ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE PROPOSED CONSTRUCTION OF ADMINISTRATION BLOCK, MULTI-PURPOSE ACADEMIC COMPLEX, CAFETERIA BLOCK, DISPENSARY BUILDING, WORKSHOP BUILDING, AND STUDENTS' HOSTELS AT PLOT NO. 96, BLOCK 'A', AT KIHESA MTAA, NJOMBE MJINI WARD IN NJOMBE TOWN COUNCIL, NJOMBE REGION, TANZANIA

Proponent:

The University of Dodoma
P.O. Box 259
Dodoma.

October 2024

EXECUTIVE SUMMARY

Introduction

The University of Dodoma (UDOM) is a public higher learning institution under the Ministry of Education, Science and Technology (MoEST) formally established in March 2007. UDOM offers a number of quality-assured academic programmes at certificate, diploma, degree, and postgraduate levels, centrally regulated by the Tanzania Commission for Universities (TCU).

UDOM, through the Government of the United Republic of Tanzania (URT) has received financing from the World Bank to implement Higher Education for Economic Transformation Project (HEET). HEET's Project Development Objective (PDO) is *to strengthen the learning environments and labour market orientation of programmes in priority disciplines and the management of the higher education system.* Through the HEET Project, as one of the planned activities, UDOM expects to construct a 2-storey Administration Building, 2-storey Mult-purpose Academic Complex, 3-storey Student Hostel Block, Cafeteria Block, Dispensary Building, Workshop Building, and other essential facilities like Playground and parking space. This initiative aims to offer a number of programmes at certificate, diploma, degree and postgraduate levels in line with modern educational needs. The proposed project will be constructed on Plot No. 96, Block 'A' at Kihesa Mtaa, Njombe Mjini Ward, Njombe Town Council in Njombe Region. However, the construction and operation of the proposed project are expected to have significant direct or indirect impacts on the environment and the lives of human beings in the vicinity of the project.

According to the Tanzania Environmental Management Act of 2004 and its regulations, the project developers are required to carry out an Environmental and Social Impact Assessment (ESIA) prior to project implementation. Similarly, the World Bank's Environmental and Social Framework (ESF) outlines policies and standards to counteract anticipated environmental and social impacts in investment projects. ESS1 within ESF, for example, specifies requirements for Borrowers regarding the identification, assessment, and mitigation of such risks. In line with these guidelines, UDOM organized a team of environmental experts to undertake an Environmental and Social Impact Assessment (ESIA) study for the proposed project.

The ESIA process is undertaken to limit any potential negative environmental effects that may arise as a result of undertaking the work and enhance any positive effects that may also come about as a result of the project. Therefore, the Environmental Management Act, Cap 191, the Environmental Impact Assessment and Audit (Amendment) Regulations, 2018, and the World Bank Environment and Social Framework (ESF), as well as the project's Environmental and Social Management Framework (ESMF), were observed in the study.

Project description

The proposed project will comprise 8 buildings and associated facilities, which include a 2-storey Administration Building, a 2-storey Multi-purpose Academic Complex, a 3-storey Student Hostel Block, a Cafeteria Block, a Dispensary building, a workshop building, a Playground, and External Works. The building will have sanitary areas and a circular ramp for people with physical disabilities. The total built-up area will be 21,913.7 m2 of the total area, which is 4.73% of the total area, excluding external works. The remaining area will be left for future development, as well as a lawn area and parking space.

Project Location and Accessibility

The proposed project site is specifically located at Plot No. 96 Block 'A', Kihesa Mtaa, Njombe Mjini Ward, Njombe Town Council in Njombe Region. The site lies at latitude -9.341400 and Longitude 34.78028, near Njombe Secondary School, 1 km from the Njombe-Songea Highway.

The site can be accessed through Njombe – Songea road, approximately 1 kilometer from the main road. The project plot borders Kihesa Road adjacent to Kilimani Primary School and households of Kihesa Mtaa on the North, NJOSS 'B' road, Njombe Secondary School and Njombe Secondary School staff quarters on the South, Njombe Fork Development Community (FDC) and tree plantations on the western side and NJOSS 'B' Mtaa and Selestin Kilasi Primary School on the Eastern side.

Main Project Activities

The development of the proposed project will involve various phases, including the

design (planning) phase, construction phase, operation phase, and decommissioning phase. The planning phase will involve surveying the proposed sites for construction of the facilities at Plot No. 96 Block 'A', Kihesa Mtaa, Njombe Mjini Ward, Njombe Town Council in Njombe Region. A survey, in this case, refers to land investigations, drilling, measurements, and pre-works examination of the site. The 18 months of the actual construction phase of the project will involve standard construction activities such as construction management, site preparation, and leveling, excavation, compaction, setting the foundation, installation of electrical, water, and wastewater infrastructure, erection of superstructures, etc.

Legal and Institutional Framework

Tanzania is committed to attaining the sustainable development goal. Some of the Tanzanian legal and institutional frameworks that are closely related to this project were applied.

Furthermore, this ESIA study has complied with the following tools:

i) World Bank's Environmental and Social Framework (ESF);
ii) World Bank relevant Environmental and Social Standards (ESSs). This ESIA has applied 6 relevant standards out of 10 ESSs, which are:
    - ESS1- Assessment and Management of Environmental and Social Risks and Impacts;
    - ESS2 - Labour and Working Conditions;
    - ESS3 - Resource Efficiency and Pollution Prevention and Management;
    - ESS4 - Community Health and Safety;
    - ESS8 – Cultural Heritage and
    - ESS10 - Stakeholder Engagement and Information Disclosure.

Baseline Information

The earmarked site has been largely influenced by tree farming in Njombe, most of which contain similar kinds of tree species in monoculture style, specifically black wattle, eucalyptus, pines, and black wood. The grasses and herbs are also present at the site. The topography is an undulating gently to steep slopping area towards the center from the western to the northern side of the site. The project area is

characterized by black clay loam soils. Due to the current vegetation cover in the core project and surrounding areas, which past human activities have largely influenced, the area does not present a high ecological value. However, it is important to note the existence of a small natural water spring and two waste stabilization ponds.

Stakeholder Engagement and Public Consultations

Stakeholders' identification and engagement process was conducted based on EIA and Audit Regulations, 2005 and its amendment of 2018, and World Bank Environmental and Social Standards (ESS10) and Stakeholders Engagement Plan (SEP).

Public consultation entailed sharing information and knowledge about the project, seeking to understand key stakeholders' concerns and building relationships with the community. Stakeholders' identification considered all aspects of stakeholders that may be affected or have interest to project activities whether positively or negatively and/or based on their roles in implementation of the project.

The SEP covers both national and sub-national engagement; however, a greater focus was placed on sub-national stakeholders. The SEP provides details on the engagement needed associated with project activities.

The project involved various stakeholders considering gender, vulnerable people as well as people with special needs. They were consulted to get their views throughout the project life. In addition, a mechanism was put in place to address grievances, Gender based Violence (GBV), Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH).

The main stakeholders consulted included relevant Ministries/Departments/ Agencies, i.e., Ministry of Education, Science and Technology (MoEST), Vice President Office (VPO), Tanzania Building Agency (TBA), Fire and Rescue Force, Occupational Safety and Health Authority (OSHA), Tanzania Electric Supply Company Limited (TANESCO), Njombe Urban Water Supply and Sanitation Authority (NJUWASA), Tanzania Rural and Urban Roads Agency (TARURA), Local Government Authorities (Njombe Town Council, and Njombe Mjini Ward) and

project-affected people such as Kihesa community members.

Stakeholders' consultation revealed that the proposed project will have positive impacts that might stimulate economic and social development through the expected employment opportunities. Nevertheless, stakeholders also raised several issues and concerns about waste management, impaired air quality (dust and pollutant gases), noise, oil spills, and water utilization efficiency.

Assessment of Environmental and Socio-Economic Impacts

(a) The assessed environmental risks and impacts were based on:

(i) World Bank Environmental Health and Safety Guidelines (EHSGs);

(ii) Effects related to climate change;

(iii) Effects of any material threat to the protection, conservation, maintenance, and restoration of natural habitats and biodiversity;

(iv) Effects related to ecosystem services and the use of living natural resources; and

(v) Design of the physical facilities.

(b) The assessed socio-economic risks and impacts were based on:

(i) Threats to human security through crime or violence; and

(ii) Risks that project impacts fall disproportionately on individuals and groups who, because of their circumstances, may be disadvantaged or vulnerable.

Impacts associated with the proposed project.

A: Impacts on the Physical Environment

Positive environmental impacts

i. Improved amenities/ landscaping; and
ii. Increase waste management facilities in the area.

Negative environmental impacts

i. Loss of biodiversity;
ii. Change of habitat;
iii. Loss of ecosystem services;
iv. Acceleration of soil erosion;
v. Generation of liquid waste;

vi. Generation of solid waste;
vii. Generation of Hazardous waste;
viii. Increased runoff/stormwater;
ix. Land pollution;
x. Groundwater pollution;
xi. Impaired air quality;
xii. Increased noise level
xiii. Generated vibrations;
xiv. Visual impact; and
xv. Increase pressure on natural resources.

B. Impacts on Social Environment

Positive social impacts

i. Increased enrolment of students;
ii. Creation of employment opportunities;
iii. Increased income generation opportunities;
iv. Improved quality of life;
v. Increased skills and impart knowledge to local communities;
vi. Increase of academic facilities

Negative social impacts

i. Increased pressure on social services;
ii. Increased traffic flow;
iii. Increased risks of road accidents;
iv. Increase in level of crimes;
v. Change in social values and ethics;
vi. Increase in conflicts;
vii. Price inflation of goods and services;
viii. Occupation health, safety, and security risks;
ix. Community health and safety risks;
x. Child labour;
xi. Increased incidence of GBV/SEA/SH;
xii. Increased risks of communicable diseases such as STDs, COVID etc.;

C. Economic Impacts

Positive impacts

i. Increased Revenues to local authorities;
ii. Increased commercial and social activities around project locations;
iii. Increased Income to local suppliers and service providers; and
iv. Increased land values.

D. Mitigation measures

The design of the mitigation measures for the identified Environmental and Social impacts applied the mitigation hierarchy suggested in the ESS1, which are:

a) Anticipate and avoid risks and impacts;
b) Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels;
c) Once risks and impacts have been minimized or reduced, mitigate; and
d) Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible.

Most of the mitigation measures put forward are essential for good environmental, social and safety practices that shall be adhered to during all the project phases.

Negative Social Impacts

i. Institute good site practices, including preventing public access to the construction site by securing equipment and demarcating excavated areas, and using warning signs with appropriate text (local language) and graphic displays;
ii. Institute traffic management and safety programme including, training and testing of heavy vehicles operators and drivers, enforcement of speed limits, maximum loading restrictions, and compliance with all Tanzania transportation laws and standards;
iii. Provide more avenues for service providers e.g. cafeterias and restaurants
iv. Strengthen security services
v. Conduct awareness campaigns /Education on HIV, COVID-19 and STDs;
vi. Prepare a GBV Action Plan;
vii. Conduct regular monitoring of project implementation.

Negative Environmental Impacts

i. Ensure proper and timely services and maintenance of tools, machines, and equipment;
ii. Restrict number of vehicles to the site and avoid vehicles idling;
iii. Ensure the stockpiled construction materials are covered to minimize wind impact;
iv. Ensure bare land with loose soil is wetted, revegetated, or paved;
v. Ensure loads with friable material during transportation are covered;
vi. Ensure the proposed project design accommodates the native vegetation;
vii. Ensure proper waste management; and
viii. Ensure sustainable use of natural resources.

Environmental and Social Impact 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. It defines the roles and responsibilities of different actors in the plan. Most of the proposed mitigations are based on best practices for environmental, social, and safety. The associated environmental costs for carrying out the environmental management plan amount to TZS 62,200,000.

Environmental and Social Monitoring Plan (ESMoP)

Environmental and Social Monitoring Plan will be implemented during all project phases. The monitoring of environmental and social parameters during the construction phase shall be carried out by the Contractor's Environmental, Health and Safety, and Social Safeguard team, under the supervision of the University Project Implementation Unit (UPIU) Environmental, Gender, and Social Safeguard team. The estimated annual costs for carrying out the proposed environmental monitoring programme amount to TZS 29,800,000.

Decommissioning

A preliminary decommissioning plan has been developed. Should the decommissioning become inevitable, the plan provides a general description of decommissioning methods considered feasible for the proposed project. The plan is intended to demonstrate that the methods considered are practical and that they

protect the health and safety of the public and decommissioning personnel. 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 environmental and socio-economic activities.

Conclusions and Recommendations

The project has gained overall acceptance within the community, district, regional, and national levels, primarily due to its potential socio-economic benefits. The projected long-term environmental and socioeconomic advantages outweigh any potential negative impacts, which can be effectively managed to acceptable levels.

Based on the information provided, it can be concluded that the proposed project activities, ranging from design and construction to the operational stage, will have manageable and reversible negative impacts on both the biophysical and socio-economic environments. The key to minimizing these concerns lies in the effective implementation of the proposed mitigation measures. UDOM holds the responsibility for ensuring the overall implementation of the Environmental and Social Management Plan (ESMP) and Environmental and Social Monitoring Plan (ESMoP) outlined in this report.

This Environmental and Social Impact Assessment (ESIA) report recommends that the proposed project can proceed, provided that the proponent adheres to the ESMP as specified in the report, along with any additional conditions imposed by regulatory bodies such as the National Environment Management Council (NEMC), World Bank ESF and ESSs, and other relevant authorities.

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LIST ABBREVIATIONS AND ACRONYMS

CBD	Central Business District
CBOs	Community Based Organisations
CRB	Contractors Registration Board
DOE	Division of Environment
EAT	East Africa Time
EIA	Environnemental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EM	Environmental Management
EMA	Environmental Management Act
EMP	Environmental Monitoring Plan
ERB	Engineers Registration Board
ESMP	Environmental and Social Management Plan
GDP	Gross Domestic Product
HEET	Higher Education for Economic Transformation
TBA	Tanzania Building Agency
TARURA	Tanzania Rural and Urban Roads Agency
IFC	International Finance Corporation
NBS	National Bureau of Statistics
NEMC	National Environment Management Council
NEP	National Environmental Policy
NGOs	Non-Governmental Organisations
NJUWASA	Njombe Urban Water Supply and Sanitation Authority
OHS	Occupational Health and Safety
OSHA	Occupational Safety and Health Authority
PPE	Personal Protective Equipment
TAC	Technical Advisory Committee
TANESCO	Tanzania Electric Supply Company
ToR	Terms of reference
TTCL	Tanzania Telecommunication Company Limited
TZS	Tanzania Standards
UDOM	University of Dodoma
UNESCO	United Nations Educational, Scientific and Cultural Organization

URT	United Republic of Tanzania
UPIU	University Project Implementation Unit
VPO	Vice President Office
WHO	World Health Organization

1 INTRODUCTION

1.1 PROJECT BACKGROUND

The University of Dodoma (UDOM) is a public higher learning institution under the Ministry of Education, Science and Technology (MoEST) formally established in March 2007. UDOM offers a number of quality-assured academic programmes at certificate, diploma, degree, and postgraduate levels, centrally regulated by the Tanzania Commission for Universities (TCU).

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According to the Tanzania Environmental Management Act of 2004 and its regulations, the project developers are required to carry out an Environmental and Social Impact Assessment (ESIA) prior to project implementation. Similarly, the World Bank's Environmental and Social Framework (ESF) outlines policies and standards to counteract anticipated environmental and social impacts in investment projects. ESS1 within ESF for example specifies requirements for Borrowers regarding the identification, assessment, and mitigation of such risks. In line with these guidelines, UDOM organized the team of environmental experts to undertake an Environmental and Social Impact Assessment (ESIA) study for the proposed project.

The ESIA process is undertaken to: limit any potential negative environmental and social effects that may arise as a result of undertaking the proposed project enhance any positive effects that may also come about as a result of the project. It is a comprehensive study, which is submitted to NEMC with the aim of being awarded an ESIA certificate.

1.2 PROJECT RATIONALE

The National FYDP III 2021/22-2025/26; and the national Higher Education for Economic Transformation (HEET) project 2021/22 – 2025/26 provide room for UDOM to expand its Training and Learning Infrastructure and to increase student enrolment. These policies and plans are translated into the University Corporate Plan (CP) and the Medium Terms Rolling Strategic Plan (MTRSP), which highlight the need for UDOM to establish new campuses in up-country regions as one of the strategies to expand its training and learning infrastructure and increase students' enrolment. Thus, through HEET project, UDOM will produce sufficient numbers of quality graduates relevant to the labour market demand who will play an active role in supporting the national economy. Ultimately, the HEET project aims to ensure that higher education institutions in Tanzania are responsive to the changing economic needs of the country and continue to fuel sustainable economic growth. In addition, the proposed project at UDOM shall create many employment opportunities throughout the project's lifetime.

1.3 Objectives of the UDOM HEET project

1.3.1 Main Objective

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

1.3.2 Specific Objectives

In addressing the overall objective of the project, UDOM, as HEET project beneficiary had the following specific objectives:

- To construct and equip 2-storey Administration Building, 2-storey Multi-purpose Academic Complex, 3-storey Student Hostel Block, Cafeteria Block, Dispensary building, workshop building, Playground and External works;

- To review and develop curricula to match the current and future labour market demand;
- To train 16 staff with a breakdown of 10 at PhD level and 6 at Master's degree level;
- To strengthen ICT application in UDOM business process (teaching, administration, and management); and
- To strengthen collaboration between UDOM and industry and R&Ds to foster research, technology, and innovation.

1.4 Objectives of the ESIA Study

The overall objective of carrying out this ESIA was to identify, predict, and assess both positive and negative environmental and social impacts associated with the project and propose mitigation measures to minimise the negative impacts and enhance the positive ones. The assessment used data and information on the physical, biological, and socio-economic environment to predict both negative and positive impacts of the project. The Environmental Management (EIA and Audit) (Amendment) Regulations of 2018 and World Bank Environmental and Social Standards (ESS1) provide the general objectives for carrying ESIA, among others, a list comprises of the following: -

- To ensure that environmental considerations are explicitly addressed and incorporated into the development decision-making process;
- To anticipate and avoid, minimise or offset the adverse significant biophysical, social, and relevant effects of the developmental proposal;
- To protect the productivity and capacity of natural systems and ecological processes which maintain their functions;
- To promote development that is sustainable and optimises resources use and management opportunities;
- To establish and assess impacts that are likely to affect the environment before a decision is made to authorise the project;
- Propose mitigation and socio-management procedures aimed at managing the proposed mitigation of the identified potential impacts and that will form part of the overall ESMP and ESMoP for the project operations; and
- To enable information exchange, notification, and consultations between stakeholders.

Thus, UDOM undertook this Environmental and Social Impact Assessment to address the above objectives.

1.5 Methodology of the ESIA Study

The ESIA study applied different participatory methods to involve all the concerned stakeholders. The methodology used in this study is commensurate with the Environmental Management Act, Cap 191, and the Environment Impact Assessment and Audit (Amendment) Regulations, 2018). The study was undertaken based on checklists complimented by the ESIA Team experience and through discussion with UDOM staff, local government officials, and communities in the vicinity of the project site. ESIA study was done both as a desktop study and fieldwork. It involved the review of literature/documents, including Environmental and Social Management Framework (ESMF) report, UDOM project background reports, socio-economic profiles, and field studies at the project site to gather information and data on various aspects of the project. The environmental assessment required consultations with several stakeholders, including responsible government agencies, Local Government Authorities), etc. The study adopted the following approach:

1.5.1 ESIA Team

A multi-disciplinary team of experienced scientists and environmental and social professionals was assembled to carry out the required resource assessment, generate baseline data, determine potential impacts, and recommend mitigation measures. An interactive approach was adopted among the environmental team members and other project professionals.

The team utilized the checklist for data gathering, analysis, and presentation. The team members conducted reconnaissance investigations to determine the critical elements for analysis and the issues highlighted for the design and planning process. Team meetings were held to discuss the progress of investigations and analyses and facilitate data integration toward an understanding of the systems at work in both the natural and built environment. Baseline data for the study area were collected using a combination of:

- Site Reconnaissance
- Analysis of Maps and Plans
- Review of Reports and background documents

- Checklists
- Field Studies
- Public Consultations

1.5.2 Communication with Stakeholders

Identification of stakeholders

The stakeholders were identified based on the role and relevance of an organization, group, or individual to the proposed project. Broad consultations were conducted involving different institutions and other key stakeholders, including the following;

- Ministry of Education, Science and Technology;
- University of Dodoma Management (UDOM);
- Njombe Town Council;
- Njombe Urban Water Supply Authority (NJUWASA);
- Kihesa community;
- Kihesa Mtaa and Ward Leaders;
- The neighboring communities to UDOM-Njombe site (Kihesa Mtaa, Njombe Mjini Ward, Njombe Town Council in Njombe Region);
- Njombe regional commissioner's office;
- Njombe District Commissioner's office;
- Tanzania Commission of Universities;
- Njombe Town Council (Health officer, Municipal urban planning and environment, Trade officer, Land officer);
- Occupational Safety and Health Authority (OSHA);
- Tanzania Rural and Urban Roads Agency (TARURA)
- Tanzania Electrical Supply Company (TANESCO);
- Fire and Rescue Force – Njombe Office;
- Tanzania Building Agency (TBA); and
- Njombe Urban Water Supply and Sanitation Authority (NJUWASA)
- None state actors working in Njombe Town Council, Kihesa Mtaa, and Njombe Mjini ward.

The concerns of each group have been addressed in this ESIA report.

Involvement of stakeholders

The ESIA study team, in collaboration with UDOM officials visited the proposed area for the proposed project and later on, visited neighbouring community. Physical observations and stakeholders' interviews were conducted in order to collect baseline data and issues of concern. The ESIA study applied different participatory methods to involve all the relevant stakeholders. Public meetings dominated at the local level i.e. *Mtaa*, one-to-one interviews with individuals based upon a list of general topics or questions and partly based on an open discussion, were conducted. Focused group discussions were also used to gather stakeholder's views and concerns.

In establishing the views of the public concerning the proposed project, the consultants provided an introduction letter addressed to each stakeholder, briefing the project, need for ESIA, and asking the stakeholder to freely raise their concerns to the Consultant. During the public meetings the consultants introduced the project and elaborated to the stakeholders the project objectives and purpose and envisaged project activities so as to give a good understanding for stakeholders to be able to air their views.

Identification of stakeholders' concerns

The stakeholders pointed out a number of issues and concerns. An issue raised by an individual or a group of people was cross-checked by discussing it with other groups (triangulation). Key issues raised by each stakeholder group were summarized and further analysed. Details of stakeholders consulted, names and signatures of people consulted, and records of main issues raised are integrated in Chapter 5 and Appendix 4 of this report accordingly.

1.5.3 Physical Environment

Information was gathered on the existing physical environment, particularly in relation to topography, soils, drainage, and hydrology in general.

Climate, soils, and topography

Information on the climate, geology, topography, soils, was obtained by compiling data from existing reports, and source agencies. Maps were also examined to obtain some of the data such as topography of the general area. Fieldwork was carried out to augment and verify existing information relating to topography and soils and to obtain first-hand knowledge of the other physical aspects.

Hydrology and drainage

Surface and groundwater characteristics were assessed using field investigation as well as maps and data from previous reports.

Noise levels and air quality

Spot measurements were done on-site to determine the current noise levels, ambient pollutant gases, and dust at the project site based on the nature of the proposed project. A sound level meter device was used to record noise at the project site as prescribed in ISO 19961:2003 and ISO 3095:2001. Both ambient pollutant gases and dust as particulate matter were measured at the site in terms of PM_{10} & $PM_{2.5}$ by using Dust and Pollutant gases monitors, that measure dust particles of different dimensions (microns of 10, 5.0, 2.5, <1.0, 0.3 and >10). The equipment complied with the EMC Directives.

1.5.4 Biological Environment

The status of the flora and fauna of the study area was determined by a review of literature relevant to the area and field investigations. The vegetative communities were identified and classified into community types. Identification was carried out of dominant tree species. The vegetation was identified and described for their property. Information on fauna was gathered from existing literature on reported species as well as observations in the field. Observations were made particularly to assess the presence of birds in the general area. Information was also obtained from locals in the area about the presence of any significant species.

1.5.5 Socio-economic Environment

To determine the cultural and social factors associated with the construction and operation of the proposed project, members of the communities in the general vicinity of the project were interviewed, and a review of economic and social literature was conducted. Further, rapid field appraisal techniques in conjunction with desk research were employed to investigate socio-economic considerations within the project area. These were undertaken to ascertain information to satisfy the following factors as outlined in the terms of reference provided:

- Population and settlement characteristics
- Land uses and livelihoods
- Community structure, employment and income

- Developments underway
- Infrastructure in place
- Water supply and other utilities
- Waste management practices
- Recreational activities
- Energy supply
- Public health and safety
- Access to and delivery of health, education and social services

1.5.6 Impact Evaluation

Evaluation of impacts is based on the extent, duration and Magnitude. Impacts were then classified in terms of significance as shown in Table 1.1:

Table 0-1 : Classification of Impacts significance

Classifications	Comments
Insignificant	Impacts that have minimal extent, duration, and magnitude
Very low Low	Impacts that have a combination of a small extent and short duration with low or moderate magnitude
Moderate	Impacts that have a combination of moderate extent, duration or magnitude
High Very high	Impacts that have a combination of large extent, long duration or high magnitude

1.5.7 Review of project documents and literature

This involved reviewing available information on the project to gain a basic understanding of the components and their operation. The documents consulted are presented in the list of references and bibliography of this report.

1.5.8 Policy, Legal and Institutional Arrangement

Policy, legal, and institutional arrangements were compiled from review of documents: policies, legislation, guidelines and standards. Information and data on local by-laws, institutional structures and mandates/authority were obtained from Njombe Town Council.

1.6 Report structure

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
- Introduction
- Project description
- Policy, administrative and legal framework
- Baseline/ Existing conditions
- Stakeholders Analysis
- Assessment of Impacts and Identification of Alternatives
- Environmental and Social Mitigation Measures
- Environmental and Social Management Plan
- Environmental and Social Monitoring Plan
- Resource Evaluation / Cost Benefit Analysis
- Decommissioning and Closure
- Summary and Conclusions
- References
- Appendices

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2 PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND ACCESSIBILITY

The proposed project site is specifically located at Plot No. 96 Block 'A', Kihesa Mtaa, Njombe Mjini Ward, Njombe Town Council in Njombe Region (Figure 1). The site lies at latitude -9.341400 and Longitude 34.78028, near Njombe Secondary School, 1 km from Njombe-Songea Highway.

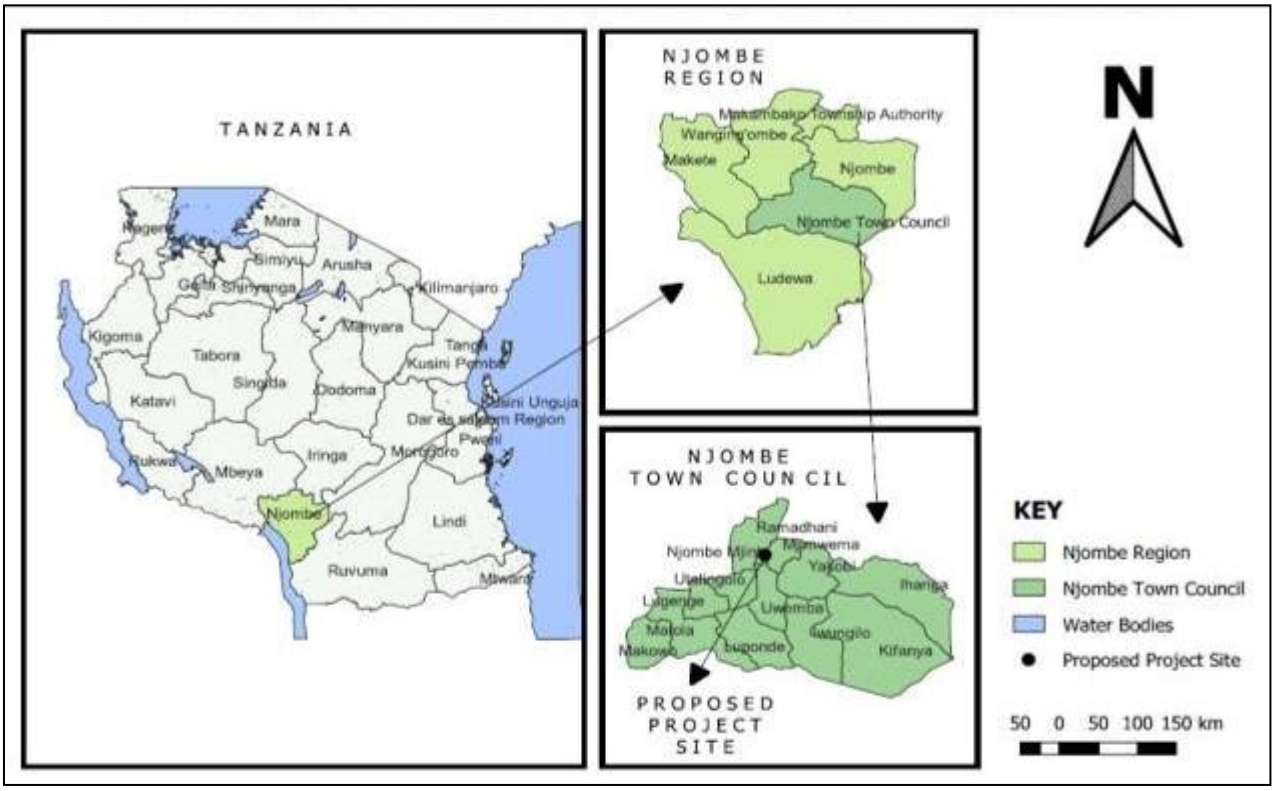

Figure 1: Map showing the project site at Kihesa Mtaa, Njombe Mjini Ward in Njombe Town Council, Njombe Region

The site is accessed by Njombe – Songea road and it is about 1 kilometers from the main road. The project plot borders Kihesa Road adjacent to Kilimani Primary School and households of Kihesa Mtaa on the North, NJOSS 'B' road, Njombe Secondary School and Njombe Secondary School staff quarters on the South, Njombe Fork Development Community (FDC) and tree plantations on the western side and NJOSS 'B' Mtaa and Selestin Kilasi Primary School on the Eastern side.

2.2 LAND OWNERSHIP AND USE

UDOM is a legal owner of the plot with No. 96 Block ‘A’ at NJOSS under Title Number 7422, with a total area of 463,704 square meters (Appendix 1). The land use of the plot is designed for Educational Purposes, Use Group K Use Class (d) as per Urban Planning (use Groups and Use Classes) Regulations, 2018. Hence the development in the area is compatible with the designed land use of the title deed. Likewise, the nearby areas are mainly covered by institutions, residential areas, and tree plantations.

2.3 SITE DESCRIPTION / FEATURES

The earmarked site has been largely influenced by tree farming in Njombe, most of which contains similar kinds of tree species in monoculture style, specifically black wattle, eucalyptus, pines, and black wood (Figure 2.1). The grasses and herbs are also present at the site (Figure 2.1). The topography is undulating gently to steep slopping area towards the center from the western to the northern side of the site. The project area is characterised by black clay loam soils. The current vegetation cover in the core project area and surrounding areas, which have largely been influenced by past human activities, does not present high ecological value. However, it is significant to note the small natural water springs and two waste stabilization ponds.

Figure 2.1: Features of the project site

2.4 ADJACENT FEATURES/DEVELOPMENTS

As noted earlier, to the west, the project borders Njombe FDC (Figure 2.2), on the southern side borders Njombe Secondary School (Figure 2.3), and on the eastern side it is adjacent to Selestin Kilasi Primary School (Figure 2.4). The area is relatively far from the settlement centers or settlement areas; the nearby settlement is more than 200 meters from the site on the south, north, west, and eastern sides.

Figure 2.2: Njombe FDC

Figure 2.3: Njombe Secondary School

Figure 2.4: Selestin Kilasi Primary School

2.5 PROJECT DESIGN

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

2.5.1 Climate Change risks mitigation and adaptation in the Project Design

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

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

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

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

- **The building with low energy use**; Provisions for adequate openings for cross ventilation, that will ensure easy flow of clean air and reduce energy use (thus reducing emissions); provisions for motion sensors in public areas, to enable auto switch ON/OFF of lights; installation of *presence sensors* in offices, class rooms; proper orientation to reduce indoor discomfort and capture natural air as much as possible and minimization of the sun effects (installation of fans; and provisions for solar lights along the pathways for sun shading); maximizing the potential of utilization of renewable energy options such as solar and wind; Utilization of biogas from the wastewater treatment plant for cooking; buildings to be oriented and constructed to take advantage of natural lighting and cross ventilation as a means of minimizing energy consumption during operation.
- **The buildings with low footprint.** This increases green spaces; and accommodation of rainwater harvesting, storm water and waste management systems and embracing water-efficient processes.

2.5.2 Disaster Risk Management

The proposed project shall have provisions for fire prevention and firefighting facilities. Also, the building shall have provisions for solid waste and liquid waste management for disease prevention. In addition, two possible access roads shall be used to ensure easy walkability and vehicular access to and from the building to avoid car accidents. The roads shall be safely connected to the parking area, which is huge enough to accommodate cars. UDOM Njombe campus shall have an emergency management plan that assigns the responsibilities for various emergency tasks, specifically to WHO does, WHAT, WHEN, and HOW.

2.5.3 Gender inclusivity

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

2.5.4 Occupational health and safety (OHS)

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

2.6 PROJECT COMPONENTS AND DESCRIPTION

The proposed project will comprise 8 buildings and associated facilities, which include a 2-storey Administration Building, a 2-storey Multi-purpose Academic Complex, a 3-storey Students' Hostel Block, a Cafeteria Block, a Dispensary building, a workshop building, a Playground, and External Works. The building will have sanitary areas and a circular ramp for people with physical disabilities. The total built-up area will be 21,913.7 m^2 of the total area, which is 4.73% of the total area, excluding external works. The remaining area will be left for future development, as well as a lawn area and parking space.

Table 2.1: List of Facilities to be constructed

S/No.	Building Facility	Functions within Building	No of Room	Description/	No of staff	Area (sqm)
1	Administration Building (possibly G+2)	Principal Office	1	Principal	1	48
			1	Secretary	1	18
			1	Pantry		6
			1	Washroom	1	6

S/No.	Building Facility	Functions within Building	No of Room	Description/	No of staff	Area (sqm)
		Finance department	1	Head of department	1	15
			1	Pool office	4	25
			1	Cash office	2	12
		Human Resources	1	Head of department	1	15
			1	Pool office	6	30
		Procurement Management Unit	1	Head of unit	1	15
			1	Pool office	3	15
			1	Store		36
		Estates Department	1	Head of department	1	15
		Transport Unit	1	Head of Unit	1	15
		Directorate of Students Services	1	Head of department	1	15
		Planning Directorate	1	Head of department	1	15
			1	Pool office	3	15
		ICT Directorate	1	Head of department	1	15
			1	Pool office	3	15
			1	Server room	1	9
			1	Store		15
		Registry and reception	1	Registry room	1	12
			1	Reception space	1	25
			1	Store		9
		Archived for Academic Issues	1	Store		18
		Agri-Bussines -HOD	1	Head of department	1	15
			1	Secretary	1	15
		Engineering -HOD	1	Head of department	1	15
			1	Secretary	1	15
		ICT -HoD	1	Head of department	1	15
			1	Secretary	1	15
		Natural Sciences -HoD	1	Head of department	1	15
			1	Secretary	1	15
		Academic staff offices	25	Lecturers' office	50	250
		Pantry	2	Pantry		15
		Staff toilets		Male/ female & Special need toilet	100	30
		Electrical Room/duct				10
		Board Room	1	Boardroom	20	60
		UDOMASA	1	Office	4	12
		Trade Unions	1	Office	4	12
		Staff Canteen	1	Canteen	25	50
		Security office	1	Office	3	9
		Ramp				120
		Sub-Total Area				**1122**
		Circulation Spaces				224.4
		Gross floor Area				**1400**
2	Multi-purpose Academic Complex possibly (G+2	Library	1	Librarian office	1	15
			1	Attendant office pool	3	15
			1	Library Hall	100	300
			1	Special collection		30
			1	Computer lab/e-library	20	30
		Computer laboratory	1	Laboratory	200	210
		Lecture Theatre room	1	Theatre Room	500	770
		Classroom	4	@Class	200	1200
		Seminar Room	5	@Room	120	1000
		Physical Lab	1	Physical Lab	100	300

S/No.	Building Facility	Functions within Building	No of Room	Description/	No of staff	Area (sqm)
		Biological lab	1	Biological lab	100	300
		Chemistry lab	1	Chemistry lab	100	300
		Student Union office	1	UDOSO	5	15
		Lactation Room	3	Lactation room		
		Toilets (male, female and disable)	40	Toilet	1000	300
		Utility Rooms				9
		Security office	1	Office	1	9
		Ramp				120
		Sub-Total Area				4923
		Circulation Spaces				984.6
		Gross floor Area				5907.6
3	Workshop building	Workshop space	2	working space	50	240
		Toilet (male & female)	2	Toilets		6
		Grand Total				246
4	Hostel-building (No of room 125)+ warden office possibly (G+3)	Rooms	125	Rooms	500	2125
		warden office	1	Office	1	12
			1	Council room	1	9
		Multipurpose Storeroom	1	Store	1	60
		Common rooms	1	Rooms	1	60
		Utility room	2	Rooms	2	18
		Tenant Shops and Stationery	2	Shops	2	34
		Toilets (male, female and disable)	20	Toilet	500	150
		Laundry	1	Laundry		60
		Security room	1	Security room	1	9
		Bathroom	20	Bathroom	500	150
		Central Heating system	1			12
		Ramp				120
		Sub-Total Area				2819
		Circulation Spaces				563.8
		Gross floor Area				3382.8
5	Cafeteria Building made by local available material (Treated Timber)	Dining Hall (100 students	1	(Hall) Serving area	200	150
		Cooking area	1	Cooking space		60
		Store with subsection	1	Store space		40
		Toilets (male, female and disable)			20	16
		Stationery	1	Stationery space	1	17
		Tenant shop	1	Shop space	1	17
		Staff Toilet and Changing Room	2	Room space	2	18
		Dish washing and Drying room	2	Washing room	2	30
		Preparation room	1	Preparation room	1	18
		Display UDOM souvenir room	1	Souvenir room	1	17
		Sub-Total Area				383
		Circulation Spaces				76.6
		Gross floor Area				459.6
6	Dispensary building	Reception	1	Reception	2	30
		Doctor room	2	Doctor room	2	18

S/No.	Building Facility	Functions within Building	No of Room	Description/	No of staff	Area (sqm)
		Nurse station	1	Nurse station	3	12
		Dispensing room/Pharmacy	1	Dispensing room/Pharmacy	2	12
		Laboratory room	1	Laboratory room	2	20
		Observation room	2	Observation room	2	18
		Dressing room	1	Dressing room	1	9
		Injection room	1	Injection room	1	9
		Changing room	2	Changing room	2	15
		Toilets		Toilets	3	6
		Sub-Total Area				**149**
		Circulation Spaces				44.7
		Gross floor Area				193.7
7	Playground	Football pitch	1	Football pitch	1	9220
		Netball pitch	1	Netball pitch	1	450
		Basketball pitch	1	Basketball pitch	1	450
		Volleyball pitch	1	Volleyball pitch	1	450
		Gross Floor Area				**10570**
8	External Work	External Works	1	Roads, walkways, parking, stormwater channel, and services	1	

2.7 THE PROJECT ACTIVITIES

2.7.1 Site Preparation and Mobilization

2.7.1.1 Site Preparation

The proponent and the contractor will ensure all necessary permits are in place to allow the work(s) to take place, including construction permits from the planning authority i.e., Njombe Town Council, as part of compliance with legal requirements. Necessary safety measures will be put in place including securing the construction site by putting iron sheets around the site. Also, the contractor will establish a small temporary site office for construction activities. The office will also include a material store and pit latrines for both sexes.

2.7.1.2 Mobilization for Construction Works

The mobilization phase will mainly involve the deployment of required tools and machinery for the construction work and the recruitment of the construction crew for the work. Also, the phase will involve deployment of construction materials and their transportation from point sources to the site. Though most materials will be brought from time to time as required. About 100 skilled and unskilled workers will be required for the project; however, they might be required at different stages of project development depending on their area of specialization/work. A contractor will be

responsible for this phase, under supervision from the proponent project management team.

2.7.2 Project Construction

Part of the site vegetation will be cleared to pave the way for the development of the proposed project. The first step will involve site preparation/setting, excavating site to the required levels after clearance and accumulation of overburden materials and their eventual transportation away from active project footprint. Second step involve construction of substructures which include excavation for pits, trenches, basements and raft foundation. The third step will involve construction of superstructure up to completion.

Some of the overburdens/topsoil generated from excavations will be used for backfilling and resurfacing the area. Once civil works are done, mechanical and electrical works will finalise the buildings. Landscaping the area and pavements lying will be among the final activities of the construction phase.

The project will use locally available building materials. The construction materials such as sand, stone, gravel, and clay are expected to be obtained from authorized quarries in Njombe. However, concrete mix company will be contracted to supply concrete and thus other earth materials will be required in small quantities. Building materials such as cement, tiles, pavement, sanitary ware and steel mostly will be procured from various suppliers in Njombe, Mbeya and Dar es Salaam.

The contractor will be responsible for transportation of all construction materials and equipment from point source to the site mainly by using the Njombe-Songea road, and the unpaved road to the site. Most of the construction material such as cement, steel, wood, sand, stones and aggregates etc. will be brought from places whenever possible near the project site.

2.7.3 Operation of the Project

The proposed project will be used mainly for academic purposes for learning and teaching students through theories and practicals for the intended courses. Typical

office work will involve staff offices, conference rooms, and toilets. Other associated activities are related to utilities as covered below;-

2.7.3.1 Utilities

Water supply

Water will be required for general usage in cleaning, gardening, and sanitary purposes. The area is currently not connected with the water supply system from Njombe Urban Water Supply and Sanitation Authority (NJUWASA). However, there is an ongoing project for the construction of the water supply network that will also cover the project area. The project will connect to the upcoming municipal water supply network in the area. The project will also include a full set of facilities to harvest rainwater, whereby pipes and well-built storage tanks of about 300,000 m^3 will be installed.

Electricity

The area is served by the National Grid under TANESCO, and the nearby powerline is about 500 meters from the site. The project will connect to the TANESCO Grid. Further, a full solar power system will be installed, which will control the use of excessive power from the national power grid.

2.7.3.2 Solid Waste Management

Construction-related waste will be generated, including debris/spoil materials, lumber, plastic remains, cans, tins, grass, and plastic packaging wastes like Cardboard boxes, wooden drums, and empty cement bags. Also, domestic waste will be generated due to the presence of construction workers at the site, including food remains, plastic bottles, paper, and related waste.

The contractor will designate an area for waste collection, where waste will be placed according to its nature. A further approved waste contractor will be engaged for waste removal.

During operation, various kinds of waste will be generated, mostly general waste from offices, hostels, classrooms, and toilets. These will include paper waste, packaging materials, plastics, and organic waste (food waste).

UDOM management will provide waste bins in strategic areas for collection of waste at source and centralized waste collection point within the premises for collection by the Municipal trucks. A collection point will be designed at one of the corners close to the gate for easy collection of the same without a major nuisance during collection to other users of the area. Njombe Town Council has its own trucks for the collection of waste, and thus, the same will be used by the project as required.

2.7.3.3 Liquid Waste Management

During construction, pit latrine toilets will be established to serve the construction crew. Supporting sanitary facilities will be provided including water for required hygiene for users. There is no centralised sewer system in Njombe and thus, the project will explore the use of onsite sewer management systems such as multiple septic tanks and soak-away pits. Further, the ESIA Team was informed by the NJUWASA office that there is an ongoing project for the construction of the oxidation ponds for sludge management.

2.7.3.4 Hazardous materials/waste management

The main types of hazardous waste to be involved at the site during construction include hydrocarbons such as used oil and diesel for running diesel-powered machines at the site. Also, there will be remaining paint containers. A proper temporary storage room will be constructed with a bund wall to contain leakage or spillage in case of an incident. After the accumulation of large amounts of used oil or at the end of construction, during the demobilization phase, hazardous wastes will be handed over to the authorized agent to handle such kinds of waste.

2.7.3.5 Security, health and safety

During construction, as noted earlier, the construction site will be secured by an enclosure with a single point of controlled entry and exit for public safety and security purposes. The site will have 24/7 security guards for safety and security purposes. All occupational health and safety issues, as per requirement of the OHS Act, 2003, shall be adhered to by the contractor.

2.8 CONSIDERATION OF THE PROJECT ALTERNATIVES

Possible proposed project alternatives to be assessed include the alternative of design and technology, roads and means of transport, alternative of energy and water sources, alternative to the site, and “NO Project” alternative. All these alternatives will have details in Environmental Impact Statement Report.

2.9 CONSIDERATION OF PROJECT ALTERNATIVES

Consideration of project alternatives is an important aspect of planning to achieve the project’s objectives. Having UDOM-Njombe campus could increase the number of people, including students and staff, increase demand for food production, and generate more waste. They could also stimulate the construction of residential buildings that will need more land and stimulate changes in the socio-cultural and economic activities. Some of the changes could have an adverse impact on the benefits expected from the proposed project. To be able to make better and more informed decisions, it is important to consider alternatives that can enable the achievement of the same or better results with less negative effects.

The current scope of work considers project alternatives. The “no project” alternative, which assumes no development takes place in Njombe and that the status quo remains, would have significant policy implications. Adopting this option would mean continuing insufficient enrolment for higher learning institutions, inadequate technology and knowledge transfer, lack of economic stimulation, and cultural diversification in the area.

In fact, adopting the “no-project” alternative would not save the Njombe Mjini Ward environment from degradation at all. For example, problems such as pollution, fire outbreaks, security issues, and pressure on natural resources are likely to continue, albeit at a slower pace and on a smaller scale than with the proposed construction project. Moreover, the “no-project” alternative would conflict with various national and international policies that promote economic growth and the improvement of local livelihoods. Such policies include the Tanzania Development Vision, 2025 (URT, 2000) and the National Strategy for Growth and Reduction of Poverty (2006); and revitalize and expand the capacity of higher learning institutions to contribute to key areas for innovation, economic development, and labour market relevance.

2.10 CAPITAL INVESTMENT

The total project investment cost is estimated at Tanzania Shillings 17,000,000,000 (Seventeen Billion).

3 POLICY, LEGAL AND INSTITUTION FRAMEWORK

3.1 INTRODUCTION

In Tanzania, there are several policies, legal and administrative structures that govern the execution of environmental and social impact assessments (ESIAs). The administrative aspects require that all new projects that are likely to affect the environment shall have Environmental and Social Impact Assessment done and submitted to the National Environment Management Council (NEMC). The objective is to evaluate the environmental and social impacts and risks of the proposed development on the environment and to provide appropriate mitigation measures.

In developing the proposed project in the area, various environmental and social issues may arise at any phase of the project development, i.e., from site selection and mobilization to decommissioning phases. These issues need to be addressed so that the envisaged operations do not impair the integrity of the environment and ensure that they are in line with policies and legal regimes operating in Tanzania, as well as World Bank safeguards policies. This chapter describes the relevant policies and legislations pertaining to the planning and implementation of the proposed project: -

3.2 RELEVANT POLICIES

The following are relevant sectoral and cross-sectoral policies that provide directives on how the project should be operated in relation to concerned environmental and socio-economic settings. UDOM will need to observe these policies when designing and implementing the proposed project activities.

3.2.1 The National Environmental Policy (URT, 2021)

This Policy serves as a national framework for planning and sustainable management of the environment in a coordinated, holistic, and adaptive approach, taking into consideration the prevailing and emerging environmental challenges and national and international development issues. The effective implementation of this policy requires mainstreaming environmental issues at all levels, strengthening institutional governance, and public participation in the environmental management regime. The long-term vision of this policy is geared towards the realization of environmental integrity, assurance of food security, poverty alleviation, and increased contribution of

environmental resources to the national economy. The key objectives of the policy are to:

- Enhance environmentally sound management of land resources for socio-economic development.
- Promote environmental management of water sources.
- Strengthen the conservation of wildlife habitats and biodiversity.
- Enhance conservation of aquatic systems for sustained ecological services and socioeconomic well-being.
- Enhance conservation of forest ecosystems for sustainable provision of environmental goods and services.
- Manage pollution for safe and a healthy environment.
- Strengthen the national capacity for addressing climate change impacts.
- Ensure safety at all levels of the application of modern biotechnology.
- Promote good governance in environmental management at all levels.
- Enhance predictable, accessible, adequate, and sustainable financial resources for environmental management and promote gender consideration in environmental management.

The policy advocates using other relevant approaches in environmental management, such as economic instruments, environmental standards, indicators, and legislation. In carrying out this project, this study is among the environmental management approaches, the proponent is in line with the policy requirements and will observe the provisions of other approaches as noted above.

3.2.2 The Land Policy (URT, 1997)

The National Land Policy of 1995 (revised in 1997) emphasizes the importance of undertaking EIA for the management of land-based development. Additionally, the policy advocates the protection of land resources from degradation for sustainable development. The policy addresses several environmental issues; of relevance to this project is land use planning. Land use planning takes into consideration the land capability, ensures proper management of coastal/urban/rural land resources, promotes resource sharing and multiple land use techniques in the areas of conflicting

land use, and lastly advocates the involvement of the community in resource management, land use, and conflict resolution.

UDOM is the legal owner of the plot with No. 96 Block 'A' at NJOSS under Title Number 7422, with a total area of 463,704 square meters (Appendix 1). The land use of the plot is designed for Educational Purposes, Use Group K Use Class (d) as per Urban Planning (use Groups and Use Classes) Regulations, 2018. Hence, the development in the area is compatible with the designed land use of the title deed. Likewise, the nearby areas are mainly covered by institutions, residential areas, and tree plantations.

3.2.3 The Water Policy (2002)

The National water policy is intended to protect the water quality and quantity. Relevant to this project is the section on avoiding polluting surfaces as well as groundwater. The National water policy recognises the following: -

i. There is a growing scarcity, misuse, and wastage of water resources in many places in Tanzania, which may become a serious threat to the sustainable availability of the resource.
ii. Existence of uncontrolled abstraction of water resources from different water basins.
iii. The state of the quality of water resources is not comprehensively known, and no regular monitoring is done due to inadequacy of resources and institutional capacity.
iv. Inadequate linkage between water and land development, thus, resulting in pressures on water resources. With the on-going liberalisation there is need to have co-ordination mechanism to facilitate smooth the linkage. Water Rights shall not be tied to any land, and they shall not be transferable with land transfer.

UDOM by undertaking this study is in line with the policy requirements. Further the study shall observe other requirements of the policy *inter alia* proper water usage, proper waste water management from the project and advise on proper procedure to secure abstraction permit for a borehole.

3.2.4 The National Health Policy (URT, 2008)

One of the main objectives of this policy is to ensure that health services are available and accessible to all people wherever they are in the country, whether in urban or rural areas. The policy encourages safe basic hygienic practices in workplaces, sound water use, latrine construction and use, and maintenance of a clean working environment conducive to satisfactory work performance. The proponent shall observe this policy during the project implementation.

3.2.5 The National Construction Policy (URT, 2003)

This policy promotes, among other things, the application of cost-effective and innovative technologies and practices to support socio-economic development, including utilities, and ensures the application of practices, technologies, and products that are not harmful to both the environment and human health. This study is undertaken to ensure that the proponent uses technologies and products that are not harmful to both the environment and human health by providing feasible alternatives and appropriate mitigation measures.

3.2.6 The National Employment Policy (2008)

The major aim of this policy is to promote employment mainly of Tanzania Nationals. Relevant sections of this policy are (i) 10, which lays down strategies for promoting employment, and section 10.1, which focuses on industry and trade sectors (ii) 10.6, which deals with the employment of special groups, i.e., women, youth, persons with disabilities and (iii) 10.8 which deals with the tendencies of private sectors to employ expatriates even where there are equally competent nationals. The proponent and contractor shall adhere to this policy by employing many Tanzanians with relevant qualifications, the priority being on the community around the proposed project area and special groups as stated by the policy, especially during the development phase.

3.2.7 The National Energy Policy (URT, 2015)

The policy outlines measures to adopt clean technology and minimize energy losses. The policy states that energy is a prerequisite for the proper function of nearly all sectors of the economy. It is an essential service whose availability and quality can determine the success or failure of development endeavours. The policy seeks to promote energy efficiency in all economic sectors. UDOM will abide by the objectives

of this policy from the design perspective of the building to minimize energy use. Further, UDOM shall explore the use of clean energy during the project implementation.

3.2.8 The National Women and Gender Development Policy (2000)

This policy aims to improve opportunities for women and men to play their full roles in society, recognizing specific gender requirements. The policy aims to minimize shortcomings related to the limited participation of women in most economic development activities. It focuses on using available resources to increase incomes, eradicate poverty, and improve living standards. The policy also recognizes and emphasises creating awareness of how environmental degradation increases poor women's burden. This project will respond to the policy by ensuring equal opportunities for employment during the development and operation phases.

3.2.9 The National Policy on HIV/AIDS (2001)

The policy provides a framework for leadership and coordination of the National multi-sectoral response to the HIV/AIDS epidemic. One of the major objectives of the policy is to strengthen the role of all the sectors, public, private, NGOs, faith groups, CBOs, and other specific groups to ensure that all stakeholders are actively involved in HIV/AIDS work and to provide a framework for coordination and collaboration. The policy recognizes that HIV infection shall not be grounds for discrimination in relation to education, employment, health, and any other social services. Pre-employment HIV screening shall not be required. For persons already employed, HIV/AIDS screening, whether direct or indirect, shall not be required. HIV infection alone does not limit fitness to work or provide grounds for termination. HIV/AIDS patients shall be entitled to the social welfare benefits like other patients among the employees. HIV/AIDS information and education targeting the behaviour and attitudes of employees and employers alike shall be part of HIV/AIDS intervention in the workplace. The establishment of the proposed project might result in social interactions among the workforce and the local community; therefore, the company will adhere to the policy.

3.2.10 The Tanzania Education and Training Policy (2014)

This Education and Training Policy of 2014 is the outcome of the review and final repeal of the Education and Training Policy (1995), Vocational Education and Training

Policy (1996), National Higher Education Policy (1999), and ICT Policy for Basic Education (2007). This policy was prepared to provide education and training direction in the country, taking into account economic, social, scientific, and technological changes and education and training challenges nationally, regionally, and internationally to increase opportunities, efficiency, and the quality of education and training in the country and attain the human resource standards of a medium-income economy country by 2025.

The proposed project is in line with the policy's objectives as it will provide competent human resources from the infrastructure and facilities for training the same for the country and the regional market.

3.3 LEGAL FRAMEWORK

In addition to the above policies, there are several legal and regulatory frameworks that the proposed project must comply with, which this study has taken into consideration. The Environmental Management Act (No. 20), 2004, is the principal legislation governing all environmental management issues in the country. Within each sector, there are sectoral legislations that deal with specific issues pertaining to the environment. Some of the relevant legislation and regulations that are relevant in the management of the environment include the following: -

3.3.1 The Environmental Management Act, Cap 191

The Environmental Management Act (2004) introduces the concept of the right of Tanzanians to a clean, safe, and healthy environment and the right of Tanzanians to access various segments of the environment for recreational, educational, health, spiritual, cultural, and economic purposes (Section 4 (1) and (2)). The Act imposes an obligation on developers to: -

- Comply with license conditions, including the EIA certificate (S.201). The act requires the developer to conduct an EIA prior to the commencement of the project to determine whether the project may likely have a significant impact on the environment.
- As land users and occupiers to protect, improve, and nourish the land and use it in an environmentally sustainable manner (S. 72)

- Abstain from discharging any hazardous substances, chemicals, oils, or their mixture into waters or into any segment of the environment (S.110)
- Comply with environmental quality standards (S.141)
- Control, manage, and dispose of waste, including litter, liquid, gaseous, and hazardous wastes, in a sound manner (Part IX).

By conducting this study, the proponent complies with the requirement of the Act and will further comply with various sections noted above through this report and eventual its implementation.

3.3.2 The Land Act, [Cap.113 R.E 2019]

The basic principles of the Land Act 1999 are adopted from Land Policy 1995. The Act contains provisions of critical environmental importance. One of the important fundamental principles of the Land Act is "*to ensure that land is used productively and that any such use complies with the principles of sustainable development*". The project activities will be conducted with consent to this principle in order to preserve the environmental integrity of the area. Further, the Acts seek to control land use and clarify issues pertaining to ownership of land and land-based resources, transactions on land, and land administration. Since UDOM legally owns the site, land ownership conflicts do not arise; this has not been discussed further. Further, on land use, the proposed project site is designated for the title deed of Plot No. 96 Block 'A' at NJOSS under Title Number 7422, designed for Educational Purposes, Use Group K Use Class (d) as per Urban Planning (use Groups and Use Classes) Regulations, 2018.

3.3.3 The Water Resource Management Act, 2009 (Act No. 11/2009)

The Water Resource Management Act 2009 is a principal legislation dealing with the protection of water resources and control of water extraction for different uses. According to section 39 (1) of this act, the owner or occupier of land on which any activity or process is or was performed or undertaken, or any other situation exists which has caused or is likely to cause pollution of a water source, shall take all reasonable measures to prevent any such pollution from occurring, continuing or recurring. In general, the Water Resource Management Act provides the legal basis, among others for: -

(i) Water resources management at National and Basin levels.
(ii) The administration should legalize, grant, modify, and diminish water rights to the use of water by those entrusted with responsibilities for water resources management.
(iii) To protect water rights for all legitimate water users, hence monitoring the quality and quantity of water sources.
(iv) Water use conflict management.
(v) Water pollution control and other related issues like water supply and any related infrastructure construction

Under section 9 the Act requires any development in water shed or water resource area to carry out ESIA study in accordance with EMA, 2004. The proponent by undertaking this study complies with the requirements of the Act and further will comply with other provisions of the Act.

3.3.4 The Occupational Health and Safety Act No. 5 of 2003

This Act makes provisions for the safety, health, and welfare of persons at workplaces. Also provides for the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with activities of persons at work. It specifically requires the employer to ensure the safety of workers by providing safety gear in the workplace. This Act is relevant to the developer in view of the expected construction works with many associated risks. The proponent shall ensure the contractor for construction registers the workplace to the Occupational Safety and Health Authority during the construction phase and shall further consult the authority on occupational health and safety issues to ensure it is in line with the requirements of the Act.

3.3.5 The Contractors Registration Act No. 17 0f 2008

The Act establishes the Contractors Registration Board (CRB). CRB has a mandate to register contractors and regulate the conduct of the contractors and related matters. Among other things, CRB is required to take legal action against unregistered contractors who undertake construction, installation, erection, or alteration works; ensure that all construction sites are hoarded; and labour laws, occupational health, and safety regulations in the construction industry are adhered to. The Proponent shall

comply with the Act by contracting the registered contractor for the project. Further, the project shall be registered with CRB. UDOM, together with the contractor thereof, shall also adhere to other relevant sections of the Act.

3.3.6 The Engineers Registration Act, 2007

This Act establishes an Engineering Registration Board (ERB) which regulates the conduct of engineers, to provide for their registration and for related matters. The Act provides restriction that no person other than a registered engineer shall engage in professional engineering work or services, which includes professional service consultation, planning, designing or responsible supervision of construction or operation in connection with any public or privately owned public utilities, buildings, machines, equipment, processes works or projects where public interest and welfare, or the safeguarding of life, public health or property is concerned or involved, and that requires application of engineering principles and data. Furthermore, the Act stipulates that no person shall employ or continue to employ its professional engineer, any person who is not a registered engineer. UDOM and the contractor shall, therefore, observe the provisions of the Act when executing its activities.

3.3.7 The Employment and Labour Relation Act No. 6 of 2004

Generally, the Act among other things intends to provide the legal framework for effective and fair employment relations and minimum standards regarding conditions of work. For example, it prohibits employment of children under 18 years of age; stipulated types of contracts that can be entered with employees; the maximum number of ordinary days or hours that an employee may be permitted or required to work; remuneration; leaves; unfair termination of employment; establishment of trade unions branches in workplaces; etc. The proponent shall observe these and other relevant provisions in this Act.

3.3.8 The Workmen's Compensation Act, Cap 263 of 2008

Generally, the Act provides for the employment accident and occupational disease benefit. The employment injury schemes provide medical care and cash benefits to workers, who are injured on the job or develop occupational diseases. Eligibility is provided on a no-fault basis and may be coupled with restriction on workers legal right

to sue for damages. In operating its activities, UDOM and the contractor shall observe the provisions of this Act.

3.3.9 The Local Government (Urban Authorities) Act, [Cap.288 R.E 2019]

This Act establishes urban authorities for local government to provide for the functions of those authorities and for other matters connected with or incidental to those authorities. Section 55 of the Act enumerates the basic functions of the urban authorities. The functions that are relevant to the proposed project are:

- To provide for the prevention and abatement of public nuisances or of nuisances which may be injurious to the public health or to the good order of the area of the authority; and
- To regulate any trade or business which may be noxious, injurious to the public health or a source of public danger, or which otherwise it is in the public interest expedient to regulate, and to provide for the issue of licenses or permits to facilitate the regulation of any such trade or business, and for the imposition of fees in respect of such licenses.

Section 80 of the Act empowers the urban authorities to set by-laws. The proponent shall observe these and other relevant provisions in this Act.

3.3.10 The HIV and AIDS (Prevention and Control) Act of 2008

The HIV/AIDS Act (Act No. 28/08) calls for the prevention, treatment, care, support, and control of HIV and AIDS for the promotion of public health in general. It also calls for appropriate treatment, care, and support by using available resources for people living with or at risk of HIV and AIDS and to provide for related matters. Apparently, for the Project, the risk of the population living in or nearby project area contacting HIV/AIDS during the construction and operation phases is high, and thus, the Act provides legal guidance to the cause. Of particular importance to this project is found in part II, section 6 (1), titled Roles of Sectors, which states that: ‘every ministry, department, agency, local government authority, parastatal organization, institution whether public or private, shall design and implement gender and disability responsive HIV & AIDS plans in its respective area, and such plans will be mainstreamed and implemented within the activities of such sector. UDOM and the contractor shall adhere to the requirements of the Act.

3.3.11 The Fire and Rescue Force Act No. 14 of 2007

This Act provides for the better organization, administration, discipline, and operation of fire and rescue brigade services. The purpose of the Tanzania Fire and Rescue Force is to enhance community safety, quality of life, and confidence by minimizing the impact of hazards and emergency incidents on the people, environment, and economy of Tanzania. The Force manages fire emergencies in Tanzania's major cities and towns and responds to rescues, hazardous materials incidents, and possible terrorist activities across the country. The Fire and Rescue Force works with other government agencies to minimize the impact of bushfires, storms, floods, landslides, building collapses, motor vehicle accidents, and other emergencies. It is the obligation of the project owner to register the project with fire and submit drawings for fire safety scrutiny and approval before starting construction. The project proponent shall comply with all provisions of the Act.

3.3.12 The Persons with Disability Act, 2010

The basic principles of this Act are respect for human dignity, individual freedom to make their own choices and independence of persons with disabilities, non-discrimination, full and effective participation and inclusion of persons with disabilities in all aspects of society, equality of opportunity, accessibility, equality between men and women with disabilities and recognition of their rights and needs and provide a basic standard of living and social protection. Therefore, the proposed project will fulfil this legal requirement in all project phases, from design to construction and operation.

3.3.13 The Child Act of 2009

The legal framework for child labour in Tanzania is contained in the Law of the Child Act (Act No. 21, 2009). The Act sets the minimum age for admission of a child to employment at 14 (Sec. 77.2). It also contains a provision permitting light work for children who are at least 12, where light work is defined as work that is not likely to be harmful to the health or development of the child and does not affect the child’s attendance at school or the capacity of the child to benefit from schoolwork (Sec.77.3). The Act prohibits the engagement of children and children under 18 in hazardous work, posing a danger to health, safety or morals and in “night work” taking place between 8 pm and 6 am (Sec. 82.2). The Law of the Child (Child Employment) Regulations (G.N. No. 196, 2012), which is used to implement the Law of the Child Act

(Act No. 21, 2009), contains list of all hazardous activities in which a child shall not be allowed to work, even on a voluntary basis. Section 82 of the Act also protects children from sexual exploitation. A child shall be protected from sexual exploitation and use in prostitution, inducement, or coercion to engage in sexual activity and exposure to obscene materials. This project will protect against child labour, especially during the construction period.

3.4 SUBSIDIARY LAWS UNDER THE EMA CAP 191

3.4.1 The Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations, 2018

These regulations have provided a list of projects that require an Environmental Impact Assessment study. Since such a project is likely to have some adverse environmental impacts, an in-depth study is required to determine the scale, extent, and significance of the impacts and identify appropriate mitigation measures. Furthermore, the regulation provides explicit procedures and guidelines for carrying out the Environmental Impact Assessment in Tanzania. This report has been prepared in line with the procedure and requirements of these regulations.

3.4.2 The Environmental Management (Registration and Practice of Environment Experts) (Amendment) Regulations GN. NO. 500 of 2022

Section 83 of the EMA (2004) stipulates that the Environmental Impact Assessment shall be conducted by experts or firms of experts whose names and qualifications are registered by NEMC. NEMC maintains a registry of EA and EIA experts. These regulations also set the code of practice of the experts to which the Environmental Impact Assessment experts for this project subscribe. This EIA report was prepared by NEMC's registered expert.

3.4.3 The Environmental Management (Fee and Charges) (Amendment) Regulations, 2021

These Regulations specify the environmental fees for various operating projects and other assessments. Of particular importance to this project are annual fees, which enable the Council to undertake monitoring and audits to ensure the environmental obligation stipulated in the EIA report is adhered to during all project phases. Thus,

UDOM shall adhere to these regulations by paying the required fees to the Council in a timely manner.

3.4.4 The Environmental Management (Air Quality Standards G. N. No. 237) Regulation, 2007

The objective of these regulations is to set baseline parameters for air and emissions based on many practical considerations and acceptable limits and enforce minimum air quality standards prescribed by the National Environmental Standards Committee. This is to help developers keep abreast with environmentally friendly technologies and ensure the protection of human health and the environment from various sources. The Second Schedule of the Regulations specifies the highest permissible quantity for emissions and the acceptable test methods. Under Regulation 28, any holder of a permit, owner, or occupier of premises is required to report all incidences of inadvertent or accidental emissions or pollution in contravention of these standards shall report the incident within seven (7) days. The standards as laid down by these regulations shall be adhered to accordingly by the project as indicated in the monitoring plan of this report (chapter 9).

3.4.5 The Environmental Management (Water Quality Standards G. N. No. 238) Regulation, 2007

The Water Quality Standards Regulations' objective is to protect human health and conservation of the environment and enforce minimum water quality standards prescribed by the National Environmental Standards Committee. The committee assists in determining water usage for purposes of establishing environmental quality standards and value for each usage and ensuring all discharges of pollutants take into account the ability of the receiving waters to accommodate contaminants without detriment to the uses specified for the waters concerned. Thus, UDOM shall adhere to these standards as stipulated in Chapters 8 and 9 of this report.

3.4.6 The Environmental Management (Soil Quality Standards) Regulation 2007

These Regulations specify the soil parameters to be adhered to by different operating industries/facilities as standards. The objective of the Soil Quality Standards Regulations is to protect human health and conserve the environment. UDOM shall adhere by monitoring the key parameters as detailed in chapter 9 of this report.

3.4.7 The Environmental Management (Quality Standards for Control of Noise and Vibration Pollution) Regulations, 2015

The regulations are made from the Environmental Management Act Cap 191. The objective of the regulations is to maintain a healthy environment for all the people in Mainland Tanzania, the tranquillity of their surroundings, and their psychological well-being by regulating noise and vibration levels. It further prescribes the maximum permissible noise and vibration levels from a facility or activity to which a person may be exposed to. It also sets baseline parameters on noise and vibration permissible levels based on a number of practical considerations and acceptable limits. UDOM shall comply with the limits of this standard as noted under EMP of chapter 9 of this document.

3.4.8 The Environmental Management (Solid Waste Management) Regulations, 2009

The regulation states that every person living in Tanzania shall have a stake and a duty to safeguard the environment from the adverse effects of solid wastes and to inform the relevant authority of any activity and phenomenon resulting from solid waste that is likely to affect the public health and environment adversely. Further, the regulation requires the occupier of any premises to be obliged to use appropriate receptacles. Also, regulations require the occupier to comply with such days and approximate times for collection of waste specified by the local government authority having jurisdiction over the premises. Thus, UDOM shall comply with all these requirements during the implementation of the project in all phases.

3.5 WORLD BANK ENVIRONMENTAL AND SOCIAL FRAMEWORK

3.5.1 Objective of the Environmental and Social Framework

The proposed project will be developed and implemented according to the requirements of the World Bank Environmental and Social Framework (ESF). The ESF sets out the World Bank's commitment to sustainable development. The ESF protects people and the environment from potential adverse impacts that could arise from Bank-financed projects and promotes sustainable development. The ESF enables the World Bank and Borrowers better to manage the environmental and

social risks of projects and to improve development outcomes. The ESF also places more emphasis on building Borrower governments' own capacity to deal with environmental and social issues.

The ESF offers broad and systematic coverage of environmental and social risks. It makes important advances in areas such as climate change, labour standards, transparency, non-discrimination, social inclusion, public participation, and accountability, including expanded roles for grievance mechanisms. The ESF codifies best practices in development policies. It brings the World Bank's environmental and social protections into closer harmony with those of other development institutions and encourages Client countries to use and improve their own national environment and social policies when these policies are materially consistent with the ESF and supported by adequate implementation capacity. The ESF provides an incentive for countries to develop and build their own environmental and social policies and capacities.

3.5.2 World Bank Environmental and Social Standards

The World Bank Environmental and Social Policy 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 Standards (ESSs) set out the requirements for Borrowers relating to the identification and assessment of environmental and social risks and impacts and mitigation measures associated with projects supported by the Bank through Investment Project Financing.

The standards are expected to (a) support Borrowers in achieving good international practice relating to environmental and social sustainability; (b) assist Borrowers in fulfilling their national and international environmental and social obligations; (c) enhance non-discrimination, transparency, participation, accountability, and governance; and (d) enhance the sustainable development outcomes of projects through ongoing stakeholder engagement. The proposed project will apply the ESF. The proposed project will apply the ESF and Table 3.1 below describes the application of the ESSs relevant to the project.

Table 3.1: Application of World Bank's ESSs to the proposed project

ESSs	Yes/No	Application
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Yes	This report will manage the site-specific environmental and social impacts. The report has been prepared to recommend E&S measures to be incorporated into the designs and implementation of the proposed project.
ESS 2: Labor and Working Conditions	Yes	Workers will be contracted to work on the construction and operation of the project. In order, to ensure fair treatment of workers, the project will ensure that terms and conditions of employment (hours, rest periods, annual leave, non-discrimination, equal opportunities and workers organizations) are aligned with the requirements of Tanzania law and ESS2. To protect workers appropriate Occupational Health and Safety (OHS) shall be applied to avoid the risk of ill health, accidents and injuries. The proponent will set labour management procedures with roles and responsibilities for monitoring primary suppliers. If child labour or forced labour cases are identified, the proponent will require the primary supplier to take appropriate steps to remedy them. Where remedy is not possible, the proponent will, within a reasonable period, shift the project's primary suppliers to suppliers that can demonstrate that they are meeting the relevant requirements of this ESS.
ESS 3: Resource Efficiency and Pollution Prevention and	Yes	The project activities will involve construction works which will generate dust, erosion, wastes (solid and liquid) that will be properly

Management		managed via ESMPs and EMP. More or less similar impacts are likely to be experienced during operation phases and will be managed by the same tools as well as operation and maintenance plans.
ESS 4: Community Health and Safety	Yes	The project will not substantially risk community health and safety. Only localized negative impacts (like dust emissions, noise pollution, etc.) to sensitive receptors will need to be managed along the route for collecting construction-related materials. Also, community safety especially is an issue of concern due to the influx of the project workers, and later participants of the project, which might lead to GBV/ SEA/SH, as well as transmission of HIV/AIDs and other communicable diseases. Guidance on HIV/AIDs, COVID-19, GBV/SEA/SH, and HEET project GRM shall be followed.
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	No	This ESS is not relevant to the proposed project at plot with No. 96 Block 'A' at NJOSS under Title Number 7422, designed for Educational Purposes, Use Group K Use Class (d) as per Urban Planning (use Groups and Use Classes) Regulations, 2018.
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	No	The project is not located inside or near protected areas and sensitive habitats. In case the project will purchase natural resources commodities such as timber, it will be important to establish the source area and to have a mechanism in place to ensure that the Primary Suppliers are not significantly impacting sensitive ecosystems or degrading

		natural habitats.
ESS 7: Indigenous People/ Sub- Saharan African Historically Underserved Traditional Local Communities	No	This standard is not considered relevant as the project will mainly be implemented in areas where communities that meet the requirements of ESS7 are generally not available in the area.
ESS 8: Cultural Heritage	Yes	This ESS is relevant, although the project area is already being developed, so a chance to find physical cultural resources is likely.
ESS 9: Financial Intermediaries	No	This ESS is not relevant to the project.
ESS 10: Stakeholder Engagement and Information Disclosure	Yes	The proponent will provide stakeholders with timely, relevant, understandable, and accessible information and consult with them in a culturally appropriate manner that is free of manipulation, interference, coercion, discrimination, and intimidation. As part of the ESIA study, stakeholders' engagement has been done in line with the requirements of the ESS10.

3.5.3 World Bank Group ESHS Guidelines

The World Bank Group's 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. Specific guidelines that will be used are Environmental, Health, and Safety (EHS) Guidelines: Environmental Waste Management. As stipulated earlier, the guidelines will be used together with the Environmental, Health, and Safety General Guidelines.

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 will 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 will be based on the professional opinion of qualified and experienced persons. This study will fully consider the WB guidelines to manage the project risks and impacts.

3.6 INSTITUTIONAL FRAMEWORK

3.6.1 Introduction

The Tanzania ESIA practice gives different functions and responsibilities to all parties involved in the ESIA process of any proposed development undertaking to which ESIA is obligatory. The EMA, Cap 191, gives NEMC a mandate to undertake enforcement, compliance, review, and monitoring of EIAs and a role in facilitating public participation in environmental decision-making, generally supervising and coordinating all matters relating to the environment. The EMA empowers NEMC to determine whether a proposed project should be subjected to an ESIA, approve Consultants to undertake the ESIA study and invite public comments, and grant NEMC the statutory authority to issue the certificates of approval via the Minister responsible for the environment. NEMC is currently the designated authority to carry out the review of ESIAs, including site visits, handling Technical Advisory Committee (TAC) meetings, and monitoring and auditing the environmental performance of the Project. Table 3.2 lists key institutions of potential relevance to the proposed Project.

Table 3.2: Key Institutions to the ESIA Process

Level	Institution	Role and Responsibility
National level	Vice President's Office (Division of Environment)	• Coordinate various environment management activities in Tanzania. • Advise the Government on legislative and other measures for the management of the environment. • Advise the Government on international environmental agreements. • Monitor and assess activities, being carried out by relevant agencies to ensure that the environment is not degraded. • Prepare and issue a report on the state of the environment in Tanzania. • Coordinate the implementation of the National Environmental Policy.
	National Environnent Management Council (NEMC)	• Carry out environmental audit and environmental monitoring. • Carry out surveys which will assist in the proper management and conservation of the environment. • Undertake and co-ordinate research, investigation and surveys in conservation and management. • Review and recommend for approval of environment impact statements. • Enforce and ensure compliance of the national environmental quality standards. • Initiate and evolve procedures and safeguards for the prevention of accidents which may cause environmental degradation and evolve remedial measures where accidents occur;

Level	Institution	Role and Responsibility
		• Undertake in co-operation with relevant key stakeholder's environmental education and public awareness. • Render advice and technical support, where possible to different stakeholders.
	Ministry of Lands, Housing and Human Settlements Development	• Land use planning • Issuing of Right of Occupancy • Valuation and compensation
	Ministry of Education Science and Technology	• Issuing policy guidance • Providing legal frameworks • Issuing licences, provisions of certificates of compliances • Enforcement of laws and regulations • Monitoring and reporting on compliance with the ESMF/ ESMP under the established National Project Implementation Unit (NPIU). • Ensure compliance with the various regulations, guidelines and procedures issued by the Minister responsible for the environment.
	Occupational Safety and Health Authority (OSHA)	• Registration of the construction site, registration of workplace and inspection. • Issuance of OSHA Compliance certificate. • Inspection on OSH related aspects. • Enforcement of Occupational Health and Safety Act, 2003 (Act No. 5/2003).

Level	Institution	Role and Responsibility
Project Proponent	UDOM	• Carrying out EIA study • Project implementation including mitigation measures. • Carrying out regular environmental monitoring and internal auditing • For Further details, see section 3.6.2 below.
Regional level	Njombe Regional Secretariat Office	• Oversee and advise on the implementation of national policies at the regional level. • Oversee enforcement of laws & regulations • Advice on the implementation of development projects and activities at the Regional level.
Council level	Njombe Town Executive Director Office	• Chief Executive Officer for all development activities at the council level. • Baseline data on social and economic conditions • Extension services • Plan and coordinate activities on community-based natural resource and environment management • Enforcement of laws & regulations • Coordinate environmental matters at the Municipal level. • The District Environmental Management Officer (DEMO) is responsible for monitoring environmental issues during project implementation.
Ward Level (Njombe Mjini)	Ward Development Committees – (Ward Councillor, WEO, WDC)	• Oversee general development plans for the Ward. • Provide information on local situation and Extension services. • Technical support and advice • Project Monitoring

Level	Institution	Role and Responsibility
Mtaa Leadership (Kihesa)	Mtaa Chairperson / MEO, Environment Committee): and Other leaders	• Information on local social, economic, environmental situation • View on socio-economic and cultural value of the sites and plant operations. • Rendering assistance and advice on the implementation of the project • Project Monitoring (watchdog for the environment, ensure well-being of residents
	Nearby community and Institutions	• To provide information on the local social, economic, and environmental situation. • View on socio-economic and cultural value of the sites and on proposed expansion project operations.

3.6.2 Institutional Capacity for implementing Environmental and Social issues:

UDOM's responsibility is to ensure that the implementation process of the ESMP and Mitigation measures are in line with the relevant national policies and legislations and World Bank Environmental and Social Standard 1. UDOM has a Project Implementation Unit (PIU) with 18 people responsible for supervising and monitoring the implementation of the project construction activities. The management of all project activities during operation is under the PIU, in collaboration with other departments and units, depending on the nature of the activity. In general, the PIU falls under the management of UDOM, executing day-to-day activities in the project. The PIU is guided by management meetings that are chaired by the Vice Chancellor. The management meetings provide support, guidance, and oversight of the progress of the PIU. Further, among the PIU staff, 3 are working as environmental and Social Safeguard Specialists (i.e., Gender Specialist, Social Specialist, and Environmental Specialist) who will monitor the environmental and social activities of the project during all project phases. The environmental specialist holds a PhD in environmental issues, the social specialist holds a PhD in social-economic issues, and the gender specialist holds a PhD in Gender and socio-economic. Further, UDOM shall commission the consulting engineer to supervise the contractor during construction, among others, on

Environmental and Social Issues. The roles and responsibilities of environmental and social issues are covered in Table 3.3 below.

Table 3.3: Institutions responsibility at the project level

Institution	Roles and responsibilities
World Bank	• Project financing • Ensures that the project is carried out to the highest environmental standards strictly in accordance with the ESMF and ESIA project report and the mitigation measures set out therein. • Also requires that environmental and social impacts are managed in accordance with the World Bank ESF and its ESS. • Provide a second line of monitoring compliance and commitments made in the ESMPs through supervision.
PS-MoEST	• E&S monitoring and surveillance of all project components investments that will be undertaken by the project. • The ministry will report the results of this monitoring to the World Bank.
NPIU Environmental and Social Team	• Coordinate different activities to ensure that, the project meets the country legal and World Bank requirements with regard to Environment and Social Framework
Implementing institutions (UDOM - PIU) Environmental and Social Team	• Maintaining the PIU chaired by the Deputy Vice Chancellor and assisted by qualified and experienced staff in adequate numbers and under terms of reference as outlined in the Project Operational Manual (POM). • The PIU is vested with the responsibility of the day-to-day implementation of the project activities, including financial management, procurement, environmental and social risk management, governance and anti-corruption, monitoring and evaluation, and reporting; • Coordinate specialist/consultants for any support missions or

Institution	Roles and responsibilities
	attend different meetings and provide any guidance in the bid to ascertain that the different challenges identified for each sub-project/activity are duly covered from risk. • Support the procurement officer at UDOM in ensuring that the bidding documents clearly cover the health, safety, and environmental components and include appropriate provisions for the contractors to bid on. • Coordinate the preparation of ESIAs and environmental and social management plans (ESMPs) by consultants and site-specific ESMPs (SSESMPs). • Ensure that contractors have Environmental Health and Safety Officers (EHS) who are familiar with the compliance requirements, including WB EHS guidelines
Consultant (Environmental and Social Team)	• Work with the NPIU//UPIU to understand the requirements of the environmental and social assessment; • Conduct initial site visits with the UPIU to understand the sub-project setting and site-specific requirements; • 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 E&S risks and impacts; developing mitigation measures and monitoring plans incorporating EHS requirements; • Cost all the mitigation and management measures proposed in the ESMPs and SSEMPs • Propose a capacity-building plan for the implementation of the sub-projects (where necessary) • Carry out public consultations. • Assist the UPIU in preparing documentation to obtain certification from NEMC for the ESIAs and ESMPs.
Contractors (Environmental and Social Team)	• Compliance with relevant environmental and social legislative requirements (project-specific, district- and national level), including allocating adequate budget for implementation of these requirements.

Institution	Roles and responsibilities
	• Work within the scope of contractual requirements and other tender conditions. • Prepare C-ESMPs based on the ESMP in the bidding documents and contracts. • Train workers about EHS (including relevant WBG EHS Guidelines) and the site-specific environmental and social measures to be followed. • The contractor's EHS officer will participate in the joint site inspections with the UPIU and Environmental Supervision Engineer/consultant. • Immediate notification of the NPIU and supervision engineer of any significant social or environmental health and safety incident linked with the project, indication about the measures taken or planned to be taken to address the incident, and proposal of any measures to prevent its recurrence. • Carry out any corrective actions instructed by the Supervision Engineer/consultant. • In case of non-compliance/discrepancies, carry out an investigation, submit proposals on mitigation measures, and implement remedial measures to reduce environmental impact. • Propose and carry out corrective actions to minimize the environmental impacts. • Send weekly reports of non-compliance to the Supervision Engineer/consultant. • Send monthly progress reports to the Supervision Engineer/Consultant

4 BASELINE DATA AND INFORMATION

4.1 INTRODUCTION

This chapter provides a description of relevant environmental, economic and social characteristics of the project core area (site specific), and areas in the immediate vicinity of the project which is Kihesa Mtaa as well as broad description of the area of influence i.e. Njombe Mjini Ward, Njombe Town Council for the proposed project. The Experts relied on secondary data and information found in literature covering the project area and observation at the site. The level of details in the various sections depends on the interactions between the project activities and the particular environmental or socio-economic aspect.

4.2 LOCATION AND ADMINISTRATIVE BOUNDARIES

The project is administratively located in Kihesa Mtaa, Njombe Mjini Ward, Njombe Town Council, Njombe Region. Njombe Mjini is one of the Urban Wards of Njombe Town Council located within the CBD of the town. Njombe Town Council is a small but important town near the Southern Highlands of Tanzania. Njombe Township is the District Headquarters with Town Council status and at the same time the Regional Headquarters and the source of the name of the Region.

Njombe TC is one of the six Councils in Njombe Region. It lies at the crossings of Longitudes $34^0$25’ and $35^0$27’east of the Greenwich Meridian and Latitude $9^0$10’ and $9^0$45’south of the Equator. Other councils in the region include Njombe, Ludewa, Makete, Wanging’ombe - District Councils and Makambako Town Council. The Njombe Town Council borders with Njombe District Council to the north, Makete and Wanging’ombe District Councils to the west and Ludewa District Council and Ruvuma Region to the south (URT, 2018).

4.3 PHYSICAL CHARACTERISTICS

4.3.1 Topography and climate

Njombe Town Council has two main features, namely:-the highland zone of the Council situated on the western escarpment, which covers most parts of Igominyi division, with rainfall ranging between 1,200- 1,400mm per annum and temperatures

of between 6°C and 20°C. Most parts of the Town Council lie between 1,000 meters and 2,000 meters above mean sea level.

The extreme north and northern-west part of the council gives way to the lower zone, experiencing rainfall ranging between 1,000 to 1,200mm annually with temperatures ranging from 15°C to 21°C.

Despite varying climatic conditions throughout the year, the weather is generally cool due to its high altitude and forest cover. The highest temperature occurs from November to March, during which the mean maximum temperature is about 28 degrees centigrade. The minimum temperature occurs from May to August when the temperatures go down to negative two degrees centigrade. The mean relative humidity is about 45% and decreases to 20%.

The Town Council has a unimodal rainfall regime, occurring between October/December and March/April and sometimes up to May each year. The rains last for roughly 110 days, are usually heavy, and spread throughout the Town. Heavy rains fall between January and April every year. From June to September/October, there is usually a dry spell.

4.3.2 Soils

Soils in the Town Council differ according to the two distinct zones. In the highland zone, the soil is acidic, and the main crops grown are maize, tea, coffee, beans, and round potatoes. The lower zone is characterized by black clay and loam soils.

4.3.3 Hydrology and Drainage System

Njombe Town Council forms part of the West escarpment with flat and gently undulating plains broken in places by small hills. These features form two main Rivers, which are Hagafilo and Ruhuji, with several tributaries, which form a number of alluvial flood plains. The rivers receive water from two main streams, namely, Nyikamtwe and Kiyaulilo, on the western and northwestern sides of the Council. The Ruhuji drains into Rufiji and falls into the Rufiji hydrological basin.

4.3.4 Air Quality

A spot baseline air quality survey was conducted to ascertain the concentration of respirable particulates and pollutant gases in the project area prior to the construction and operation of the proposed project. The dust levels in terms of particulate matter (TSP, PM10, and PM2.5) were measured on-site, and pollutant gas concentrations were also measured. Table 4.1 shows the results for particulate matter, while Table 4.2 shows the results for pollutant gases measured on-site. Generally, the project area is not degraded in terms of air quality conditions as all measured parameters were within the allowable limits of the local and international standard limits.

Table 4.1: Average ambient particulate matter in mg/m3

Code	LOCATION		Particulate Matter		
	GPS Readings		TSP	PM10	PM2.5
	Latitudes	Longitudes	mg/m^3	mg/m^3	mg/m^3
AQMS1	-9.34483	34.78033	0.011	0.005	0.003
AQMS2	-9.34174	34.78181	0.019	0.008	0.005
AQMS3	-9.34140	34.78028	0.014	0.006	0.004
AQMS4	-9.33974	34.78004	0.011	0.006	0.003
AQMS5	-9.34182	34.77923	0.009	0.004	0.002
Environmental Management (Air Quality Standards), 2007			0.5	0.15	0.075
WHO/IFC (2007) and WB AQG 2006			0.23	0.05	0.025

Source: Field measurements in April 2024

Table 4.2: Average ambient pollutant gases

CODE	LOCATION		Ambient Pollutant Gases				
	GPS Readings		CO	NO_2	SO_2	H_2S	VOCs
	Latitudes	Longitudes	mg/m^3	mg/m^3	mg/m^3	mg/m^3	mg/m^3
AQMS1	-9.34483	34.78033	1.94	0.043	0.32	0.03	5.7
AQMS2	-9.34174	34.78181	1.50	0.093	0.04	0.06	4.2
AQMS3	-9.34140	34.78028	2.72	0.067	0.23	0.11	5.1
AQMS4	-9.33974	34.78004	1.70	0.077	0.18	0.05	4.8
AQMS5	-9.34182	34.77923	1.57	0.060	0.33	0.10	4.7
TBS Limits			15	0.12	0.5	-	6.0
WHO/IFC Guidelines			30	0.2	0.5	-	--

Source: Field Measurements in April 2024

4.3.5 Noise and Vibration

The results ranging from 42.55 to 51.95 dBA suggested that the recorded noise levels are acoustically safe for people residing near the project site as the measured noise levels were found to be lower, well below the WHO/IFC acceptable noise levels (Table 4.3).

Table 4.3: Average noise levels

STATION CODE	LOCATION		Noise Levels in dBA
	GPS Readings		Daytime
	Latitudes	Longitudes	dBA
AQMS1	-9.34483	34.78033	46.50
AQMS2	-9.34174	34.78181	51.95
AQMS3	-9.34140	34.78028	45.80
AQMS4	-9.33974	34.78004	42.55
AQMS5	-9.34182	34.77923	44.50
TBS Limits			<55
WHO/IFC/WB Guidelines			<60

Source: Field Measurements in April 2024

The recorded vibration levels ranged from 0.001 to 0.003 mm/s PPV, with the maximum value being recorded at AQMS4 (Table 3.4). The anticipated impact resulting from the measured vibrations is considered insignificant as the measured levels do not exceed 0.15 mm/sec PPV. The criteria were established to evaluate the extent to which can easily be detected by humans, as per TBS and British Standard limits. In that regard, the measured ground vibration levels are lower and, thus, are not likely to negatively impact any sensitive receptors.

Table 3.4: Average vibrations measured in mm/s PPV at five stations

STATION CODE	LOCATION		LOCATION
	GPS Readings		GPS Readings
	Latitudes	Latitudes	(mm/s PPV)
AQMS1	-9.34483	34.78033	0.01
AQMS2	-9.34174	34.78181	0.01
AQMS3	-9.34140	34.78028	0.02
AQMS4	-9.33974	34.78004	0.03
AQMS5	-9.34182	34.77923	0.01
Human detection level			<0.15
TBS Limit			5
British Limit			0.3

Source: Field Measurements in April 2024

4.4 BIOLOGICAL CHARACTERISTICS

The Council is generally characterized by natural open green grassland covered with patches of planted wood trees, particularly pines, eucalyptus, and black wattle. There are few notable natural forest reserves in the town council, with a total land of 3,021 Ha, which represents 0.9% of the total 321,200 Ha area of the Council. A large part of the forest reserve is found in the Uwemba ward, with 1,863 hectares, which is 13.5%, followed by the Yakobi ward, with 675.2 hectares (2.2%). In Njombe Mjini Ward, where the project is located, there is no natural forest reserve.

The council has a total area of 22,725 Ha; this area is covered by wood tree plantations, which represent 7.07% of the entire council's land. The Njombe Mjini Ward has a forest plantation with a total area of 521 ha, which represents about 2.4% of the total council wood forest plantation. In the whole Town Council, there are more forest plantations than forest reserve areas.

The town council does not have a National Park, Game reserve, or game-controlled area, and thus, the only protected/conserved resources include forests, forests, and wetlands. Generally, the council has a low level of natural ecosystems and hence limited high-value ecosystems.

Based on a field survey, the project area has low biological diversity in terms of avifauna and other large mammals. Common animals that cannot be overlooked in the area include reptiles, amphibians, insects, and invertebrates.

4.5 SOCIO-ECONOMIC CHARACTERISTIC

4.5.1 Demographics

4.5.1.1 Population

According to the 2022 Population and Housing Census Report, the total population in the Njombe region was 889,946, of which 52.7% were women. The population growth rate during the period of 2012-2022 was 2.4%. The total population of Njombe Town Council was 182,127, with 52.6% of the population being women with an average household size of 3.4. The population of the Njombe Mjini Ward was 37,900 in total, while 17,658 are male, and 20,242 are female. The average household size was 3.2 below the council average of 3.4, and the number of households was about 12,000.

4.5.1.2 Cultural diversity

The inhabitants of Njombe Town Council are mainly of the Bena tribe. However, the composition of the current population is getting more cosmopolitan due to the influx of workers in the tea industry, timber logging, businessmen, and fortune seekers from different Councils of the Njombe Region as well as other Regions of Tanzania. The Council has three main ethnic groups, namely: Bena, Pangwa, and Kinga. The majority of Bena occupy the largest part of the Council area, followed by Pangwa and Kinga. In addition, the Council is also occupied by other small ethnic tribes, including Chaga, Nyakyusa, and Ngoni (NTC, 2018). The main religious groups include the Lutheran Church, Seventh-Day Adventists, Assemblies of God, Roman Catholics, and Muslims. The main languages spoken are Swahili and vernacular. Out of these ethnic groups, none is considered indigenous in terms of their cultural practices, as all are engaged in formal common economic activities.

4.5.2 Land Rights and Tenure

Land in rural areas is governed under the Village Land Act No. 5 of 1999, which provides for village land to be administered and managed by the local communities (Village Government). The state can allocate land that is not village land to users under specified tenure regimes. The land earmarked for the development of the proposed project falls under the education category. UDOM is the legal owner of the plot (Appendix 1).

4.5.3 Economic Mainstay

The Njombe District Council has vast economic opportunities ranging from trade, agriculture, and allied activities with few industries. Commercial agriculture (crops, livestock, forestry, and hunting) was reported to be the main source of income in the Council, which engages about 85% of the residents. Services and other related activities account for 8%, while industries and construction activities (Manufacturing, electricity, water, and construction) account for the remaining 7% (URT, 2018).

4.5.3.1 Agriculture

Njombe Town Council has cold weather, fertile soil, and a reliable amount of rainfall, which is a favourable condition for agriculture and enables this Council to be a big producer of maize and Irish potatoes in terms of food crops and tea and avocados in terms of cash crops. Forestry is among the leading sectors in the economy of the

Council; several medium and small-scale industries that deal with tea and timber production are established in the Council. The common kinds of livestock that are kept in the Council are cattle, poultry, goats, and sheep.

The Council has a total land area of 321,200 Ha, out of which 60% (192,700 Ha) is arable land, and only 32.7% (63,108 Ha) is under cultivation. Njombe Mjini Ward had arable land of 1,495 Ha, but only 30.3% (454 Ha) of it is under cultivation (URT, 2023).

Tea is a leading cash crop, with the largest planted area among all crops, an average of 4,202 ha, followed by avocado, with an average planted area of 3,892 Ha (URT, 2023). The area planted with cash crops is increasing year after year. Tea is grown in both large-scale and small-scale farming. It is also sold locally and exported. Tea has contributed to the economy of the Council by enabling the opening of industries that process tea, which also gives small-scale farmers an opportunity to sell their crops to these medium and small-scale industries.

4.5.3.2 Livestock keeping

Livestock keeping is another important economic activity for a large part of the population in Njombe Town Council. Poultry is the most dominant livestock in the council, followed by cattle, pigs, goats, sheep, and donkeys. Livestock keeping is mostly traditional and on a small scale. In 2023, the largest population of livestock was 385,891, with chicken (broilers and layers) at about 302,727, followed by Indigenous chickens, 21,581; Cattle, 21,550; Sheep, 3,959, Goats 13,427, donkeys 2,934 and Pigs, 19,713 (URT, 2023). Njombe Mjini Ward accounted for 14.3% of the livestock population in the council.

Grazing land is defined as the land available for the grazing needs of livestock. It excludes all tsetse fly areas, all wildlife and forest reserves, and tree plantations. In many cases, it overlaps arable land and areas for ‘other uses’. The Council has a total of 31,268 Ha of land that is suitable, while the used area is 9,494 Ha, equivalent to 30%. Njombe Mjini Ward has no area available for grazing (URT, 2023).

4.5.3.3 Industry

The industries in Njombe Town Council play a great role in terms of supporting various population groups in the employment sector and processing various agricultural and

forestry products into valuable products. In total, there are six large-scale industries in the council, including three tea processing factories, one wattle, one timber processing, and one pole processing. There are seven medium-scale industries, including two flour milling, one oil milling, one milk processing, two drinking water, and one cold room for fruits. For small-scale industries in Njombe Town Council, the carpentry industry is leading by having a total number of 139 industries, followed by maize milling with 156 industries, welding with 33, and the service industry (garage) with 117 industries (NTC, 2018).

4.5.3.4 Forestry

Forestry is another important sector in which people are engaged for their livelihood. The council has both natural and planted forests; however, planted forests occupy a large percentage of the forest land cover. The total area of forest reserve in the council is 3,021 Ha, which is equivalent to 0.9% of the council's total land. The planted forest covers 21,358 Ha, which is equivalent to 7% of the entire council’s land. Forest products such as timber, poles, and charcoal earn revenue for the government through permits and taxes (NTC, 2023).

4.5.3.5 Beekeeping

Beekeeping is becoming an income-generating activity among small-scale honey/bee wax producers in the council. Beekeeping is facilitated by the presence of forests in the council. In 2021, there were 9 traditional beehives and 5,250 modern beehives. (NTC, 2023).

4.5.4 Economic Infrastructures

4.5.4.1 Road networks

The council road network is composed of trunk, district, feeder, and urban roads. The roads that are maintained by the central government (TANROADS) are classified as trunk or regional roads, while roads that TARURA, the town council, maintains are called collector and feeder roads; the rest of the roads are called community roads and are mostly maintained by Village/Mitaa communities. The council has a total road network of 1,389.2 km. Table 4.1 below shows the road type and their respective length (NTC, 2023).

Table 4.1: Length of road network in Njombe Town

Type of road	Length in km	Percent
Trunk	100.7	7.3
Regional	90.0	6.5
District/urban	1191.2	86.2
Total	**1,389.2**	**100.0**

Source: NTC, 2023

4.5.4.2 Telecommunication services

Njombe Town Council is facilitated with reliable communication networks such as landline telephones, radio calls, mobile phones, and TV and radio channels. By the end of 2023, the council had six (6) operating cellular phone companies, namely Vodacom, Airtel, Tigo, Halotel, and Tanzania Telecommunication Company Limited (TTCL). TTCL provides landline telephone services and radio calls. Radio, television services, and cable television access in the council include Radio One, TBC, and Radio Free Africa, just to mention some. Also, the council has two radio stations, Uplands Radio and Kings FM.

4.5.4.3 Air services

Air service is another means of transport available in Njombe TC. There is one airstrip, the Njombe Aerodrome (Airport), which caters to visitors in the council and other parts of the country. The airstrip is earth-surfaced and can handle only small aircraft on charter flights. The Aerodrome covers an area of 900 km^2 with a runway of 2000 meters in length and 30 meters in width. So far, the Aerodrome is in the process of being rehabilitated by fencing the area, expanding the runway, putting a tarmac surface, constructing the Control Tower, and expanding the passengers' lounge.

4.5.4.4 Railway services

There is no railway service in Njombe Town Council, and therefore, the council's major means of transport are roads. The TAZARA Railway line passes through Makambako, about 100 km from the Council center.

4.5.4.5 Electricity/energy services

Njombe TC depends on various sources of energy for domestic and commercial use. Such sources include electricity, paraffin, firewood, charcoal, gas, and solar. However, the majority of people in rural areas use kerosene and firewood as a major source of energy for lighting and cooking. Some institutions and a few individuals in rural areas

use solar energy and electricity as their source of energy for lighting and cooking. Electricity supply stimulates development, both social and economic. It improves leisure and generally improves the quality of life. Like other parts of the country, TANESCO continued to be the council's sole supplier of electricity. However, in the council, the supply is less than the demand.

4.5.5 Social Infrastructure and Services

4.5.5.1 Education services

The education sector in Njombe Town Council covers both formal and informal education. Formal education includes pre-primary, primary, and secondary school education. Informal education covers vocational education and adult education.

In 2023, the council had 90 pre-primary schools. In essence, each village/Mtaa has at least one pre-primary school. The ratio of pre-primary infrastructures per Mtaa/Village is 1.2.

There are both public and private primary schools. The council has 83 primary schools, 12 of which are privately owned. The same trend for pre-primary school applies to primary schools, with each village/Mtaa having at least one primary school, with a ratio of 1.2.

The council has managed to have at least one secondary school in each of the thirteen Wards as required by the secondary school policy. In 2023, it had a total of 30 secondary schools, out of which 14 were private and 16 were public schools. Njombe Mjini Ward had two secondary schools.

In 2023, the Council had 9 vocational training schools/centres with 488 enrolled students. In the same year, the Council had two higher learning institutions: Amani College of Management and Technology, with 99 students, and UDOM, with 25 students.

4.5.5.2 Health services

In terms of health infrastructure, until the end of 2023, the Council had 78 health facilities. The council had 3 hospitals (two government and one private), 10 health

centers (3 government and 7 private), and 65 dispensaries (53 government and 12 private). In addition, the Njombe Town Council has established primary rural health centres to complement the existing official health infrastructure. These centres are operated by Village Health Workers (VHWs) assisted by Traditional Birth Attendants (TBAs) and Home Basic Care personnel (HBC). The most common diseases in the town council include HIV/AIDS, Upper respiratory infections, Urinary tract infections, Diarrhea with No dehydration, Pneumonia (non-severe), and Other non-infectious GIT Diseases.

4.5.5.3 Water Supply Services

Njombe Town Council had two areas of water supply, rural and urban areas. Rural areas cover 10 wards, while urban areas cover only three wards. In rural areas, the council in 2023 had a total of 1,017 water sources, out of which 88, equivalent to 9%, were working. The water sources included springs, shallow wells, rainwater harvest tanks, Pipelines, and river water. Spring water was the main water source for a large rural population and accounted for 96% of all water sources. Spring and Piped water schemes were the only water sources that were evenly distributed among the wards. The existing water supply infrastructure supplies clean water to 71.4% of the council's rural population (NTC, 2023). The percentages of people getting clean water differ from one ward to another. The management aspect of water supply schemes in rural is among the residents through the established management structures, namely Village Water Committees, Water User Associations, and Village Water Funds.

The urban water supply covers three Wards, namely, Njombe Mjini, Ramadhani, and Mjimwema wards. The management of water supply in urban areas is under the Njombe Urban Water Supply and Sanitation Authority (NJUWASA). The water source for urban areas of the council is spring (5), piped scheme (5), and river (3). An average of 63% of the urban population of the Town Council was estimated to be served with clean water. Mjimwema ward had the highest percentage of 65%, followed closely by Njombe Mjini (63%) and Ramadhani (62%) (NTC, 2018).

4.5.5.4 Sewage and Sanitation Services

About 99.7% of the total households in the council had sanitation facilities. The remaining 0.3% of the households did not have toilet facilities (NTC, 2018). At the ward level, all residences have toilet facilities. Moreover, the authorities of Njombe

Town Council have the responsibility of advocating the importance of toilet facilities so as to make sure that all households have toilet facilities. This will help the council get rid of communicable diseases like diarrhoea and waterborne diseases. There is no centralized public sewage system in Njombe town, and thus, onsite waste management including pit latrines and soak-away pit systems, is common in the council.

4.5.5.5 Solid Waste Management Services

The council has dedicated trucks for the collection of solid wastes in urban areas as well as for the institutions and industries within the council. The council has also designated an area for dumping solid wastes, which is located at Maheve Mtaa, about 11km towards Makete. It is an open crude dumpsite, as there is no sanitary landfill.

5 STAKEHOLDERS ANALYSIS

5.1 INTRODUCTION

The objective of stakeholder consultations for the proposed project at Plot No. 96 Block 'A', Kihesa Mtaa, Njombe Mjini Ward, Njombe Town Council in Njombe Region was to identify and involve key stakeholders in the environmental assessment process. The integration of public participation/involvement of stakeholders in the environmental assessment process is essential in terms of its implication for sound decision-making and the sustainability of development activities, and it forms part of best practice. Accordingly, the Environmental Management Act cap 191 and Environmental Management (EIA and Audit) (Amendment) Regulations, 2018. Both documents provide procedures for the involvement of stakeholders and the public in the environmental assessment process and review of proposed undertakings.

The Stakeholders Engagement Plan (SEP) for the Higher Education for Economic Transformation (HEET) was developed early to define a program for stakeholder engagement, including public information disclosure and consultation, throughout the entire project cycle. The SEP outlines the ways in which the project team will communicate with stakeholders and includes a mechanism by which people can raise concerns, provide feedback, or make complaints about the HEET project and any activities related to the project. The SEP stressed that the involvement of the local population is essential to the success of the project(s) in order to ensure smooth collaboration between project staff and local communities and to minimize and mitigate environmental and social risks related to the proposed project activities.

With respect to the proposed project at Kihesa *Mtaa*, Njombe Mjini Ward in Njombe, the process afforded the stakeholders the opportunity to express their views and concerns in order to be included in the environmental assessment. The Consultants informed the local people, leaders, and key stakeholders about the proposed project through consultative meetings, key informant interviews, email communication, public meetings, and telephone calls. During the consultation process, the stakeholders were taken through the proposed project, including its objectives, implementation technologies, and possible impacts of the project's implementation. Stakeholders were then given an opportunity to ask relevant questions regarding the proposed project to

enable the consultants to clarify any issues they may not have adequately understood. Further, the opportunity to air their views and concerns was given.

During the engagement, the team had a chance to conduct Focused Group Discussions (FGD). The FGDs were mostly conducted at the local level to discuss various issues related to the project and potential positive and negative impacts. The FGDs were conducted separately, considering gender, activities, and project interests to allow free expression since some of the topics targeted a specific group because of socially constructed norms. FGD was led by a qualified sociology expert, and particular questions concerning issues of employment opportunities, health and safety, GBV issues, risks, and advantages of the project were discussed.

5.2 GOAL OF THE CONSULTATION PROCESS

The overall goal of the consultation process is to disseminate project information and to incorporate the views in the design of the mitigation measures and environmental management plan. It is done to ensure the quality, comprehensiveness, and effectiveness of the impact assessment and that various groups' views are adequately considered in the decision-making process to avoid conflict at a later stage. Consultation with the stakeholders was aimed at positively conveying information about the proposed project development, clearing up misunderstandings, and allowing a better understanding of relevant issues. Also, how they will be dealt with, and identifying and dealing with controversial areas to clarify matters and make adjustments accordingly while the project is still in its design stage. Stakeholders and public involvement were therefore aimed at assisting the Consultant in:

i) Improving project design and, thereby, minimizing conflicts and delays in implementation;
ii) Determining the scope of the environmental assessment;
iii) Deriving specialist knowledge about the site;
iv) Clarifying any misconceptions, misunderstandings, myths, and the like that may have arisen from misinformation about the project or local species beliefs;
v) Increasing long-term project sustainability and ownership;
vi) Reducing problems of institutional coordination; and
vii) Gathering the information needed to complete the assessment.

5.3 THE STAKEHOLDERS IDENTIFIED

The ESIA study benefited from extensive stakeholder consultations with a broad cross-section of the community. A stakeholder analysis was used to identify stakeholders that should be involved in the environmental assessment process. Their relevance informed the basis of inclusion of these in terms of their activities within the area and whether they are residents of the area. The Stakeholders were categorized into two groups for this study. The first group consisted of institutional stakeholders, and the second consisted of community stakeholders. The institutional stakeholders were drawn from government ministries and departments and various agencies with roles within the project area. On the other hand, community stakeholders were community representatives drawn from various community governance structures within the project area. Details about the stakeholders consulted are presented in appendix 3:

- Central Government: Ministries, Departments, and Agencies. These include the Division Vice President's Office (NEMC, Division of Environment); these are statutory bodies with regard to the EIA approval process and thus will be automatically involved.
- The Occupational Health and Safety Authority (OSHA), under the Ministry of Labour and Employment, is responsible for the health and safety of workers at work.
- Fire Department – responsible for fire and rescue services in Tanzania and, in particular, has a role in approving structure drawings on fire safety before construction.
- NJUWASA – responsible for water supply and sanitation services in Njombe town Council - Urban area
- Local Government Authorities, who are daily responsible for overseeing social, economic, and developmental activities, are undertaken in harmony with the community, environment, and the legal aspects within their area of jurisdiction. Authorities include Njombe Town Council, and key personnel include the Municipal Environmental Management Officer, Municipal Social Welfare Officer, and Njombe Mjini Ward. Key staff include the Ward Executive Officer and Kihesa Mtaa, and key staff include the Mtaa Executive Officer and Chairman.

- Project Proponent – UDOM as client and the Contractor for the project - are responsible for provision of all necessary information for environmental assessment as well as implementation of measures stipulated in the project brief report.
- Local Community – Local communities that surround the project area that might be impacted by the Project, either positively or negatively, including the neighbours and members of the Kihesa *Mtaa*.
- Other stakeholders might be identified in the course of involvement if will be seen to be important for the project

5.4 STAKEHOLDERS' VIEWS AND CONCERNS

The study has identified the main concerns and issues raised by the different stakeholders. Generally, stakeholders view the proposed project as a positive development for improving service delivery of UDOM Njombe Campus to the people of Njombe. Further, stakeholders noted some aspects that need consideration during the development and operation phases of the project. These are noted in the section below, while more details of stakeholders' views are presented in appendix 3 of this report.

5.4.1 Water Pollution

Stakeholders noted that nearby the proposed project area there is a natural spring that release gradually water. Thus, the project activities should ensure does not pollute the natural spring in any way as it can be used as an alternative source of water.

5.4.2 Employment opportunities

Stakeholders at the local level advised that the contractor be engaged by giving priority to the local community on employment opportunities, especially jobs that do not require very specialized skills. Others noted that the area has some construction technicians who can be engaged in the project.

5.4.3 GBV issues and HIV/AIDs

It was noted that the area has a high prevalence of GBV cases and as well as a high level of HIV/AIDs. Also, it was noted that the construction workforce is one of the vulnerable groups for contracting HIV/AIDS. Based on that it was advised for the

contractor to be engaged to have contractual obligation to adhere to GBV issues and to have measures to fight against HIV/AIDs. Among of the measures noted include awareness and sanitization programme for the workforce on the GBV and HIV/AIDs issues. Common GBV issues noted in the Njombe in general include child neglects, child rapping, child physical and psychosocial abuse, spousal abuse.

5.4.4 Building design

It was noted that Njombe is very cold area and thus the design of the building should also consider weather condition of the area. Constructing typical buildings which have been designed in hot weather condition like Dar es Salaam might not be very conducive to users in the cold region like Njombe.

5.4.5 Legal and procedural aspects

There are a number of legal and procedural aspects that stakeholders advised for the project to secure and follow. The project proponent/contractor will require to liaise with the town council to secure building permit, Fire and rescue department for approval of project drawings for fire safety aspects, Occupational health and safety Authority for approval of the drawings on OHS aspects, registration of work permit and adherence of OHS aspects in the course of project implementation. Also, Government chemistry laboratory Authority for registration of the laboratories and for management of chemicals under the authority mandate.

5.5 ADDRESSING THE STAKEHOLDERS' CONCERNS

The study has provided a variety of views and opinions on what are considered to be the main concerns and issues of different stakeholders. Based on the raised issues/concerns, an analysis was carried out and recommendations were given for those issues that required attention in the study. The recommendations are covered in the mitigation chapter of this document as indicated in chapter 7. Other chapters also provide some good clarifications on the issues raised. Table 5.1 shows the response table with specific sections where the issue is addressed.

Table 5.1: ESIA recommendations for issues raised by stakeholders

Issues	ESIA Recommendation(s) Subsections
Water Pollution	6.3.7, 6.3.8, 6.4.1, 6.4.2, 6.4.3, 6,5.4, 7.2.7, 7.2.8,

	7.3.1, 7.3.2, 7.3.3,
Employment opportunities	6.3.17, 6.3.18, 6.4.6, 6.4.7, 7.2.17, 7.2.18, 7.3.6, 7.3.7,
GBV issues and HIV/AIDs	6.3.12, 6.3.15, 6.4.10, 7.2.12, 7.2.15, 7.3.8, 7.3.9
Building Design	6.4.5, 6.5, 7.3.5,
Legal and procedural aspects	Chapter 3, 3.3.4, 3.3.11,

6 ASSESSMENTS OF IMPACTS AND IDENTIFICATION OF ALTERNATIVES

6.1 INTRODUCTION

In previous chapters descriptions of both the project and the environment where the project will have footprint have been covered. Based on the project activities and areas covered the impacts of the project on the environment and social components as well as on human health are identified. Thus, this chapter presents the identification of potential impacts and their analysis to determine significance level. Treatment of the impacts is covered in the subsequent chapters of this EIS.

6.2 ASSESSMENT METHODOLOGY

The team members conducted literature reviews of available information related to the site conditions and with respect to similar project operations prior to visiting the site. Most of the members of the team visited the project site for the study accordingly. The team spent the time on site gathering information through field studies. The combined site visit by all specialists assisted in integration of ideas and findings between the specialists.

The role of each specialist was to collect sufficient data to assess the environmental impacts. In order to achieve this, the ESIA team assessed the environment as it existed at project area and secondary data from published and unpublished sources.

6.2.1 Environmental impact rating scale

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

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

- **Likelihood**: an indication of the risk or chance of an impact taking place;

To ensure integration of social and ecological impacts, to facilitate specialist assessment of impact significance, and to reduce reliance on value judgments, the severity of the impact within the scientific field in which it takes place (e.g. vegetation, fauna) is assessed first. Thereafter, each impact is assessed within the context of time and space, and the degree of certainty in the prediction is indicated.

The impact is then assessed in the context of the whole environment to establish the "significance" of the impact. This assessment incorporates all social, cultural, historical, economic, and ecological aspects of the impact. Thus, the severity or benefit of an impact within a specialist discipline is first assessed before the significance of the impact is evaluated in a broader context. Consequently, two rating scales are required, one to determine the severity or benefit, and one to determine environmental significance.

6.2.2 Severity / benefit

Severity is based on the professional judgement of the various specialists to evaluate the extent to which negative impacts would change current conditions, or how beneficial positive impacts would be on a particular affected system (for ecological impacts) or a particular affected party (for social impacts). The severity of impacts can be evaluated with and without mitigation order to demonstrate how serious the impact is when nothing is done about it. The word mitigation means also ideas of containment and remedy. For beneficial impacts, optimisation means anything that can enhance the benefits. Mitigation or optimisation must be practical, technically feasible and economically viable.

6.2.3 Spatial scale

The spatial scale defines the extent or area over which the impact will take place.

Table 6.1: Spatial scale

Localised	A few hectares in extent. The specific area to which this scale refers is defined for the impact to which it refers.
Study Area	Includes the entire Kihesa area.
District	Includes area within Njombe Town Council
Regional	The impacts will be of such a nature that it may affect the Njombe Region and nearby Regions.
National	The impacts will be of such a nature that it may affect the entire Tanzania.
International	The impact would affect resources and processes up to outside the border of Tanzania

6.2.4 Temporal scale

The temporal scale defines the times over which the impacts would continue to occur.

Table 6.2: Temporal scale

Temporal scale	Explanation
Short term	Less than a year.
Medium term	Between 1 and 5 years
Long term	Between 5 and 15 years, and from a human perspective essentially permanent
Permanent	More than 15 years, and resulting in a permanent and lasting change.

6.2.5 Significance ratings

Significance ratings based on synthesis of the above criteria above (only for negative impacts) are:

- Not significant/Negligible: Impact not of significance hence no mitigation action, should not influence the decision to approve the proposed development.

- Low: No mitigation action required. Impact should not influence the authorisation decision. However, monitoring of such impacts may be necessary to make sure they remain low over the lifetime of the project.
- Moderate: Mitigation action is required. Impact should influence the decision to authorise the development.
- High: Mitigation action is required. Impact should influence the decision for authorisation. Authorisation granted only when effectively mitigated.

6.3 MOBILIZATION / CONSTRUCTION PHASE

A. Environmental Impacts

6.3.1 Loss of vegetation

The natural vegetation and features on site have long been cleared. The current vegetation cover on site is dominated by black wattle, eucalyptus, pines and black wood tree species previously planted in the area. Other vegetation includes some herbs and grasses which are also present in nearby areas. However, site preparation to give a way for construction works to commence will usually be associated with removal of existing vegetation covers and topsoil as well as excavation. In consequence, de-vegetation may result to negative effects on the flora and fauna. The project development will thus not displace any natural feature of significant ecological value (endangered, threatened species). *The impact is considered negative, long-term and of low significance.*

6.3.2 Accelerated soil erosion

Removal of vegetation cover especially in sloppy terrain areas will expose the remaining area to runoffs which may in turn result in soil erosion. Inappropriate timing of clearance and earth works may exacerbate the erosion tendencies. Soil erosion is associated with nutrient leaching and removal of fertile topsoil towards the lower gradient areas. In this case the lower gradient will be the conserved wetland which its water is depended upon by downstream communities. Thus, without due case soil erosion with eventual siltation to the wetland might be real and thus affecting the water quality and wetland habitats for some species. *The impact is considered negative, short term and of moderate significance.*

6.3.3 Air Pollution due to dust emission

As noted in previous section the construction will involve earth work at site. These activities inevitable will cause generation of dust into atmosphere. Likewise, dust will emanate from moving vehicles with construction materials such as sands and gravel for construction works on the earth roads. Likewise, dust might be emitted from moving vehicles with uncovered construction materials. Dust generated will impair local atmospheric condition. The impact receptors are likely to include site workers and nearby community as well as people/community centres along the route. In this case the immediate nearby community will be officials in the neighbouring office buildings. *The impact is considered negative, cumulative, short term and of moderate significance.*

6.3.4 Air pollution due exhaust emissions

As a rule of thumb whatever uses fossil fuel generates exhaust emission into the atmosphere and thus contributing to the local air pollution as well as to the global air pollution. Thus, the trucks and earth moving equipment to be used will emit exhaust fumes which are unwanted atmospheric pollutants. Atmospheric pollutants from engines of vehicles/machinery include NOx, CO, SO_2 and particulate matters (PM10 & PM2.5). Main impact is impairment of local air quality, the extent of which will depend on quantities emitted, duration and prevailing atmospheric conditions. However, scale of the contribution of pollutants due to construction activities to be involved will be still on lower scale from the usage of fossil fuel-based vehicles and machines at site. *The impact of air pollution due to exhaust emission is considered negative, cumulative, short term and of low significance.*

6.3.5 Noise pollution and vibration

The amount of disturbance/annoyance felt by people from the noise created is mainly subjective and related to a wide range of human behavioral and social factors. The context in which the noise is heard is also important, as this can affect its relative acceptability. Noise at a particular level is generally more disturbing at night, when people are trying to sleep, than during the daytime. New noise sources introduced to quiet areas are also likely to be more disturbing to people than the same level of noise

introduced into a noisy area. Noise is also more disturbing when people are engaged in complex tasks that require concentration like education.

Noise is measured in decibels and is considered to be a nuisance when the combined expected maximum noise level exceeds 70dB (A); the relevant noise is at least 1.0dB above the prevailing noise level and the contribution to the increased noise level of the new or altered development is at least 1.0dB (A). The Environmental Management (Quality Standards for Control of Noise and Vibration Pollution) Regulations (2015) stipulates maximum permissible day time noise levels of 70 dBA for industrial area and 60dBA for residential and industry/small scale production and commerce. Likewise, the stipulated WHO/IFC guidelines require noise emission levels in the working areas should be less than 70dBA.

During the mobilization stage of the project, noise and vibration associated with equipment working on site will be generated, which will affect the nearby receptors and the working personnel. Noise and vibration generation will essentially result from the operation of the plant and equipment involved on the construction site, namely excavators, concrete mixers and lorries. Vibration might become significant when huge compactors are used on site. Based on the site condition the public receptors are not quite close to experience excessive noise from normal construction activities of relatively lower scale. Noise might become an issue to the site workers, the aspect of which is fully covered under the occupational health and safety hazards section. *The impact is considered negative, short term and low significance.*

6.3.6 Land degradation at source of construction materials

Conventional constructions materials such as aggregates and sand will be obtained from existing borrow pits within Njombe Region. Most borrow pits in in the country shows signs of rampant and haphazard exploitation methods and depletion with no plans for restoration of any of these sites. Other areas had to be closed due to rampant and haphazard exploitation methods that posed pollution risks to the environment. In some instances, sand is extracted from riverbeds. Most of these areas are declared by the government as a danger zones and exploitation is prohibited.

Pollution risks include sediment overload to water bodies during rainy season and contamination by oils from trucks, excavators and loaders while also the activity exacerbate degradation. The project proponent shall not encourage suppliers of these materials to use closed burrow pit or sand extracted from riverbed. Hence, environmental impacts associated with extraction of materials for construction works is a matter of indirect and cumulative effect because it will be contributing to a problem that has other root causes. *The Impact is considered secondary or indirect, negative impacts, cumulative, long-term and of moderate significance.*

6.3.7 Land and water pollution from construction waste

Main sources of construction waste will be from site preparation, earth moving works, and domestic waste from construction crew. Also, large amounts of solid waste will be generated during construction of the project. These will include metal cuttings, rejected materials, excavated materials, used paper bags, empty cartons, empty paint and solvent containers, broken glass among others. Solid wastes if not well managed and disposed of at unapproved site would negatively impact the site and surrounding environment. Also, may pose risk to the public. In addition, have a potential of causing disease outbreaks due to their presence providing suitable breeding conditions for vectors of certain diseases such as cholera and typhoid. Unmanaged construction wastes might also end up to the nearby wetland and thus affecting the quality of water which is dependent by downstream communities. If disposed in wrong place might end up to the drainage and block the normal flow of storm water and hence causing flooding during wet season. Outbreak of diseases such as Malaria could also be exacerbated by the presence of water pool caused by blockage of normal flow of water for breeding of vectors. *The impact is considered negative, short term and of moderate significance.*

6.3.8 Public Health Hazards due to Liquid Wastes

Workers working on site during development phase definitely will generate some wastes in solid and liquid form including human wastes. Unmanaged liquid site wastes might end up to the nearby water bodies like wetland and thus polluting the water that is flowing downstream. This might result into sanitary related diseases such as cholera, dysentery and alike. Depending on the number of construction workers and

the season when work will be done the impact might become significance. *The impact is considered negative, short term and of moderate significance.*

6.3.9 Occupational Health and Safety Hazards

When human and machinery are involved at work always there are potential occupational health and safety hazards. Some of the hazards are obvious which require some management; issues like exposure to excessive noise levels from the machinery, excessive dust emission from earth works. Injuries to construction workers may result from moving equipment. According to the National OHS Act of 2003 causes of accidents in construction sites includes but not limited to poor site layout; poor erection and improper use of scaffolds; falling objects from high level such as poles; improper method of lifting; sharp edges; improper use of Personal Protective Equipment (PPE); inadequate provisions of PPE; falling through uncovered openings especially at upper floor levels and carelessness of workers. *The impact is considered negative, short term and of high significance.*

6.3.10 Contamination of land and water from accidental spills and leakages of hydrocarbon

The machines on site during construction may contain moving parts, which may require continuous oiling to minimize the usual corrosion or wear and tear. Likewise, moving vehicles on construction sites may require oil and other lubricants change. Possibilities of such oils spilling and contaminating the soil and water within the construction sites are possible. However, no maintenance will be carried out at the project site, all contractor vehicles will be services at the proper designated garages designed for this purpose which can substantially contain these dangers. *The impact is predicted to be negative, short-term duration and of low significance.*

B. Social Impacts

6.3.11 Traffic accidents along the main and access roads

The construction activities as indicated in previous sections will involve transportation of construction materials to the site. Accidents involving both the construction workers and the general public can be expected to occur during the mobilisation/construction stage if precautions are not taken. Drivers might cause accident to children in the nearby schools and residential areas along the route while collecting or delivering

construction materials. Based on small scale of construction few vehicles (about 3 to 4) and low frequency will be involved at site. *Thus, the impact is considered negative, short term and of moderate significance.*

6.3.12 Increased of diseases transmission including HIV/AIDs and STDs

During construction about 80 workers will be involved at site. Some workers will come from other places apart from Kihesa Mtaa/Njombe Mjini Ward. This will result into social interactions and intermingling. In this case social interactions cannot be avoided which can result into spread of HIV/AIDs and other STDs. As noted in the background GBV there are early pregnancies cases, child neglect cases without appropriate measures there is likelihood for HIV/AIDs and STDs spread. *The impact is considered negative, short term and of moderate significance.*

6.3.13 Potential risk and hazards associated with labour

The project will require construction workers during construction phase. Presence of the construction crews could potentially create a source of social challenges as a result of interaction of local people with project workers. The influx of people may result into social conflict between foreign workers and locals; use of alcohol and substance abuse among workers leading to anti-social behaviour; pressure on existing infrastructure; and feel of unrest for local women as a result of workers moving to the area. Due to the scale and nature of the project, it is not expected that there will be large workforce required for the project. Estimated that 80 people will be required during the construction phase. Also, the presence of construction workforce will be temporary and therefore the demographic effects are not expected to cause significant long-term impacts. Once construction is completed, many foreign workers and contractors will leave the project area. *The impact is predicted to be negative, short-term but of low significance.*

6.3.14 Potential risks and hazards associated with child labour

Due to the high prevalence of child labour and forced labour in some of the areas of Tanzania, there could potentially be impacts associated with a lack of work contracts, long hours with no pay, and children working at supplier's sites. Given the relatively small scale of the project with a small number of expected workforces, there will be

less risk associated with child labour and forced labour within the supply chain. *The impact is predicted to be negative, long-term, but of low significance.*

6.3.15 Potential GBV/SEA/SH related incidences

The GBV/SEA/SH are acknowledged as a social issue in Njombe Town. The proposed project is expected to employ about 30 construction workers at one time from local communities and outside the community. There will be no campsite, and this will lead the workers to be hosted in the nearby facilities. The presence of workers increases the risk of SEA/SH (GBV) towards members of the community, in particular female students. Some potential GBV/SEAH-related incidences during the construction phase include denial of resources, opportunities, or services; physical assault; requests for sexual favors'; psychological and physical abuse; exploitation of vulnerable position, differential power or trust for sexual purposes; actual or threatened physical intrusion; unwanted sexual advances; and sexual physical contact. Gender discrimination may limit women's access to resources, opportunities, and public services necessary to improve the standard of living for themselves and their families. As a result, the livelihoods of women affected by the project may be disproportionately impacted if not managed appropriately. *The impact is predicted to be negative, short-term but of moderate significance.*

6.3.16 Gender inequity in employment

There is a potential risk that gender inequality might be perpetuated during project construction through unequal distribution of work, discrimination against women, and unequal pay for women, among others. Women are likely to be least favoured in the employment opportunities in the project area. This is because the nature of jobs available during construction is perceived to be done mainly by men. *The impact is predicted to be negative, long term but of moderate significance.*

6.3.17 Employment opportunities

During the mobilization and construction of the proposed project, there will be employment opportunities for both professionals and unskilled workers. Several workers including casual labourers, masons, carpenters, plumbers, electricians, and engineers are expected to work on the project from the start of the project to the end. Semi-skilled, unskilled labourers and formal employees are expected to obtain gainful employment during the period of construction. With labour-intensive construction

technologies, the project will provide employment for youths and provide support the Government of Tanzania's initiatives for the creation of jobs in the short term. The creation of employment opportunities is beneficial both from the economic and social point of view. *The impact is considered positive, short-term, and of moderate significance.*

6.3.18 Benefit to local producers and suppliers of goods and services

The development of the project at various phases will require suppliers and producers of the services and products. Some of the services include the design of the building and the provision of associated drawings; consultancy services like this study have started to be realised even before construction starts. The supply of materials for construction from local sources is also a positive aspect of the project, as it will reduce the cost of the project by procuring materials far from the site while benefitting local producers and suppliers. The materials include gravel, sand, cement, colour paints, nails, iron sheet, and the like. *This impact is considered positive, cumulative short term, and of moderate significance.*

6.4 OPERATION PHASE

A. Environmental impacts

6.4.1 Public health hazards from general solid wastes

The operations of the proposed project have the potential to generate solid waste, lab-related waste, and domestic types of solid waste. Waste might emanate from office use and the presence of people for prolonged hours in the area including paper waste, organic waste from the remains of food, packaging waste, and plastic bottles. Lab wastes might include organic waste in terms of plant parts and dead, small animals like insects and rats for experimental purposes. If these are not handled and disposed of properly, they may bring eyesores and attract vermin and vectors that cause disease. These wastes, when left or dumped in drainage, may block the normal water flow and thus create a conducive environment for disease-causing organisms such as mosquitoes. They might also accelerate floods during the rainy season. The waste might also end up in the wetland, which is one of the sources of domestic water for downstream communities. However, the amount of generated waste will be small due to the small number of workers envisaged to be full-time stations at the site. Likewise, the nature of the operation of UDOM does not involve full-time students but rather a

once-in-a-while visitation for practicals and examinations. *The impact is predicted to be negative, long-term, and of low significance.*

6.4.2 Public health hazards from liquid wastes

During the operation phase of the proposed project, there are many factors for consideration related to the management of waste which, if not well considered, could lead to detrimental effects, particularly on public health hazards. Design for associated infrastructures such as sewage systems and removal of waste is important for the planned building to maintain sanitation, hygiene, and aesthetics. If not properly disposed of, waste may provide sites for the reproduction of vermin and become a focal point for the spreading of diseases. This is not only in the close vicinity of the building area but also at considerable distances, as the wastes might end up in the nearby wetland, which is a source of water for communities, as noted above. Inadequacy in the design and management of waste will result in health hazards to the public and workers and reduce the aesthetic of the area. *The impact is predicted to be negative, long-term, and of moderate significance.*

6.4.3 Public health hazards from hazardous wastes

During operation, there will be waste generated from the laboratories that cannot be mixed with normal wastes, especially those with a chemical nature, both in liquid and solid form. Improper management of the waste might pose risks to the public, who could be exposed to the chemicals. Likewise, untreated chemical waste might pollute the surface and subsurface water. Solid waste in the form of expired chemicals cannot be guaranteed; hence, its management needs to be considered accordingly, without which might pose public health risks. *The impact is predicted to be negative, long-term, and of moderate significance.*

6.4.4 Fire Hazards

In absolute terms, the possibility of fire outbursts at any place or part of the building always exists. Such an occurrence will then inevitably have an environmental bearing on the atmosphere. Fire is a combustion that develops in a totally uncontrolled manner with respect to time and space. It produces tremendous quantities of heat, smoke, and polluting gases, as well as even toxic gases. And the energy generated further favors

the spreading of the fire. Smoke and gases, such as NO_2, CO, and SO_2, have an impact on humans and the environment. These smoke and gases may present the following hazards: temperature (internal burns by inhalation of hot gases), Opacity (which obstructs the view of evacuation), asphyxiation through lack of oxygen (the oxygen concentrated in ambient air is 21% during a fire this concentration is drastically reduced) and toxicity of the combustion products. The flames reach temperatures of 600°C to 1200°C, and burns immediately result from any human contact with them. The impacts on buildings are the destruction of the buildings and their contents, as well as the costs associated with the damage caused. While, in absolute terms, a fire hazard always exists in everyday life, measures need to be taken at the design and operational phases of the project to minimize this risk and concurrently provide security to the project and its users. *Therefore, the impact is considered negative, long-term, and of moderate significance.*

6.4.5 Occupational health and safety hazards

Occupational health and safety issues, such as ergonomic hazards, need to be considered for the workers. Also, it was noted that the Njombe area is one of the coldest areas in the country, and thus, building designs should consider this factor, thus creating a more conducive working environment. Based on more concern for the workers, *the impact is considered negative, long-term, and of high significance*.

B. Social Impacts

6.4.6 Employment opportunities

During the operation of the proposed project, there will be employment opportunities for both professionals and unskilled workers, though not in large numbers. Currently, UDOM Njombe centre implies new staff to be employed. This has a positive impact and is in line with the Government of Tanzania's initiatives on job creation. The creation of employment opportunities is beneficial both from the economic and social point of view. *The impact is considered positive, long-term, and of moderate significance.*

6.4.7 Benefit to local producers and suppliers of goods and services

The operation of the proposed project will require various goods and services, including consumables used in the laboratories. Supply of goods and services from

local sources is also a positive aspect of the project, as it will reduce the cost of the project from procuring far from the project area while benefitting local producers and suppliers. *This impact is considered positive, cumulative short term, and of moderate significance.*

6.4.8 Improved service delivery by UDOM Njombe campus in the area

The proposed project will enhance service delivery to science students more than before without the UDOM Njombe campus. Further, the physical presence of the UDOM building in Njombe will attract more students to join the University, especially science students. This impact is considered positive, long-term, *and of high significance.*

6.4.9 Visual impact/ increased aesthetic value of the project area

The construction of the modern university structures in Njombe and their associated facilities in the area, though not a natural feature, will bring about a positive visual impact in the area. Thus, its presence will cause visual differences with the current development. Thus, the surrounding area has already been modified to suit human ecology; thus, the development of this structure in the existing human environment will bring more appealing features and thus enhance the visual features of the area. *The impact is considered positive, long-term, and of high significance.*

6.4.10 Risk of SEA/SH issues

Students, in particular female students, are at risk of SEA/SH while using the proposed project at Njombe Mjini in Njombe Town Council. This can include expectations of sexual favours in return for grades, sexual assault, and verbal sexual harassment, amongst others. SEA/SH may affect students and teachers, and perpetrators can also include faculty staff, other students, and non-faculty staff. The identification of SEA/SH risks during operation will be considered further as part of the GBV Action Plan. *This impact is predicted to be negative, cumulative, long-term, and of high significance.*

6.4.11 Health Hazards due to social interaction among workers and users

With the anticipated increase in the number of visitors and employees in the project area, social interaction among them may not be avoided. Some interactions may be of

an intimate nature, resulting in contacting sexually transmitted diseases such as HIV/AIDS. Considering the nature with which HIV/AIDS is contacted and spread, this makes it a significant contribution to the pandemic. The youth, especially girls, are the most vulnerable group to that social interaction due to the nature of their work and their socioeconomic background. *The impact is predicted to be negative, of long-term duration and moderate significance.*

6.4.12 Non-user friendly buildings for Persons with Disabilities (PWDs)

The Persons with Disabilities Act, No. 9 of 2010 defines a person with a disability as any person with physical, intellectual, sensory, or mental impairment and whose functional capacity is limited by encountering attitudinal, environmental, and institutional barriers. The Act was enacted to provide for the protection of persons with disabilities. It included provisions for access to health care, social support, accessibility, rehabilitation, education and vocational training, communication, employment, and non-discrimination. Most public buildings and facilities in Tanzania are not accessible to people with disabilities despite that the Government has laws and policies in place that strictly instruct how these buildings and facilities should be (Kavishe, F. and Isibika, S., 2018). Despite the efforts of the Act which requires all public institutions to create convenient access to persons with disability, many public institutions, including universities, are yet to comply. Despite the presence of people with disabilities in higher learning institutions, facilities provided for both accommodation and classrooms prove to be ineffective in fulfilling their expectations (Mbiru, M.B., 2022).

This necessitates more considerations of the inclusion of expectations of PWDs in the design of the proposed project to avoid the elimination of all forms of discrimination and social exclusion. Additionally, physical barriers may restrict the movement of people with disabilities in buildings and hinder their performance. Consideration of PWD has been given a high priority during designing, whereby rumps and toilets have been designed to cater to PWD. *Based on this consideration, the impacts are considered to be negative, long-term, and of moderate significance.*

Table 6.3: Summary of Potential Impacts

Potential Impacts	Significance value
Mobilization/Construction phase	
Environmental Impacts	
Loss of vegetation	*The impact is considered negative, long-term, and of low significance.*
Accelerated soil erosion	*The impact is considered negative, short-term, and of moderate significance.*
Air pollution due to dust emission	*The impact is considered negative, cumulative, short term and of moderate significance*
Air pollution due to exhaust emission	*The impact of air pollution due to exhaust emissions is considered negative, cumulative, short-term, and of low significance.*
Noise pollution and vibration	*The impact is considered negative, cumulative, short-term, and low significance.*
Land degradation at the sources of construction materials	*The Impact is considered Secondary or indirect, negative impacts, cumulative, long-term, and of moderate significance.*
Land and water pollution from construction wastes	*The impact is considered negative, short-term, and of moderate significance.*
Public health hazards due to liquid waste	*The impact is considered negative, short term, and of moderate significance.*
Occupational health and safety hazards	*The impact is considered negative, short term and of high significance.*
Contamination of land and water from accidental spills and leakages of hydrocarbon	*The impact is predicted to be negative, short-term duration and of low significance.*
Socio-economic impacts	
Traffic accidents along the main and access roads	*The impact is considered negative, short term and of moderate significance.*
Increased incidence of diseases transmission including HIV/AIDs and STDs	*The impact is considered negative, short term and of moderate significance.*
Potential risk and hazards associated with labour	*The impact is predicted to be negative, short term but of low significance.*
Potential risks and hazards associated with child labour	*The impact is predicted to be negative, long term but of moderate significance.*
Potential GBV/SEA/SH related incidences	*The impact is predicted to be negative, short term but of moderate significance.*
Gender inequity in employment	*The impact is predicted to be negative, long term but of moderate significance.*
Employment opportunities	*This impact is considered positive, cumulative long term and of moderately significance.*
Benefit to local producers and suppliers of goods and services	*This impact is considered positive, cumulative long term and of moderately*

	significance.
Operation phase	
Environmental impacts	
Public health hazards from general solid wastes	*The impact is predicted negative, long term and of low significance.*
Public health hazards from liquid wastes	*The impact is predicted to be negative, long term and of moderate significance.*
Public health hazards from hazardous wastes	*The impact is predicted to be negative, long term and of moderate significance.*
Fire hazards	*Therefore the impact is considered negative, long term and of moderate significance.*
Occupational health and safety hazards	*The impact is considered negative, long term and of high significance.*
Socio-economic impacts	
Employment opportunities	*This impact is considered positive, cumulative long term and of moderately significance.*
Benefit to local producers and suppliers of goods and services	*This impact is considered positive, cumulative long term and of moderately significance.*
Improved service delivery by UDOM at the area	*This impact is considered positive, long term and of high significance.*
Visual impact/ increased aesthetic value of the project area	*The impact is considered positive, long term and of high significance.*
Risk of SEA/SH issues	*The impact is predicted to be negative, cumulative, long-term, and of high significance.*
Health Hazards due to social interaction among workers and users	*The impact is predicted to be negative, of long-term duration and moderate significance.*
Non-user-friendly buildings for Persons with Disabilities (PWDs)	*The impacts is considered to be negative, long-term, and of moderate significance.*

6.5 CONSIDERATION OF ALTERNATIVES

6.5.1 Introduction

The discussion and analysis of alternatives in Environmental and Social Impact Assessments considers other practicable strategies that will promote the elimination of negative environmental impacts identified. This section is critical in consideration of the ideal development with minimal environmental disturbance.

In analysing the environmental impacts, there are usually two or more development alternatives to consider for each issue. The alternatives may encompass a wide range of considerations and can represent a choice between the construction and operation

of a development and the non-development option. With this in mind, the general principle involved in identifying the option(s) of the proposed project in the area was to ensure that the option chosen would result in optimal social, economic, and environmental returns. In effect, the option chosen should corroborate well not only for the proponent but also for the environment and stakeholders in the area. The option with the highest cost-benefit factor, the most technically feasible, and with the least residual impact is identified as the preferred option. The following alternatives have been identified and have been discussed with the project proponent as a means of reducing environmental effects. They are discussed in further detail below:

6.5.2 Alternative Site

In the context when a site for construction of the proposed project was chosen, a number of factors were considered, and these include: -

i. **Availability of Land** – UDOM is the legal owner of the plot with No. 96 Block 'A' at NJOSS under Title Number 7422, with a total area of 463,704 square meters. It had plans to construct the Njombe campus and thus acquired a piece of land in March 2023, which is designated for Educational Purposes. The coming of this project found an already in-place piece of land fully owned by the Institution. The land was examined to see if it would be appropriate to accommodate the proposed project, and the findings were positive as the site is located in appropriate land use, and the site was free from cumbersome, i.e., resettlement or land conflicts. Further, the site was more conducive due to the other factors noted in subsequent bullets.

ii. **Availability of basic public infrastructures**: - The existing public basic infrastructures in the project area, including water supply, electrical supply, and the road to easily reach the site, were considered for the project. The proposed project requires these services just like any other public building. The owned plot is located in an area where there are existing networks of utilities. The area without these would mean to get it far from the project site, the aspect of which would mean more environmental and social costs as well as more financial costs.

Since the piece of land owned by UDOM qualified the requirements of the proposed project and poses no major environmental and social impacts and risks, the site was considered for the project. The plot's land use is compatible with the proposed development, and it is away from sensitive environmental areas and human settlements. Thus, the chosen site recognizes the viability and need for the proposed development and is designed to address environmental and social issues.

6.5.3 No Development Alternative

In the assessment, the zero option is considered separately to demonstrate the condition without changes on site and with changes on site as far as environmental, social, and economic aspects are concerned. Leaving an area in its existing state will mean all foreseen potential negative impacts will not happen in the area. Likewise, the positive impacts of all potential projects will not be realized. Considering the area is within the urban planned area (Njombe Town Council), developed and modified area, it is obvious that even without this proposed project, the area will continue to change due to urban development based on the plan. Thus, ignoring the project will not have significant environmental benefits. However, turning this part of the land into the UDOM Njombe campus in an area with existing public institutions with positive impacts far beyond the core area is something that cannot be easily ignored. Considering the nature and level of significance of the potential negative impacts (i.e., most of which are usual impacts to most building development and are graded moderate to low significance) and the potential means to offset the impacts (which do exist), the project cannot be foregone in the area.

Based on the above, the alternative for the project is other than the zero option. The project will improve education service delivery to students in Njombe and Tanzania at large, contributing to the socio-economic development of the country.

6.5.4 Liquid Waste Management Alternatives

The study has considered only three liquid waste management alternatives for the sewage from the proposed project building, as other alternatives are not applicable in the area. The three alternatives include Waste Stabilization Ponds, Septic Tanks, a Soak Pit system, and a Constructed wetland.

Waste Stabilization Ponds (WSP): - This is the use of a series of ponds (primary, secondary/facultative, and tertiary/maturation ponds), which allow biological processes to treat the wastewater to meet the discharge limits of effluent quality standards. However, this treatment is suitable for serving a large number of people, while the building will serve a number of people on a daily basis. The proposed project will have about 80 people during the construction phase, and after construction, permanent staff will be more than 100 people and a capacity of 500 students. Thus, the amount of waste to be generated by more than 700 people is the amount that will not require a WSP. Despite the amount of sewage generated, the ponds generate a foul smell, which requires them to be located relatively far from the core operation area. Further, the WSP requires a large piece of land compared to other alternatives. In this case, there is not enough land available to allow for the WSP as well as a buffer zone to reduce foul smell to students and staff using the building.

Constructed wetland: This is the removal of pollutants in wastewater through the combination of physical, biological, and chemical processes. It is an engineered system designed and constructed to mimic natural processes taking place in the natural wetlands. There are two types of constructed wetlands, i.e., surface or sub-surface constructed flow. The land required for subsurface flow is $5m^2$ per person (Paul G. Smith et al., 2005). Thus, the required space is less compared to the WSP system. The system does not require operation costs once constructed as long as there is space for the construction. The resultant effluent can be directed to the natural stream or to the constructed soak-away pit.

Septic tank and soak-away pit systems: These involve the construction of underground tanks for the treatment of sludge, which are connected to soak-away pits for disposal of resultant effluent. They are less expensive to construct and require a relatively small space than the rest. They are suitable for houses or buildings with few people. However, the sludge must be emptied once the septic tank is full.

Conclusion: Based on the analysis of the three alternatives, the most preferred is the multiple septic tanks and soak-away pits due to the number of people involved at the site, which results in a large amount of generated wastewater. Further, this is less expensive to construct than the rest and requires a smaller space than the rest. Well-designed septic tanks and soak pit systems are also environmentally friendly as they

do not produce an excessive foul smell like WSP. However, in the long run, the constructed wetlands will precede the septic tanks and soak-away pits.

7 MITIGATION MEASURES

7.1 INTRODUCTION

The impacts that are most likely to affect the environment and human health in the execution of the proposed project have been identified and analyzed in Chapter 6. Based on the analysis and, hence, classification of the most significant environmental and social impacts, this chapter proposes the mitigation measures for the negative impacts and enhancement measures for those positive ones. The mitigation measures aim at offsetting the impacts or reducing the severity of the impacts to a minimal level that also becomes insignificant. The standards upon which the mitigation measures are targeted, the responsible entity, and the associated mitigation costs are presented as part of the Environmental and Social Management Plan in Chapter 8. Below are the mitigation and enhancement measures:-

7.2 MOBILIZATION AND CONSTRUCTION PHASE

A. Environmental Impacts

7.2.1 Loss of vegetation

The following shall be done;-

- Clearance will be restricted to areas with physical structures and supporting facilities only to avoid spillover effect to other unintended areas.
- The trees around the project footprint will be maintained accordingly, including the sprouting eucalyptus and pine trees.
- After construction, UDOM shall plant ornamental trees and other vegetation in the disturbed areas to restore and beautify the area.

7.2.2 Accelerated soil erosion

To mitigate the impact, the following shall be done; -

- Major earthwork shall be done during the dry season when there is no runoff to act on the nude site. This will also simplify the machinery work, unlike working in a wet environment with machines. It is recommended that civil works be conducted between September and December 2024 during the construction phase. The contractors employed shall take appropriate mitigation measures to

prevent accelerated soil erosion, including the creation of temporary drainage to direct water to flow toward the intended area and putting sediment traps to reduce soil removal.

- The contractor shall ensure that the backfilling is done adequately, compacted, and the site restored. The backfilling operation will be performed to prevent soil from washing away.
- Putting gravel materials or murrum soil to areas used by trucks and with loose soil and hence more vulnerable to soil erosion.

7.2.3 Air Pollution Due to Dust Emissions

The following measures shall be applied; -

- All trucks carrying fine earth materials will be enclosed during transportation to the construction site to prevent dust generation along the route. Trucks used for that purpose will be fitted with tailgates that close properly and with tarpaulins to cover the materials.
- Measures to suppress dust shall be applied, including watering the area vulnerable to dust, including routes/earth roads.
- Washing of Trucks each morning to remove mud on mudguard and tires to reduce dust on routes
- Watering on dry excavated areas to reduce fugitive dust
- Speed limits will be instituted for drivers, especially on routes passing in community center areas.
- Covering stockpiles that have the potential to generate fugitive dust at the site.

7.2.4 Air pollution due to exhaust emission

The following measures shall be applied; -

- Equipment maintenance to be undertaken in accordance with the manufacturer's instructions and at the specified maintenance interval to reduce exhaust emission;
- Equipment operators will be trained in and will follow equipment operational procedures;
- The load limit shall be specified to the type of vehicle to avoid overloading that causes excessive exhaust emission;

- Timely maintenance of the trucks through regular inspection on the need for maintenance.

7.2.5 Noise pollution and vibration

The following shall be done;-

- Construction activities will be restricted to daytime hours only.
- Vehicles and machines will be maintained and serviced as required to ensure they do not generate excessive noise. Among others, exhaust mufflers should be properly functioning.
- Portable barriers to shield compressors and other small stationary equipment shall be installed.
- Enforced vehicle load restrictions to avoid excess noise emissions from engine overloading shall be done.
- Speed limits will be instituted for drivers, especially on routes passing in community areas.
- No huge compactors that generate excessive vibration shall be used at site.
- Training to drivers on safe driving habits that also control noise levels shall be done

7.2.6 Land degradation at the source of construction materials

The contractor will source construction materials such as sand, ballast, and hardcore from the authorized quarry and sand mining firms/sites whose projects have undergone satisfactory environmental assessment and received appropriate approval. Since such firms are expected to apply acceptable environmental performance standards, the negative impacts of their activities at the extraction sites are considerably well mitigated. If there are no registered quarry sites, the materials shall be sourced from the areas designated by the local authority for sourcing such materials. The contractor will be encouraged to make use of premix concrete suppliers for those major construction works requiring concrete.

7.2.7 Land and water pollution from construction wastes

To mitigate the impacts of waste, an efficient collection and disposal system based on the principles of reduction, reuse, and recycling of materials shall be instituted at the project site. A site waste management plan shall be prepared by the contractor

and followed by all construction workers. This will include the designation of appropriate waste storage areas, a collection and removal schedule, and a system for supervision and monitoring. Introduction of waste disposal bins, warning notices, “DOs & DONTs”, etc., posted at strategic points of the project site will be done. No on-site burial or open burning of solid waste shall not be permitted at the project site. The contractor will make use of the existing solid waste disposal and collection system of the Njombe Town Council i.e., collected by Town Council trucks. Further, the construction site will be fenced, and all waste will be handled within the fenced area before collection.

7.2.8 Public Health Hazards Due to Liquid Wastes

To manage sewage at the construction site, temporary pit latrines will be established for the workers, including both male and female latrines. The latrines will be located in the upper area of the project plot, far from the water source boundaries.

7.2.9 Occupational health and safety hazards

To mitigate this impact, UDOM and the contractor shall comply with relevant Tanzania (OHS Act, 2003) health and safety requirements, including the provision of Personal Protective Equipment (PPE), reasonable working hours, and good working conditions and facilities. Specifically; -

- Accidents will be minimized through proper machine maintenance, protecting or guarding the cutting edges, raising awareness of the dangers among workers, and helping them understand how to protect themselves and others.
- The supervisors shall ensure that safety procedures and measures are in place and are enforced (implemented), including appropriate safety gear (PPEs), e.g., eyeglasses and dust masks will be ensured in order to reduce risks associated with dust.
- The contractor shall provide adequate training to workers on the OHS of the construction works.
- Approved working hours shall be observed in order to avoid careless mishandling due to fatigue.
- Medical check-ups pre- & post-employment, as well as mandatory once-a-year check-ups shall be done

- Undertake a site-specific risk assessment and develop a mechanism to avoid or reduce the risks. This shall be done for each new work to be undertaken, and a safety procedure shall be developed and implemented by a dedicated project HSE officer.
- The contractor shall prepare a Health and Safety Management Plan for implementation of OHS issues at the site.

7.2.10 Contamination of land and water from accidental spills and leakages of hydrocarbon

It shall be ensured that re-fueling and services for vehicles will be done off-site. Spill control measures such as storage and handling of hydrocarbons such as oil shall be done to include storage on impervious areas (such as concrete surfaces with bund walls). Heavy equipment will be checked for lubricant leaks before starting the work, and workers will be trained on the proper storage of hydrocarbons. Emergency response measures shall be put on site in case of an accidental oil spill, including having absorbent materials, sand kits at the site, and the like.

B. Social Impacts

7.2.11 Traffic accidents along the main and access roads

The following shall be done; -

- Only qualified drivers with appropriate driving licenses shall be engaged.
- Induction course shall be done to all drivers prior to starting driving
- Drivers shall be sensitized to maintaining speed limits for main roads and access roads.
- Promoting safe driving with specified hours for the long drive to avoid fatigue
- Provision of road and safety signs at the site or access roads shall be done.

7.2.12 Public Health Hazards (HIV/AIDs and STDs spread)

UDOM and Contactor will devote time to raising awareness of the dangers of HIV/AIDS within the project premises. Although basic knowledge of HIV/AIDS is high among Tanzanians, knowledge of self-protection measures and behaviour change will be provided, and a preference will be given to those who are vulnerable and to empower women, for they compose one of the most vulnerable groups. When the need arises, UDOM and Contractor will seek professional assistance from local

organizations working in the field of public health and control of HIV/AIDS to institute a health education and disease control programme at the workplace. The contractor shall also prepare an HIV/AIDS Management Plan for the implementation of OHS issues at the site.

7.2.13 Increased local population due to labour influx

To avoid an increasing influx of people, semi-skilled and unskilled labour required by the project will be sourced locally to provide communities with employment and the opportunity to earn an income during the construction phase. Local communities will be given prior information through local government offices on available employment opportunities and required qualifications. A special clause that requires local people to be employed as labourers during construction will be included in the contract. This will minimise the influx of people within the project area.

7.2.14 Potential risks and hazards associated with child labour

To prevent the exploitation of child labour, UDOM and Contractor will comply with the provisions in the Employment and Labour Relation Act, 2004, and the ILO Convention No. 182. UDOM will develop transparent human resources policies and Labour Management Procedures for the recruitment process, working conditions, terms of employment wages, worker-employer relations, non-discrimination issues, monitoring, roles, and responsibilities. UDOM expects its contractors to adhere to the principles set forth in the Contract, which will cover, inter alia, standards related to Labour and prohibition of Child Labour. Employment of child labour (children below the age of 18), pregnant women, and elder citizens in hard labour and dangerous activities will be prohibited.

7.2.15 GBV/SEA/SH related incidences

UDOM will emphases to all contractors to provide equal employment opportunities between men and women depending on required qualifications at all levels. During construction, local employment shall be optimized by allocating jobs fairly (considering gender and marginalized groups). This activity will involve community leaders/ committees to identify suitable/able people for the jobs review to avoid bias or favouritism observing national/and international labour standards. UDOM and Contractor will conduct mandatory and periodic training for workers on required

lawful conduct in the host community and legal consequences for failure to comply with laws on gender-based violence (GBV). UDOM will roll out its grievance redress mechanism (GRM) of the proposed project for communities living in the project's area and areas of Influence and collect information about GBV and associated social ills on a monthly basis with a view to resolving it with the project contractor. UDOM will identify and create a partnership with a local NGO to report workers' misconduct and complaints/reports on GBV or harassment through the GRM. Further, awareness of GBV issues in the workforce shall be provided in collaboration with local NGOs and/or GBV committees in the area.

7.2.16 Gender inequity in employment

UDOM will ensure that women and men are given equal employment opportunities during recruitment and job postings. Regular sensitization and awareness campaigns will be conducted for the workers to promote gender equity in employment during construction works and during operations. Gender-disaggregated data, separate bathing, changing rooms, and sanitation facilities for men and women will be provided. Zero tolerance for sexual harassment, all forms of gender-based violence, and discrimination at all phases of the project will be imposed.

7.2.17 Employment

It is expected that during the construction phase of the project, a good number of people will be employed. Offering local people the opportunity for employment during the construction or providing services such as supplying construction materials, etc., will provide additional income-generating opportunities to locals of the area. Where skilled labour is concerned, this will almost certainly be the case when there will be limited or no local skilled labour. This minor impact could be turned into a positive impact if the contractor constructing the building is both encouraged to and committed to hiring local labour, particularly when only semi-skilled or unskilled labour is required. This could be made clear during the tendering process for the construction of the building. One way of promoting this would be for the Contractor to train local people to acquire the skills needed by these contractors to carry out the work.

7.2.18 Benefit to local producers and suppliers of goods and services

The project will procure most construction materials from local sources. The use of locally available materials and labour for the proposed development will contribute towards the growth of the economy by contributing to income and, hence, poverty reduction and contributing to gross domestic product. The consumption of these materials, fuel oil, and others will attract taxes, including VAT, which will be payable to the government, hence increasing government revenue. Some of the project services have been already contracted to Tanzanian suppliers and contractors.

7.3 OPERATION PHASE

A. Environmental Impacts

7.3.1 Public health hazards from solid wastes

UDOM will establish a system for waste management. The system will include having disposal bins located in strategic areas of the site for collection at source. Further, a centralized waste collection point will be established to handle the increased quantity of waste and for collection. It will be designed at one of the corners close to the gate for easy collection of the same without major nuisance during collection. Only Njombe Town Council Trucks will be allowed for the collection of the waste. The Town Council Truck Drivers are responsible for collection and disposal to the authorised disposal site.

7.3.2 Public health hazards from liquid wastes

As noted in section 2.6.3.3, there is no centralised sewer system in Njombe, and the expected amount of effluent from sanitary areas ranges from 1.28 m^3 to 3.84 m^3. Thus, UDOM will design a septic tank and soak pit system, which will be preceded by constructed wetlands for sewage management on site. Further, proper construction shall be done as per the design.

7.3.3 Public health hazards from hazardous wastes

UDOM will also design and construct a separate wastewater retention structure for laboratory-based effluent. Two series retention ponds will be designed to dilute the effluent before final discharge to the open environment. The effluent on the retention ponds will be monitored to ensure its safety for final disposal.

7.3.4 Fire Hazards

The architecture of the proposed project shall ensure the building has an easy mechanism of evacuation in the eventuality of a fire and other emergencies. The design of the building will provide ample space for exiting the building, and the corridors will be of sufficient width and dimensions to enable easy and speedy evacuation. Provision will be made under the plumbing installation for the fire-fighting system. Further, the following shall be done; -

- UDOM shall install a firefighting system to include fire detectors, portable fire extinguishers for emergencies, a fire hydrant, and a water reserve tank that can also be used in case of fire.
- Staff will be trained in how to operate the firefighting equipment.
- Drawings shall be submitted to the fire department for scrutiny and guidance on fire safety designs and shall adhere to the requirement(s).

7.3.5 Occupational health and safety hazards

The final designs of the proposed project structures shall adhere to the required standards, taking into account the nature of operations. Further, the design of the building should consider the weather conditions of an area. Njombe area, being one of the cold areas, the aspects of window size and materials that conserve heat should be considered for a conducive working environment. Also, before the operation of the buildings, baseline risk assessment should be done in line with the OHS Act of 2003 to identify OHS risks and hazards and thereafter formulate the mitigation measures to be implemented during the operation.

B. Social Impacts

7.3.6 Employment

It is expected that during the operation phase of the project, relatively more numbers of people will be engaged compared to the construction phase. However, the construction phase will be more of a temporary engagement contract to an operation that will be permanent, though more people will be involved. Offering local people the opportunity for employment will provide a steady income for their families and, hence, partly address the unemployment and poverty issues in the country. This moderate impact could be turned into a positive impact if the proponent is both

encouraged to and committed to hiring local labour. This could be made clear during the employment process to involve local community through local government offices for information sharing.

7.3.7 Benefit to local producers and suppliers of goods and services

During operation, various goods and services will be required at the site. The use of locally available suppliers will contribute to the growth of the economy by contributing to income and, hence, poverty reduction, as well as gross domestic product. The consumption of goods and services will attract taxes, including VAT, which will be payable to the government, hence increasing government revenue. This could also be advertised through local offices for information sharing for service providers within the local area.

7.3.8 Risk of SEA/SH

UDOM will draft, approve, and implement a GBV Action Plan and will assess the SEA/SH risks associated with the project based on existing data and input from key stakeholders. This will include the identification of risks to workers and communities as well as risks to students within operating institutions. The GBV requirements and expectations will be defined in the bid documents, including codes of conduct (to be signed by workers), training, awareness raising for workers and the community, GBV responsive GRMs, and approach to GBV case management. Also, GBV measures are needed to protect students at the national level. The institutional level, including the need for institutions to develop GBV policies to address SEA/SH, training and awareness raising, GBV responsive GRMs, educator/ staff codes of conduct (to be signed), student agreements, referral pathways, etc., will be defined. UDOM will identify and create a partnership with a local organisation to report workers' misconduct and complaints/reports on GBV or harassment through the GRM.

7.3.9 Health Hazards due to social interaction among workers and users

The project proponent will support already existing and new initiatives to sensitize/educate the people around the project on the HIV/AIDS pandemic. Also, the proponent will provide HIV/AIDS training/awareness campaign programmes to its employees and will encourage workers who know they are infected and receive care to break through the denial about HIV by talking with their fellow workers, friends,

neighbours and reducing the discomfort associated with the subject. When the need arises, UDOM will seek professional assistance from organizations working in the field of public health and control of HIV/AIDS to institute a health education and disease control programme at the workplace.

7.3.10 Non-user-friendly Buildings for Persons with Disabilities (PWDs)

As noted earlier, the proposed project will be designed and built with ramps and other special facilities, such as toilets, to facilitate PWDs' access and use. Detailed consultation with the PWDs community will be undertaken during the design process to ensure key access and user-friendly facilities are designed and constructed.

8 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

8.1 INTRODUCTION

The Environmental and Social Management Plan (ESMP) is presented in Table 8.1 below. This ESMP for the proposed project is based on the assessment undertaken as part of the ESIA. A number of mitigation measures have been identified which aim to reduce and/or eliminate the predicted impacts of the project. These mitigation measures will be appropriately applied to the project mobilization, construction, operation, and decommission phases. This management plan provides a strategic framework for mitigation implementation. The Contractor shall implement components relevant to mobilization of materials and machines and actual construction. The ESMP includes an estimate of the costs of the measures so that the project proponent can budget the necessary funds. Appropriate bills of quantities shall clearly give the actual figures. In any case, the consultant used informed judgment to come up with these estimated figures.

8.1.1 Purpose of the ESMP

The purpose of the ESMP is to describe the measures that should be implemented by the contractors and project proponent during the implementation of the proposed project to eliminate or reduce to acceptable levels of the key potential environmental and social impacts related to project activities. All the project parties must fully adhere to the specific measures set out in the ESMP. In particular, the project must strive to avoid significant impacts on the bio-physical, socioeconomic, or health aspects during implementation. Where impacts cannot be avoided, they must be mitigated by using appropriate measures. The ESMP has been developed: -

To bring the project to comply with the Government of Tanzania's applicable national environmental and social legal requirements social policies and procedures;
To provide guidance on EHS issues as required by the IFC and World Bank Environmental and Social Framework (ESF)

To outline the mitigating/enhancing, monitoring, consultative and institutional measures required to prevent, minimize, mitigate, or compensate for adverse environmental and social impacts or to enhance the project's beneficial impacts.
To provide an operational reference and tool for environmental management during project construction and operation activities.

All contractual and legal obligations relating to the ESMP apply to the main Contractors and any Sub-Contractors appointed by them. It is the responsibility of the Contractors to provide adequate resources to ensure effective implementation and control of the ESMP. The Sub-Contractor is responsible to its respective Contractor for compliance with the measures presented in the ESMP. It is also the responsibility of the Contractor and their Sub-Contractors to ensure that all project staff are trained and procedures are understood and followed. Further reasonability of each part is given under section 3.5.2. The summary of the key issues of the proposed project and their management are shown in Table 8.1 below.

Table 8.1: Environmental and Social Management Plan

Phase	Potential Direct Impacts	Management/Mitigation and Enhancement Measures	Target Level/ Standard	Responsibility	Estimated Costs [Tsh]
Mobilization/Construction Phase		***Environmental Impacts***			
	Loss of vegetation	▪ clearance will be restricted to areas with physical structures and supporting facilities only to avoid spillover effects to other unintended areas. ▪ The trees around the project footprint will be maintained accordingly, including the sprouting eucalyptus trees. ▪ After construction, the proponent shall plant ornamental trees and other vegetation in the disturbed areas to restore and beautify the area.	Planted trees around the building, retained mature tree	Proponent	500,000
	Accelerated soil erosion	▪ Major earthworks shall be done during the dry season when there is no runoff to act on the nude site. This will also simplify the machinery work, unlike working in a wet environment with machines. Should there be a need to conduct civil works between September and December during the construction phase, the contractors employed shall take appropriate mitigation measures to prevent accelerated soil erosion including the creation of temporary drainage to direct water to flow towards the intended area and putting sediment traps to reduce soil removal. ▪ The contractor shall ensure that the backfilling is done adequately, compacted, and the site restored. The backfilling operation will be performed to prevent soil from washing away. ▪ Putting gravel materials or morrum soil in areas used by trucks and with loose soil and hence more vulnerable to soil erosion.	No eroded area / the disturbed areas reinstated	Proponent, Contractor	3,200,000
	Air pollution due	▪ All trucks carrying fine earth materials will be enclosed	Units-	Proponent,	15,000,000

Phase	Potential Direct Impacts	Management/Mitigation and Enhancement Measures	Target Level/ Standard	Responsibility	Estimated Costs [Tsh]
	to dust emission	during transportation to the construction site to prevent dust generation along the route. Trucks used for that purpose will be fitted with tailgates that close properly and with tarpaulins to cover the materials. ▪ Measures to suppress dust shall be applied to include watering the area vulnerable to dust, including routes/earth roads ▪ Washing of Trucks each morning to remove mud on mudguard and tires to reduce dust on routes ▪ Watering on dry excavated areas to reduce fugitive dust ▪ Speed limits will be instituted for drivers, especially in routes passing in community centres. ▪ Covering stockpiles that have the potential to generate fugitive dust at the site	$\underline{mg/m^3}$ TSP < 0.23, PM_{10} < 0.05 & $PM_{2.5}$ < 0.025	Contractor	
	Air pollution due to exhaust emission	▪ Equipment maintenance to be undertaken in accordance with the manufacturer's instructions and at the specified maintenance interval to reduce exhaust emission. ▪ Equipment operators will be trained in and will follow equipment operational procedures. ▪ Load limit shall be specified to the type of vehicle to avoid overloading that causes excessive exhaust emission. ▪ Timely maintenance of the trucks through regular inspection on the need for maintenance.	Units-$\underline{mg/m^3}$ SO_2<0.5, NOx < 0.2, CO_2 < 500, CO <30,	Proponent, Contractor	5,000,000
	Noise pollution and Vibration	▪ Construction activities will be restricted to daytime hours only. ▪ Vehicles and machines will be maintained and serviced as required to ensure they do not generate excessive noise. Among others, exhaust mufflers should be properly	From 7am to 7pm $\underline{\leq}$ 55 dBA	Proponent, Contractor	2,000,000

Phase	Potential Direct Impacts	Management/Mitigation and Enhancement Measures	Target Level/ Standard	Responsibility	Estimated Costs [Tsh]
		functioning. ▪ Installation of portable barriers to shield compressors and other small stationary equipment shall be done ▪ Enforced vehicle load restrictions to avoid excess noise emissions from engine overloading shall be done. ▪ Speed limits will be instituted for drivers, especially on routes passing in community areas. ▪ No huge compactors that generate excessive vibration shall be used at the site. ▪ Training to drivers on safe driving habits that also control noise levels shall be done			
	Land degradation at the source of construction materials	• Earth nature construction materials will be obtained from authorized/permitted sources • The contractor will be encouraged to make use of premix concrete suppliers for those major construction works requiring concrete.	No degradation	Proponent, Contractor	500,000
	Land and water pollution from construction waste	▪ A site waste management plan shall be prepared and followed. This will include the designation of appropriate waste storage areas, a collection and removal schedule, and a system for supervision and monitoring. ▪ The contractor shall provide different waste bins for segregation on site and to discourage uncontrolled waste disposal. ▪ No, on-site burial or open burning of solid waste shall be permitted at the project site. ▪ The contractor will make use of the existing solid waste disposal and collection system by approved contractors by the Town Council.	Zero littering	Proponent, Contractor	1,000,000

Phase	Potential Direct Impacts	Management/Mitigation and Enhancement Measures	Target Level/ Standard	Responsibility	Estimated Costs [Tsh]
		▪ All the waste will be managed within the fenced area before collection			
	Public Health Hazards Due to Liquid Wastes	▪ Temporary pit latrines will be established for the construction workers at the site to include both males and females. The latrines will be located in the upper area of the project plot, and far from the wetland boundaries.	Pit latrine in place, no hazards due to wastes	Proponent, Contractor	1,500,000
	Occupational health and safety hazards	Relevant health and safety requirements (OHS Act, 2003), including the provision of Personal Protective Equipment (PPE), reasonable working hours, and good working conditions and facilities, shall be complied with. Specifically; - ▪ Accidents will be minimized through proper maintenance of the machines, protecting or guarding the cutting edges, and raising awareness of safety hazards among people, including workers, so that they understand how to protect themselves and others. ▪ The supervisors shall ensure that safety procedures and measures are in place and are enforced (implemented), including appropriate safety gear (PPEs) e.g., eyeglasses and dust masks will be ensured in order to reduce risks associated with dust. ▪ The contractor shall provide adequate training to workers on the OHS of the construction works ▪ Approved working hours shall be observed in order to avoid careless mishandling due to fatigue. ▪ Medical checks pre- & post-employment, as well as mandatory once-a-year checks shall be done ▪ Undertake site-specific risk assessment and develop a mechanism to avoid or reduce the risks. This shall be done	Low risk to workers/ Zero exposure	Proponent, contractor	5,000,000

Phase	Potential Direct Impacts	Management/Mitigation and Enhancement Measures	Target Level/ Standard	Responsibility	Estimated Costs [Tsh]
		for each new work to be undertaken, and a safety procedure shall be developed and implemented by a dedicated project HSE officer. ▪ The contractor shall also prepare a Health and Safety Management Plan to implement OHS issues at the site.			
	Contamination of land and water from accidental spills and leakages of hydrocarbon	▪ Re-fueling and services for vehicles will be done off-site. ▪ Spill control measures, such as storage and handling of hydrocarbons such as oil, shall be taken, including storage on impervious areas (such as concrete surfaces with bund walls). ▪ Heavy equipment will be checked for lubricant leaks before starting the work, ▪ workers will be trained on the proper storage of hydrocarbons. ▪ Emergency response measures will be implemented on-site in case of an accidental oil spill, including the provision of absorbent materials and sand kits.	Zero spill	Proponent, Contractor	500,000
		Social Impacts			
	Traffic accidents	▪ Only qualified drivers with appropriate driving licenses shall be engaged. ▪ Induction course shall be done to all drivers prior to starting driving. ▪ Drivers shall be sensitized to maintaining speed limits for main roads and on access roads. ▪ Promoting safe driving with specified hours for long drives to avoid fatigue. ▪ Provision of road and safety signs at the site or access roads shall be done.	Zero accidents	Proponent, Contractor	500,000

Phase	Potential Direct Impacts	Management/Mitigation and Enhancement Measures	Target Level/ Standard	Responsibility	Estimated Costs [Tsh]
	Public Health Hazards (HIV/AIDs and STDs spread)	Awareness raising on the dangers of HIV/AIDS within the project premises, especially to those who are vulnerable, and to empower women, for they compose one of the most vulnerable groups. When the need arises, UDOM and Contractor will seek professional assistance from organizations working in the field of public health and control of HIV/AIDS to institute a health education and disease control programme at the workplace. The contractor shall also prepare an HIV/AIDS Management Plan for the implementation of HIV/AIDS issues at the site.	No new HIV/AIDs incident	Proponent, Contractor	4,500,000
	Increased local population due to labour influx	Semi-skilled and unskilled labour required by the project will be sourced locally to provide communities with employment and the opportunity to earn an income during the construction phase. Local communities will be given prior information through local government offices on available employment opportunities and required qualifications. A special clause that requires local people to be employed as labourers during construction will be included in the contract.	No labour influx	Proponent, Contractor	N/A
	Risks and hazards associated with child labour	UDOM and Contractor will comply with the provisions in the Employment and Labour Relation Act, 2004, and the ILO Convention No. 182. UDOM will develop transparent human resources policies and procedures for the recruitment process, working conditions, terms of employment wages, worker-employer relations, non-discrimination policy, monitoring, roles, and responsibilities. UDOM expects its contractors to adhere to the principles set forth in the Contract, which will cover inter alia, standards related to Labour and prohibition of Child Labour.	No child labour incident	Proponent, Contractor	N/A
	GBV/SEA/SH related incidences	UDOM will draft, approve, and implement a GBV Action Plan and assess the SEA/SH risks associated with the project based on existing data and input from key stakeholders. This will	No GBV incident	Proponent, Contractor	2,000,000

Phase	Potential Direct Impacts	Management/Mitigation and Enhancement Measures	Target Level/ Standard	Responsibility	Estimated Costs [Tsh]
		include the identification of risks to workers and communities during construction as well as risks to students within operating institutions. The GBV requirements and expectations will be defined in the bid documents, including codes of conduct (to be signed by workers), training, awareness raising for workers and the community, GBV responsive GRMs, and approach to GBV case management.			
	Gender inequity in employment	Women and men will be given equal employment opportunities during recruitment and job postings. Regular sensitization and awareness campaigns will be conducted for the workers to promote gender equity in employment during construction and operation. Gender-disaggregated data, separate bathing, changing rooms, and sanitation facilities for men and women will be provided.	Equal opportunity	Proponent, Contractor	500,000
	Employment	The employment impact could be turned into a positive impact if the contractor constructing the building is both encouraged to and committed to hiring local labour, particularly when only semi-skilled or unskilled labour is required. This could be made clear during the tendering process for the construction of the building. One way of promoting this would be for the Contractor to train local people to acquire the skills needed by these contractors to carry out the work.	As many as possible	Proponent, contractor	N/A
	Benefit to local producers and suppliers of goods and services	The proponent/contractor shall strive to procure the required service and products from local suppliers and producers.	As much as possible	Proponent, contractor	N/A
Operation Phase		***Environmental Impacts***			
	Public health hazards from solid wastes	▪ Designated areas for waste collection shall be established. ▪ Provision of waste receptacles and labeling of these	Zero littering/	Proponent	5,000,000

Phase	Potential Direct Impacts	Management/Mitigation and Enhancement Measures	Target Level/ Standard	Responsibility	Estimated Costs [Tsh]
		receptacles according to the type of waste will be done. ▪ Only Trucks under the Njombe Town Council will be allowed to collect the waste.			
	Public health hazards from liquid wastes	• UDOM will design and construct a septic tank and soak-away pit system for sewage management on site. The design will consider the full operational capacity of the building.	No wastewater leaks	Proponent	N/A
	Public health hazards from hazardous wastes	UDOM will design a wastewater retention structure for the generated effluent. Two series of retention ponds will be designed to diluent the effluent before final discharge to the open environment. The effluent on the retention ponds will be monitored to ensure they are safe for final disposal.	Neutral water (pH 6 - 8)	Proponent	N/A
	Fire Hazards	There will be enough exit doors for evacuation in case of fire incidence. The corridors will be of sufficient widths and dimensions to enable easy and speedy evacuation. Provisions will be made for the fire-fighting system under the plumbing installation. Further; - • UDOM shall install a firefighting system, among other portable fire extinguishers, for emergencies, especially on the office side. • Staff will be trained in how to operate the firefighting equipment. • Drawings shall be submitted to the fire department for scrutiny and guidance on fire safety designs and shall adhere to the requirement(s).	Zero fire incident	Proponent	1,500,000
	Occupational health and safety hazards	The final designs of the proposed project shall adhere to the required standards, considering the nature of operations. Some of the key aspects to be considered include the ventilation of	Zero incident	Proponent	Part of the investment costs

Phase	Potential Direct Impacts	Management/Mitigation and Enhancement Measures	Target Level/ Standard	Responsibility	Estimated Costs [Tsh]
		the lecture theaters, offices, library, chemistry laboratory, location of the gas to be involved in the process, and the storage room for chemical requirements. Further, in order to mitigate the potential impacts due to laboratory fumes from complex chemical reactions, the chemistry laboratory shall be equipped with a fume hood built with a scrubber that is acid and organic-resistant to withstand the acid and organic fumes from the chemistry laboratory operations. Further, the design of the building should consider the condition of an area. Njombe area is one of the cool areas, so the aspects of window size and materials that conserve the head should be considered for a conducive working environment. Also, before the operations of the proposed project, a baseline risk assessment should be done in line with the OHS Act of 2003 to identify OHS risks and hazards and thereafter formulate the mitigation measures to be implemented during the operation.			
		Social Impacts			

Phase	Potential Direct Impacts	Management/Mitigation and Enhancement Measures	Target Level/ Standard	Responsibility	Estimated Costs [Tsh]
	Employment	The employment impact could be turned into a positive impact if the proponent is both encouraged to and committed to hiring local labour. This could be made clear during the employment process by involving the local community through local government offices for information sharing.	As many as possible	Proponent, contractor	N/A
	Benefit to local producers and suppliers of goods and services	The proponent shall strive to procure the required services and products from local suppliers and producers. This could also be advertised through local offices for information sharing for service providers within the local area.	As much as possible	Proponent, contractor	N/A
	Risk of SEA/SH	UDOM will draft, approve, and implement a GBV Action Plan and will assess the SEA/SH risks associated with the project based on existing data and input from key stakeholders. This will include the identification of risks to workers and communities as well as risks to students within operating institutions. The GBV requirements and expectations will be defined in the bid documents, including codes of conduct (to be signed by workers), training, awareness raising for workers and the community, GBV responsive GRMs, and approach to GBV case management. Also, GBV measures are needed to protect students at the national level. The institutional level, including the need for institutions to develop GBV policies to address SEA/SH, training and awareness raising, GBV responsive GRMs, educator/ staff codes of conduct (to be signed), student agreements, referral pathways, etc., will be defined. UDOM will identify and create a partnership with a local organisation to report workers' misconduct and complaints/reports on GBV or harassment through the GRM.	No GBV/ SEA/SH victims/incident	Proponent	5,000,000

Phase	Potential Direct Impacts	Management/Mitigation and Enhancement Measures	Target Level/ Standard	Responsibility	Estimated Costs [Tsh]
	Health Hazards due to social interaction among workers and users	The project proponent will support already existing and new initiatives to sensitize/educate the people around the project on the HIV/AIDS pandemic. Also, the proponent will provide HIV/AIDS training/awareness campaign programmes to its employees and will encourage workers who know they are infected and receive care to break through the denial about HIV by talking with their fellow workers, friends, and neighbours and reducing the discomfort associated with the subject. When the need arises, UDOM will seek professional assistance from organizations working in the field of public health and control of HIV/AIDS to institute a health education and disease control programmes at the workplace.	Tanzania AIDS/ HIV Policy, No HIV/AIDS victims, No new cases.	Proponent	5,000,000
	Non-user-friendly building for Persons with Disabilities (PWDs)	The buildings will be designed and built with ramps and other special facilities, such as toilets to facilitate access and use by PWDs. Detailed consultation with the PWDs community will be undertaken during the design process to ensure key access and user-friendly facilities are designed and constructed.	Easy access to all users	Proponent	4,000,000
	Total				**62,200,000**

9 ENVIRONMENTAL AND SOCIAL IMPACTS MONITORING PLAN

9.1 INTRODUCTION

The correct and successful implementation of impact mitigation measures in order to reduce adverse impacts on environmental and social conditions needs to be ensured by a proper monitoring programme. This chapter presents the Environmental and social monitoring plan (EMP) that will be carried out throughout the project implementation to mitigate the impacts and enhance the benefits of the project. The EMP outlines the specific actions that shall be undertaken to ensure that the project complies with all applicable laws and regulations related to environmental impacts and impact mitigation. The EMP deals with all mitigation required for the physical, biological, and socio-economic impacts and focuses on the impacts as provided in Table 8.1 above.

9.2 OBJECTIVES OF EMP

The EMP applies to and will be implemented throughout all phases of the project: mobilization/construction, operation, and decommissioning. The objective of the EMP is to clearly set out the key components of environmental and socio-economic management for the proposed project and thereby ensure that the following concepts are realized throughout mobilization/construction, operation, and decommissioning.

i) negative impacts on the physical, biological, and socio-economic environments are mitigated;
ii) benefits that will arise from the development of the proposed project are enhanced;
iii) support smooth implementation of the project with minimum losses to environmental and social infrastructure;
iv) compliance and guided by National and international laws, standards, and guidelines, e.g., noise level standards, occupational and safety standards, etc., and best practice is achieved; and

v) goodwill and good relations with communities, and governments at local and national levels are maintained.

9.3 MONITORING RESPONSIBILITY

Implementation of the EMP is solely the responsibility of the project proponent. The proponent shall supervise and monitor components of the monitoring plan and keep a record of the monitoring outcome. The proponent has the ability to provide the necessary supervisory oversight to ensure the mitigation measures are working and that remedial measures are established where they are not. The proponent is committed to protecting and enhancing the environment.

Detailed parameters to be monitored have been considered along with the responsible party(s). The proponent will endeavor to ensure that resources are available to implement the EMP throughout all phases of project development and decommissioning. The EMP will be subject to the principle of continuous improvement. The details of environmental and social issues/impacts, proposed parameters to be monitored, and timing agencies responsible for the execution of proposed actions during mobilization, construction, operation, and decommissioning stages are presented in Table 9.1 below. The EMP includes an estimate of the costs of the monitoring activities so that the project proponent can budget the necessary funds.

Table 9.1: Environmental and Social Monitoring Plan

Phase	Potential Direct Impacts	Parameter to be Monitored	Monitoring Frequency	Monitoring Area	Measurement Unit	Target Level /Standard	Responsibility	Estimated Costs [Tsh]
Mobilization / Construction Phase	***Environmental Impacts***							
	Loss of vegetation	Trees and other végétation	Twice a year & after construction	Project area	Visual	No disturbed vegetation outside the project area	Proponent, Contractor	200,000
	Accelerated soil erosion	Eroded area	Monthly	Project area	m^2	No eroded area	Proponent, Contractor	3,000,000
	Air pollution due to dust emission	Particulate matter (TSP, PM_{10}, $PM_{2.5}$)	Monthly	Project area,	Mg/m^3	TSP < 0.23, PM_{10} < 0.05 & $PM_{2.5}$ < 0.025	Proponent, Contractor	5,000,000
	Air pollution due to exhaust emission	Noxious gas	Once per Month	Project area,	Mg/m^3	SO_2<0.5, NOx < 0.2, CO_2 < 500, CO <30,)	Proponent, Contractor	3,000,000
	Noise pollution and Vibration	Noise level	Once per Month	Project area	dB	Day < 55, Night < 45	Proponent, Contractor	2,000,000
	Land degradation at the source of construction materials	Records	Quarterly	project site	-	No degradation	Proponent, Contractor	300,000
	Land and water pollution from construction wastes	haphazard disposal of waste/waste bins	Once per month	Project surrounding area	Visual,	No haphazard disposal of solid waste	Proponent, Contractor	200,000
	Public Health Hazards due to Liquid Wastes	Pit latrine/ leak	Monthly	Project site,	visual	Pit latrine in place, no leak	Proponent, Contractor	200,000

Phase	Potential Direct Impacts	Parameter to be Monitored	Monitoring Frequency	Monitoring Area	Measurement Unit	Target Level /Standard	Responsibility	Estimated Costs [Tsh]
	Occupational health and safety hazards	Availability of PPE, Measures to reduce risk/risk exposure	Once per month	Construction site	NA	Low risk to workers/ Zero exposure	Proponent, Contractor	800,000
	Contamination of land and water from accidental spills and leakages of hydrocarbon	Hydrocarbons	Once per Month	Project area	Visual	No spill incident	Proponent, Contractor	500,000
	Social Impacts							
	Traffic accidents	Accident records, Safety/warning signs on roads/awareness training for drivers	Once per Month	The project area, access route	Number of accidents, visual, training records	Zero accidents	Proponent, Contractor	200,000
	Public Health Hazards (HIV/AIDs and STDs spread)	HIV/AIDs Incident	Once per Month	Project area	Records	No new HIV/AIDs incident	Proponent, Contractor	200,000
	Increased local population due to labour influx	Influx of workers	Once per Month	Project area	Local leaders	No labour influx	Proponent, Contractors	200,000
	Risks and hazards associated with child labour	Child labour incident	Once per Month	Project area	Local leaders	No child labour incident	Proponent, Contractors	200,000
	GBV/SEA/SH related incidences	GBV Incident	Once per Month	Project area	Records, local leaders	No GBV incident	Proponent, Contractors	200,000
	Gender inequity in employment		Once per Month	Project area	Local leaders	Equal opportunity	Proponent, Contractors	200,000

Phase	Potential Direct Impacts	Parameter to be Monitored	Monitoring Frequency	Monitoring Area	Measurement Unit	Target Level /Standard	Responsibility	Estimated Costs [Tsh]
	Employment	local employees	Every 6months	Project area	Number of local employees	As many as possible	Proponent	200,000
	Benefit to local producers and suppliers of goods and services	Local contracts for the supply of goods and services	Every 6months	Project area	Number of Local contracts	As many as possible	Proponent	200,000
Operation Phase	***Environmental impacts***							
	Public health hazards from solid wastes	Solid waste	Once every six month	Project vicinity/channels & drainage	Visual	Zero littering	Proponent,	2,000,000
	Public health hazards from liquid wastes	leak	Once every six month	Project site,	visual	no leak	Proponent	1,500,000
	Public health hazards from hazardous wastes	pH level	Once every six month	Project site,	Records	6.0 – 8.0	Proponent	1,000,000
	Fire hazards	Number of accidents	Once every six month	Project area	Number of Incidence	Zero incidence	Proponent	1,200,000
	Social impacts							
	Occupational health and safety hazards	Incidents	Once every six month	Project area	Number of incidents	Zero incident	Proponent	2,000,000
	Employment	local employees	Every 6months	Project area	Number of local employees	As many as possible	Proponent	500,000
	Benefit to local producers and suppliers of goods and services	Local contracts for supply of goods and	Every 6months	Project area	Number of Local contracts	As many as possible	Proponent	600,000

Phase	Potential Direct Impacts	Parameter to be Monitored	Monitoring Frequency	Monitoring Area	Measurement Unit	Target Level /Standard	Responsibility	Estimated Costs [Tsh]
		services						
	Risk of SEA/SH	Incidents	Every 6months	Project area	Number of incidents	No incidents	Proponent	2,000,000
	Health Hazards due to social interaction among workers and users	Incidents	Every 6months	Project area	Number of incidents	No new HIV/AIDS victims	Proponent	1,200,000
	Non-user-friendly building for Persons with Disabilities (PWDs)	Ramps and other special facilities such as toilets	One During Design & commissioning state	Project area	Facilities & type	Easy access to all users	Proponent	3,00,000
	Total							29,800,000

10 COST BENEFIT ANALYSIS

10.1 INTRODUCTION

The cost-benefit analysis of this project focuses on economic costs and benefits and social benefits other than income and externality which are not included as part of the calculation. The Higher Education for Economic Transformation (HEET) Project is geared towards meeting the following strategic objectives (i) to increase enrolment in priority disciplines, (ii) to improve the relevance and quality of programs at universities to meet the conditions and standards of the current and future labour market, (iii) to strengthen system-level coordination, management, and regulations to ensure quantity, quality, and relevance of higher education in Tanzania, and (iv) to increase the rate and extent of graduate employability through improving the relevance of curricula and create new and demand driven programs.

These results suggest that the project is expected to yield significant economic returns and, thus, is a very sound investment. These are conservative estimates of the project benefits, given that they do not account for other potential benefits, including the social benefits of education and training. The proposed project will increase access and improve the quality of teaching programs and learning environment in Tanzania. The benefits are expected to emerge from realising economies of scale in training design and delivery in Tanzania.

The main costs associated with the proposed project at Njombe Mjini area include direct project costs, education and training costs for individuals and foregone income (indirect cost) for individuals during training. The additional maintenance cost for construction and additional academic and administration staff are anticipated. Moreover, because HEET supports UDOM in staff development, salary increase due to additional qualification/training experience for some staff could be expected.

10.2 COST STRUCTURE

The proposed project will provide an adequate learning environment and equipped facilities for science students in the project's priority areas. The tangible and intangible annual benefits of the project would include the following: monies gained from students paying fees, the potential to increase employment locally, the potential to increase the local

economy by injecting funds into the surrounding community, and the ability to contribute over the long term to a better internal economy in Tanzania. The tangible and intangible costs of the project include:

- the cost of general operations, namely paying employees, food, and maintenance. All running costs.
- the initial startup cost of establishing a process area and the operational costs associated with running it.
- the environmental costs would include a definite loss of vegetation as the establishment of the proposed project would entail the clearance of onsite vegetation to allow project activities to take place effectively.
- the destruction of the natural landscape, which cannot be completely restored to its original pristine shape once altered.
- The potential cost to surrounding communities in terms of heightened noise levels during construction, increased contamination of both surrounding air and water and increased dust as a result of the project activities.

Before the project is approved by the Government of Tanzania and the World Bank it has to pass the net present value test. The costs and benefits were used to calculate the net present value of the project. According to the Ministry of Education, Science and Technology, the net present value of this project is positive with a promising payback period. The conclusion indicates that the project is economically viable from economic perspectives.

10.3 FINANCIAL EVALUATION

The World Bank Appraisal Document for the HEET project reveals that the project is technically, socially, and economically feasible, viable, and desirable for the country's economy. proposed project will construct 8 buildings and associated facilities, which include a 2-storey Administration Building, a 2-storey Multi-purpose Academic Complex, a 3-storey Student Hostel Block, a Cafeteria Block, a Dispensary building, a workshop building, a Playground, and External Works. It will result in many social benefits like employment generation, the inflow of technology, the strengthening of the education base within the country, the inflow of technical and managerial expertise, the creation of many

other ancillary businesses, etc. In light of anticipated financial, social and development benefits the project qualifies for positive recommendation for immediate implementation. It is to recommended that all concerned authorities accord utmost support to this project so as to enable the country to realize the benefits as perceived in this report.

10.4 SOCIAL BENEFITS

The proposed project provides a conducive learning environment for students with various opportunities to learn and experiment, which plays a crucial role in the ongoing intellectual development of students at any academic level. The UDOM Njombe campus gives students the time, space, and resources to explore, learn, and research. The benefits from the proposed project at Njombe Mjini ward will be beyond the direct benefit of an individual's increase in wage, employability, and productivity. The strategic intervention of the government in the priority economic sector with potential growth opportunities will lead to national development. Therefore, it is essential that policies and institutional mechanisms are set to remedy externalities. The proposed project under HEET will enhance education development and increase enrollment capacity at the national level.

10.5 COMMUNITIES BENEFITS

The benefits to the communities may be looked into from different perspectives. The successful construction of the proposed project with a wide range of different users will make money for local contractors and service providers who will be involved in the project, e.g., Construction companies, Architectures, Soil surveyors, ESIA Consultants, etc., who in turn will pay taxes which the Government will use to provide social services to the community. The project activities will also generate employment during the construction and operation of the projects and facilities. As indicated in Chapter 2, the activities that the project accommodates will provide direct employment to Tanzanians from all businesses and services. In addition to the project's operational expenditure on local goods and services, including staff wages, food and beverages, concession fees, utilities, and maintenance, the project demonstrates the indirect contributions through discretionary spending outside the area and induced spending by staff and students. It also suggests demonstration effects around training, standards, and stimulation of private sector development and recognizes the additional benefits generated during construction.

Generally, since the project has a positive net present value, it will contribute to Tanzania's economic growth and development.

10.6 POSSIBLE COSTS TO GOVERNMENT

As already mentioned, the Government will directly and indirectly benefit from taxes generated during the operations. Apart from tax generation, the project will also enhance the economic growth and education sector development spurred by the operations and activities associated with the project. The government's image in the promotion of the education sector will also be enhanced nationally and internationally, which will increase attractions from other local and foreign funders and ensure continued market growth.

10.7 ENVIRONMENTAL AND SOCIAL COST-BENEFIT ANALYSIS

Environmental and social cost-benefit analysis is assessed using a negative versus positive analysis. Furthermore, the analysis considers whether the impacts are mitigatable and the costs of mitigating the impacts are reasonable. As mentioned in Chapters 6 and 7, the benefits of the project, in terms of financial and social benefit, are substantial, the environmental and social impacts are mitigatable and the financial resources needed to mitigate the impacts are relatively small compared with the actual capital investment. This project shall have significant impact on the economy of Tanzania.

11 DECOMMISSIONING PLAN

11.1 INTRODUCTION

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

The final plan should be based on the preliminary plan and revisions and will define specific work activities, including safety evaluations of planned decommissioning methods, new technology, and the project status that will result from the decommissioning program. In addition, this plan must contain sufficient information to obtain any approvals needed from the appropriate regulatory agencies to proceed with decommissioning activities.

11.2 AIM OF THE PRELIMINARY PLAN

The preliminary plan serves to establish decommissioning as an important consideration from the inception of the project, during design, and throughout the operation of the proposed project. The plan has the following purposes:

a) The primary purpose of the preliminary plan is to ensure that the proposed project designers are cognizant of decommissioning during the initial design of the project. Thus, where design choices that would enhance decommissioning are available for types of materials and system components, and location of components, these choices shall be made.

b) Another purpose of the preliminary plan is to identify the ultimate decommissioning options and final project status. As the end of the project life approaches, these options will be evaluated and narrowed to the decommissioning method of choice.
c) The final purpose of the preliminary plan is to demonstrate to regulatory agencies that important aspects of decommissioning are considered as early as possible during the initial design of the project. The plan serves as the starting point to demonstrate that areas such as decommissioning methods, costs, schedules, and operating impact on decommissioning will be reviewed and refined throughout the operating life of the project.

11.3 CONTENT OF THE PRELIMINARY

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

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

11.4 PROJECT DECOMMISSIONING METHODOLOGY AND SCHEDULE

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

1. Decommissioning will involve, but not be limited to, the specified list because some issues or problems may surface during subsequent monitoring and audits:
   a) The buildings will continuously be rehabilitated and renovated. While doing that, solid wastes will be disposed of according to the ESMP.
   b) Moreover, during decommissioning, the buildings will be demolished accordingly to suit the new activity, and the rubble will be disposed of according to the directions of the Njombe Town Council.
2. Since the proposed project activity is an ongoing concern, the employees will not be terminated from their employment but rather will be relocated to the other area of work.
3. On decommissioning, the proponent will seek experts' opinions in order to convert the entire area into another use. This could include expanding the project's structures to serve more students than the current design capacity of the project or using it for other communal purposes.
4. The restoration or convention plan for the entire premises will be made by the proponent (with expertise from environmentalists and economists) and then forwarded to NEMC for approval.
5. Also, proponent Management shall obtain all permits required to undertake decommissioning of the Project. This basically will include the Pension Fund, City Council, etc.

Should there be no feasible option for conversion to other uses of the buildings, then the project structures will be required to be totally removed. Project removal will begin six months after closure and continue for twelve months. Within six months from closure, the proponent will carry inventories for all components that need to be removed and / or disposed of. This inventory will include building structures, equipment etc., which will be demolished/dismantled. Also, the mode of disposal will have to be finalized. This information will assist in the preparation of the final decommissioning plan for NEMC approval. After the approval of the decommissioning plan, the metal parts will be removed first within the first three months (this is important to ensure that they are not vandalized). The second three months of the decommissioning will be used to remove concrete structures and foundations. Debris will be used as road fills for rural roads. All disturbed areas will be landscaped and re-vegetated using indigenous trees.

Project decommissioning has five phases: (1) pre-removal monitoring; (2) permitting; (3) interim protective measures; (4) Project removal and associated protective actions; and (5) post-removal activities, including monitoring of environment and socio-economic activities. The first three phases will occur prior to removal of the Project (i.e., within the first three months). The fourth phase — project removal and associated protective actions — will take place six months after closing business. The fifth phase will begin after total removal and, due to the nature of the project (medium scale, with relatively moderate impacts), removal and continue for at least three months.

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

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

(2) Permitting: The Proponent shall obtain all permits required to remove the Project. This will include NEMC, Njombe Town Council, etc.

(3) Interim Protective Actions: This will address any interim protective measures that need to be implemented to protect human health and the environment.

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

(5) Post-Removal Activities: Post-project removal monitoring will continue for three months.

The Proponent shall remove the project items, facilities, rubbles and/or equipment from demolition and ancillary structures safely and in a manner that minimizes environmental impacts e.g., dust pollution, disposal of any hazardous material, providing protective gear to

decommissioning personnel, etc; satisfies its obligations under the EMA Cap 191; restores the site to a condition suitable for other use; and pays all dues (government, suppliers etc.).

12 SUMMARY AND CONCLUSION

The ESIA study has scrutinized the environmental and social implications of the proposed 2-storey Administration Building, 2-storey Multi-purpose Academic Complex, 3-storey Student Hostel Block, Cafeteria Block, Dispensary building, workshop building, and associated facilities at the plot with No. 96 Block 'A' at Njombe Mjini ward in Njombe region, Tanzania. The study was conducted to comply with the Environmental Management Act (2004). It was done in accordance with the EIA and Audit (Amendment) Regulations, 2018, as well as the World Bank Environment and Social Framework (ESF) and the project's Environmental and Social Management Framework (ESMF). Stakeholder consultations were conducted during the study to include central and local government authorities, communities in the project neighborhoods, and interested parties. The Project Stakeholder Engagement Plan was a guiding document during the stakeholder's engagement. Standard methodology for impact identification was used, including a checklist, matrix, and professional judgment.

Based on the findings, it is evident that the development of the proposed project will greatly contribute towards the provision of quality education by UDOM to students for the country's socio-economic development. The Environmental and Social Impact Assessment study for the proposed project indicates that the potential negative impacts can be easily mitigated without any major effect on the environment. However, some important resources/receptors may be affected negatively, such as flora, fauna, soil, air, and water resources, as well as the local community. The impacts associated with these mostly vary from low to moderate significance and can be mitigated, as shown in the Environmental and Social Management plan.

The project will be implemented within the area designated for educational purposes and fully owned by UDOM, and thus no land compensation or resettlement for the project will be involved. The area is isolated from human settlements and thus with minimal impacts on social aspects. The area was previously subjected to forestry activities, specifically monoculture tree planting, and thus, the natural vegetation of the area has long been cleared for the activities. Thus, the project will not exert significant impacts as far as the local ecological system is concerned. Many people in the area are likely to benefit from the

project compared to those who will be affected negatively. The benefit in terms of the provision of competent personnel and professionals in the labor market to address socioeconomic challenges for the economic growth of the country.

The study concludes that a number of environmental and social impacts have been identified and assessed; none of these are considered to be that severe after mitigation to prevent the further planning, design, and construction of the proposed project in the area. Thus, the project development in the area can be considered suitable subject to the implementation of the mitigation measures as indicated in the Environmental and Social Management Plan.

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APPENDICES

APPENDIX 1: CERTIFICATE OF OCCUPANCY

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 7422

LAND REGISTRY,
P.O Box 1191,
Dar es salaam.
Date: 09 Feb, 2024

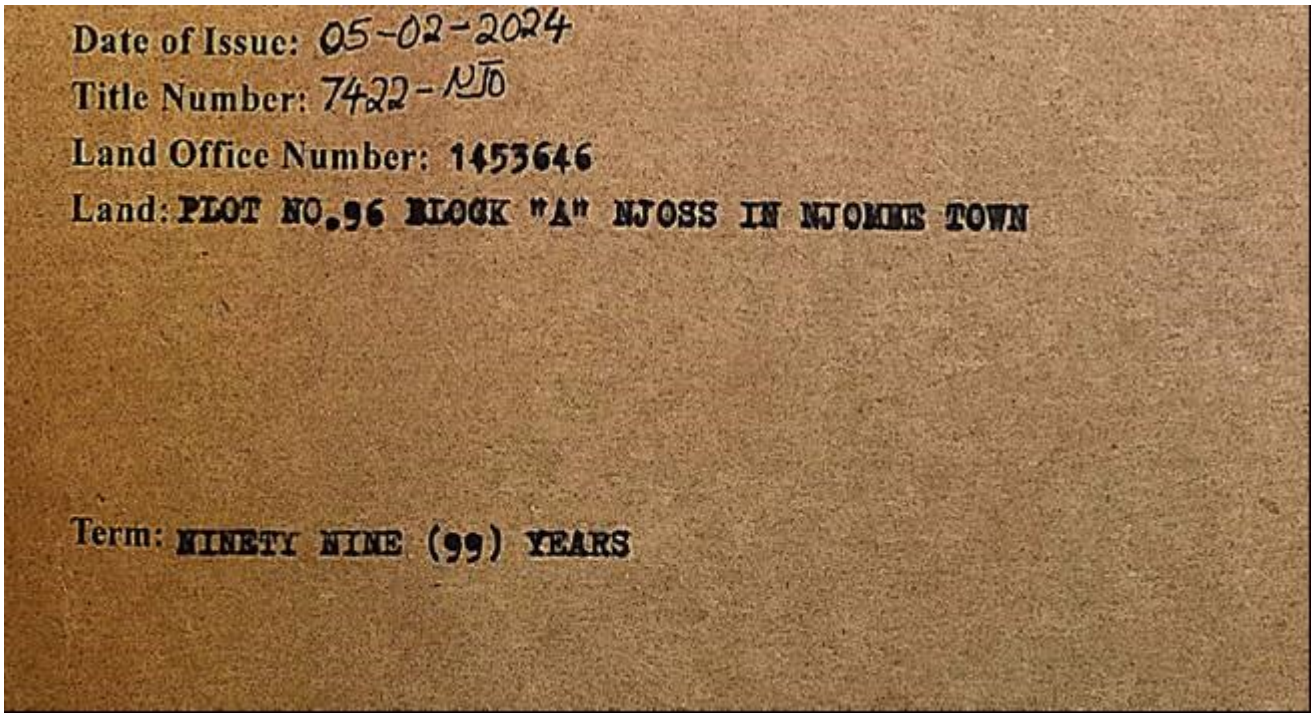
THE UNIVERSITY OF DODOMA
P.O Box P.O. BOX 259
DODOMA
Sir/Gentlemen/Madam,

RE: TITLE NO: 7422 LAND OFFICE NO: 1453646
PLOT NO. 96 BLOCK A AT NJOSS

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

REGISTRAR OF TITLES

Copy to: Commisioner for Lands
Your LD File No: NTC/LD/21354 refers



Date of Issue: 05-02-2024
Title Number: 7422 - NJO
Land Office Number: 1453646
Land: PLOT NO.96 BLOCK "A" NJOSS IN NJOMLE TOWN

Term: NINETY NINE (99) YEARS

TITLE No: 7422-DJO
REGISTERED ON: 05-02-2024
AT: 1100 AM
Senior Asst. Registrar of Titles

TANGANYIKA STAMP DUTY ACT
Stamp Duty Shs: 591,530/= Paid
On Original Receipt Shs: 00542026V2402303
of: 15 - 02 - 2024
Land Form No. 22
Stamp Duty Officer

TANGANYIKA STAMP DUTY ACT
Stamp Duty Shs: 100/= Paid
On Original Receipt No: 00542026V2402303
of: 15 - 02 - 2024
Stamp Duty Officer

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

CERTIFICATE OF OCCUPANCY
(Under Section 29)

Title No: 7422-DJO
L.O. No. 1453646
LD. No. NTC/LD/21354

The 01st day of February **Two Thousand Twenty Four**

THIS IS TO CERTIFY that **THE UNIVERSITY OF DODOMA of P.O. Box 259 DODOMA, Established under The University of Dodoma (UDOM) Charter of 2007** (hereinafter called **"the Occupiers")** are entitled to the Right of Occupancy (hereinafter called "the Right") in and over the land described in the Schedule hereto (hereinafter called "the Land") for a term of **Ninety Nine (99)** years from the **First** day of **January, Two Thousand Twenty Four** according to the true intent and meaning of the Land Act and subject to the provisions thereof and to any regulations made there under and to any enactment in substitution there for or amendment thereof and to the following special conditions:-

1. The Occupiers having paid rent up to the thirtieth day of **June 2024,** shall thereafter pay rent of shillings **Seven Million Two Hundred Fifty Nine Thousand Two Hundred Sixty Four (Tshs. 7,259,264/=) Only** a year in advance on the first day of July in every year of the term without deduction **PROVIDED** that the rent may be revised by the Commissioner for Lands.

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

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

(iii) Erect on the land buildings in permanent materials designed f use in accordance with the conditions of the Right and whi conform to the building line (if any) decided by the **NJOMBE TOW COUNCIL** (hereinafter called "the Authority").

(iv) Submit to the Authority building plans within Six months from t date of commencement of the Right

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

(vi) Complete the building construction within Thirty Six months fr the date of commencement of the Right.

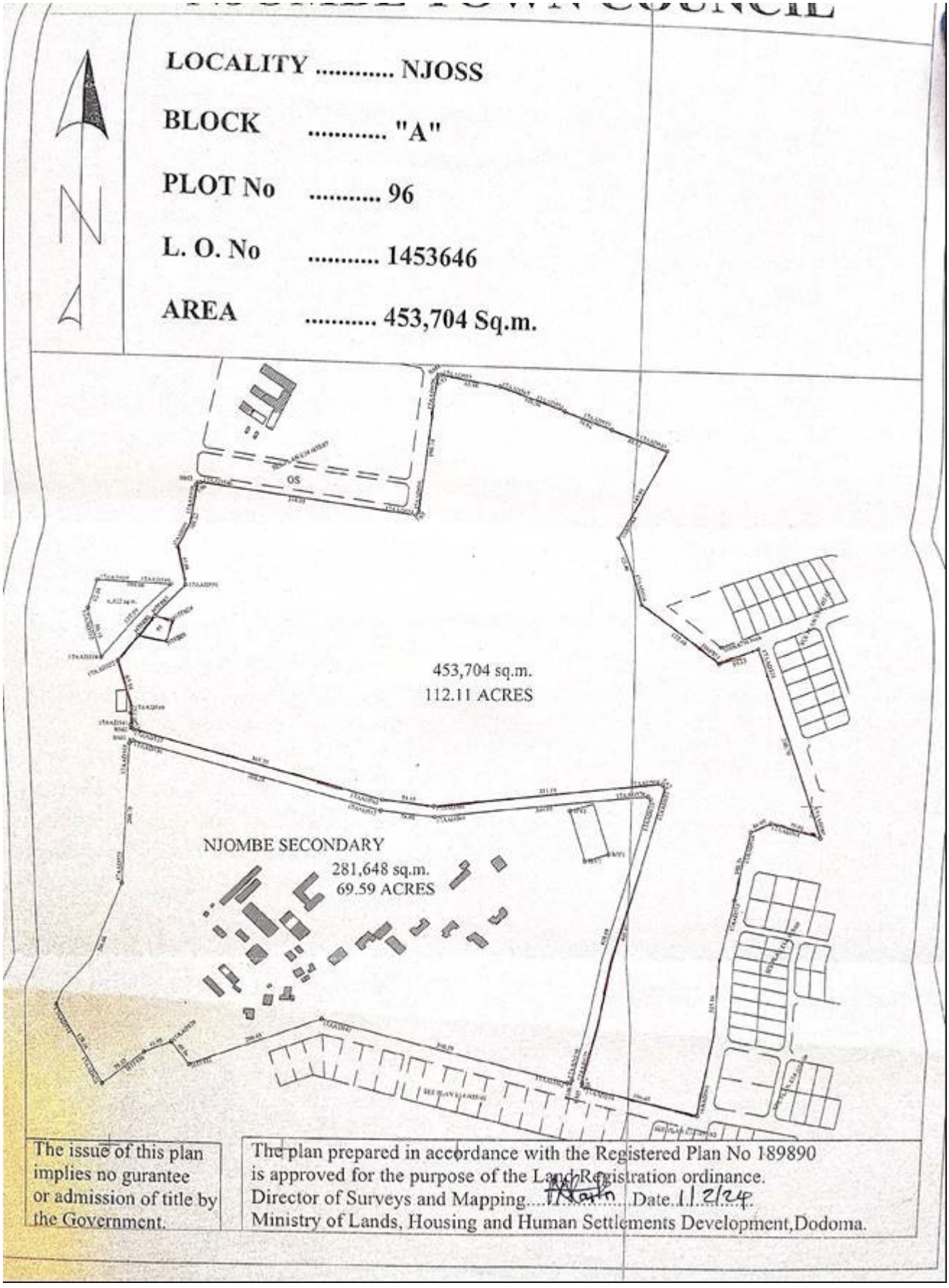
(vii) Not erect or commence to erect on the land buildings, or structure any kind whatsoever except in accordance with building plans a specifications which shall have been first approved by the Authori

USER: The land shall be used for **Educational purposes, Use Group** **Use Class (d)** as defined in the Urban Planning (Use Groups and U Classes) Regulations, 2018.

The Occupiers shall not assign the Right within three years of the d hereof without the prior approval of the Commissioner.

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

The **President** may revoke the right for **good cause** or in **pu interest**.


LOCALITY ..... NJOSS
BLOCK ..... "A"
PLOT No 96
L. O. No 1453646
AREA ..... 453,704 Sq.m.
N
OS
453,704 sq.m.
112.11 ACRES
NJOMBE SECONDARY
281,648 sq.m.
69.59 ACRES
The issue of this plan implies no gurantee or admission of title by the Government.
The plan prepared in accordance with the Registered Plan No 189890 is approved for the purpose of the Land Registration ordinance.
Director of Surveys and Mapping.....Date.1/2/24
Ministry of Lands, Housing and Human Settlements Development,Dodoma.

SCHEDULE

ALL that Land known as **Plot No. 96** Block **'A'** situated at **NJOSS Area in Njombe Town** containing **Four Hundred Fifty Three Thousand Seven Hundred and Four (453,704) Square Metres** shown for identification only edged **red** on the plan attached to this Certificate and defined on the registered Survey Plan Numbered **189890** 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

We, the within named **THE UNIVERSITY OF DODOMA** hereby accept the terms and conditions contained in the foregoing Certificate of Occupancy.

SEALED and **COMMON SEAL** of the said **THE UNIVERSITY OF DODOMA** and **DELIVERED** in our presence this 1ST day of FEBRUARY **2024.**

Name: PROF. LUGHANO JEREMY KUSILUKA
Signature:.....
Postal Address: P.O. BOX 259 DODOMA
Qualifications:.....

Name: Dr. RYOBA MARWA
Signature:.....
Postal Address: P. O Box 259, Dodoma
Qualifications: SECRETARY TO COUNCIL

APPENDIX 2: DETAILED STAKEHOLDERS VIEWS AND CONCERNS

The team of experts undertook stakeholder's consultation to ensure key project stakeholders are fully involved with the project. The stakeholders consulted include: - Njombe Regional Commissioner (RC), Regional Administrative Secretary (RAS) and Njombe Region Officials, Njombe Town Council officials- Town Director's office, Kihesa Mtaa office, and Njombe Mjini community. Below are the views and concerns from the consulted stakeholders.

Njombe Region RC Office

The team visited Njombe Regional Office and met with Mr. Anthony Mtaka (Regional Commisioner), Ms. Judica Omari (Regional Administrative Secretary), Qs. Felista Thobias (Quantity Surveyor), Mr. Musa Seleman (ELO), Ms. Subilaga Mwaigwisya (RSWO), Mr. Wilson Joel (RAA), Ms. Saada Milanzi (RHO), Mr. Joel A. Lupongo (Ag. REO), and Mr. Eliah Kisanga (ReDO) who welcomed the team for the study. Based on the discussion with regional officials the following were views on the project: -

i. The regional officials were aware of the proposed project and accepted the implementation of the project.

ii. The proposed project will help to create the regional identity.

iii. The proposed project will increase the enrollment of more students to pursue university studies.

iv. The presence of the proposed project will help to bring more ideas and cultural diversity through increased interaction of people from different parts of the country.

v. The presence of the proposed project is envisaged to stimulate the regional economy.

vi. The University should consider doing needs assessment and gap analysis on the relevant courses to be taught during project implementation.

vii. The buildings designs should consider the weather condition of the region, inclusivity, and other standard requirements.

viii. Njombe region is high rainfall area; thus, mobilization of the construction materials, and construction should consider weather condition of the region.

ix. Finally, the consulted stakeholders accepted the project and insisted the proponent to acquire all relevant permits for the project development.

Njombe Town Council Officials

The team visited Njombe Town Council and met with Ms. Rehema Nswila (District Education officer-Secondary), Ms. Ichikael Malisa (Public Relation Officer), Ms. Enembora Lema (TCD), Ms. Asha Juma (District land Officer), Mr. Almas Omary (Stastician), Ms. Rehema Lugala (District Education officer-Primary), Benadeta Mchambo (District Engineer), and Mr. Paulo Mkuwa (District Environmental Management Officer) who welcomed the team for the study. Based on the discussion with district officials the following were views on the project: -

i. The Njombe Town council officials were aware of the proposed project and accepted the implementation of the project.

ii. The proposed project area is legally owned by the University of Dodoma, and there is no ambiguity during land acquisition.

iii. The officer also noted that, the area is surrounded by public institutions and there are existing public infrastructures to include road network, water and electricity and thus it is conducive for the project.

iv. The officers proposed Agriculture, Information Technology (IT), Business and hospitality, and Forestry, and Tourism. Furthermore, teaching should be more practical oriented.

v. The proposed project is perceived to stimulate economic growth of the region.

vi. The construction should take into consideration high lightning incidences in the area.

vii. The design of the proposed project should take into account landscape and terrain of the area.

viii. The design of the liquid waste management for the proposed project should consider the landscape and high water table of the area.

ix. The town council has vehicles for collection of solid waste within the Urban area and hence the project is also required to use the Municipal trucks for haulage of wastes to the dumpsite.

x. The officer noted that there is no modern public sewer network in Njombe and thus on-site waste management mainly septic tanks and soak away pits are common. The officer noted that, further information on the plans for establishment of the public sewer system can be obtained from NJUWASA.

xi. Finally, the consulted stakeholders accepted the project and insisted the proponent to acquire all relevant permits for the project development.

Kihesa Mtaa community

The team visited the Kihesa Mtaa office where the proposed project is located administratively and held a meeting with some members in presence of the Divisional Secretary Ms. Lilian M. Nyemele, Ward Councilor Mr. Alatanga Nyagawa, Ward Executive Officer Mr. Enos Lupimo; Mtaa Executive officer Ms Edwarda H. Salehe; Ward Community Development officer Ms. Renatha Nguli and other members of the community. The following are views and concerns on the proposed project: -

i. The members confirmed to the team that, on the noted area land acquisition was done appropriately and there has been no issue on land acquisition process.

ii. Members noted that, in Njombe Mjini Ward there are various construction technicians like carpenters, electrical technicians and thus project should consider to utilize local human resources in the project. It was noted contractor should consider to give priority to the local community even for casual laborers.

iii. The contractor should have a good relationship with the surrounding community as well as leaders to address some of the issues that might happen at site for instance theft of construction materials.

iv. There are child neglect cases common in construction sectors and thus good cooperation between contractor and leaders of the area will be able to address these cases before they happen.

v. Others noted that the project will benefit students on the area as the service will be closer to the people of Njombe Mjini Ward than other areas.

vi. The member highlighted that, the establishment of the proposed project is an opportunity to promote the economy of the area concerned;

vii. The construction activities should consider minimizing air pollution due to dust, noise and vibrations and hence avoid public health concerns and nuisance from dust.

viii. Before commencement of the construction activities the contractor should report and inform the ward and Mtaa officers on starting of the construction of the project.

ix. The stakeholders stated that at the ward level there are GBV issues at high level especially child neglects, physical violence to spouse and children, and child labour.

x. Also, they noted that the HIV/AIDs cases are at high level in the ward. Though there are initiatives undertaken by the council including awareness to the public and distribution of condoms in Bars, Disco and Hotels.

xi. Finally, the consulted stakeholders accepted the project and insisted the proponent acquire all relevant permits for the project development.

Njombe Secondary School officials

The team visited the Njombe Secondary School teachers where the proposed project is located administratively and held a meeting with some members in presence of the school, the Second Master, Mr. Melecksedeck Mbata (Second Master), Patrick Jacob (Teacher), Iddi Gogo (Teacher), and France J Luoga (Teacher). The following are views and concerns on the proposed project: -

i. The Njombe Secondary School community officials are aware of the proposed project, and accepted the implementation of the project.

ii. The presence of the University of Dodoma Njombe Campus will increase security by removing a plantation forest, stop fire outbreaks and other social abuse incidences.

iii. The construction of the university is envisaged to enhance clear demarcation of the school boundaries.

iv. The presence of the university close to the school will be a motivating factor for teachers to enroll in higher education.

v. The presence of a university close to the schools will motivate students to study hard.

vi. Presence of the university will help to improve social services, income generation through business and service delivery.

vii. The presence of the university close to the schools will allow teaching practices to be done in nearby schools where needed, thus reducing teaching loads.

viii. The construction of the university will increase social interaction.

ix. The construction of the university needs to preserve the existing natural environment.

TANESCO

The team visited the Tanzania Electric Supply Company Limited Njombe office, which will provide electricity services in the proposed project area. The team held a meeting with Regional Manager Eng. Abruhaman Nyenye. The following are views and concerns on the proposed project: -

i. A 33kVA line shall serve the proposed project area and is not utilized fully. This guarantees a reliable power supply to the proposed campus.
ii. A standby generator is needed in case of an emergency power outage.
iii. In the proposed project area, overhead or underground connections are available. Underground connections have high installation and maintenance costs.
iv. Njombe is prone to high-intensity lightning. Thus, lightning arresters must be installed in each building.

TARURA

The team visited the Tanzania Rural Roads Agency Njombe office, which manages access roads to the proposed project area. The team held a meeting with Eng. Deo Mwinuka, and Eng. Juma P. Nhigula (Ag. District Manager). The following are views and concerns on the proposed project: -

i. The proposed project has access to the roads, and it is accessible all the seasons.
ii. Rehabilitation is being done from time to time by the TARURA-Njombe office.
iii. The ASFAT road project, which is part of the TACTIC program through the World Bank, plans to upgrade the road to tarmac standard; this includes pedestrian access roads and a lighting system.

iv. There is a need to have coordination between UDOM and TARURA to iron out issues pertaining to access roads to the site during construction and operation.

TBA

The team visited the Tanzania Building Agency Njombe office and held a meeting with QS. Kennan Lyimo. The following are views and concerns on the proposed project: -

i. TBA operates under three core functions: designing and construction, issuance of advice on construction issues, and real estate, so the influx of staff will benefit from accommodation services in the future.
ii. TBA has experienced professionals in designing and construction activities; thus, there is room for them to be involved during the planning and construction phases.
iii. Bricks are preferred over blocks for heat containment in buildings. This is because Njombe is a relatively cold region.
iv. Acquiring local construction materials such as sand and gravel can be challenging; thus, the contractor must prepare to avoid delays during the construction phase.

NJUWASA

The team visited the Njombe Urban Water Supply and Sanitation Authority, which supplies water to the proposed project area. The team held a meeting with Eng. Evance Ngowi serves as a water supply and sanitation engineer. The following are views and concerns on the proposed project: -

i. Three clean water projects and one WSP construction project are underway; these projects will serve the proposed project area and other areas in Njombe town.
ii. Currently, the water supply for Njombe Mji is about 73%, which saves about 66,000 people. After the completion of the three clean water projects, the capacity will reach 95%.
iii. Water storage tanks are necessary for the smooth running of the proposed UDOM project as the supply is not continuous in the proposed project area.

FIRE AND RESCUE FORCE

The team visited the Fire and Rescue Force Njombe office, where the proposed project area is located. The team held a meeting with the regional commander, ASF. Joel Mwakayasa serves as an Ag. QFO - Njombe. The following are views and concerns on the proposed project: -

i. Due to the nature of the buildings to be constructed, the Fire and Rescue Force is a stakeholder in the project. It is wise to engage the office during the planning and implementation of the proposed project.
ii. It is important to have multiple assembly points in the campus area.
iii. All buildings need fire detectors and alarm systems. In some buildings, an automatic water system for automatic fire extinguishing is also needed.
iv. Fire hydrants are important at various points on campus.
v. It is crucial to have access roads to all buildings to allow fire trucks passage and rescue in case of emergency.
vi. All buildings shall have emergency exits for safety purposes.
vii. There shall be fire hoses at various points of each building.

OSHA-MBEYA SOUTHERN HIGHLAND ZONAL OFFICE

The team visited the OSHA-Southern Highland Zonal office, which serves the southern highlands, including the Njombe region, where the proposed project is located. The team held a meeting with the OSHA official, Eng. Macha Goodluck. The following are views and concerns on the proposed project: -

i. During construction, the contractor is responsible for creating a safe and healthy environment at the project site during construction.

ii. The proponent is responsible for the project registration and ensuring overall compliance with safety and health regulations.

iii. All short-term and long-term employees are required to undergo a medical checkup before, during, and after the activity.

iv. There is one mandatory requirement that OSHA train selected construction workers; these trained workers will be responsible for handling first aid, ergonomic issues, and other health and safety emergencies during construction.

v. Contractor shall ensure that there is availability of all required health and safety facilities.

vi. OSHA shall conduct periodic inspections during construction as well as during operation phases.

APPENDIX 3: TERMS OF REFERENCE

TERMS OF REFERENCE FOR UNDERTAKING ESIA STUDY FOR THE PROPOSED CONSTRUCTION OF ADMINISTRATION BLOCK, MULT-PURPOSE ACADEMIC COMPLEX, CAFETERIA BLOCK, DISPENSARY BUILDING, WORKSHOP BUILDING AND STUDENTS HOSTELS AT PLOT NO. 96, BLOCK "A", KIHESA MTAA, NJOMBE MJINI WARD IN NJOMBE TOWN COUNCIL, NJOMBE REGION, TANZANIA.

1. INTRODUCTION

1.1 Project Background

The University of Dodoma (UDOM) is a Public Higher learning Institution under the Ministry of Education, Science and Technology (MoEST) formally established in March 2007. The proposed project expected to offer a number of quality-assured academic programmes at degree and postgraduate levels that will be centrally regulated by the Tanzania Commission for Universities (TCU).

UDOM, through the Government of the United Republic of Tanzania (URT) has received financing from the World Bank to implement Higher Education for Economic Transformation Project (HEET). HEET's Project Development Objective (PDO) is *to strengthen the learning environments and labour market orientation of programmes in priority disciplines and the management of the higher education system.* Through the HEET Project, UDOM expects to construct new Campus at Njombe region with the following minimum basic features: Administration Building, Mult-purpose Academic Complex, Student Hostel Block, Cafeteria Block, Dispensary building, workshop building, and other essential facilities like Playground, parking space and external works/land scaping. The building will be constructed on Plot No. 76, Block A, Njombe Mjini Area, Njombe Town Council in Njombe Region.

The construction of the proposed project must abide to the Environmental Management Act of 2004 of Tanzania which requires the project developers to carry out Environmental and Social Impact Assessment prior to project implementation. The First Schedule of the Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations, 2018, categorize major urban projects including multistorey buildings as type B1 project (borderline project), which may or may not require ESIA study and upon screening the Council will guide the course of the study. Likewise, the World Bank's Environmental and Social Standards requires the borrower to identify, assess and manage potential environmental and social impacts associated with the project. Thus, UDOM engaged team of environmental experts to carry out an environmental and social impact assessment (ESIA) for the proposed project.

The team undertook scoping exercise that culminated into scoping report and ToR. During the study several key environmental issues were identified after site reconnaissance, holding consultations with stakeholders of the project and reviewing literatures related to the project. Based on study findings, terms of reference were developed. The aim of developing the Terms of Reference (TOR) is to provide formal guidance to the project proponent and contracted Consultant for carrying out the ESIA, and range of issues that must be

addressed in the study process. Furthermore, they form the basis for subsequent review process. In these ToR, strategies for addressing the issues identified have been incorporated to make the EIA focused.

1.2 Objectives of EIA

The objectives of the EIA as provided in Part IV of the Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations, 2018 are:

- To ensure that environmental considerations are explicitly addressed and incorporated into the development decision making process;
- To anticipate and avoid, minimize or offset the adverse significant biophysical, social and relevant effects of developmental proposal;
- To protect the productivity and capacity of natural systems and ecological processes which maintain their functions
- To promote development that is sustainable and optimizes resources use and management opportunities;
- To establish and assess impacts that are likely to affect the environment before a decision is made to authorize the project;
- To propose mitigation and socio-management procedures aimed at managing the proposed mitigation of the identified potential impacts and that will form part of the overall EMP for the project operations.
- To enable information exchange, notification and consultations between stakeholders;

This requirement clearly presents a broad challenge on what type of activity that is environmentally friendly need to be dealt with the proposed project.

1.3 Environmental Assessment Requirements

The Environmental Management Act, cap 191 requires that EIA be undertaken for all new projects that may cause adverse environmental and social impacts. Under the Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations, 2018 the proposed project is categorized as an EIA obligatory project for which a full EIA is required.

1.4 Study Area

The proposed project site is specifically located at Plot No. 96 Block ‘A’, Kihesa Mtaa, Njombe Mjini Ward, Njombe Town Council in Njombe Region. The site lies at latitude -9.341400 and Longitude 34.78028, nearby Njombe Secondary School, about 1 Km of the Njombe-Songea Highway. The landmark at the junction of Njombe-Songea road is about 2 km from the Njombe Airstrip on the way to Songea/east southern side. The core study area includes the Kihesa Mtaa, Njombe Mjini Ward, whereas the adjacent areas includes Mpechi Mtaa, and Kilimani Mtaa.

1.5 Environmental Impact Assessment Scope of Work

Task 1: Description of the Proposed Project

The Consultant shall give details of:

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

Task 2: Description of the Environment

The Consultant shall:

i. Provide general description of the project environment and sources of information for anyone requiring a more extensive description (especially the ESIA reviewers).

ii. Identify those features that are particularly important in the project area –and other areas related to the project i.e. maps at appropriate scales to illustrate the surrounding areas likely to be environmentally and socially affected.

iii. Identify areas that require special attention in the project implementation.

Environmental Impact Assessment shall specifically focus on these ecological components in the environment to ensure that the proposed development does not harm the well-being or these characteristics.

Task 3: Legislative and Regulatory Considerations

The Consultant shall:

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

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

Under this activity the consultant shall:

i. identify issues and concerns in order to find suitable remedies;

ii. identify linkages among project components and the issues;

iii. identify where project activities or elements interact with social and biophysical environment (direct impacts):

iv. identify indirect impacts of the project on the environment;

v. identify cumulative impacts that may be anticipated;

vi. identify residual impacts if any;

vii. predict probability, magnitude, distribution and timing of expected impacts:

viii. for certain project components it might be necessary to carry out assessment at two or more sites (alternatives) in order to come out with the best option; and

ix. Forecast what will happen to the affected environmental components if the project is implemented as is or if the alternatives (e.g. sites and routes) are chosen.

Task 5: Estimation of the significance of the impacts

The consultant shall:

i. determine which environmental components are mostly affected by the project or its alternatives;

ii. list issues raised by the public and classify them according the level and frequency of concern whenever possible;

iii. list regulatory standards, guidelines etc. that need to be met; and

iv. Rank predicted impacts in order of priority for avoidance, mitigation, compensation and monitoring.

Task 6: Development of Management Plan to Mitigate Negative Impacts and develop a monitoring plan

The consultant shall:

i. determine appropriate measures to avoid or mitigate undesirable impacts;

ii. assess and describe the anticipated effectiveness of proposed measures;

iii. ascertain regulatory requirements and expected performance standards;

iv. determine and assess methods to monitor impacts for prediction accuracy remedial measures for effectiveness;

v. determine and assess methods to monitor for early warning of unexpected effects;

vi. re-assess project plans, design and project management structure;

vii. describe follow-up scheme and post-project action plan for achieving EIA objectives; and

viii. Assess the level of financial commitment by the project proponent for the management and monitoring plan, and follow up activities.

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

Task 7: Institutional set-up for

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

Task 8: Drawing Recommendations

The consultant shall:

i. highlight key concerns and considerations associated with the acceptance and implementation of recommended actions;

ii. determine resources requirements for implementing recommendations;

iii. determine capacity and resourcefulness of the client to meeting such commitment;

iv. explain rationale for proposed development and benefits and costs vis-à-vis the no-project option;

v. Ascertain degree of public acceptance of or reaction to recommendations.

Task 9: Environmental Impact Statement (EIS)

The assessment shall result into an EIS focusing on findings of the assessment, conclusions and recommended actions, supported by summaries of data collected etc. This shall be a concise document limited to significant environmental issues. The report format will be as per Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations, 2018.

Task 10: Review

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

Task 11: Public involvement

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

- For co-ordinating the environmental impact assessment with other government agencies, and

- For obtaining the views of affected groups, and in keeping records of meeting and other activities, communications, and comments and their disposition.

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

1.6 Time Scale

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

1.7 Personnel Requirement

The consultants shall deploy consultants/experts with the demonstrable practical experience in conducing ESIA studies. Specific experience/competence in environmental assessment and management, sociology and GBV aspects management, and civil /environmental engineering, will be engaged.

1.8 Reporting and Report Presentation

The draft of the EIA document submitted to Council should be concise, following the report writing guidelines in the Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations, 2018 for simplifying the review process.

1.9 Record of Meetings

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

1.10 Outputs

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

1.11 Reference

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

APPENDIX 4: ESIA TEAM

1.12 PROPOSED TEAM OF CONSULTANTS

(a) Dr. Alfred Said (Hydrologist)

Dr. Alfred Said is a specialist in Hydrology and Water Resources Engineering holding a PhD in Hydrology and Water Resources Engineering (HWRE), M.Sc. in Environmental Engineering, B.Sc. in Environmental Sciences and Management. Dr. Alfred is currently a lecturer, researcher, and consultant in Hydrology and water resources engineering, and environmental sciences. He has been engaged in a number of consultancies of pertaining environmental impact assessment and audit. He has been involved in Environmental and Social Impact Assessment (ESIA) for Quarry at Njombe Township, Environmental and Social Impact Assessment (ESIA) for Vocational Trainin institutions in Rukwa. He previously worked as an Agricultural research officer involved in Soils and Water management research. Furthermore, he is a former Environmental officer at Mantra Tanzania limited (now Uranium one) at the Mkuju River Uranium project. While at the Mkuju river project, Dr. Alfred has been responsible for ensuring the development of benchmark information on Water, Soils, air quality, and implementation of environmental management systems. Dr. Alfred has Experience in planning, organizing and scheduling various activities in the areas of Water Resources and of Environmental Sciences and Management like Data Collection, Analysis and Interpretation in Earth Resources Management including; Remote Sensing of the Environment, Sustainable Environmental Management, Mineral and Energy Resources. Others Include Waste Management (Liquid and Solid Waste) Land Reclamation/Restoration, Biodiversity Conversation, Environmental and Social Impacts Assessment, and Water Resource Management.

(b) Dr. FREDY MARO (Environmental Expert)

Dr. Fredy Maro is a Tanzanian environmental expert holding a PhD (Environmental Sciences), MA (Development Studies), and BSc. (Environmental Science and Management). He is National environmental management council registered Environmental expert, he trains students at UDOM and mid carrier experts in the courses of Environmental Management, Environmental and Social Impact assessment, risk assessment and vulnerability analysis, climate change, vulnerability and adaptation strategies. He has been engaged in numerous works and projects in the areas of environmental and social impact assessment, environmental Audit, development and agricultural Programs and projects. He has been involved in consultancy work with Engaged Consult and Sundy Merchants Company Limited in TANIPAC project under the ministry of agriculture. He works as environmental expert with EcoConServ Environmental Solutions of Egypt and MTL

Company Limited of Tanzania in REGROW project and Kikuletwa Renewable Energy Training and Research Centre (KRETC) in Hai district, Kilimanjaro region. As academician and researcher, his area of interest includes; Environmental management and Social Impact Assessment, Climate change and Adaptation, Agricultural and development issues.

(c) Dr. Christina Kifunda (Social Specialist)

Dr. Christina Kifunda is a Social Specialist, Lecturer, Researcher, and Consultant from Dodoma, Tanzania. She holds a Ph.D. in Economics, an M.A. in Geography and Environmental Management, and a B.A. with Education. With her expertise in teaching geography and conducting research, Dr. Kifunda has made significant contributions to projects focusing on sustainability economics, urban agriculture and gender, climate change and forest education in primary schools. She has also participated in conducting social and environmental impact (ESIA) Assessment for UDOM – HEET project in Dodoma, Tanzania.

(d) Dr. Kashimbi Kihara (Natural resources assessment and management specialist)

Dr. Kashimbi Kihara is a specialist in Natural resources assessment and management, holding PhD in Natural resources Assessment and Management (NARAM), M.Sc. in Integrated Water Resources Management (IWRM), B.Sc. in Wildlife Management. Dr. Kihara is currently a lecturer, researcher, with experience of in carrying out studies and consultancies for more than 10 years particular in Environmental and social impact assessment, flood and drought risk assessment, climate modelling, urban and rural livelihood, community-based adaptation and vulnerability assessment for disaster risk reduction to climate change and other related disciplines with high interact with a wide range of local communities, official from International Organisations such as UNDP, WWF, GIZ, Rosa Luxemburg Foundation project and government. As a consultancy, she has experience in planning, organizing and scheduling various activities in the areas of Natural resources assessment including data collection, analysis and interpretation using various tool like GIS and models and report writing. Furthermore, as a consultancy, she has lead in the project titled “Climate Vulnerability, Risks Assessment and Identification of Adaptation and Disaster Risk Reduction Options in the RUMAKI Seascape Area” in the context of natural resources management and community adaptation to climate change commissioned by WWF (2023). She has also involved as assistance consultancy in assessing Flood Risk Management In Dar Es Salaam for Effective Flood Protection and Community-Based Waste Management & Recycling In Middle Msimbazi with GIZ (2019).

(e) Prof. Godlisten Gladstone Kombe

Prof. Godlisten Gladstone Kombe is a Tanzanian chemical engineer and environmental expert. With a PhD in Chemical Engineering and a Master degree in Integrated Environmental Management, he is a certified expert in Environmental Impact Assessment (EIA) and Environmental Audit. Prof. Kombe has over a decade of experience in academia, research, and consultancy, making significant contributions to safety, environmental management, petroleum engineering, renewable energy, and project management. Currently an Associate Professor at the University of Dodoma, he has taught a wide range of subjects and guided research projects. Prof. Kombes consultancy work includes numerous EIAs and audits across Tanzania. He is an accomplished author with publications focusing on biodiesel production, renewable energy, and environmental management in Africa. With over 15 years of experience, he has conducted EIAs and audits as a co-consultant for public and private organizations. Notable assignments include preparing EIAs for construction projects, conducting audits for compliance, leading EIAs for industrial plants, and evaluating impacts of development projects.

(f) Eng. Paul W. Tumbu

Eng. Paul W. Tumbu is a Professional Engineer registered by Engineers Registration Board ERB with registration no PE 6038 specialized in Civil Engineering, holding a Master of Engineering Management from University of Dar es salaam and Bachelor of Civil Engineering from Arusha Technical College. Eng. Paul W. Tumbu is currently working at the University of Dodoma as Estate Officer. He has been involved in Environmental and Social Impact Assessment (ESIA) for Construction of Irrigation scheme at Busega DC, Design of UDOM –Iringa Hostel Building, Eng. Paul Tumbu has involved in supervision of various Public Buildings and roads in Maswa District Council, Busega District Council and the University of Dodoma.