assessment report. ○ All workers should be provided with sufficient Personal Protective Equipment (PPEs) during all project phases. ○ There should be safety signs at the project site during construction and operation	○ Due to nature of risks in construction perimeters, enough signs shall be provided
	RUWASA	○ We will be able to supply sufficient water and of good quality to meet the water requirements of the college during construction and operation.	○ Consultation to RUWASA for any challenges to water scarcity during project implementation
	Fire and Rescue Force	○ Contractor must follow fire and rescue force precaution law 2015 during design and construction. ○ Contractor should consider constructing a fire hydrant and horse drill around the new buildings. ○ The proponent should provide fire awareness training to all workers and students. ○ There should be no grilled windows in hostels for easy escape during fire emergency ○ For hostels, no cooking activities should be conducted in the rooms otherwise install the kitchen, and it should have a heat detector. ○ Two files of all architectural drawings should be submitted at Fire and Rescue Force office for payment and to be reviewed, signed and approved. ○ Laboratories should have wide windows and doors in order to provide enough ventilation,	○ Design team should review it accordingly. ○ Design team should review it accordingly. ○ Contractor team should review it accordingly. ○ MPCC should ensure it during operation by creating rules and regulations, provide signs and symbols. ○ Design team should review it accordingly. ○ Design team should review it accordingly

Level	Organization/ Institution	Comment	Response section
		also there should be a ventilation system for sucking air in and out.	
Local level	**Mpimbwe District Council** (DED, Environmental Management Officer, Town Planning Officer, Community Development Officer)	○ The project is very positive to bring development in the Mpimbwe district in different aspects of education and gradual change of economics. ○ Pressed on giving out health education during the pre-construction period to the community and workers who will be in the construction phase and students about HIV/AIDS, Covid 19. ○ The project is very important as it will bring changes and development in the education sector within the district. ○ Emphasized on tree restoration to maintain the ecosystem of the environment and cutting the current trees only at site area for building construction. ○ During the construction phase the contractor must control the noise and dust emission from the site. ○ Insist on safety of the building before and after the construction is done so as to prohibit the emission of chemical to have an onsite proper management treatment before disposal. ○ Wastewater from the buildings should be well planned and designed to prevent the outbreak of diseases. ○ The client (SUA) must follow the process to have the construction permit from the district	○ Contractor provides regular awareness on HIV/AIDS, Covid 19 to workers ○ Contractor shall be insisted to employ local community especially for non-skilled force ○ MPCC and contractor team should review and plan it accordingly. ○ Contractor shall have plan for health and safety signs and training. ○ MPCC has a good liquid waste management treatment system. ○ MPCC administration to request for permit of the authority. ○ Design team should review it accordingly

Level	Organization/ Institution	Comment	Response section
		council before the construction of the project begins. o During the construction phase the local community should get first priority in job opportunities for both skilled and unskilled labor. o Geotechnical survey and soil characteristics investigation should be conducted before construction, since Katavi region is prone to earthquakes.	
	Ward Office – (Kibaoni ward) (Ward Executive Officer, Village chairmen, community representative leaders)	o Kibaoni wards people to get first priority of job opportunities in proper arrangement and they should remove obstacles in getting on the upcoming project. o The contractor should use young youth around Kibaoni ward to provide them catering service and other unskilled labor and skilled labor if they have knowledge. o The unskilled they should have a contract of payment with the main contractor and payment should be done timely. o The contractor should give the skilled and unskilled labor health and safety education to avoid risks at work and treatment must be done by the contractor if an accident or illness happens within the site. o Workers in the project should be given HIV & AIDS education to avoid sexually transmitted diseases.	o Contractor shall be insisted to employ local community especially for non-skilled force. o Contractor should develop his own workplace policy. o Contractor shall have plan for health and safety training. o Contractor provides regular awareness on HIV/AIDS to workers

Level	Organization/ Institution	Comment	Response section
	Mizengo Pinda Campus College (MPCC) (Administrative and Academic staff)	○ The project will increase students' enrollment for the campus and provision of enough car parking which is well designed and represented to users with a permanent sun shed. ○ It is a nice project and security office placed within the building, fire hydrant and assembly point for emergency must be proper located. ○ Should ensure the availability of clean water and emphasize the use of alternative sources of energy (e.g., solar energy, gas). ○ The proposed hostel should provide indoor sports facilities e.g., table tennis, gym. ○ Buildings should provide washrooms and toilets with enough space and consideration of people with special needs. ○ Focus on proper liquid waste management by providing accessible duct of the good plumbing system for easy maintenance. ○ Wastewater characterization from laboratory before integrated treatment plant.	○ Design team should review it accordingly. ○ Design team should review it accordingly. ○ MPCC will install water distribution system from the borehole. ○ Design team should review it accordingly. ○ Design team should review it accordingly. ○ Design team should review it accordingly. ○ MPCC laboratory technician and Design team should review it accordingly
	Mizengo Pinda Campus College (MPCC) (MPCC Students, SUASO and Services providers)	○ Positive thoughts of the project, the construction of student's hostels will increase accommodation priorities to the students. ○ The proposed library should have special discussion rooms. Also, fixed chairs for the library should be in place as an attempt to manage noise pollution. ○ Accidents should be avoided to both students and workers in the project areas by ensuring the safety signs and precautions.	○ Design team should review it accordingly. ○ MPCC and contractor shall adhere it for the health and safety of workers. ○ Design team should review it accordingly. ○ MPCC and Design team should review it accordingly. ○ Design team should review it accordingly

Level	Organization/ Institution	Comment	Response section
		○ The design of the new buildings must include well designed and furnished open air study junction (vimbweta) with sunshade and light. ○ Should maintain the quality of buildings and be accessible with advanced facilities and WIFI service. ○ The potential project should have walkways with sunshade, pavement and light.	

Appendix 4: Baseline ambient dust, gases, noise and ground vibration field measurements

Table 4.1: Average ambient dust level for proposed sites for Construction

Code & Coordinate	Location Name	PM2.5(µg/m^3)	PM10(µg/m^3)
AQMS1 (-7.097154 & 31.163185)	Academic building	13.1	23.9
AQMS2 (-7.097616 & 31.163795)	Cafeteria	12.6	23.0
AQMS3 (-7.095957 & 31.165488)	Hostel building	14.3	26.0
EM (Air Quality Standards) Regulation, 2007		**75**	**150**
WBG Guidelines		**25**	**50**

Sampling date: May 2023 **Source: Field Measurement**

Table 4.2: Average ambient gases pollutants level

Code & Coordinate	Location Name	CO mg/m^3	NO_2 mg/m^3	SO_2 mg/m^3	H_2S mg/m^3	VOCs mg/m^3
AQMS1 (-7.097154 & 31.163185)	Academic building	<0.1	<0.01	<0.01	<0.01	0.008
AQMS2 (-7.097616 & 31.163795)	Cafeteria	<0.1	<0.01	<0.01	<0.01	0.008
AQMS3 (-7.095957 & 31.165488)	Hostel building	<0.1	<0.01	<0.01	<0.01	0.009
EM (Air Quality Standards) Regulation, 2007		**15**	**0.12**	**0.5**	**-**	**6.0**
WHO/IFC Guidelines		**30**	**0.2**	**0.5**	**20**	**-**

Sampling date: May 2023 **Source: Field Measurement**

Table 4.3: Average noise pressure level for proposed sites construction

Code	Location Name	Noise Level in (dBA)
AQMS1	Hostel building	44
AQMS2	Cafeteria	33.6
AQMS3	Academic building	36.5
TBS standards (TZS: 845:2005)		**52**
WB Group Guidelines		**55**

Sampling date: May 2023 **Source: Field Measurement**

Table 4.4: Average vibration (in mm/s PPV) associated with construction activities from proposed project area at SUA-MPCC

Code & Coordinate	Location Name	Vibration (mm/s)
AQMS 1 (-7.097154 & 31.163185)	Academic building	<0.01
AQMS 2 (-7.097616& 31.163795)	Cafeteria	<0.01
AQMS 3 (-7.095957& 31.165488)	Hostel building	<0.01
Human detection level		**<0.15**
British limit		**<0.3**
TBS Limit		**<5**

Sampling date: May 2023 **Source: Field Measurement**