




ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED CONSTRUCTION OF REGIONAL GIRLS SECONDARY SCHOOL AT IHUSHI, BUJASHI WARD, MAGU DISTRICT IN MWANZA REGION



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EXECUTIVE SUMMARY

Introduction

The Government of United Republic of Tanzania (URT) in collaboration with the World Bank has prepared the Secondary Education Quality Improvement Project (SEQUIP). The objectives of SEQUIP are to increase access to secondary education, provide responsive learning environments for girls and improve completion of quality secondary education for girls and boys. In summary, activities under SEQUIP will be structured into four main components:

Component 1: Empowering Girls through Secondary Education and Life Skills

1.1 Creating Safe Schools: Implementation of the Safe Schools Program including:

- i. Trained school guidance and counselling teachers;
- ii. Students' life skills training through girls' and boys' clubs by the guidance and counselling teachers; In-service training of secondary school teachers on the teacher code of conduct and gender sensitive pedagogical approaches;
- iii. Training of school heads and School Boards on GBV, safe school issues etc.;
- iv. School and classroom monitoring system for early identification of and intervention on girls at risk of drop out; and
- v. Community-based mechanism for safe passage to school.

1.2 Promoting Girls' Completion of Secondary Education through Quality Alternative Education Pathways including:

- i. Setting up an ICT-enabled system for tracking girls dropping out at national and district level to provide key information for AEP planning and implementation.
- ii. Alternative Education Centers and LGAs undertaking local outreach activities to out-of-school girls in the community which will include activities such as AEP center-organized community meetings, information via local radio, flyers and brochures.
- iii. Enhancing access to Alternative Education Pathways through (i) expansion of the network of AEP centers; and (ii) tuition fee subsidies for vulnerable girls.
- iv. A quality package for strengthening student learning in Alternative Education Pathways will also be implemented
- v. Environmental and Social Management Framework –Tanzania - Secondary Education Quality Improvement Project (SEQUIP)

Component 2: Digitally Enabled Effective Teaching and Learning

2.1 Effective Teaching and Learning

- i. Minimum package of critical teaching and learning resources for all schools: This package consists of an adequate number of textbooks and teacher guides in core subjects (English, Math and Sciences).
- ii. Equitable, gender-balanced teacher deployment to schools
- iii. In-service teacher training/continuous professional development (CPD) to improve classroom teaching practice for secondary English, Mathematics and Science teachers
- iv. Evaluate student learning in lower secondary to provide opportunities for remedial use: to allow for targeted early intervention to prevent girl dropout due to learning difficulties

2.2 Digitally-enabled Teaching of Math Sciences and English:

- i. Development of an ICT in Education Strategy and plan for secondary education.
- ii. Digital content and connectivity package to facilitate the teaching of English, Mathematics and Science in phases.

Component 3: Reducing Barriers to Girls' Education through Facilitating Access to Secondary Schools

Expansion of the secondary school network to substantially reduce the distance to secondary schools through an expansion of the secondary school network, especially in rural areas. SEQUIP will disburse

project funding on the basis of the number of schools in each LGA meeting minimum infrastructure standards

Support upgrading existing secondary schools with the minimum infrastructure package (number of classrooms/students, adequate WASH facilities; multi-purpose science labs, electricity, etc.) with the objective is that at least 50 percent of all existing schools in all LGAs will meet the minimum standards set.

Component 4: Technical Assistance, Impact Evaluation and Project Coordination Environmental and Social Management Framework –Tanzania - Secondary Education Quality Improvement Project (SEQUIP). SEQUIP will be jointly implemented by the Ministry of Education, Science and Technology (MoEST) and the President's Office, Regional Administration and Local Government (PO-RALG).

Tansheq Limited, a NEMC registered environmental consulting firm with offices at House No. 83 Wakulima/Ngano Rd, Hananasif Estate and P.O. Box 31517 Dar es Salaam, has been contracted by Po-RALG as Implementing Supporting Team (IST).

Project Description

The Project will apply the new Environmental and Social Standards (ESS's), as a requirement for the Bank financing. The Government has prepared this Environmental and Social Management Framework (ESMF) for the application of the following Environmental and Social Standards: Assessment and Management of Environmental and Social Risks and Impacts.

The proposed project site is administratively located at Ihushi village, Bujashi ward in Magu Municipal-Mwanza Region and is bordered by individual owned farm to the West, South there is seasonal river, east there is kayenze Road connecting from Sirali Mbeya Road and railway and Isalmic Chemichemi foundation institute to the North

Accessibility

The site is accessible through Mbeya Sirali (Musoma) near kisesa bus terminal through coordinate - 2.5538878, 33.0727465

Project Planning and Design

The school construction and design will consist of a required infrastructure package based on the school construction and maintenance strategy (e.g. number of classrooms/students, adequate WASH facilities, especially important for girls; multi-purpose science labs, electricity, etc.). The construction package will involve the following buildings;

Classrooms

The classrooms are designed following Education Bulletin number 1 of 2007 that directs capacity of each classroom level, 30 students for advance and 40 students for ordinary level. However, schedule of materials indicates each classroom will be having capacity of 40 students.

Construction will be undertaken in two phases. The first phase will involve construction of 12 classrooms within six blocks followed by the second phase that will involve the construction of 6 classrooms which will be of 3 different designs (2 classrooms with office, 2 classrooms with toilet and a 2 classrooms block). The proposed project development will adhere to the fire and rescue force directives for public premises.

The Education Global Practice Africa Region report prepared by World Bank provides the following directives; Student classroom ratios of 50:1 or less, student to functioning latrine ratio of 25:1 for girls and 30:1 for boys, at least one multipurpose science laboratory, student textbook ratios in mathematics and science subjects of 1:1, teacher: teacher guide availability of 2:1.

Laboratories

Education Bulletin number 1 of 2007 explain the capacity and set up of laboratory building for each level is 40 students, The scheduling of materials will adhere the bulletin as the following laboratory rooms will be constructed;

- Physics and geography lab
- Chemistry and biology lab,
- ICT room which is to be constructed in the second phase, and
- Domestic science

Administration block

The bulletin indicate for the school having capacity of 1000 student plus need to have not less than 40 teachers excluding other staffs such as school bursar, secretary etc. The administrative building will be constructed as an elevated building whereas only one (1) building will be constructed.

Toilets

The proposed toilet facility will comprise of one block with 16 holes to be constructed standalone as scheduling shows with estimates of one (1) hole for twenty (20) people, nevertheless, some of classrooms will be having sanitary rooms as designed, dormitory, and dining hall will also be having sanitary rooms.

The development of sanitary facilities is necessary to ensure the surrounding environment is well-managed and ensuring social well-being and practical operation of the school since human dignity is directly linked to access of safety and hygienic sanitation.

Dining hall

The Dining Hall is a pivotal gathering space on School's campus and is emblematic of The Family Boarding School ideal. The school will be having enough dinning space to all students since it is a boarding school thus meal will be served. According to the designs of the dining hall, it has the capacity of 2000 students.

Staff houses

The teachers' houses are designed to attract teachers out to the countryside, as well as to increase teachers morally to perform their duties unlike if they are coming far from the school. The design considers the staff house to have one (1) master bedroom, two (2) bedrooms/ one (1) master bedroom, three (3) bedrooms with Public toilet, Sitting room/dining, Kitchen and Store. Four (4) of the staff houses will be constructed.

Dormitories

Dormitories are places where students stay. The student housing must also aim to provide healthy and acoustically pleasant environments for the protection, comfort, and productivity of the students. The dormitories are designed as per provided to meet the SEQUIP objectives having a capacity to accommodate 120 students. For phase one five (5) buildings will be constructed while for phase two four (4) buildings.

Library

The library is important because it affects cultures, it affects innovation, and it affects individuals. Because of all this, library architecture has the responsibility to enhance these effects by providing a knowledge center that is inspirational and conducive to good communication and teaching interactions.

According to designs, the library to be constructed will accommodate 52 students for readings and the computer learning room will accommodate 8 students.

Sick bay

A sick bay provides a dedicated space for students who may feel unwell or require immediate medical attention. It will serve as a primary point of care within the school premises, allowing for timely assessment and treatment of minor illness or injuries.

Incinerator

This will provide a safe and efficient means of disposing waste specifically biomedical waste such as used sanitary pads, medical supplies and other potentially hazardous materials.

Other components that will be constructed within school compounds area are Playgrounds, Water tunnel, Water tank (hippo) and its pillars), Manhole and gully trap, Walkway & Paving.

Project activities

Main activities of the project include preconstruction, Construction, Operations, and decommissioning.

Mobilization phase/Pre-Construction Activities

The mobilization phase of the project, which is estimated to take average of maximum three months, will entail the following activities:

- Establishment of construction of camps, material and equipment storage areas, materials processing yards, including sanitation facilities. The following activities will be involved during establishment of the camp.
 - Bush clearing.
 - Construction of Material and equipment storage areas
 - Construction of sanitation facilities
 - Installation of electrical infrastructure
 - Installation of water and wastewater infrastructure
- Identification of naturally-occurring material borrow sites (sand, fill, gravel borrow and quarry sites),
- Identification of sources of water for domestic and construction works

Construction Phase

The construction phase of the project, which is estimates to take 12 month for each of the phase one and will encompass following major activities:

- Earth works to facilitate widening and re-alignment of the road. Earth works will entail the following activities:
 - a) Clearing and grubbing (clearing of vegetation, including trees).
- Extraction of naturally occurring construction materials. This will include:
 - b) Excavation and transport of natural sand, gravel, and sub-base materials to construction sites
 - c) Stone quarrying (including blasting), crushing and transport of crushed aggregates to construction sites
 - d) Transport and handling of fuel, lubricants etc. from their sources to the project site
- Transport of construction materials from source to site such as roof, steel, woods, nails, rope

Operation phase

The maintenance activities of the Overall, SEQUIP will contribute to increasing total enrolment in secondary school by 1.8 million students and increase the number of girls graduating from both secondary schools and alternative secondary education pathways.

Decommissioning Phase

After completion of construction, all the utilities which were used shall be reverted to the Municipal Director who will decide on their future use. The main activities during demobilization phase, will engross the following:

- Collection and disposal of storage facilities such as pallets, packing, boxes
- Collection and disposal of construction materials and waste such as waste oil, sewage, solid waste (plastics, wood, metal, papers, etc.) at the workshop, site office etc. to authorized dumpsite
- Restoration of material borrows areas to safer condition

Environmental and Social Management Framework

The ESF instruments that have been prepared for SEQUIP incorporate measures for project site Selection and to ensure designs and school construction align with the ESF requirements.

It has been agreed that civil works will follow building standards acceptable to the World Bank and required under the ESF; taking into account structural safety, universal access, changes in the standard drawings, water source availability and quality, efficient use of materials (wood) to reduce pressure on natural resources,

Water and Sanitation for Health (WASH) and solid waste management at the schools, among other risks identified as part of the due diligence process. Site selection for school construction is very important to avoid possible direct and indirect environmental and social impacts and lack of water sources for construction and during operation.

Vulnerable group

Means a group of people who, due to their characteristics and circumstances, are likely to suffer more adverse impacts of natural disasters than other groups in the community. **Vulnerable Person** means any person who by reason of age, infirmity, illness, disability or any other circumstance is in need of care or attention.

Vulnerable groups associated to SEQUIP:

- Age group (children & elders)
- Indigenous
- Physical challenged group
- Women/Sexuality Gender issue)

Project Cost

Total Project Cost is four billion Tanzanian shillings

National Legislation

Tanzania has ample legislation for the protection of the environment, health, safety and social welfare which is relevant for the application of the World Bank Environmental and Social Standards included in the ESF.

The main environmental, biodiversity, water, health, cultural resources, social and labor, policies and regulations relevant to SEQUIP and its commitment to this legislation during implementation has been discussed in this report, relevant legislation that applies to the project has been discussed too.

Baseline information

In order to gauge the extent of impact, it is crucial to establish the status quo. The consulting team conducted the baseline study of the current level of impacts. This involved a study on flora and fauna, air, soil and water. It also covered socioeconomic issues, noise and vibration.

The aim of ascertaining the baseline is to appreciate to what extent the proposed project can alleviate or exacerbate the current situation and Issues from Key Stakeholders.

Stakeholders Opinions and Concerns

The stakeholder consultations identified both positive opinions and negative concerns. Stakeholders had positive opinions of the project in terms of:

- Education opportunities to the specific project area and surrounding communities
- Rising of Bujashi Ward's economy as a result of population increase

Stakeholders were concerned about:

- During project implementation, citizens of the specific ward and Tanzanians as whole should be given priority in terms of employment opportunities.

ENVIRONMENTAL AND SOCIAL IMPACTS

The following impacts were identified in the various project development stages such as mobilization and construction, operational as well as decommissioning stage. These impacts were as follows:

Mobilization/Construction Stage:

- Loss/disturbance of biodiversity and threatened species
- Atmospheric emissions from engines of vehicles
- Dust and noise pollution from mobilization vehicles.
- Public health hazards and safety from construction of supportive infrastructure.
- Land disturbance.
- Roads accidents of the moving vehicles

Operation Stage:

- Disruption of air quality from emissions of exhaust and fugitive gases
- Disturbance to surrounding communities due to increased noise levels
- Aesthetic degradation, environmental pollution and outbreak of diseases and injuries due to improper management of surrounding hazardous and non-hazardous solid waste materials
- General health and safety impacts
- Increased population density

Socio – Economic Aspects:

- A more educated workforce in the country
- Decrease in unemployment rates
- Increase in income levels resulting to benefit to the government from taxes provided
- Women empowerment
- A more balanced and diverse demographic landscape with improved gender representation and opportunities for women in the respective regions and country

Decommissioning Stage:

- Abandoned infrastructure.
- Unemployment.
- Loss of revenue to the government

Enhancement of Positive Socio-Economic Impacts:

- Employment and training especially during construction
- Increased income/revenue/induced development.
- Increased income by utilization of local resources.
- Support to local social services and livelihood.

PROJECT ALTERNATIVES AND CONSIDERATION

The selection criteria for the location depends on the availability/ease access and ownership of the proposed land parcel for Mwanza region. In that regards various economic considerations which include the feasibility of the project in terms of financial and technical perspectives have been considered to select the project location.

Furthermore, the location shall not require demolition of property (houses and other infrastructure) to pave way for the construction and accessibility of the project site. In that regards, alternative location shall not be further considered in the EIS. Alternatives analysis in this project considered the following:

- a) No-Go alternative,
- b) Design and technological considerations
- c) Location
- d) Energy alternative
- e) Water and waste management alternative

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The Environmental Impact Assessment for the proposed construction of Mwanza Regional Girls Secondary School, has identified a number of impacts that are likely to arise during construction and operation stage of the proposed project.

The EIA has examined bio-physical, socio-economic and cultural effects of the proposed activity from site clearance, school construction and the school operation.

The real benefits of the proposed project can result only if the risks of the identified adverse impacts are minimized. This can be accomplished through implementation of adequate preventive and mitigation measures by formulating policies to cover them accordingly.

Environmental Management Policy

This will ensure that Project management and staffs are carrying out their activities with the highest regard to the natural environment and sustainable utilization of environmental resources therein. The policy should therefore cover the following, among other issues:

- Ensure that all Project activities operate within legal requirements of all relevant national legislation
- That there are continuous environmental improvement and performance through monitoring of Project activities;
- Ensure that utilization of natural resources is optimal with measures in place to ensure resource availability for future generation;
- Awareness creation to the surrounding community regarding sustainable utilization of natural resources, protection of sensitive ecosystems and bio-diversity maintenance for communal livelihood; and
- Balancing between natural resource use, environmental conservation and economic development.

Occupational Health and Safety Policy

It is developed for this project so as enable establishment of appropriate measures that ensure that the health, safety and welfare of all users is cared for as well as the health requirements of the local community in which the project is located. The policy should highlight on the following, among others:

- Medical examination of workers;
- Sanitation in the Project area;
- Proper liquid and solid waste management and disposal;
- Emergency preparedness;
- Fire safety;

- Necessity and availability of personal protective equipment
- Risk minimization of accidental damage to the community and environment

Community Relations Policy

The Local Community Policy are developed by management of the Project to ensure that the management of the project develops and maintains sound relations with all stakeholders on mutual respect and active partnership. The policy should highlight on ways the management should:

- Work with the local community and relevant government departments and agencies to achieve sustainability of the project;
- Come up with ways of enhancing information flow from management to the community and Project stakeholders, and vice versa;
- Community capacity building; and
- Active engagement of the local community in all Project activities that impact on the local community.

With regard to environmental management during the pre-construction, construction, operation and decommissioning phase of the project, the principal responsibilities of each party as described below. For certain aspects of the programme, assistance will be needed from the Local Government Authorities and the NEMC (mainly in the form of guidance and advice and in project monitoring).

ENVIRONMENTAL MONITORING PLAN

This report contains a detailed plan to monitor the implementation of mitigation measures and the impacts of the project during its execution. This plan includes a cost estimate for carrying out the proposed monitoring plan.

COST BENEFIT ANALYSIS AND RESOURCES EVALUATION

Environmental cost benefit analysis is assessed in terms of the negative and positive impacts. Furthermore, the analysis is considering whether the impacts are mitigatable and the costs of mitigating the impacts are reasonable. As it has been mentioned in Chapters 9 and 10, the potential benefits of the project, in terms of economic advancement and social benefit are substantial.

The environmental impacts are reasonably mitigatable. So to mitigate negative impacts, when compared to the required data are relatively small.

Social Cost Benefit Analysis

The benefits from project development can be judged in terms of employment, social welfare, education development, infrastructure development and the local economy (wages, goods and services). Thus, there will be a substantial spread of the benefit within the community through the provision of food, accommodation and other regular services to the employees and students.

Furthermore, the upgrading, development and maintenance of local infrastructure are benefits that will extend far beyond the project's scope and lifetime.

DECOMMISSIONING

Decommissioning is the last phase of project life. It involves terminating project activities and operations and rehabilitating site to or close to its original state. It is anticipated that the project shall continue as long as there is a demand for a project, however, individual components of the project shall be decommissioned as need be.

CONCLUSION

The project will have both positive and negative impact to the environment and the local communities along it. Measures have been proposed to enhance impacts which are positive to the environment and the local people.

For those impacts that are negative, mitigation measures have been proposed to avoid or abate them to the extent possible for the purpose of maximizing benefits of the school project and minimizing detriments of the project intervention to the communities.

Overall, the project shall act as a catalyst for positive change in the surrounding communities by improving education, infrastructure and social well-being, and by involving and engaging the local residents, the project can have a lasting impact and contribute to the overall development of the region.

LIST OF LIST OF REGISTERED EXPERTS INVOLDED IN CONDUCTING THE STUDY

S/N	Experts	Specialty	Signatures
1.	Gwakisa Mwakyusa	Team Leader	
2.	Lusako Raphael	Senior Environment expert	
3.	Anamary Philemon	Monitoring and Waste Management Expert	
4.	Erick Gagalla	Environmental expert	
OTHER EXPERTS INVOLVED IN THE STUDY			
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2	Veronica Msolla	Environmental Officer	
3	Asia Abibu	Environmental Officer	
4	Yerusalem Mwaipopo	Environmental Engineer	
5	Joachim Marawiti	Environmental and GIS Expert	

ACRONYMS AND ABBREVIATIONS

ADB	African Development Bank
AIDS	Acquired Immune Deficiency Syndrome
AEP	Alternative Education Program
CBOs	Community Based Organisations
CO	Carbon Monoxide
CDP	Community Development Program
CO2	Carbon Dioxide
dB	Decibels
DC	District Commissioner
DP	Development Partner
DEO	District Education Officer
DOE	Director Of Environment
DEMO	District Environment Management Officer
DED	District Executive Director
DRC	Democratic Republic of Congo
EMA	Environmental Management Act
EIA	Environment Impact Assessment
ESIA	Environment and Social Impact Assessment
ESS	Environment and Social Standards
ESDP	Education Sector Development Plan
ESF	Environment and Social Framework
EMP	Environmental Management Plan
EPFIs	Equator Principle Financial Institutions
ESMP	Environment and Social Management Plant
EBRD	European Bank for Reconstruction and Development
FI	Financial Intermediaries
FYDP	Five Year Development Plan
GDP	Gross Domestic Product
GBV	Gender Based Violence
GCA	Game Controlled Areas
GIIP	Good International Industry Practices

GCS	Geographic Coordinate System
GCLA	Government Chemistry Laboratory Authority
GS Pipe	Galvanized steel
HIPC	Heavily Indebted Poor Country
HIV	Human Immunodeficiency Virus
ICT	Information and Communications Technology
IFC	International Finance Institution
IST	Implementing Supporting Team
ISO	International Organization for Standardization
IPF	Investment Project Financing
IUCN	International Union for Conservation of Nature
LGAs	Local Government Authorities
LPG	Liquefied Petroleum Gas
MoEST	Ministry of Education, Science and Technology
MWANZA UWSA	Mwanza Water Supply & Sanitation Authority
NAPA	National Adaptation Programme Of Action
NEMC	National Environment Management Council
NEP	National Environment Policy
NGOs	Non-Governmental Organisations
NOx	Oxides of Nitrogen
NSGRP	National Strategy for Growth and Reduction of Poverty
OHS	Occupational Health and Safety
O	Oxygen
OP	Operational Policy
OIP	Other Interested Parties
OSHA	Occupational Safety and Health Authority
OSPAR	Oil Spill Prevention Administration And Response
OPC	Ordinary Portland Cement
PAP	Project Affected People
PDO	Project Development Objectives
pH	Potential of Hydrogen
PLONOR	Pose Little Or No Risk

PM	Particulate Matters
PoRAL	President office, Regional Administration and Local Government
PPE	Personal Protective Equipment
PVC	Polyvinyl Chloride
RAS	Region Administrative Secretary
RAO	Region Academic Officer
RC	Region Commissioner
REO	Region Education Officer
REMO	Region Environment Management Officer
SEP	Stakeholder Engagement Plan
SEQUIP	Secondary Education Quality Improvement Project
SO ₂	Sulfur dioxide
TANESCO	Tanzania Electric Supply Company
TDV	Tanzania Development Vision
ToR	Terms of Reference
URT	United Republic of Tanzania
VEC	Valued Environmental Component
VOCs	Volatile Organic Compounds
WB	World Bank
WBMS	World Bureau of Metal Statistics
WEO	Ward Executive Officer
WHO	World Health Organization

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CHAPTER ONE

1. INTRODUCTION

1.1 Background

The Government of the United Republic of Tanzania (URT) in co-operation with the World Bank developed the Secondary Education Quality Improvement Project (SEQUIP). The objectives of SEQUIP are to increase access to secondary education, provide responsive learning environments for girls and in result, improve completion of quality secondary education for girls and boys.

Although access to and completion of primary education has improved over the last decade and substantial progress has been made in secondary education, secondary student enrolment rates of girls and boys are still very low in Tanzania compared to other East African countries. The share of secondary students of the relevant school age population enrolled was only 28 percent in 2018, compared to 68 percent in Kenya, despite the recent enrolment surge. Secondary school attendance was 28 percent for girls and 27 percent for boys.

The three main challenges in secondary education are:

- (i) Access to and completion of quality secondary education for girls and boys;
- (ii) A safe, supportive learning environment to keep girls in school longer and delay early marriage; and
- (iii) Effective and clear Alternative Education Pathways (AEP) to enable girls and boys who drop out of lower secondary school, for various reasons including early pregnancy, to finish the lower secondary education cycle and enter upper secondary schools

The proposed project intends at enhancing the secondary education through delivery point's improvement by increasing access to secondary education, provide responsive learning environments and improve completion of quality secondary education for girls.

The implementing Government Agencies are Ministry of Education, Science and Technology (MoEST) and the President's Office – Regional Administration and Local Government (PO-RALG). Both Ministries are responsible for implementation of school-level education activities through the Local Government Authority (LGA).

One of the key components to be implemented through SEQUIP is facilitating access to secondary schools and bringing schools closer to communities. The project plans to support construction of 1000 new schools and rehabilitation of additional facilities at existing secondary schools. The project will specifically have the following components.

- Component 1: Empowering Girls Through Secondary Education and Life Skills
- Component 2: Digitally-Enabled Effective Teaching and Learning
- Component 3: Reducing Barriers to Girls' Education through Facilitating Access to Secondary Schools
- Component 4: Project Coordination, Monitoring and Evaluation

The Secondary Education Quality Improvement Project (SEQUIP) will focus on enabling young girls to continue their secondary education despite social and economic barriers. More generally, SEQUIP will improve the completion of quality, learner-friendly secondary education for girls and boys. In 2018, 1,025,629 girls and 965,242 boys attended lower secondary school.

However, in the same year, a further 134,000 children, half of whom were girls, qualified to continue their schooling but were unable to because of lack of spaces in government secondary schools. Drop-out rates are high for both boys and girls with a quarter of students leaving before they complete their lower secondary schooling. In 2017, about 5,500 girls were not able to continue with their secondary education due to adolescent pregnancy and early motherhood. SEQUIP will contribute to addressing these key challenges by:

- (i) Creating a gender sensitive, learner-friendly school environment through investing in supportive structures in the school and community including trained school guidance counsellors, stronger links with the community through Parent Teacher Associations and life skills training.

- (ii) Supporting female students to avoid dropping out of secondary school due to pregnancy through measures that include:
 - (a) Encouraging community awareness of risks for girls;
 - (b) Supporting safe passage and reducing the distance to schools to lower the risks of gender-based violence on the way to and from school; and supporting girls who become pregnant to access recognized, quality Alternative Education Pathways (AEPs) to obtain lower secondary certification and continue with upper secondary education or post-secondary education.
 - (c) Improving the quality of secondary school teaching and learning environments through the hiring of additional qualified teachers in core subjects and providing textbooks in core subjects.
 - (d) Increasing the number of secondary school spaces through the construction of new classrooms that meet minimum infrastructure standards and supporting the expansion of the school network to bring schools closer to communities.
 - (e) Using innovative digital technology to facilitate mathematics and science teaching and improve learning.

These SEQUIP interventions are aligned with the Government's Education Sector Development Plan (ESDP) (2016/17–2020/21) and related strategies. SEQUIP design also draws on lessons learned from previous and ongoing World Bank and Development Partner (DP) support to education in Tanzania.

Overall, SEQUIP will contribute to increasing total enrolment in secondary school by 1.8 million students and increase the number of girls graduating from both secondary schools and alternative secondary education pathways.

Over its lifetime, the Project will directly benefit about 6.5 million new and existing secondary school students, including 3.2 million girls. 1 SEQUIP will help more girl's transition from lower to upper secondary education, including girls who had to leave lower secondary government schools due to pregnancy

1.2 Project Objectives

The Program's objective is to increase access to secondary education, provide responsive learning environments for girls and improve completion of quality secondary education for girls and boys. The project interventions will:

- (i) Create a safe, gender sensitive and learner-friendly school environment,
 - (ii) Provide good quality alternative education opportunities for secondary school drop-outs including young mothers;
 - (iii) Improve the quality of secondary education by improving teacher skills, reducing class sizes and providing adequate teaching and learning materials;
 - (iv) Use innovative digital technology to improve mathematics and science teaching and;
 - (v) Increase access to secondary education by providing more schools closer to the homes of children.
- Over the project's lifetime, 6.5 million children (3.1 million girls) will benefit from project interventions and an additional 900,000 children are expected to successfully complete their secondary education.

A need and evidence-based approach will be used in identification and selecting locations and schools that will benefit

1.3 Scope of the Study

The ESIA was carried out in accordance with the guidelines established by the Environment Management Act of 2004 and its regulations, as well as the World Bank requirements outlined in the Environmental and Social Framework, which is broken down into ten environmental and social standards. Among the key considerations in its undertaking were the following:

- To ensure that environmental considerations are explicitly addressed and incorporated into the decision making process, with the aim to anticipate and avoid, minimize, or offset the adverse significant biophysical and social effects of the proposed project; and to protect the capacity of natural systems and ecological processes to maintain their functions.

- To promote development that is sustainable and optimizes resources use and management opportunities.

1.4 Land requirement for the project

Land is public property and rights to the land are issued in the form of residential leases and certificates of rights to occupancy. The construction of new schools in Mwanza will need enough land. Site selection will be important in minimizing the extent of resettlement including of informal land owners and or users who were present in an area prior to the selection of a site for a school.

The proposed school construction area legally owned by Magu Municipal and was once industrial located area, but that programme was not implemented, hence the Municipal is changing the use to school construction. The area has total of 30 Hectares

1.5 Study Approach And Methodology

The approach to this exercise was structured such as to cover the requirements under the Environment Impact Assessment and Audit Regulations, 2005. It involved largely an understanding of the project background, the preliminary designs and the implementation plan as well as commissioning. In addition, baseline information was obtained through physical investigation of the project site areas, desktop studies, and public consultations with members of the community in the project areas, survey, photography, and discussions with the project Proponent.

The methodology used in this study follows specific procedures and guidelines set by the EIA & Audit Regulations of 2005. The study adopted the approach of conducting Impact Assessment which is closely related to the flowchart in **Error! Reference source not found..**

Figure 1-1 Impact Assessment Process

1.5.1 Issues Associated with the Proposed Project

Environmental and social Issues associated with school construction activities were identified based on previous history and detailed project activities. These are detailed in Chapter 2.

1.5.2 Regulatory Framework with Associated Issues

Description the relevant regulations and standards governing environmental quality, health and safety, protection of sensitive areas, sitting, land use control as detailed in CHAPTER THREE.

1.5.3 How the Situation is Currently (Baseline Situation)

To gauge the extent of impact, it is crucial to establish the status quo (CHAPTER). The consulting team conducted the baseline study of the current level of impacts. This involved a specialized study on flora and fauna, air, soil and water.

It also covered socioeconomic issues, noise, and vibration etc. The aim of ascertaining the baseline it to appreciate to what extent the proposed project can alleviate or exacerbate the current situation. Issues from Key Stakeholders

This EISA also reports on the following:

- A list of stakeholders consulted together with a stakeholder analysis.
- The method used to get their views and issues of concern raised.
- Issues raised by the stakeholders and the way they were addressed.
- Records of stakeholder meetings, communications, and comments.

1.5.4 Assessment of Impacts (Both Good and Negative)

This critically reviews and analyses interaction between the proposed project and the existing environment. In this analysis, the consultant distinguished between significant positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts. Impacts, which are unavoidable or irreversible, are also identified. Wherever possible, impacts are described quantitatively in terms of environmental costs and benefits.

1.5.5 Consideration of Alternatives

This environmental assessment also involved an analysis of reasonable alternatives to meet the ultimate project objective. This analysis included any alternatives examined while developing the proposed project, and that from an environmental, socio-cultural, or economic point of view may be sounder than the proposed project. This also includes the 'no action' alternative, which assesses environmental conditions without project.

It describes how the alternatives compare in terms of potential impacts, costs, suitability under local conditions, as well as institutional, training, and monitoring requirements. To the extent possible, costs and benefits of each alternative are quantified, incorporating the estimated costs of any associated mitigating measures. Finally, this report described the reasons for selecting the proposed project over the other alternatives.

1.5.6 Developing an Environmental Management Plan

This report recommends feasible and cost-effective measures to prevent or reduce any significant negative impacts to levels that are acceptable. This involves:

- Estimating the impacts and costs of those measures, and of the institutional and training requirements to implement them.
- Preparing a management plan including proposed work programs, budget estimates, schedules, staffing and training requirements, and other necessary support services to implement the mitigating measures.
- A management plan also covering the decommissioning phase of the project.

1.5.7 Developing an Environmental Monitoring Plan

This report contains a detailed plan to monitor the implementation of mitigation measures and the impacts of the project during its execution. This plan includes a cost estimate for carrying out the proposed monitoring plan.

1.6 Content of the Report

This report is designed to meet the requirements of Regulation 18 of Environmental Impact Assessment and Audit Regulations (United Republic of Tanzania, 2005) and as per the process of conducting ESIA. This introductory chapter is followed by the subsequent chapters as detailed in Table 1-1.

Table 1-1: Content of the Report

Chapter	Description
1. Introduction	Overview and objective of the study, methodology and outline of the report
2. Project Background and Description;	This chapter describes: <ul style="list-style-type: none">• The executing entities of the project and their respective roles in the project• The project's geographic location, preferably illustrated with appropriate maps• Summary of the project (project objective(s), expected results/outcomes, outputs and main activities• Implementation arrangements.
3. Policy, Administrative and Legal Framework;	Describe the policy, legal and administrative framework within which the project takes place and identify any laws and regulations that pertain to environmental and social matters relevant to the project. This includes regulations about environmental and/or social impact assessments to which the project must adhere as well as laws implementing host country obligations under international law. If applicable. Where pertinent, consider legal frameworks for promoting gender equality. Flag any areas where the project might fall short on compliance.
4. Baseline or Existing Conditions;	The main purpose of this section of the ESIA report is to provide an understanding of current environmental and social conditions that form the baseline against which project impacts can be predicted and measured during project implementation. For moderate-risk projects that require only a partial ESIA and no scoping study, this section also provides an opportunity to substantiate the results of the ESMS screening by confirming potential impacts and/or identifying other potential impacts.
5. Stakeholder Identification and Analysis	The purpose of the stakeholder identification and analysis is to understand potential impacts on stakeholders and to clarify who should be involved in the ESIA process and how. This should be able to elaborate: <ul style="list-style-type: none">• stakeholders' interests in and expectations from the project;• how they might influence the project (positively or negatively);• a first appraisal or estimation of how their livelihoods could be impacted by the project (positively or negatively); and• How they should be involved in the ESIA based on the information in the three items above.
6. Assessment of Impacts and Identification of Alternatives	This step is the heart of the ESIA; it itemizes and describes the identified impacts, makes predictions in terms of their probability, and assesses their significance. When analyzing the risks not only direct impacts should be taken into consideration but also indirect impacts such as inadvertent knock-on effects or cumulative effects

Chapter	Description
	that materialize through interaction with other developments, impacts occurring at the project site or within the project's wider area of influence and impacts triggered over time The purpose of the analysis of alternatives is to identify other options, including not implementing the project, to achieve the project objectives and compare their impacts with the original proposal. This step is required only for high-risk projects where the identified impacts are very significant.
7. Impacts Management or Environmental Mitigation Measures	A main output of the ESIA process is a strategy for managing risks and mitigating impacts. The identification of mitigation measures is done in consultation with affected groups and is guided by the mitigation hierarchy. The mitigation hierarchy implies that all reasonable attempts must first be made to avoid negative social or environmental impacts. If avoidance is not possible without challenging the conservation objective of the project, measures should be taken to minimize the impacts to acceptable levels and address remaining residual impacts with adequate and fair compensation measures.
8. Environmental and Social Management Plan	This is a risk management strategy is documented in an Environmental and Social Management Plan (ESMP) that describes: the mitigation measures developed during the ESIA, an implementation schedule and required resources and responsibilities. The technical and operational feasibility, cultural adequacy and sustainability of proposed measures must be demonstrated as well as requirements for capacity building and institutional strengthening, where relevant.
9. Environmental and Social Monitoring Plan	The ESMP should also indicate how the measures designed to avoid impacts will be monitored for effectiveness.
10. Resource Evaluation or Cost Benefit Analysis	This chapters intends to internalize all costs associated with management of environmental and social impacts while comparing with the benefits which could be derived from implementation of the project
11. Decommissioning;	How decommissioning of the project shall be affected and restoration of the site
12. Summary and Conclusions	An overview of the study as well as conclusion from experts regarding the findings
13. References	List of all sources of information used in the report
14. Appendices	Detailed descriptions which are important for the study but cannot be included in the main body

1.7 Limitations of the Study

The process of conducting Environmental and Social Impact Assessment of the proposed SEQUIP projects faced the following key challenges:

The process of conducting Environmental and Social Impact Assessment of the proposed SEQUIP projects faced the following key challenges:

- a) Limitation of alternative selections

The expert team had no chance to select the best site for school construction this limited the ESIA study

- b) Capacity of the team from the client involved in conducting ESIA

It has been evidenced from the site visit and call coordination from zonal coordinators emphasizing the municipal environment experts have limited understanding on the preparation of ESIA reports unless training of the same has to be done this can be resolved by maximum utilization of all municipal experts in this regard instead of selecting the few, this will help in exchanging professional experience and understating

c) Non consideration of associated facilities

Associated facilities has been given less priority on the execution of the projects in result chances of project delay and supervision remain unturned these associated facilities are such as water and water utilities, power sources e.t.c

d) Lack of cooperation from the zonal and site coordinators

We have been getting limited cooperation from zonal coordinators as it was expected because they are engaged in other government day to day activities, this leads to limited accessibilities of information from their respectively zones this has to be resolved by the zonal coordinators assume their roles as it was described in initial stage of this project

e) Delay in response/ request of information

Government officials such as zonal coordinators have been delaying in providing the required information for the preparation of this EIS documents, this has gone down to municipal officials to resolve this the municipal expert team have to provide the required information on time

CHAPTER TWO

2 PROJECT BACKGROUND DESCRIPTION

2.1 Overview

The Project Development Objectives (PDOs) are to increase secondary education access, provide responsive learning environments for girls, and improve both girls' and boys' completion of quality secondary education. SEQUIP will help to address key barriers to education for both girls and boys, and this school will focus on girls' academic excellence. The project's goal is to reduce the time it takes to reach the following government targets: 3 km (or

The project will help to increase the total number of students in secondary education, including Alternative Education Pathways (AEP), by 250,000. It will directly benefit approximately 1.8 million secondary school students, including 920,000 girls, 95% of whom are enrolled in lower secondary. SEQUIP will assist more girls in transitioning from lower to upper secondary education, as girls are underrepresented at this level.

Project Location and Accessibility

The proposed project site is administratively located at Ihushi village, Bujashi ward in Magu Municipal- Mwanza Region and is bordered by individual owned farm to the West, South there is seasonal river, east there is kayenze Road connecting from Sirali Mbeya Road and railway and Isalmic Chemichemi foundation institute to the North

2.1.1 Accessibility

The site is accessible through Mbeya Sirali (Musoma) near kisesa bus terminal through coordinate -2.5538878, 33.0727465

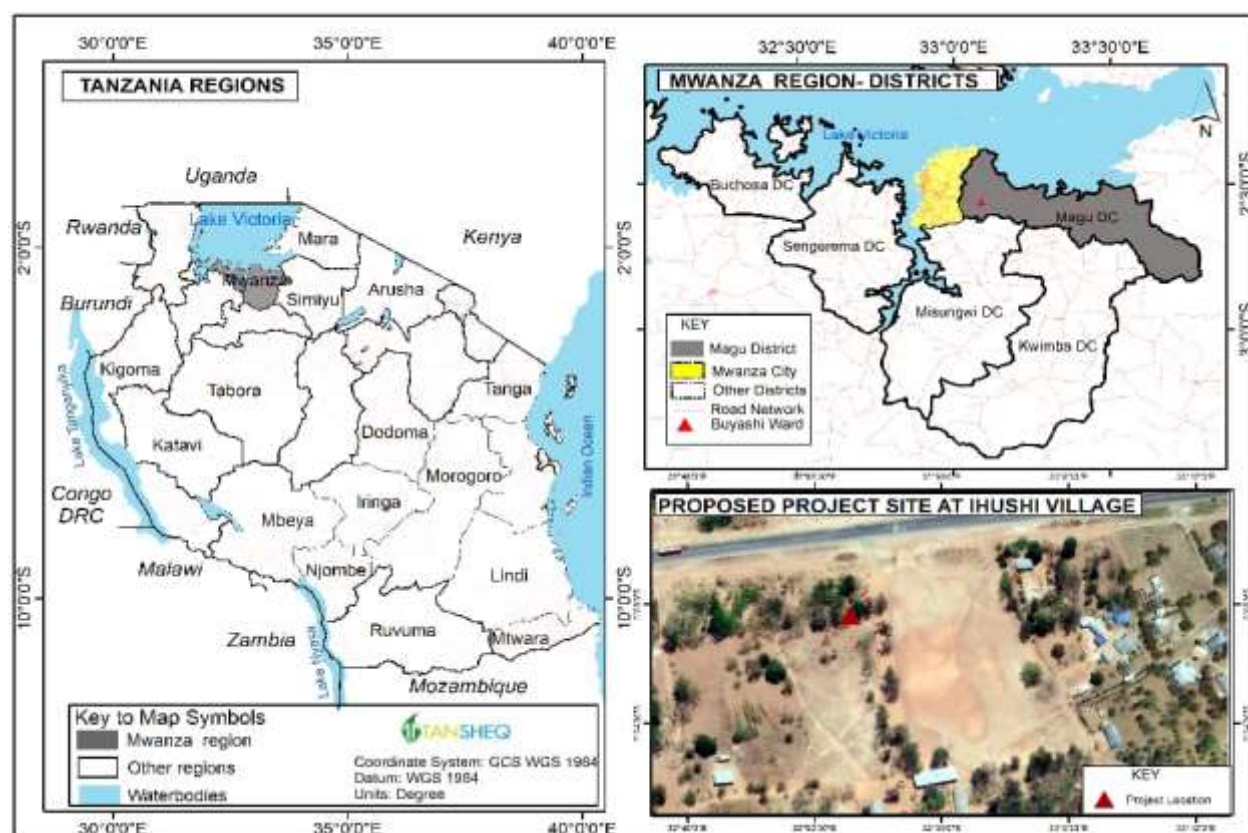


Figure 2-1: Map of the proposed project area

2.2 Current Situation in vicinity proposed site.

2.2.1 Proposed project

The proposed project is at the 50% of work progress on site as some buildings within the project site are at the finishing stage while other buildings are being constructed as shown in the current pictures of the site in Figure 2-2



Figure 2-2: Current situation at project site area

2.3 Project Component

2.3.1 Overview

Project planning and all designs are prepared as per SEQUIP design and the overall objective for the development is specified in the Environmental and Social Management Framework (ESMF). The design of the Girls' Regional School consists of required infrastructure package based on the school construction and maintenance strategy (e.g., number of classrooms/students, adequate WASH facilities, multi-purpose science labs, electricity, etc.).

The proposed construction of the school will be having both ordinary and advanced level with capacity of accommodating students between 1000 and 1100 students. The construction package will involve the following facilities:

The Education Global Practice Africa Region report prepared by World Bank provides the following directives; Student classroom ratios of 50:1 or less, student to functioning latrine ratio of 25:1 for girls and 30:1 for boys, at least one multipurpose science laboratory, student textbook ratios in mathematics and science subjects of 1:1, teacher: teacher guide availability of 2:1. Figure 2-3 showing the proposed classroom design.

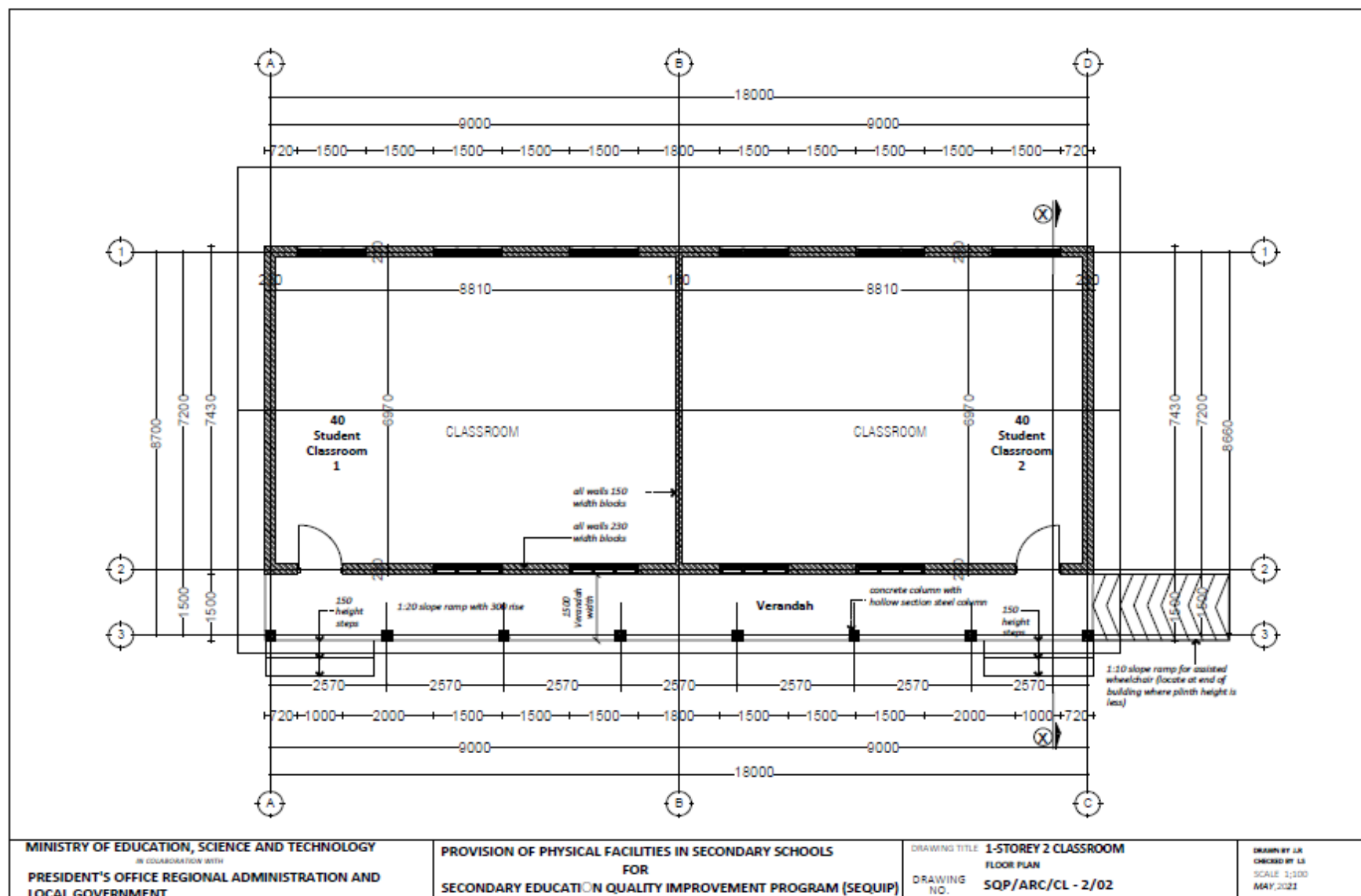


Figure 2-3: Classroom Design

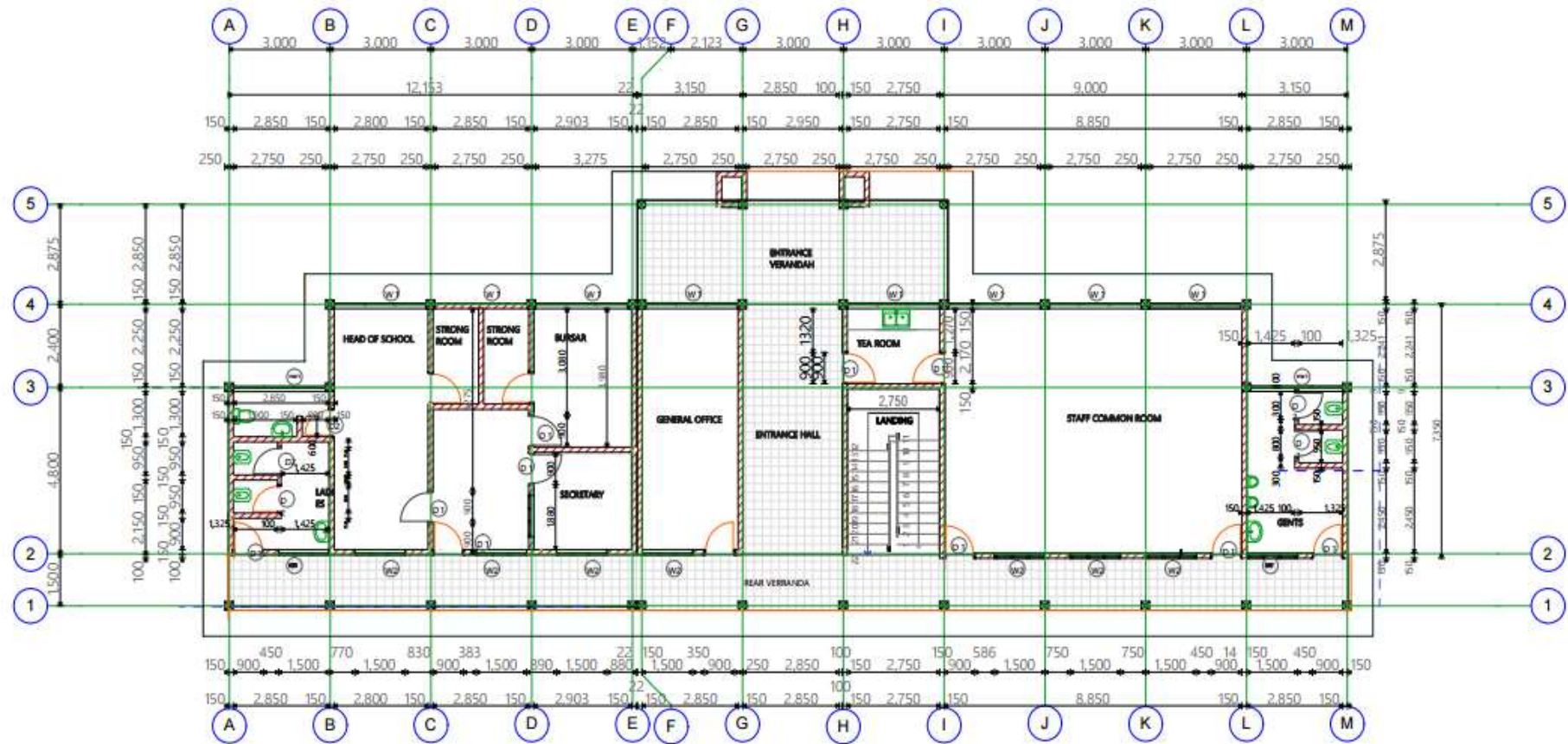


Figure 2-4: Proposed Design for School Administration block

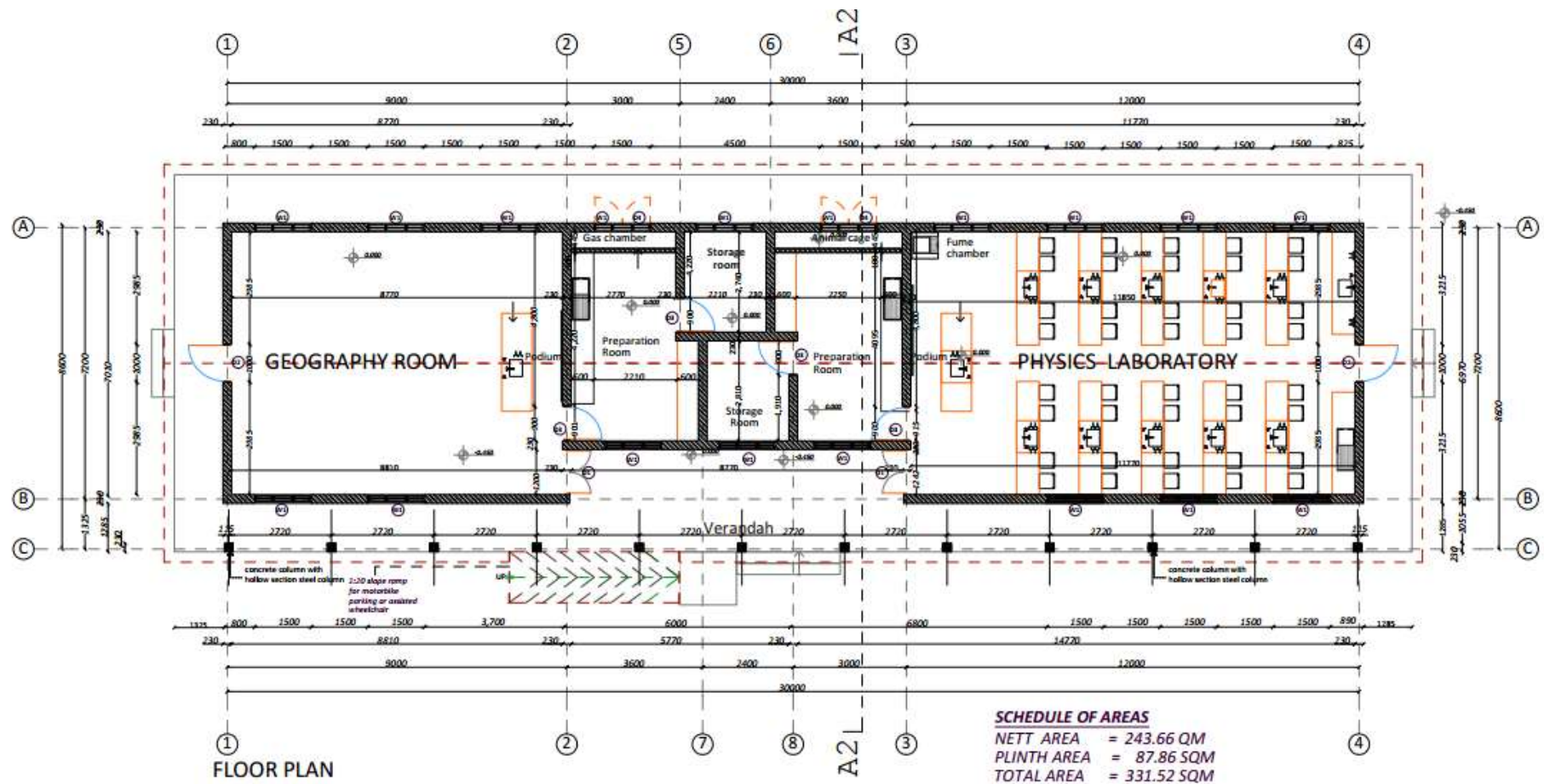


Figure 2-5: Proposed layout of the Laboratory room to be constructed

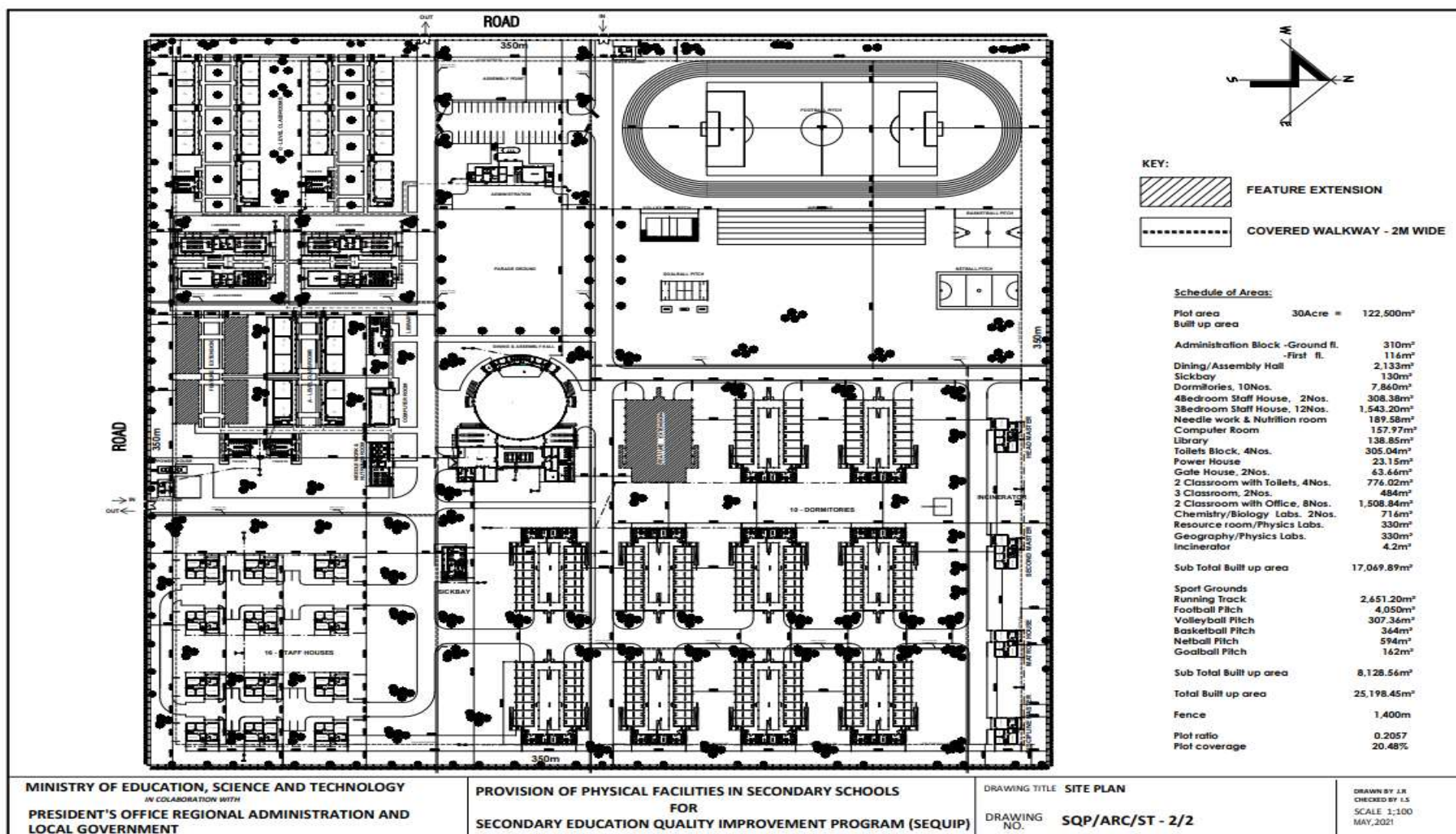


Figure 2-6: site layout-plan showing location of each project component in relation to the project area

2.3.2 Laboratories

Education Bulletin number 1 of 2007 explain the capacity and set up of laboratory building for each level is 40 students, The scheduling of materials for simiyu will adhere the bulletin as required the following laboratory rooms will be constructed

- Physics and geography lab
- Chemistry and biology lab,

The apparatuses and reagents to be used in each laboratory are as follows:

- Physics and Geography Lab: The specific apparatuses and reagents used in this lab will depend on the specific experiments and activities conducted. They may include equipment such as microscopes, globes, maps, thermometers, compasses, rulers, and various measuring instruments.
- Chemistry and Biology Lab: Similarly, the apparatuses and reagents used in the Chemistry and Biology Lab will vary based on the experiments and practical exercises. They may include equipment such as Bunsen burners, test tubes, beakers, pipettes, pH meters, microscope slides, petri dishes, chemicals, biological samples, and various lab consumables.

Details on design of the laboratory can be accessed through <https://www.tamisemi.go.tz/michoro-ya-ujenzi> and the design layout is shown in Figure 2-5

2.3.3 Administration blocks

The bulletin indicates that the school should have a capacity of 1000 students and should be staffed by no fewer than 40 teachers, excluding other staff such as the school bursar and secretary, etc. Figure 2-4 illustrate the administration layout. The construction of the school will take into account the number of teachers and other staff members.

2.3.4 Toilets

The proposed toilet facility will comprise of one block with 16 holes to be constructed standalone as scheduling shows, nevertheless, some of classrooms will be having sanitary rooms as designed, dormitory, and dining hall will be having sanitary also.

The method that will be used for the management of waste water from toilets is a septic system. Septic tanks will be constructed in appropriate places so as to collect wastewater from classroom toilets, dining hall toilets, and dormitory toilets.

Furthermore, it is crucial to take into account the needs of individuals with physical disabilities when designing the toilet facilities. Ensuring accessibility and inclusivity for people with disabilities is of utmost importance. Thus, the proposed toilet facility should be equipped with features such as wider doorways, grab bars, accessible sinks, and sufficient space for maneuverability. These considerations will help to ensure that individuals with physical disabilities can access and use the toilet facilities comfortably and independently.

By incorporating these additional aspects into the design and construction plan, the proposed toilet facility will not only meet the basic sanitation needs of the facility's users but also ensure that it is inclusive and accessible to all, including those with physical disabilities.

2.3.5 Generator room

This room will be used for putting Generator. This generator will be an alternative source of power at school and the incorporated premises such as staff quarters. One generator room will be constructed. The generator to be used should be more environmentally friendly and emit fewer emissions.

2.3.6 Dining hall

The Dining Hall is a pivotal gathering space on the school's campus and is emblematic of The Family Boarding School's ideals. The school will have enough dining space for all students, as it is a boarding school where meals will be served. According to the designs of the dining hall, it has the capacity to accommodate 2000 students. The fuel to be used for cooking will be firewood and electricity.

2.3.7 Teachers' house

The teachers' houses were designed to attract teachers out to the countryside, as well as to increase teachers' morally to perform their duties unlike if they are coming far from the school. The design considers the staff house to have one (1) master bedroom, two (2) bedrooms with public toilet, Sitting room/dining, Kitchen and Store.

2.3.8 Dormitories

These dormitories are the place where students stay. The student housing must also aim to provide healthy and acoustically pleasant environments for the protection, comfort, and productivity of the students. The dormitories will be designed as per provided to meeting the SEQUIP objectives.

2.3.9 Library

The library is important because it affects cultures, it affects innovation, and it affects individuals. Because of all this, library architecture has the responsibility to enhance these effects by providing a knowledge center that is inspirational and conducive to good communication and teaching interactions.

According to designs, the library to be constructed will accommodate 52 students for reading and the computer learning room will accommodate 8 students.

Other components that will be constructed within school compounds area Water tunnel, Waste incinerators, Water tank (hippo) and its pillars), Manhole and gully trap, Walkway & Paving. Table 2-1 shows the summary of buildings will be constructed

Table 2-1: Summary of buildings to be constructed.

CONSTRUCTION			
No	Buildings	No. of Buildings	No. of rooms
First construction phase			
1	Building with 2 classrooms	2	4
2	Building with 2 classrooms and one office	3	6
3	Building with 2 classrooms and 2 toilets	1	2
4	Building with Physics laboratory and Geography room	1	2
5	Building with Chemistry and Biology laboratory	1	2
6	Administration Building	1	1
7	Toilet building for students (girls)	1	16
8	Generator Room	1	1
9	Dining Hall	1	1
10	Teacher's house (3 rooms)	1	5
11	Teacher's house (2 in 1)	1	4
12	Dormitories @ 120	5	Cubicle 15
Surrounding activities			
1	Water Tunnel (1050m)	1	1
2	Waste incinerators	1	1
3	Waste incinerators	2	2
4	Underground water storage tanks (32,000 liters)	2	2
5	Water tank (hippo) and its pillars)	2	2

	CONSTRUCTION		
6	Manhole and gully trap	1	
7	Walkway & Paving		
Second construction phase			
1	building with 2 classrooms	2	4
2	Building with 2 classrooms and 1 office,	3	6
3	ICT Room	1	1
4	Library	1	1
5	Master's Houses (3 Rooms)	4	
6	Dormitories @ 120 Students	4	

The various facilities designed for the school are in 3 dimensions in Figure 2-7



Figure 2-7: Various Facilities to be constructed with the General layout in 3D

2.4 Project Activities

The envisaged project activities can be broadly categorized in three phases as listed in Table 2-2

- Mobilization and Construction
- Operational phase
- Decommissioning phase

Table 2-2 Project activities

Project Phase	Activities
Mobilization Phase	<ul style="list-style-type: none"> • Bush clearing. • Site levelling • Site marking • Temporary camp/shed for office
Construction phase	<ul style="list-style-type: none"> • Excavation of trenches for foundation • Alignment of blocks for Foundation • Concrete mixing • Setting up main door frame and other room door frames • Wall construction until window frame base • Setup ventilators for exhaust fans, bathroom ventilators if needed • Slabs formworks for Floors

Project Phase	Activities
	<ul style="list-style-type: none"> • Bar bending work for beams and roof • Electric pipes setup inside roof • Clear any blockage in the roof pipes • Laying electric pipes in the walls and setup electric boxes • Tiles laying on the floors and bathroom walls • Plastering of roof and walls indoors and outdoors • Finishing outside and plumbing work and tank • Painting • Electric wiring and switches setup • Compound wall/fence • Firefighting system installation • Water drainage system • Air cooling system installation
Operation phase	<ul style="list-style-type: none"> • Teaching services • Movement within dormitories, classrooms, dinning, laboratory, offices and washrooms • Meeting and Conferences • Health. Safety and security as well as social issues.
Decommissioning phase	<ul style="list-style-type: none"> • Expansion and maintenance

2.4.1 Mobilization phase

The mobilization phase of the project, which is estimated to take average of one month and maximum three months, will entail the following activities:

- Establishment of construction of camps, material and equipment storage areas, materials processing yards, including sanitation facilities. The following activities will be involved during establishment of the camp.
 - ✓ Bush clearing.
 - ✓ Construction of Material and equipment storage areas
 - ✓ Construction of sanitation facilities
 - ✓ Installation of electrical infrastructure
 - ✓ Installation of water and wastewater infrastructure
- Identification of sources of construction material (borrow pits and quarry sites),
- Identification of sources of water for domestic and construction works

2.4.2 Pre-Construction Activities

The mobilization phase of the project, which is estimated to take average of maximum three months, will entail the following activities:

- Establishment of construction of camps, material and equipment storage areas, materials processing yards, including sanitation facilities. The following activities will be involved during establishment of the camp.
 - ✓ Bush clearing.
 - ✓ Construction of Material and equipment storage areas
 - ✓ Construction of sanitation facilities
 - ✓ Installation of electrical infrastructure
 - ✓ Installation of water and wastewater infrastructure
- Identification of naturally-occurring material borrow sites (sand, fill, gravel borrow and quarry sites),
- Identification of sources of water for domestic and construction works

2.4.2.1 Materials required during Mobilization Phase

The following materials will be required during mobilization phase of the project:

- Cement, sand, and aggregates for block and concrete works
- Water for general construction works and dust abatement
- Timber, galvanized iron sheets, paints, nails, etc. for roofing.
- Electrical works: conduits, cables, fittings
- Cement, galvanized iron sheets, nails, fence wire, electrical and plumbing utilities will mainly be obtained from either Dar es Salaam, while sand, aggregates, and timber will be obtained locally.

2.4.2.2 Equipment Required During Mobilization Phase

The major equipment which will be required during mobilization phase of the project will include:

- Bull dozers/motor graders, excavators for site clearing, excavation, and grading of the storage facilities construction at site
- Light duty vehicles and trucks for the transport of construction materials, small machines and staff
- Water pumps, block making machines, stationery concrete mixers and Trans mixers, etc. for making of blocks and concrete mixes for concrete works
- Electric power generator(s)

2.4.2.3 Waste Generated During Mobilization Phase

Mobilization phase of the project will generate the Waste shown in Table 2.3 below.

Table 2-3: Waste likely to be generated During Mobilization Phase

Aspect	Solid Waste	Liquid Waste	Gaseous Waste
Site clearing and Excavation	Earth, green cutting	None	Generation of air pollutants (dust)
Construction of foundation(s): block/concrete works	Concrete, blocks, hessian cement bags	Water slurry, wash-down water	None
Construction of the main Storage room	Cement bags, mortar, steel reinforcements, nails, timber, iron sheet Waste, etc.	Concrete slurry	Paint
Installation of electrical Infrastructure	conduit pipes, cables	None	None
Installation of water Infrastructure	PVC and GS pipes	None	None
Labour force	Plastic bottles/ bags, food Waste	Sanitary Waste	None
Servicing of construction Equipment	Used batteries, used tires, used metals parts, used oil and fuel filters, empty oil drums	Waste oil	None

2.4.2.4 Treatment and Disposal of Waste Generated

The treatment methods for the Waste generated during mobilization phase shall be based on re- using, re- cycling, burying, or burning, and on-site treatment.

- During site clearing, topsoil and green cutting shall disposed of in old borrow pits or other areas approved by the Engineer
- Concrete and cement blocks Waste shall be disposed of in borrow pits during their reinstatement as approved by the Engineer.
- Metal Waste such as GS pipes, nails, reinforcement bars, and used equipment parts shall be disposed of by recycling. They will be collected and stored; until enough quantities are obtained

before being disposed of by the Contractor. The metal scraps disposing companies shall be approved by the Engineer.

- Degradable materials such as paper cement bags and paper boxes shall be treated on site by either controlled burning.
- Non degradable Waste such as plastic, PVC pipes, and plastic bottles shall be collected and transported and given freely to plastic factories where they will be recycled.
- Used batteries, empty metals drums, used oil filters shall be disposed of through approved disposing companies.
- Temporary pit latrines shall be constructed at active mobilization sites (camp sites) for the disposal of sanitary Waste.

2.4.3 Construction Phase

The construction phase of the project, which is estimates to take 12 month for each of the phase one and will encompass following major activities:

- Earth works to facilitate widening and re-alignment of the road. Earth works will entail the following activities: clearing and grubbing (clearing of vegetation, including trees).
- Extraction of naturally-occurring construction materials. This will include:
 - ✓ Excavation and transport of natural sand, gravel, and sub-base materials to construction sites
 - ✓ Stone quarrying (including blasting), crushing and transport of crushed aggregates to construction sites
 - ✓ Transport and handling of fuel, lubricants etc. from their sources to the project site
 - ✓ Transport of construction materials from source to site such as roof, steel, woods, nails, rope,

2.4.3.1 Materials Required During Construction Phase

During the project construction, the following materials in Table 2-4 will be required:

Table 2-4: Materials required During Construction Phase

No	Material	Usage	Possible Source
1.	Ordinary Portland Cement (OPC) and Pozollana Portland Cement (PPC)	For construction purposes.	Twiga cement (Dar es salaam), Tanga cement (Tanga), and Mbeya cement (Mbeya)
2.	Sand	Production of mortar and general concrete works	Stone crusher dust and sand pits (to be established by Contractors)
3.	Crushed aggregate	Concrete works (Structural works) and construction	Local available
4.	Steel reinforcement bars	Reinforced concrete works construction of structures,	Dar /imported
5.	Steel shutters and form works	Concrete works	Dar
6.	Soft timber	Production of timber formworks and shutters	Locally
7.	Nails	Nails for fixing timber form works	Dar es salaam
8	Water	Drinking, concrete works, dust suppression	Rivers, streams, MWAUWASA and boreholes

2.4.3.2 Waste Generated During Construction Phase

The Waste generated during construction phase of the project will result from operation of construction and equipment maintenance. The Waste which will be generated during construction phase of the project are shown in Table 2-5

Table 2-5: Waste likely to be generated during Construction Phase

Aspect	Solid Waste	Liquid Waste	Gaseous Waste	Hazardous Waste
Operations of Campsite				
	Paper	Sanitary waste	-	-
	Litter	-	-	-
	Toner, cartridges	-	-	-
	Paper litter	Sanitary waste	-	-
	Plastic bottles/bags	-	-	-
	Aluminum cans	-	-	-
	Food Waste	-		
				Biohazard Waste (medical Waste)
Machinery and equipment Maintenance				
	Plastic and glass (containers), used tyre, metal (used parts), plastic and cable parts, used lead-acid batteries,	Waste oil and grease, battery acid (dilute sulphuric acid)	-	Gases that are compressed, liquefied, or dissolved under pressure may be hazardous. Flammable liquids including oil, grease and petroleum compounds are also hazardous. Used lead-acid batteries, plastic containers

Construction process of Regional school buildings will generate different type of wastes which estimated to 856kg per week which were estimated by using standard generation rate 1.1kg/capita/day which depends on number of people at the site and activities taking place.

The amount of wastewater to be generated depends on the facilities to be used as well as number of people this gives the amount of water expected to be used per day (4860L/day). 80% of water consumed will be come out as wastewater this estimated to be 3888L/day.

2.4.3.3 Treatment and Disposal of Waste Generated During Construction Phase

The treatment methods for the Waste generated during construction phase will depend on whether they are degradable, non-degradable, hazardous, or non-hazardous. Depending on the nature of the Waste, the Waste will either be re-used, re-cycles, buried, or burnt. The treatment methods for each type of waste are as follows:

Degradable Waste: This refers to organic waste that can naturally break down over time. The most environmentally friendly methods for degradable waste are recycling or composting, where organic waste is turned into nutrient-rich soil for landscaping or agricultural use. If recycling or composting is not feasible, degradable waste can be safely buried in designated landfill sites with proper management to prevent environmental contamination.

Non-degradable Waste: This includes materials that do not naturally break down or decompose easily. Recycling is the preferred method for non-degradable waste whenever possible, reducing the demand for raw materials. Materials like metal, plastic, glass, and certain construction waste can be recycled and repurposed. Non-recyclable non-degradable waste should be disposed of in controlled landfill sites, managed properly to minimize negative environmental impacts.

Hazardous Waste: Hazardous waste consists of materials harmful to human health and the environment, such as chemicals, asbestos, and certain construction by-products. Handling hazardous waste requires extreme caution, following specific regulations and guidelines.

Non-hazardous Waste: This refers to materials that are not harmful to health or the environment. The priority for non-hazardous waste is recycling and reusing to reduce waste volume. If recycling is not possible, non-hazardous waste can be disposed of in designated landfill sites or utilized in waste-to-energy processes, where it is burned to generate energy.

2.4.4 Operation phase

The operation activities of the Overall, SEQUIP will contribute to increasing total enrolment in secondary school by 1.8 million students and increase the number of girls graduating from both secondary schools and alternative secondary education pathways.

2.4.4.1 Material required during operation phase

Material required during the operation phase will include books, chalk, a printing and photocopy machine, laboratory equipment and specimens, and water.

2.4.4.2 Labour requirement during operation phase

Both skilled and unskilled labor are required in the operation phase of the project, which will include:

- Teachers
- Librarians
- Laboratory technician
- Security officer

2.4.4.3 Wastes generated during operation phase

The waste generated during the operation phase of the project is a result of different activities taking place during the operational phase of the project. The waste generated during the project's operation phase are

- solid waste from the dining hall, kitchen, classroom, office,
- liquid waste from sanitary facilities, canteens, and kitchens
- Hazardous waste such as sanitary pads.

2.4.5 Decommissioning Phase

After completion of construction, all the utilities which were used shall be reverted to the Municipal Director who will decide on their future use. The main activities during demobilization phase, will engross the following:

- Collection and disposal of storage facilities such as pallets, packing, boxes
- Collection and disposal of construction materials and Waste such as waste oil, sewage, solid Waste (plastics, wood, metal, papers, etc.) at the workshop, site office etc. to authorized dumpsite
- Restoration of material borrows areas to safer condition.

2.4.5.1 Materials required During Demobilization Phase

Materials required during demobilization phase will include fuel for the operation of equipment, soils and tree seedlings for reinstatement of borrow pits. During this phase, labour, water, and energy will also be required.

2.4.5.2 Equipment Required During Demobilization Phase

The equipment required during demobilization phase will include vehicles and trucks for transport of Waste

and remaining materials to be transported,

2.4.5.3 Waste Generated During Demobilization Phase

The following Waste will be generated during demobilization phase of the project:

- Hazardous waste such as used lubricants (oil and grease), used lead-acid batteries, empty plastic bottles, etc.
- Plastic and paper packing
- Used equipment parts

2.4.5.4 Treatment and Disposal of Waste Generated During Demobilization Phase

The treatment methods for the Waste generated during construction phase will depend on whether they are degradable, non-degradable, hazardous, or non-hazardous. Depending on the nature of the Waste, the Waste will either be re-used, re-cycles, buried, or burnt.

2.4.5.5 Lifespan of the project

The project lifecycle is the series of phases that a project goes through as it progresses. It includes initiation, planning, execution, and closure; thus, this project will take 12 months; however, the project life will be 50 years, followed by maintenance, based on the construction schedule and material life span of steel bricks. Throughout the project's operations

2.4.5.6 Decommissioning of Individual Components of the Project

Individual components of the project may be rendered redundant due to wear and tear or become obsolete due to technological advancement.

These shall be removed after an environmental audit is conducted and a device appropriate environmentally friendly way (Environmental Management Plan, EMP) to deal with them. Emphasis shall be on repairing so that parts can be reused or recycled of materials from defunct components to salvage important metals.

2.5 Project Associated Facilities

The ESF define associated facilities as facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable. The SEQUIP project in schools construction has identified the following as associated facilities;

- Water connection
- Energy (electricity, gas or charcoal)
- Health and safety

2.5.1 Water supply system

The project will require water for different activities for the project Water will be required for construction activities such as concrete works, earthworks, laying of some of the pavement layers, dust suppression, as well as for domestic purposes at the camps. The amount of water required during construction of the project estimated to be 30,000 litres per day when construction is at peak, and almost 18,000 for normal site uses including dust suppression.

During operation phase, Water will be used for domestic uses, cleaning and for sanitation which will depend on the number of the student to be admitted to school at the specific time. Water for construction works will be obtained from Mwanza UWASA and boreholes.

2.5.2 Power supply

The proposed project will source the electricity from the National grid (TANESCO). Also a standby generator will be installed. This will be used in case of main electricity interruption. Emission level of generation will be considered during installation to make sure the generator of low emission

It will necessitate Contractor to install dedicated diesel driven generators to supply power to site and for the operation of electrically operated equipment at work sites. Generator room will be constructed as source of power during project operation.

it is advisable to consult with a qualified electrician or electrical engineer who can assess the specific requirements of the site and provide a more accurate estimate of the power needed

2.6 Environmental and Social Management Framework

The ESF instruments that have been prepared for SEQUIP incorporate measures for project site Selection and to ensure designs and school construction align with the ESF requirements.

It has been agreed that civil works will follow building standards acceptable to the World Bank and required under the ESF; taking into account structural safety, universal access, changes in the standard drawings, water source availability and quality, efficient use of materials (wood) to reduce pressure on natural resources, Water and Sanitation for Health (WASH) and solid waste management at the schools, among other risks identified as part of the due diligence process.

Site selection for school construction is very important to avoid possible direct and indirect environmental and social impacts and lack of water sources for construction and during operation.

2.6.1 Health and Safety

As the ESMF directives, the campaign has been conducted with the utmost regards for occupational health and safety requirements of local authorities, management system, and of recognized industry standards. As a rule, all activities that present a risk to employees, contractors, and or neighboring communities are planned and controls are implemented to limit exposure.

In addition, a Permit to Work system is in effect for risk-specific activities that is working at height. All EHS incidents, observations, near misses, etc. will be reported and investigated to prevent recurrence during construction phase and the proper way of reporting and registration during the operation phase will be employed as well. Regular emergency evacuation drills will be connected to test the training and response capacity of the workforce at the site during all phases of the project.

Occupational health and safety issues for further consideration in multi-storey office building construction and operation phases includes; Fire and collapse and Slippery

2.6.1.1 Fire

The project shall be designed, constructed, and operated according to standards for the prevention and control of fire hazards. The most effective way of preventing fires is to avoid any source of fires in inside the building, Use electrical equipment correctly, Check building Appliances and Wiring etc.

2.6.1.2 Collapse

The project must be designed, built, and operated in accordance with fall-hazard prevention and control standards. The most effective way to prevent falls is to keep reasonable weights of equipment and instruments, such as water storage tanks, on the top floor of the building, which should be designed in accordance with construction standards and building materials.

2.7 Project Cost

Total Project Cost is four billion Tanzanian shillings

CHAPTER THREE

3 POLICY, LEGAL, AND ADMINISTRATIVE FRAMEWORK

3.1 Introduction

The objective of this chapter is to describe the policy, legal and administrative framework within which the project takes place and identify any laws and regulations that pertain to environmental and social matters relevant to the project.

This includes regulations about environmental and/or social impact assessments to which the project must adhere as well as laws implementing host country obligations under international law. Explain the requirements of any co-financing partners, if applicable. Where pertinent, consider legal frameworks for promoting gender equality. Flag any areas where the project might fall short on compliance.

3.2 The Constitution of Tanzania, 1977-1995 (as revised)

The Constitution of the United Republic of Tanzania 1977 - 1995 (revised 1997) recognizes the basic rights and equality entitled, without any discrimination, protection, and equality of all persons before the law. The United Republic of Tanzania is committed to the conservation of the country's natural environment as is evident through the Constitution and various Mission Statements.

Article 21 of the Constitution reads:

- "Take part in matters related to governance of the country, every citizen of the United Republic is entitled to take part in matters pertaining to the governance of the country, either directly or through representatives freely elected by the people, in conformity with the procedures laid down by, or in accordance with, the law.
- "Every citizen has the right and the freedom to participate fully in the process leading to the decision on matters affecting him, his well-being or the nation."
- Article 24 of the Constitution reads:
- "Subject to the provisions of the relevant laws of the land, every person is entitled to own property, and has a right to the protection of his property held in accordance with law."
- Article 27 of the Constitution reads:
- "Every person has the duty to protect the natural resources of the United Republic, the property of the state authority, all property collectively owned by the people, and also to respect another person's property."
- "All persons shall be required by law to safeguard the property of the state authority and all property collectively owned by the people, to combat all forms of waste and squander, and to manage the national economy assiduously with the attitude of people who are masters of the destiny of their nation."

3.3 National Development Vision 2025 and National Five-Year Development Plan 2021/22–2025/26

This third national five-year development plan (FYDP III) for the period 2021/2026 is a nationwide multisector document aiming at achieving the goals set in the national development vision 2025. To increase the resilience of livelihoods to disasters, main interventions shall be:

- (i) Strengthen environmental conservation and protection to mitigate adverse effects of climate change
- (ii) Social development, including health and education, human settlements, clean and safe water, and environment, paying attention to equitable access, gender and people with disabilities
- (iii) Strengthen sustainable use and management of oil and natural gas
- (iv) develop renewable energy sources for cooking to mitigate climate change
- (v) Conserve marine and freshwater fisheries protected areas
- (vi) Develop and implement strategies to combat poaching, illegal trade and illegal harvesting of wildlife, forest, bee and antiquities resources in the country
- (vii) Promote biodiversity conservation.
- (viii) Develop climate change adaptation and impacts mitigation measures and reduce land degradation.

- (ix) Minimize environmental pollution and resultant adverse effects on the environment and human health.
- (x) Establish programs and mechanisms for management, monitoring and assessment of water and wastewater quality
- (xi) Strengthen conservation and protection programs of water resources and water sources.

3.4 Relevant Policies

3.4.1 National Environmental Policy (2021)

The overarching governing Tanzania's environmental management are the National Environmental Policy (NEP) of 2021 and the Environmental Management Act (EMA) of 2004.

This Policy is a supreme national framework for environmental management in the country. It recognizes the role of sectoral policies in pursuit of effective environmental conservation and sustainable socio-economic development. In view of that, the envisioned achievements of this Policy depend on mainstreaming and implementation of relevant environmental measures in the respective sectoral policies.

The Overall Objective of this policy is to provide a national framework for guiding harmonized and coordinated environmental management for the improvement of the welfare of present and future generations

3.4.2 Education and Training Policy 2014

This Education and Training Policy of 2014 is the result of the revitalization and finally the cancellation of the Education and Training Policy (1995), Policy on Vocational Education and Training (1996), Policy on National Higher Education (1999) and Information Technology Policy and Communication for Primary Education (2007).

The vision of this policy is having an educated Tanzanian with knowledge, skills, competencies, abilities and positive attitudes to be able to contribute in bringing about the development of the Nation. The specific objectives of the Policy are to have:

- System, structures, and flexible procedures to enable Tanzanians develop themselves in various ways in academic and professional streams.
- Education and training with quality standards recognized nationally, regionally and internationally.
- Availability of various educational opportunities and training in the country.
- Increase of human resources according to priorities of the Nation.
- Effective management and operation of education and training in the country.
- Sustainable education funding system and training in the country; and
- Education and training system based on issues cross

3.4.3 The National Research and Development Policy

These policies focused on the promotion of the private sector as a major contributor to the national economy, singly or through public-private partnership. The increasingly globalized world requires nations to create an enabling environment that will facilitate active participation of the private sector in improving their respective economies.

3.4.4 ICT Policy for Basic Education 2007

The achievement of the objectives of Tanzania's education policies and education development programmes. As stated in the education policy of 1995, the overall aims of education in Tanzania are, among other things:

“To promote the acquisition and appropriate use of literary, social, scientific, vocational, technological, professional and other forms of knowledge, skills and understanding for the development and improvement of man and society.”

In 2001, the education sector development programme (ESDP) was launched, to realize the objectives of education policies by addressing critical issues, including ICT. The main objectives of this programme include: to decentralize management of educational institutions; to improve the quality of education, both formal and non-formal; to promote access and equity to basic education; and to promote science and technology.

Special mention is made of the need to improve and expand girls' education, to ensure access to education by special social and cultural groups, to give appropriate education to children with disabilities, and to provide education facilities to disadvantaged areas.

3.4.5 National Biotechnology Policy

The general objective of this policy is to ensure that Tanzania has the capacity and capability to capture the proven benefits arising from health, agriculture, industry and environmental applications of biotechnology while protecting and sustaining the safety of the community and the environment

3.4.6 Cultural Policy, 1997

Section 3.2.1 of the Cultural Policy stipulates that “all land development shall be preceded by Cultural Resource Impact studies. Furthermore, Section 3.1.5 states that “mechanisms shall be established to enable the nation to identify, own and preserve national treasures e.g. art, objects, natural resources minerals as well as archaeological, paleontological and botanical remains”.

3.4.7 The Wildlife Policy of Tanzania, 2007

The Ministry of Natural Resources and Tourism is charged with formulating a wildlife policy, overseeing its administration, and coordinating the development of the wildlife sector in Tanzania. The vision of the wildlife sector for the next twenty (20) years conforms to the Development Vision 2025 for Tanzania on environmental sustainability and socio-economic transformation.

The vision for the wildlife sector is to:

- Promote conservation of biological diversity,
- administer, regulate and develop wildlife resources,
- involve all stakeholders in wildlife conservation and sustainable utilization, as well as in fair and equitable sharing of benefits,
- promote sustainable utilization of wildlife resources,
- raise the contribution of the wildlife sector to the country's Gross Domestic Product (GDP) from about 2% to 5%,
- contribute to poverty alleviation and improve the quality of life of the people of Tanzania, and,
- promote exchange of relevant information and expertise nationally, regionally, and internationally,

3.4.8 Antiquities Policy of 2008

Antiquities Policy 2008 section defines Physical Cultural Resources as any tangible material that represents contemporary, historic, and pre-historic human life ways. Section 2. 1 of the Antiquities Policy points out that already discovered Physical Cultural Resources shall be preserved and conserved in the National Museum of Tanzania as stipulated in Museum Act of 1980.

Furthermore, the Antiquities Policy of 2008 sections 4.2.1 to 6 elaborates on how stakeholders including government institutions, private sectors and the public should be involved in all activities of conservation and management of Physical Cultural Resources.

3.4.9 National Forest Policy, 1998

The overall goal of the National Forest Policy (1998) is to enhance the contribution of the forest sector to the sustainable development of Tanzania and the conservation and management of her natural resources for the benefit of present and future generations.

The Policy, among other aspects, recognizes the high value of forests due to the high potential for royalty collection, export, and tourism earnings as well as the recycling and sequestering of carbon and conservation of globally important biodiversity.

Furthermore, the policy emphasizes biodiversity conservation; describes the importance of forest ecosystems for maintaining biodiversity and the threats to biodiversity. One of the main objectives envisaged in the policy focuses on ensured ecosystem stability through conservation of forest biodiversity, water catchments, and soil fertility.

3.4.10 National Water Policy, 2002

The main objective of the Policy is to develop a comprehensive framework for sustainable development and management of the nation's water resources. Specifically, on the environment the objective is to have a water management system that protects the environment, ecological system, and biodiversity. The policy emphasizes that water related activities will have to be planned to enhance or to cause the least detrimental effects on the environment.

To protect ecological systems and biodiversity which, together, are important part of sustainable water resources system the policy provides a guide for determining water for the environment, in terms of quantity and quality, and levels, for both surface and groundwater resource.

The policy emphasizes the use of the best available scientific information for both temporal and spatial water requirements to maintain the health and viability of riverine and estuary ecosystems, and associated flora and fauna. Public awareness on good land-use practices is insisted to contain the erosion problem.

3.4.11 Sustainable Industrial Development Policy, 1996 (SIDP)

The Policy provides for sound environmental management to ensure promotion of environmentally friendly and ecologically sustainable industrial development. The Policy insists that environmental audit and appropriate mitigation measures should be enforced for all industrial projects at pre-implementation stage.

- To ensure industrial development activities that are environmentally sound and ecologically sustainable, this policy stipulates the following conditions:
- The government will ensure adequate awareness among the public of environmental issues, which includes the right of people to a safe environment, land and wildlife conservation.
- The Tanzania Investment Act (1997), No. 7 will provide clear mechanisms for promoting investments that embody antipollution initiatives.
- EIA and appropriate mitigation measures will be incorporated and enforced for all projects.

The policy also recognizes the private sector as a principal vehicle in carrying out direct investment in industry, the government commits to putting in place an environmental protection regime that will attract private sector investment.

3.4.12 National Energy Policy, 2003

The Policy, among others, focuses on utilization of various energy resources in a sustainable and environmentally friendly manner. The Policy recognizes that energy is a prerequisite for the proper functioning of all sub-sectors of the economy.

The Policy stresses the use of renewable and alternative energy sources such as wind, solar, and mini-hydropower generators, and use of liquefied petroleum gas (LPG) as well as natural gas. The use of alternative

energy sources such as biogas and briquettes both for domestic and industrial uses is encouraged to minimize the use of charcoal and firewood to prevent massive deforestation.

3.4.13 National Transport Policy, 2003

The main objective of this Policy is to enhance transport systems and promote environmental protection. The mission is to develop safe, reliable, effective, efficient, and fully integrated transport infrastructure and operations that was to meet the needs of travel and transport by improving levels of services at lower costs.

Ultimately, the development of a reliable transport network should drive human development in a manner that is economically and environmentally sustainable.

3.4.14 Construction Industry Policy, 2003

The Construction Industry Policy is a deliberate and managed process to improve the capacity and effectiveness of the construction industry to meet the national economic demand for buildings and other physical infrastructure facilities. The Policy is aimed at meeting the goals of the National Development Vision 2025.

The objectives of the Policy include:

- a. To improve the capacity and competitiveness of the local construction enterprises (Contractors, consultants, and informal sector).
- b. To develop an efficient and self-sustaining roads network that can meet the diverse needs for construction, rehabilitation, and maintenance of civil works for trunk, regional, district and feeder roads network.
- c. To improve the capacity and performance of the public sector and private sector clients to ensure efficient, transparent, and effective implementation and management of construction projects; and

To ensure application of practices, technologies and products which are not harmful to both the environment and human health

3.4.15 National Health Policy, 2007fgh

The overall objective of the National Health Policy, 2007 is to improve the health and well-being of all Tanzanians. In line with environmental health, Policy seeks to protect community health by enhancing sustainable environmental health.

The Policy emphasizes on community adherence to environmental health standards; Improvement of waste management systems including disposal of hospital wastes; educating health service providers on the importance of environmental health in their working areas and putting in place laws and procedures for conservation and protection of the environment in the health sector.

3.4.16 Occupational Health and Safety Policy 2008

The main objectives of OHS Policy are to reduce the number of work-related accidents and diseases in Tanzania. This required the adoption and implementation of a culture to prevent OHS hazards by Government, Employers and Employees. The effective prevention of work - related accidents and ill- health will have enormous social and economic benefits. These include improvements in productivity and competitiveness and the quality of life of the working population.

The effective management of many safety hazards will contribute to improved levels of public health and safety. The effective control at source in workplaces of hazardous substances will improve levels of public health and minimize environmental pollution the policy emphasizes on Sustainable safe and healthy working conditions and environment at all workplaces for the entire diversity of the workforce contributing to broad based economic growth.

3.4.17 National Water Policy, 2002

The main objective of the Policy is to develop a comprehensive framework for sustainable development and management of the nation's water resources. Specifically, on the environment the objective is to have a water management system that protects the environment, ecological system, and biodiversity.

The policy emphasizes that water related activities will have to be planned to enhance or to cause the least detrimental effects on the environment. To protect ecological systems and biodiversity which, together, are important part of sustainable water resources system the policy provides a guide for determining water for the environment, in terms of quantity and quality, and levels, for both surface and groundwater resource.

The policy emphasizes the use of the best available scientific information for both temporal and spatial water requirements to maintain the health and viability of riverine and estuary ecosystems, and associated flora and fauna. Public awareness on good land-use practices is insisted to contain the erosion problem.

3.4.18 National Land Policy, 1995

The National Land Policy of 1995 aims at developing a coherent and comprehensive framework that defines land tenure and enables proper management and allocation of land in urban and rural areas.

Among other things, the Policy advocates the protection of land resources from degradation, for sustainable development. The policy addresses several environmental issues such as land use planning, which take into consideration the land capability, ensures proper management of land resources, promotes resource sharing and multiple land use techniques in areas of conflicting land use, and involve community in resource management, land use and conflict resolution.

3.4.19 National Human Settlements Development Policy, 2000

The Policy stresses the need for ensuring that human settlements are kept clean and pollution effects of solid and liquid wastes do not endanger the health of residents. The policy advocates for a set of environmental quality standards of gaseous emissions from industries and vehicles

3.4.20 The Tanzania Development Vision, 2025 and The five years Development Plan 2021-2025

Tanzania's development aspirations are outlined in the Tanzania Development Vision 2025 (TDV 2025) which was developed in the late 1990s to guide economic and social development efforts up to the year 2025. Targets

1. Transforming Tanzania into a middle-income country, imbued with five main national attributes:
 - a) High quality livelihood.
 - b) Peace, stability and unity.
 - c) Good governance.
 - d) A well-educated and learning society; and
 - e) A competitive economy capable of producing sustainable growth and shared benefits.
2. Transforming the economy from a predominantly agricultural one to a diversified and semi-industrialized economy with a substantial industrial sector comparable to typical middle-income countries.

The original plan to implement Vision 2025 through five-year development plans (FYDPs) was sidelined by Heavily Indebted Poor Countries (HIPC) process. Qualifying for debt relief under HIPC required the Preparation of Poverty Reduction Strategy Papers (PRSPs), which focused on delivery of social sectors. Subsequent acceptance of the importance of "growth" as a basis for stimulating the capacity to finance social services and reducing aid dependence led to the emergence, in 2005, of the National Strategy for Growth and Poverty Reduction commonly known as MKUKUTA I, followed by MKUKUTA II in 2010

3.5 Legal Framework

3.5.1 Environmental Management Act (2004)

The Environmental Management Act No. 20 of 2004 is the principal legislation governing environmental management in the country. The Environmental Management Act (EMA) recognizes "...the right of every citizen to a clean, safe and healthy environment, and the right of access to environmental resources for recreational, educational, health, spiritual, cultural and economic purposes."

Thus, the EMA "provides a legal framework for coordinating harmonious and conflicting activities by integrating those activities into overall sustainable environmental management systems by providing key technical support to Sector Ministries."

Section 81, subsection 1 in Part VI of the EMA requires a project proponent or developer to undertake an Environmental Impact Assessment (EIA) at his/her own cost prior to commencement or financing of a project or undertaking. The EMA prohibits any development to be initiated without an Environmental Impact Assessment (EIA) Certificate. ARA through undertaking this study complies with the requirement of the law.

3.5.2 The Education (Amendment) Act, 1995

This Act amended the Education Act, 1978 that establish the Higher Education Accreditation Council, to provide the procedure for accreditation and other related matters. Among other functions, the council accredits higher education institutions; approve admissions into state institutions of higher education, to examine and approve proposals for courses of study and course regulations submitted to it by institutions of higher education; make regulations in respect of admission of persons seeking to enrol in state institutions of higher education and to provide a central admission service to higher education institutions; and make visitations and inspection of higher institutions

3.5.3 Water Resource Management Act, 2009

The Water Resource Management Act 2009 is a new 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, owner or occupier of land on which any activity or process is or was performed or undertaken, or any other situation exists which causes 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. It is stated under section 39 (2) that a Basin Water Board may direct any person who fails to take the measures required under subsection

- (a) Commence taking measures before a given date.
- (b) Diligently continue with those measures; and
- (c) Complete the measures before the given date.

Section 40 (1) states that where a person fails to comply or comply inadequately with a directive given under Section 39 (2), the Basin Water Board may take measures as it considers necessary to remedy the situation.

Section 40 (2) provide that a Basin Water Board may recover all reasonable and justifiable costs incurred because of the Board acting under subsection (1) jointly and severally from the following persons:

- (a) Any person who is or was responsible for, or who directly or indirectly contributed to, the pollution or the potential pollution.
- (b) The owner and or occupier of the land at the time when the pollution or potential for pollution occurred; and
- (c) Any person who negligently failed to prevent the activity or process being performed or undertaken or the pollution or potential for pollution occurring.

Section (3) gives that where more than one person is liable in terms of subsection (2), the Basin Water Board shall, at the request of any of those persons, and after giving the opportunity to be heard, apportion the liability,

but such apportionment shall not relieve any of them of their joint and several liabilities for the full amount of the costs.

Section (2) provide more that the responsible person, any other person involved in the incident or any person with knowledge of the incident must, as soon as is practicable after obtaining knowledge of the incident, report the incident to the Basin Water Board or any public officer and a responsible person shall:

- (a) Take all reasonable measures to contain and minimize the effects of the incident.
- (b) Undertake clean-up procedures; and
- (c) Take such measures as the Basin Water Board may verbally or in writing direct, and any verbal directions shall be confirmed in writing within fourteen days to have effect under this subsection.

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

The Land Act provides basic legal requirements in relation to land other than village land (see Village Land Act, 1999 below), the management of land, settlement of disputes and related matters.

The following are some of the main principals of the Land Act:

- To recognize that all land in Tanzania is public land vested in the President as trustee on behalf of all citizens.
- To ensure that existing rights in and recognized long standing occupation or use of land are clarified and secured by the law;
- To facilitate an equitable distribution of and access to land by all citizens.
- To regulate the amount of land that any one person or corporate body may occupy or use;
- To ensure that land is used productively and that any such use complies with the principles of sustainable development.
- To consider that an interest in land has value and that value is taken into consideration in any transaction affecting that interest; and
- To pay full, fair and prompt compensation to any person whose right of occupancy or recognized long-standing occupation or customary use of land is revoked or otherwise interfered with to their detriment by the state under this Act or is acquired under the Land Acquisition Act;

Importantly, provided that in assessing compensation for land acquired in the manner provided for in this Act, the compensation shall be based on the following:

- Market value of the real property.
- Disturbance allowance.
- Transport allowance;
- Loss of profits or accommodation.
- Any other cost, loss or capital expenditure incurred with respect to the development of the subject land; and
- Interest at market rate.

Section 156 of the Act, which applies to non-governmental corporate bodies, institutions, or groups of persons, requires compensation to be paid to any person for the use of land of which they are in lawful or actual occupation. These include:

- Any damage suffered in respect of trees, crops, and buildings as result of the creation of a way leave; and
- Damage due to preliminary work undertaken in connection with surveying or determining the route of that way leave.

It is the duty of the Government Department or the Ministry, local or public authority or corporate body that applied for the way leave to pay the compensation.

3.5.5 The Village Land Act, [Cap 114 R. E. 2019]

The Village Land Act of 2019 provides for the management and administration of land and matters related thereto in specifically villages. The Village Land Act (in addition to the Land Act) has set clear procedures for compensation while acquiring Land from citizens.

3.5.6 Forest Act, 2002

The Forest Act, Act No. 14 of 2002 provides regulations for the classification, conservation, management, and trade of forest products. The Act aims to among other things “promote, to enhance

3.5.7 The Land Acquisition Act [Cap 118 R. E.2019]

The Land Acquisition Act, of 1967 (as amended in 1968) stipulates matters pertaining to compensation under part two division b, Section 11 and Section 12. Section 13 address disputes that might arise due to land acquisition.

3.5.8 The Local Government (district Authorities) Act, [Cap 287 R. E. 2002] and ‘The Local Government (Urban Authorities) Act, [Cap 288 R. E 2002].

The Local Government Acts of 2002 form an important legal basis for rural councils and rural authorities, which were reintroduced in the early 1980 and consist of Act No. 7 relating to District Authorities and Act No.8 relating to Urban Authorities. These Acts establish and regulate district councils, township authorities and village authorities. Important provisions are the subdivision of districts into divisions and wards and the establishment of ward development committees along with procedures for implementation of schemes and programs at ward level.

Section 118 deals with protection and management of the environment in addition to the First Schedule (Section 118 (4)) of Act No. 7. The District Councils are hereby required to take necessary measures to control soil erosion and desertification; to regulate the use of poisonous and noxious plants, drugs or poisons, regulate and control the number of livestock; maintain forests, manage wildlife, ensure public health, and provide effective solid and liquid refuse management.

If construction commences it will be the Developers responsibility to obtain permission from the District Councils for the disposal of solid and liquid waste. In addition, District council will also oversee and regulate the use and prevent the misuse or waste of, or any interference with, water.

3.5.9 Occupational Health and Safety Act, 2003

The Occupational Health and Safety Act of 2003 deals with the regulation of health, safety, and welfare of workers. Some of the provisions of this Act are relevant to the project. The Act covers economic activities in construction, agriculture, commerce, and offices. In case of occupational accidents/illness, it is the responsibility of the labour department in the ministry to ensure the victim get compensated by the insurer of the employer. Moreover, the victim may also claim work-injury benefit should he/she be a member of a social security scheme.

The OSHA is of particular importance for contractors that construct the proposed facility, and they should be aware of their obligations regarding the workforce health and safety measures stipulated in this Act. There are specific Safety procedures and guidelines to be followed by both workers and their respective employers to ensure a Safe and conducive working environment.

3.5.10 Disaster Management Act No. 7 of 2015

The Act establishes the Disaster Management Department (DMD), disaster risk management, and coordination mechanism for disaster prevention, mitigation, preparedness, response, and recovery.

The primary function of DMD is to coordinate disaster management activities in the country. It seeks to ensure that appropriate response systems, procedures and resources are in place to assist those afflicted in times of disaster.

DMD is also in charge to coordinate disaster preparedness efforts and activities in order to minimize the adverse effects of hazards through effective precautionary measures and to ensure timely appropriate and efficient organization and delivery of emergency.

3.5.11 Public Health Act No. 1 of 2009

The Act provides for the promotion, conservation, and maintenance of public health with a view of ensuring comprehensive functional and sustainable public health services. The Act also prohibits discharges into a sewer or into drain that may cause malfunctioning of the drainage systems.

3.5.12 Wildlife Conservation Act No 5 of 2009

The Act establishes:

- A wildlife division in the Ministry responsible for wildlife protection, with the post of director of wildlife responsible for advising the government on wildlife conservation and management
- Wildlife management areas for the purpose of community-based wildlife conservation in areas outside protected areas, within village land or outside village land but in areas used by local communities
- The mechanism for the declaration of protected species and confers automatic protected species status on any species protected under an international convention to which Tanzania is a party
- The mechanisms for the translation of regional and international agreements on wildlife conservation to which Tanzania is a party into Tanzanian law.

The project footprint will include areas used by wildlife.

3.5.13 The Public Health Act, No 1 of 2009 and the HIV and AIDS (Prevention and Control) Act, Cap 431

The HIV/AIDS prevention and control Act (Act No. 28/08) Cap 431, calls for prevention, treatment, care, support and control of HIV and AIDS for promotion of public health in general. It also calls for appropriate treatment, care and support by using available resources to people living with or at risk of HIV and AIDS and to provide for related matters. Apparently, for the Project the risk of population living in or nearby project area contracting HIV/AIDS during construction and operation phases is high and thus, the Act provides legal guidance to the cause.

The Act requires every employer to establish and coordinate a workplace programme on HIV and AIDS for employees

3.5.14 Industrial and Consumer Chemicals (Management and Control) Act, 2003 (No. 3)

Comprehensive legislation on management and control of industrial and consumer chemicals. Divided into 6 parts. Part 1 contains preliminary provisions. Part 2 deals with administration. Part 3 regulates control of production, importation, exportation, transportation, storage and dealing in chemicals. Part 4 provides for management of industrial and consumer chemicals. Part 5 contains financial, and Part 6 miscellaneous provisions.

Provisions for management of industrial and consumer chemicals which include

- Labelling and safe handling
- Chemical and chemical waste
- Disposal of chemical wastes
- Prevention and management of accidents
- Decommissioning of plants

3.5.15 The Employment and Labour Relation Act, No6 of 2004

The act mandates that employers:

- Promote equal opportunity in employment and strive to eliminate discrimination in any employment policy or practice"
- Prohibits direct or indirect discrimination by employers, trade unions and employers' associations on several grounds, including gender, pregnancy, marital status or family responsibility, disability, HIV and AIDS, and age
- Requires employers to take "positive steps" to guarantee women and men the right to a safe and healthy environment.

The project will employ skilled and unskilled labour

3.5.16 The Fire and Rescue Force Act, Cap 427 of 2007

An Act to provide for the better organization, administration, discipline and operation of Fire and Rescue Force, the project will be subjected to fire and rescue act compliance

3.5.17 The Contractors Registration Act, No. 17, 1999

This Act requires Contractors at any site to abide by labour laws, and occupational health and safety regulations in construction industries. Furthermore, in the execution of the work, the Contractors are obliged to supply materials necessary for the work, and are authorized to exercise control over the type, quality and material used during Construction.

3.5.18 Persons with Disability Act 2010

An Act to make provision for the health care, social support, accessibility, rehabilitation, education and vocational training, communication, employment or work protection and promotion of basic rights for the persons with disabilities and to provide for related matters.

3.5.19 The Standard Act of 2009

This Act aims at the promotion of specifications of commodities and services, re-establish the Tanzania Bureau of Standards (TBS), the designated national standards authority established under the TBS Act 1975 and repealed by this act. TBS is responsible for developing all kinds of national standards, including environmental standards.

The Standards Act has established the National Environmental Standards Compendium (NESC) which is a collection of various standards prepared at different times and recognized by EMA 2004. NESC is divided into three parts. Part 1 comprises of standards that require compulsory compliance. Compulsory standards are categorized as generic or specific. Specific standards cover those industries with peculiar effects to the environment while other industries without a specific standard for Tolerance Limits of Emissions discharge including water quality, discharge of effluent into water, air quality, control of noise and vibration pollution, sub-sonic vibrations, soil quality, control of noxious smells, light pollution, and electromagnetic waves and microwaves

Part 2 of NESC contains those standards that may be implemented on a voluntary basis. These include guideline standards, codes of practice, and other such standards that may not necessarily be directly enforced, but whose results are implied in some legal requirements. One of such standards includes the Environmental Management Systems (EMS) standards, like TZS 701/ISO 14001 whose compliance specifications include the relevant legal requirements. Part 2 thus has important requirements for companies and developers who wish to demonstrate their commitment to sustainable development by way of self-regulation mechanism. On the other hand, some companies or developers may be compelled to follow these standards because of requirements from mother companies and for other various reasons like certification requirements by

environment friendly banks or tenders. Part 2 also includes standards used in evaluating environmental performance.

Part 3 has the requisite test methods that should be followed when testing for compliance. The test methods included are referred to in at least one of the specification standards appearing under Part 1. Although it is not stated in the Act, in the absence of national standards, project proponents are encouraged to use international standards such as those of the World Health Organisation (WHO), World Bank, British Standards (BS), European Union (EU), American Public Health Association (APHA), United States Environmental Protection Agency (US EPA) etc. Standards set by the relevant sectors, which also make use of international standards, are also applicable. Such standards include the environmental standards set under the Mining (Environmental Management and Control) Regulations, 1999. Relevant national environmental standards include:

- TZS 860: 2005 Municipal and Industrial Wastewaters – General Tolerance Limits for Municipal and Industrial Wastewaters: This standard provides permissible limits of important environmental parameters such as BOD, COD, pH, colour, temperature range, total suspended solids and turbidity. It also gives permissible limits of a range of inorganic and organic components. All effluents discharged from the project will need to comply with these specifications.
- TZS 845:2005 Air Quality – Specification: This standard gives permissible emission limits of sulphur oxides, carbon monoxide, hydrocarbons (as total organic carbon), dust, nitrogen oxides and lead. The emissions from earth moving equipment, power generation plant and other will include SO₂, CO, dust and NO_x; as such the project will have to observe these limits.
- TZS 983:2007 Air Quality - Vehicular Exhaust Emissions Limits: This standard is mainly derived from EU Directives 96/69/EC, 91/542/EEC, and 97/24/EC. This Tanzania Standard gives permissible limits of some common substances found in exhaust emissions of motor vehicles, namely carbon monoxides, suspended particulate matter (PM), oxides of nitrogen, and hydrocarbons. The standard covers all types of vehicles namely, passenger cars, light commercial vehicles, heavy-duty vehicles, and two and four strokes' motorcycles and scooters. To carry out quarrying activities and processing operations, the project will operate a fleet of heavy duty and light vehicles in addition to hiring other vehicular equipment. As such, the project will need to observe the provisions of these standards.
- TZS 932:2006: Acoustics - General Tolerance Limits for Environmental Noise: This standard focuses on urban environmental noise and does not cover occupation environment. In the absence of other standards, it may be used to give indication of permissible noise levels in factory/workshop environment.
- TZS 789:2003 - Drinking (potable) water – Specification: This standard prescribes the quality requirements for drinking water other than packaged drinking water. It does not cover the requirements for natural mineral water. It prescribes the quality requirements for drinking water distributed in the food industry, domestic and catering purposes. It applies to bacteriological, biological, virological, physical, chemical, and radiological quality criteria. It is intended also to community piped water supplies i.e., those water systems serving cities, municipalities and townships, community standpipes and wells and drinking water distributed by tankers.

3.6 National Regulations

3.6.1 Environmental Impact Assessment and Audit Regulations, 2005 amended in 2018

The EIA process is described under the Environmental Impact Assessment and Audit Regulations No. 349 of 2005 ('the EIA Regulations') promulgated in terms of the EMA Sections 82(1) and 230(2) (h) and (q). The objectives of the NEMC are to undertake the enforcement, compliance, review and monitoring of EIA in terms of the EMA, including the facilitation of the public participation process in environmental decision-making.

The regulations provide the basis for undertaking EIAs and Environmental Audits for various activities, which require mandatory EIAs, but also activities that require registration and may or may not require EIA. Part three of the EIA and Audit Regulation deals with project registration and screening procedures, part four deals with the EIA and part five deals with the Environmental Impacts Statement. If the EIA is found to be satisfactory and the residual environmental impacts of the proposed project acceptable according to part six of the EIA and Audit regulations, NEMC recommends the Minister for Environment to issue an Environmental Certificate for the Project as annotated in part 7 of the EIA and Audit regulations.

Referring to Environmental Management Act (EMA) 2004, and the first schedule of The Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations (United Republic of Tanzania, 2018) which detail types of projects requiring and not requiring EIA, this project falls in Type A which are requiring a mandatory EIA.

Type A Projects are likely to have significant adverse environmental impacts and that in-depth study is required to determine the scale, extent and significance of the impacts and to identify appropriate mitigation. In the list of Type, A Projects.

It should be noted that this assessment will also include a substantial social component and therefore is termed an Environmental and Social Impact Assessment (ESIA). The EMA guides environmental management and is administrated by the National Environmental Advisory Committee, the Directorate of Environment and the NEMC. At the end of the ESIA process an environmental impact statement (EIS) is produced in accordance with the requirements of section 86 of the EMA and Part IV of the EIA Regulations. The Ministers decision regarding the project was informed by NEMC's recommendations based on the information emerging from this Environmental and Social Impact Assessment (ESIA) process and EIS provided in the final ESIA report

3.6.2 Environmental Management (Water Quality Standards) Regulations, 2007

The objectives of the Water Quality Standards Regulations are to protect human health and conserve the environment; enforce minimum water quality standards prescribed by the National Environmental Standards Committee; enable the National Environmental Standards Committee to determine water usage for purposes of establishing environmental quality standards and values for each usage; and ensure all discharges of pollutants take account of the ability of the receiving waters to accommodate contaminants without detriment to the uses specified for the waters concerned.

During construction and operation phases, water quality was continuously monitored. Water samples was collected and tested periodically to detect any possible contamination and implement remedial measures

3.6.3 . Environmental Management (Soil Quality Standards) Regulations, 2007

The objectives of the Soil Quality Standards Regulations are to set baseline parameters on soil limits for soil contaminations; enforce minimum soil quality standards prescribed by the National Environmental Standards Committee; prescribe measures designed to maintain, restore and enhance the sustainable productivity of the soil; prescribe minimum soil quality standards to maintain, restore and enhance the inherent productivity of the soil in the long term; enforce minimum soil standards prescribed by the National Environmental Standards Committee for such purposes as agricultural practices

3.6.4 Environmental Management (Control of Ozone Depleting Substances) Regulations, 2007

The objectives of the Regulations for Control of Ozone Depleting Substances are to eliminate the production and consumption of ozone depleting substances in accordance with the phase out schedule of the Montreal Protocol; to regulate the production, import, export, trade, disposal and use of ozone depleting substances and its products; to control and monitor the amount of ozone depleting substances entering or leaving the United Republic of Tanzania; to provide a system of data collection that will facilitate compliance with relevant reporting requirements under the protocol; to promote measures, strategies, programmes, incentives, equipment and technologies in favor of the use of ozone friendly substances, products and equipment in line with national obligation specified by the Montreal Protocol; and to facilitate the link between the National Ozone Unit and the Ozone Secretariat of the Protocol

3.6.5 The Land (Compensation Claims) Regulations 2001

The Land Regulations 2001 were promulgated in terms of the Land Act, Act No. 4 of 1999 sections 12 & 179. The form of compensation is stipulated in Section 10 (1) of the Land Regulations 2001. Furthermore, the Regulations list the entities that are eligible for compensation and/or resettlement.

If the person does not agree with the amount or method of payment or is dissatisfied with the time taken to pay compensation, he /she may apply to the High Court. The High Court shall determine the amount and method of payment and determine any additional costs for inconveniences incurred.

3.6.6 Other Environmental Regulations

Other environmental regulations, which are enshrining environmental standards and crucial for implementation of environmental management plans, include:

3.6.6.1 Environmental Management (Air Quality Standards) Regulation, 2007

This give permissible emission limits of sulphur oxides, carbon monoxide, hydrocarbons (as total organic carbon), dust, nitrogen oxides and lead. The standard is used as criteria in evaluation of impact significance

3.6.6.2 Environmental Management (Soil Quality Standards) Regulation, 2007;

The objectives of the Soil Quality Standards Regulations are to set baseline parameters on soil limits for soil contaminations; enforce minimum soil quality standards prescribed by the National Environmental Standards Committee; prescribe measures designed to maintain, restore and enhance the sustainable productivity of the soil; prescribe minimum soil quality standards to maintain, restore and enhance the inherent productivity of the soil in the long term; enforce minimum soil standards prescribed by the National Environmental Standards Committee for such purposes as agricultural practices.

3.6.6.3 Environmental Management (Water Quality Standards) Regulation, 2007;

The objectives of the Water Quality Standards Regulations are to protect human health and conserve the environment; enforce minimum water quality standards prescribed by the National Environmental Standards Committee; enable the National Environmental Standards Committee to determine water usage for purposes of establishing environmental quality standards and values for each usage; and ensure all discharges of pollutants take account of the ability of the receiving waters to accommodate contaminants without detriment to the uses specified for the waters concerned.

3.6.6.4 Environmental Management (Control of Ozone Depleting Substances) Regulation, 2007;

The objectives of the Regulations for Control of Ozone Depleting Substances are to eliminate the production and consumption of ozone depleting substances in accordance with the phase out schedule of the Montreal Protocol; to regulate the production, import, export, trade, disposal and use of ozone depleting substances and its products; to control and monitor the amount of ozone depleting substances entering or leaving the United Republic of Tanzania; to provide a system of data collection that will facilitate compliance with relevant reporting requirements under the protocol; to promote measures, strategies, programmes, incentives, equipment and technologies in favour of the use of ozone friendly substances, products and equipment in line with national obligation specified by the Montreal Protocol; and to facilitate the link between the National Ozone Unit and the Ozone Secretariat of the Protocol.

3.6.6.5 Environmental Management (Biosafety) (Amendment) Regulations, 2015 (G.N. No. 41 of 2015);

These Regulations, made under sections 69 and 230(2)(o)) of the Environmental Management, concern the import, export, deliberate release, confined use, contained use, transit and placing on the market of Genetically Modified Organisms (GMOs) and their products. The Regulations implement in Tanzania provisions of the Cartagena Protocol of Biosafety. They designate the Ministry responsible for environment as the National Biosafety Focal Point for purposes of the Protocol and define its functions.

3.6.6.6 Environmental Management (Hazardous Waste Management) Regulation, 2009;

The main focuses of this regulation is to ensure proper management of hazardous waste from the generation to the disposal area to ensure that there is sustainable environment.

3.6.6.7 Environmental Management (Solid Waste Management) Regulation, 2009;

Made under sections 114 of Environmental management for Solid waste management for the purpose of ensuring minimization of solid waste in their respective geographical areas of jurisdiction local government authorities shall prescribe as for different types or kind of waste or refuse or garbage to be separated at the source and fail for that made under section 45(1) of Solid waste management amended 2016 that person commit an offense and to fine not less than fifty thousand shilling but not exceed two hundred thousand shilling or imprisonment in term of not less than three month.

3.6.6.8 Environmental Management (Control and Management of Electrical and Electronic Equipment Waste) Regulations, 2021.

The main objective of these Regulations is to provide for and promote proper management of e-waste to protect human health, and environment while ensuring sustainable development.

3.6.6.9 Environmental Management (Quality Standards for Controlling Noise and Vibrations Pollution) Regulation, 2007:

Focuses on urban environmental noise and does not cover occupation environment. In the absence of other standards, it may be used to give indication of permissible noise levels in factory/workshop environment.

3.6.6.10 The Environmental Management (Fees and Charges) Regulations, 2021

This is specifically Government Notice No. 387, published on May 14, 2021, in relation to the Environmental Management Act (CAP. 191) in Tanzania. The notice introduces the Environmental Management (Fees and Charges) Regulations, 2021, which outline the fees and charges associated with various environmental management activities and services.

3.7 Strategies

The following are relevant sectoral and cross-sectoral policies that provide directives on how projects should be operated in/on concerned natural resources and sensitive ecosystems. The project proponent will consult these policies while designing and implementing the proposed project activities.

3.7.1 National Development Vision 2025 and National Five-Year Development Plan 2021/22–2025/26

This third national five-year development plan (FYDP III) for the period 2021/2026 is a nationwide multisector document aiming at achieving the goals set in the national development vision 2025.

To increase the resilience of livelihoods to disasters, main interventions shall be:

- (xii) Strengthen environmental conservation and protection to mitigate adverse effects of climate change
- (xiii) social development, including health and education, human settlements, clean and safe water, and environment, paying attention to equitable access, gender and people with disabilities
- (xiv) Strengthen sustainable use and management of oil and natural gas
- (xv) develop renewable energy sources for cooking to mitigate climate change
- (xvi) Conserve marine and freshwater fisheries protected areas
- (xvii) Develop and implement strategies to combat poaching, illegal trade and illegal harvesting of wildlife, forest, bee and antiquities resources in the country
- (xviii) Promote biodiversity conservation.
- (xix) Develop climate change adaptation and impacts mitigation measures and reduce land degradation;

- (xx) Minimize environmental pollution and resultant adverse effects on the environment and human health;
- (xxi) Establish programs and mechanisms for management, monitoring and assessment of water and wastewater quality
- (xxii) Strengthen conservation and protection programs of water resources and water sources.

3.7.2 National Strategy for Growth and Reduction of Poverty (2005)

The National Strategy for Growth and Reduction of Poverty (NSGRP) is viewed as an instrument and channelling national efforts towards broadly agreed objectives and specific inputs and outputs. Achieving the target of accelerating growth with require significant efforts by different stakeholders to enhance productivity and increase investment in both human and physical capital.

Section 2.4.1 of the strategy considers education and illiteracy especially the pace of transition to secondary schools to be low despite the growth of private secondary schools. Vulnerability of girls to cultural beliefs and customs, early pregnancies and sexual abuse remain a challenge to enrolment and completion of schooling. As such, this project contributes in the alleviation of some of these challenges in the energy education and illiteracy.

3.7.3 The Tanzania Development Vision (2025)

The National Vision 2025 foresees the alleviation of widespread poverty through improved socio-economic opportunities, good governance, transparency and improved public sector performance. These objectives not only deal with economic issues, but also include social challenges such as education, health, the environment and increasing involvement of the people in working for their own development.

The vision seeks to attain creativity, innovativeness and a high level of quality education in order to respond to development and challenges and effectively compete regionally and internationally by the year 2025. The planned schools *will contribute to the realization of the objectives of the vision 2025 by constructing special girl's schools and enhancing creativity, innovation and a high level of quality education in each region.*

3.7.4 Water Sector Development Programme (WSDP) (2006 – 2025)

The objective of the WSDP is to alleviate poverty through improvements in the governance of water resources management and the sustainable delivery of water supply and sanitation services. It is designed to address shortfalls in urban and rural water supply infrastructure, to improve water resource management primarily through upgrading the country's nine Basin Water Offices (BWOs), and to strengthen the sector institutions and their capacities. The WSDP comprises of three main components: (i) water resources management; (ii) rural water supply and sanitation, and (iii) urban water supply and sewerage.

3.7.5 National Environmental Action Plan (NEAP) (2013) and new revised NEAP (2020)

The National Environment Action Plan (NEAP) of 2013 (under revision) is the country's effort towards a comprehensive incorporation of environmental concerns into natural resource planning and economic development. NEAP is intended to address pertinent issues significant in combating climate change, land degradation, biofuels, genetically modified organisms (GMOs), Invasive Alien Species (IAS) and promotion of Sustainable land management.

3.8 The World Bank Environmental and Social Framework (ESF)

The proposed project is financed by the World Bank through the Education Program for Results (EPforR). The financing requires the Government to implement material measures and actions so that the Project is implemented in accordance with the World Bank Environmental and Social Standards (ESSs). These measures are detailed in the Environmental and Social Commitment Plan (ESCP) and among other issues is the ESCP

required the borrow to prepare Environmental and Social Impact Assessment prior to implementation of each component of the project.

The World Bank Environmental and Social Standards (ESS) are grouped in the World Bank Environmental and Social Framework (ESF)¹⁰ which establish the responsibilities of the Borrower countries (in SEQUIP the Government of Tanzania) to plan, evaluate, screen, manage and monitor environmental and social risks and impacts during each stage of the Project implementation. These Standards seek to avoid or mitigate adverse impact to people and the environment; conserve or rehabilitate natural habitat; promote efficient and equitable use of natural resources; promote workers and community health and safety; and to maximize stakeholders' engagement through enhanced consultation, participation, and accountability.

- ESS1 on Assessment and Management of Environmental and Social Risks and Impacts.
- ESS2 on Labor and Working Conditions;
- ESS3 on Resource Efficiency and Pollution Prevention and Management.
- ESS4 on Community Health and Safety;
- ESS5 on Land Acquisition, Restrictions on Land use and Involuntary Resettlement;
- ESS6 on Biodiversity Conservation and Sustainable Management of Living Resources
- ESS7 on Vulnerable Groups
- ESS8 on Cultural Heritage; and
- ESS10 on Stakeholder Engagement and Information Disclosure.

3.8.1.1 The main objectives of the ESF are:

- i. To inform decision makers of the nature of environmental and social risk.
- ii. To ensure that Bank-financed projects are environmentally sound and sustainable, and that decision-making is improved through appropriate analysis of actions and of their likely environmental impacts.
- iii. To increase transparency and provide mechanisms for participation of stakeholders in decision making process for the project.

Table 3-1: The World Bank Environmental and Social Safeguards

S/N	Instrument for project implementation	The Environmental and Social Standards (ESS)	Purpose/Objectives	Reason for its Application in the Project
1.	Environmental and Social Management Framework (ESMF)	ESS1: Assessment and Management of Environmental and Social Risks and Impacts	<p>Identification of adverse impacts and respective mitigation measures</p> <p>Enable screen and follow-up of remedies achieved through application of prevention, mitigation, and compensation measures</p> <p>Enable allocation of responsibilities and resources to implement required mitigation measures</p>	Sets out the Region's responsibilities for assessing, managing, and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank through Investment Project Financing (IPF), in order to achieve environmental and social outcomes consistent with the Environmental and Social Standards (ESSs).
2		ESS2: Labour and Working Conditions	<p>Ensure the healthy and safe working environment during projects implementation.</p> <p>Ensure the provision of fair working conditions.</p>	Recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Developer can promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions.
3		ESS3: Resource Efficiency and Pollution Prevention and Management	<p>To promote the sustainable use of resources including energy, water and raw materials.</p> <p>To avoid or minimize generation of hazardous and non-hazardous wastes.</p>	Recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels. This ESS sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life cycle.
4		ESS4: Community Health and Safety	To manage potential risks to the community during construction and operation of school infrastructures.	Addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of the developer to avoid or minimize such risks and impacts, with particular attention to people who, because of their circumstances, may be vulnerable

S/N	Instrument for project implementation	The Environmental and Social Standards (ESS)	Purpose/Objectives	Reason for its Application in the Project
5	Resettlement Policy Framework (RPF)	ESS5: Land Acquisition, Restriction on Land Use and Involuntary Resettlement	To avoid or minimize involuntary resettlement and to avoid forced eviction To mitigate unavoidable adverse impacts from land acquisition and restrictions on land use.	The Environmental and Social Standard on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (ESS5), requires Borrowers to: • Avoid or minimize involuntary resettlement by exploring project design alternatives • Avoid forced eviction • Mitigate unavoidable adverse impacts from land acquisition or restrictions on land use through timely compensation for loss of assets at replacement cost and assisting displaced persons in their efforts to improve, or at least restore, livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher
6		ESS6: Biodiversity Conservation and Sustainable Management of Living Resources	The SEQUIP project will avoid adverse impacts on biodiversity, habitats and ecosystem services. When avoidance of adverse impacts is not possible, the Borrower will implement measures to minimize adverse impacts and restore biodiversity in accordance with the mitigation hierarchy provided in ESS1 and with the requirements of the ESS6.	Recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development and it recognizes the importance of maintaining core ecological functions of habitats, including forests, and the biodiversity they support. ESS6 also addresses sustainable management of primary production and harvesting of living natural resources and recognizes the need to consider the livelihood of project-affected parties, including Indigenous Peoples, who's access to, or use of, biodiversity or living natural resources may be affected by implementation of the project.
7		ESS 7: Sub-Saharan Historically Underserved Traditional Local Communities	To enable VGs to participate in project activities while taking care of their sociocultural interests and hindrances	Ensures that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities. ESS7 is also meant to avoid adverse impacts of projects on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, or when avoidance is not possible, to minimize, mitigate and/or compensate for such impacts.

S/N	Instrument for project implementation	The Environmental and Social Standards (ESS)	Purpose/Objectives	Reason for its Application in the Project
8		ESS8: Cultural Heritage	To enhance conservation of cultural heritage in both forms; tangible and intangible cultural heritage. To conserve ecological and socially sensitive places from possible impacts of project implementation.	Recognizes that cultural heritage provides continuity in tangible and intangible forms between the past, present and future. ESS8 sets out measures designed to protect cultural heritage throughout the project life cycle.
9		ESS9: Financial Intermediaries	To set out how the FI will assess and manage environmental and social risks and impacts associated with the subprojects it finances To promote good environmental and social management practices in the subprojects the FI finances.	Recognizes that strong domestic capital and financial markets and access to finance are important for economic development, growth and poverty reduction. FIs are required to monitor and manage the environmental and social risks and impacts of their portfolio and FI subprojects, and monitor portfolio risk, as appropriate to the nature of intermediated financing. The way in which the FI will manage its portfolio will take various forms, depending on a number of considerations, including the capacity of the FI and the nature and scope of the funding to be provided by the FI.
10.	Stakeholder Engagement Plan	ESS10: Stakeholder Engagement and Information Disclosure	To develop a systematic approach to stakeholder engagement to develop good relationships and gather their views on issues that could affect them. To provide stakeholders with a mechanisms through which to raise grievances.	Recognizes the importance of open and transparent engagement between developer and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation.

3.9 Other World Bank Instruments Applicable for SEQUIP

Environmental and Social Framework - Guidance Notes for Borrowers¹¹; The World Bank has developed several Guidance Notes to ensure the governments (borrowers) comply with the World Bank Environmental and Social Standards. This guidance are public documents that be accessed in the World Bank website¹². Among the applicable guidance notes for SEQUIP are:

3.10 International Agreements, Conventions and Treaties

Tanzania has ratified or acceded to many international treaties and conventions. Among those the following are relevant to the project.

3.10.1 The 1991 Bamako Convention

On the ban of the Import in Africa and Control of Trans boundary Movement and Management of Hazardous wastes within Africa was ratified in 1993.

3.10.2 3.4.8 The 1989 Basel Convention

On Control of Trans-Boundary Movements of Hazardous Wastes and their Disposal. The project shall adhere to both Bamako and Basel conventions to ensure that the ships do not bring into the country hazardous wastes by strictly abiding to the cargo declaration formalities.

3.10.3 1996 Convention on Biological Diversity,

Developer must cooperate with other related contracting parties for the conservation and sustainable use of biological diversity. Article 14 of the Convention concerns impact assessments and minimizing adverse impacts.

3.10.4 ILO Minimum Age Convention (C138), 1973.

The Convention is concerned with minimum age for admission to employment. The minimum age stated in Article 2 (3) of the Convention is not less than 15 years or 18 years' dependent on the nature of the work. The Convention prohibits child labor with a view to achieving the total abolition of child labour worldwide. Members of the Convention are committed to pursuing national policies that have been designed to ensure effective abolition of child labour and to increase progressively the minimum age for admission to employment or work to a level consistent with the fullest physical and mental development of young persons. During construction and implementation of SEQUIP project the Contractor will abide by the provisions of this Convention.

3.10.5 Labour and Working Conditions

- To establish, maintain and improve the worker-management relationship.
- To promote the fair treatment, nondiscrimination and equal opportunity of workers, and compliance with national labour and employment laws.
- To protect the workforce by addressing child labour and forced labour.
- To promote safe and healthy working conditions, and to protect and promote the health of workers.

3.10.6 Resource Efficiency and Pollution Prevention

- To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities
- To promote more sustainable use of resources, including energy and water
- To reduce project-related GHG emissions

3.10.7 Community, Health, Safety and Security

- To anticipate and avoid adverse impacts on the health and safety of the affected community during the project life from both routine and no routine circumstances

- To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the affected communities

3.10.8 Land Acquisition and Involuntary Resettlement

- To avoid or, when avoidance is not possible, minimize displacement by exploring alternative project designs
- To avoid forced eviction
- To anticipate and avoid or, where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected
- To improve, or restore, the livelihoods and standards of living of displaced persons
- To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites

3.10.9 Biodiversity Conservation and Sustainable Management of Living Natural Resources

- To protect and conserve biodiversity
- To maintain the benefits from ecosystem services
- To promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities

3.10.10 Indigenous Peoples

- Indigenous people must be identified and treated in the manner that their well-being is not affected by the project.

3.10.11 Cultural Heritage

- To protect cultural heritage from the adverse impacts of project activities and support its preservation
- To promote the equitable sharing of benefits from the use of cultural heritage

3.11 International Convention

3.11.1 Convention against Discrimination in Education (1960) ratified by United Republic of Tanzania in 1978-12-08

Article 2 (a) of convention stated the establishment or maintenance of separate educational systems or institutions for pupils of the two sexes, if these systems or institutions offer equivalent access to education, provide a teaching staff with qualifications of the same standard as well as school premises and equipment of the same quality, and afford the opportunity to take the same or equivalent courses of study.

3.11.2 International Covenant on Economic, Social and Cultural Rights, 1966

Article 13 (2)(a) of this convention emphasizes that "Primary education shall be compulsory and available free to all; and (2)(b) Secondary education in its different forms, including technical and vocational secondary education, shall be made generally available and accessible to all by every appropriate means, and in particular by the progressive introduction of free education".

3.11.3 Universal Declaration of Human Rights, 1948

Article 26 of this declaration states that “Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all based on merit”.

3.11.4 Convention on the Rights of the Child, 1989

The Convention recognize the right of the child to education and with a view to achieving this right progressively and based on equal opportunity. Where in Article 28(1) (a) of the convention stated that “Make primary education compulsory and available free to all”. Also, this convention emphasizes in international cooperation in education sector stated in Article 28 (3) promote and encourage international cooperation in matters relating to education, in particular with a view to contributing to the elimination of ignorance and illiteracy throughout the world and facilitating access to scientific and technical knowledge and modern teaching methods.

3.11.5 Convention on the Rights of Persons with Disabilities, 2006

Article 28 (2) (a) of the convention emphasizes the right of persons with disabilities to education which stated, “Persons with disabilities are not excluded from the general education system on the basis of disability, and that children with disabilities are not excluded from free and compulsory primary education, or from secondary education, on the basis of disability”.

3.12 Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) are a set of global goals for fair and sustainable health at every level from planetary biosphere to local community. The aim is to end poverty, protect the planet and ensure that all people enjoy peace and prosperity, now and in the future. The table 3-1 below shows the Sustainable development goals which are relevant to this project

Table 3-2: Sustainable Development Goals (MDGs)

Goal	Target
Goal 1: End poverty in all its form everywhere	Target 1.1 By 2030, extremely eradicate poverty to all people everywhere, currently measured as people living on less than \$ 1.25 a day Target 1.4 By 2030, ensure that all women and men, in a particular the poor and the vulnerable have equal rights to economic resources, as well as access to basic services, ownership and control over land and other form of property, inheritance natural resources, appropriate new technology and financial services include microfinance
Goal 3: Ensure health lives and promote for all at all stage	Target 3.5. Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.
Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunity for all	Target 4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes Target 4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations

Goal	Target
Goal 5 : Achieve gender equality and empower all women and girls	<p>Target 5.1 End all forms of discrimination against all women and girls everywhere</p> <p>Target 5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation</p>
Goal 6: Ensure access to water and sanitation to all	<p>Target 6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all</p> <p>Target 6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations</p>
Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all.	Target 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services
Goal 13: Take urgent to combat climate change and its impact	<p>Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>Target 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p>
Goal 14: Conserve and sustainably use of oceans, seas and marine resources	Target 14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution
Goal 15: Sustainable manage forest, combat, desertification, halt reserve land degradation, halt biodiversity loss	<p>Target 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally</p> <p>Target 15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world</p>

3.13 Institutional Framework

Authorities, institutions and sectors directly or indirectly related to the project development have been identified geographically by political boundaries as well as through regulations, institutional mandates and structures. These entities are adequately consulted in the ESIA process as prescribed through the institutional framework for environmental management. The relevant institution for handling EIA requirements is the NEMC with input from the District Environment Management Committees; Ward Committees and Street Committees.

According to the EMA of 2004 the institutional set-up for environmental management from a national level to village level includes:

- Minister Responsible for Environment;
- Director of Environment (DOE);
- National Environmental Management Council (NEMC);
- Sector Ministries;
- Regional Secretariats;
- Local Government Authorities, District, and Town Councils;
- Township, Village, Ward; Neighborhood (Kitongoji); and

- Street (Mtaa).

The DOE and NEMC are the main regulatory bodies for environmental management in Tanzania whilst the other sector ministries and agencies, play an important role in implementing and enforcing environmental decree. The environmental management functions of each institution are outlined in the Environmental Management Act.

3.13.1 Minister Responsible for Environment

The Minister is overall responsible for matters relating to environment and in that respect be responsible for articulation of policy guidelines necessary for the promotion, protection, and sustainable management of environment in Tanzania.

The Minister may issue general guidelines to the Sector Ministries, Government Departments, the Council, National Environment Advisory Committee, City, Municipal or District Environmental Management Committee, agency or any other public or private institution necessary for the purposes of implementation of or giving effect to the provisions of EMA.

The Minister may designate and shall, where appropriate, direct any of the before mentioned institutions and within specified time, to perform any function or do any activity or desist from performing any function or doing any activity because of which the environment or part of it is or may be seriously endangered or detrimentally affected.

3.13.2 Director of Environment (DOE)

The DOE heads the Office of the Division (Directorate) of Environment under the Office of the Vice President and is responsible for coordination, monitoring and assessment of various environmental activities. The DOE is responsible to coordinate various environment management activities being undertaken by other agencies and promote the integration of environment considerations into development policies, plans, programmes, strategies, projects and undertake strategic environmental assessment with a view to ensuring the proper management and rational utilization of environmental resources on a sustainable basis for the improvement of the quality of human life in Tanzania.

3.13.3 National Environment Management Council (NEMC)

The object and purpose for which the Council is established is to undertake enforcement, compliance, review and monitoring of environmental impact assessment and in that regard, shall facilitate public participation in environmental decision making, exercise general supervision and coordination over all matters relating to the environment assigned to the Council, under the EMA or any other written law.

The Director General of NEMC is appointed by the President. The Council and the Board of Directors consist of:

- A Chairperson appointed by the President;
- The Director of Environment;
- Seven members appointed by the Minister; and
- The Secretary to the Council (Director General).

3.13.4 Sector Ministries

An environmental sector sits within each Ministry. The duties of the sector include:

- Responsibility for ensuring compliance by the sector Ministry with the requirements of this Act;
- Responsibility for ensuring all environmental matters contained in other written law falling under sector ministry are implemented and report of their implementation is submitted to the Director of Environment; and

- Liaising with the Director of Environment and the Council on matters involving environment and all matters with respect to which cooperation or shared responsibility is desirable or required under this Act.

3.13.5 Regional Secretariats

The Regional Secretariat is responsible for co-ordination of all advice on environmental management in their respective regions and liaison with the Director of Environment and the Director- General on the implementation and enforcement of this Act. The Regional Secretariats are headed by a Regional Environment Management Expert. The expert is responsible for advising the local authorities on matters related to the implementation and enforcement of the EMA. Furthermore, the expert links the region with the Director of Environment and Director General of NEMC.

3.13.6 Local Government Authorities

A local government Environmental Management Officers are designated or appointed at each City, Municipal, District and Town Council. The responsibilities of the Environmental Management Officers among others, include:

- Ensuring enforcement of EMA.
- Advising the Environment Management Committee on all matters relating to the environment.
- Promoting environmental awareness relating to protection of the environment and the conservation of natural resources.
- Gathering and managing information on the environment and the utilization of natural resources.
- Preparing periodic reports on the state of the environment.
- The preparation, review and approval of environmental impact assessments for local investment by-laws on environmental management and on sector specific activities related to environment, and reporting to the Director of Environment and the Director General on the implementation of the EMA.
- The Environment Management Committee is responsible for functions set out under the Local Government Act. In addition, they perform functions as prescribed by the EMA and they may be assigned by the Minister to carry out directives related to the promotion and enhancement of sustainable management of the environment.

The Township Environment Management Committees are responsible for:

The proper management of the environment in respect of the area in which they are established.

- Performing duties as assigned under EMA or by the Minister or Council;
- Carrying out directives given by the Minister to promote and enhance sustainable management of the environment; and
- Performing any functions as set out under the Local Government (District) Authorities Act.

3.13.7 Ward/Mtaa/Kitongoji Level

The District Council designates an Environment Management Officer for each administrative area of a township, ward, village, kitongoji (neighbourhood/hamlet) and mtaa (street). The Environmental Management Officers are responsible for coordinating all functions and activities related to the protection of the environment within their designated areas.

CHAPTER FOUR

4 BASELINE CONDITIONS

4.1 Introduction

The purpose of this Chapter is to provide a brief description of the environment in the project site which could potentially be affected by positive and negative impacts of the project discussed in Chapter 2. Impacts of lesser importance were screened out during scoping phase to ensure that the ESIA is focused on the potentially significant impacts.

The process of environmental baseline investigations included the combination of some/all the following tasks:

- An appropriate combination and balance of desktop studies, field surveys, site information collection and technical consultation.
- Consideration of all available documentary records, research papers and other relevant information.
- Use of recognized survey and analysis techniques.
- Identification and provision of appropriate (preferably quantitative) descriptions of the baseline environmental conditions.
- Identification of key environmental features that may enhance, constrain, or limit the direction and rate of environmental change.
- Explanation of links, interactions, and dependencies between environmental components.
- Verification of desktop and other information by systematic field surveys.
- Acknowledgement of the implications of gaps and limitations in information and data.

4.2 Project Core Area and Accessibility

Mwanza region is located on southern parts of Lake Victoria, about 1200 - 1,400 metres above sea level; and lies between latitudes 1030' and 300' South of the Equator and between longitudes 31045' and 340 10' East of Greenwich.

The region shares borders with Lake Victoria in the North, Kagera and Geita in the West, Mara region on the East, while Shinyanga and Simiyu regions are located on the South and South-eastern side of the region

According to the Tanzania Human Development report (THDR 2017, the region has a population of 3,125,995 as inhabitants of eight Councils of Ukerewe District, Magu District, Kwimba District, Sengerema District, Buchosa District, Misungwi District; Ilemela Municipal and Mwanza City

Magu town lies at latitude 2°35' South and 33°25' East. It is the District Town Headquarters of Magu District. The ground levels in the town vary from about 1,140 m asl to 1,190 m asl although there are some rocky hills at higher elevations.

The Magu wards and sub-wards are classified as urban and/or mixed. Parts of the area are serviced by an existing water supply system.

Magu is administered by the Magu District Council. It is located about 64 km east from Mwanza City along the Mwanza-Musoma Highway It is growing at a fast rate towards Mwanza City rather than in the other direction along the Musoma highway where agriculture is prominent, the reason being the closeness to Mwanza and the businesses along the highway include rice mills and a few industries.

4.3 Climatic Conditions and Topography

Most parts of the region experiences a bimodal rainfall pattern, getting short rains from October to December and long rains between March and May, with an average annual rainfall of 930 mm; the

highest being in Ukerewe islands at 1,200 mm and the lowest of about 700 mm in the Southern and South-eastern parts of the Region.

The temperature, mostly influenced by Lake Victoria waters, is between 25°C and 28°C from September to December and between 11°C and 20°C from June to August. The region is mostly flat with granite stone forming hills and small mountains scattered throughout the region. The plains drain rainwater towards the North into Lake Victoria. The soils vary from sand or sandy loam to sand-clay or loam-clay texture “mbuga soil”. 2.1.3 Agro-Economic Zones (AEZ)

4.4 General Conditions

4.4.1 Current Uses and Activities at the Proposed Project Site

The proposed school construction area legally owned by Magu Municipal and was once industrial located area, but that programme was not implemented, hence the Municipal is changing the use to school construction. The area has total of 30 Hectares

The project area so has buildings that already constructed as shown in **Error! Not a valid bookmark self-reference.** and proceeding with finishing where they expect to finish construction soon and the school might start operation by, 2023.



Figure 4-1: The Project area

4.4.2 Displacement and Relocation

No people relocation is envisaged for this location,

4.4.3 Neighboring Residences (Location and Distance from the Proposed Project)

Proposed project site is bordered by individual owned farm to the West, South there is seasonal river, east there is kayenze Road connecting from Sirali Mbeya Road and railway and Isalmic Chemichemi foundation institute to the North

4.5 Socio-Economic Baseline

4.5.1 Background

A development envelope (Area of Interest - AOI) is situated at Ihushi Village, Bujashi Ward, Magu District, Mwanza Region. Details of the study area for the Social Impact Assessment (SIA) is in Table.

Table 4-1: Study Areas for the SIA

Study Area	Definition	Areas included for this project
Site-specific study area	Area likely to experience impacts associated with project infrastructure and activities	The project footprint, excluding the access roads, etc. (to be defined at the conclusion of the scoping phase)
Local study area	Areas likely to experience impacts related to population influx, etc.	The neighboring settlements in Bujashi and Ihushi Villages
Regional study area	Area likely to experience economic impacts of the project	Magu (since most of the development envelope falls within this district). This is set against the backdrop of Mwanza Region and Tanzania as a whole

4.5.2 Land Area and Administrative Units

The total surface area occupied by Mwanza region is 25,233 sq.km. Out of this area, 53.25% (13,437 km²) is Lake Victoria while 46.75% or (11,796 km²) is dry land.

According to the THDR 2017, the region has a population of 3,125,995 as inhabitants of eight Councils of Ukerewe District, Magu District, Kwimba District, Sengerema District, Buchosa District, Misungwi District; Ilemela Municipal and Mwanza City

4.5.3 Demographic Condition

The region is located on southern parts of Lake Victoria, about 1200 - 1,400 metres above sea level; and lies between latitudes 1030' and 300' South of the Equator and between longitudes 31045' and 340 10' East of Greenwich.

The region shares borders with Lake Victoria in the North, Kagera and Geita in the West, Mara region on the East, while Shinyanga and Simiyu regions are located on the South and South-eastern side of the region.

4.5.4 Ethnic Composition

Mwanza region is one of fast growing city in Tanzania experiencing fast population growth by both natural increase and migration. As a result, there are varieties of ethnic groups living in the city.

The major ethnic groups are Sukuma, zinza, kerewe, Kara, haya and kurya, though are other minority ethnic groups such as Nyamwezi, Arabs, Hindi and other Asians which they speaks their native languages along with Swahili are also found in Mwanza city council.

The important thing to note is that the Sukuma tribe has sub ethnic groups such as Bakamba, Bakwimba, Bagolo, Baminza, Bajigaba, Balungu, Babasana, Bahwela, Bakwaya, Nyantuzu and many others, but all of them speak same native language of kisukuma along with kiswahili.

4.5.5 Economic Activities

According to 2012 census, about 62.8 percent of economically active population were engaged in agriculture (crops and livestock). The rest of the population are preoccupied with elementary occupations (7 percent), trade and small businesses (6.1 percent), crafts (4.9 percent) and fishing (3.3 percent).

According to 2017 Tanzania Human Development Report, the region's Gross Domestic Product (GDP) was TZS 7,451,706 million in 2016 and its GDP per capita was TZS 2,004,353. The region's GDP per capita ranked number 7 out of 26 regions

4.5.5.1 Agriculture.

One of the general characteristics of farming in the region is the dominance of subsistence farming undertaken by smallholder peasants with very little commercial inclinations in their husbandry practices. Most of them use low yielding plant seeds and livestock breeds, with minimal application of yield boosting inputs such as fertilizers and disease prevention applications. Crops are cultivated on 61 percent of the suitable arable land.

Food Crops: Maize is the predominant crop, occupying 51.8 percent of the planted area (mostly grown in Buchosa, Kwimba and Misungwi), followed by cassava (29.9 percent, mostly grown in Kwimba, Buchosa and Ukerewe), paddy (7.5 percent, mostly grown in Magu and Ukerewe), sweet potatoes (5.7 percent, mostly in Ukerewe and Buchosa) and sorghu

4.5.5.2 Livestock.

According to the recent livestock census, the region in 2016 had a stock of 1,155,871 indigenous cattle, 523,145 goats, and 138,917 sheep; some of which could be transformed into processed meat.

There were as well 19,244 improved dairy cows, 61,677 pigs, 6,985 donkeys and 2,588,438 chicken. Kwimba had the largest share of cattle (34 percent), followed by Misungwi (21 percent), Magu (18 percent) and Sengerema (16 percent).

Land that is suitable for grazing land is estimated at 172,977 ha, of which 70.5 percent (121,874 ha) is being used for the purpose.

4.5.5.3 Forestry

In mwanza region, Sengerema and Buchosa are the main sources of forest products, and as such have ambitious plans to continue planting more trees so as to maintain their lead in the sector. Although not seen as a main source of vibrant wood industries, other districts have forest resource as well. Ukerewe, for example, has Rubya forest and five other natural forest reserves

4.5.5.4 Tourism

Mwanza region is a land of much wonder holding an unparalleled diversity of fauna, flora and many natural features, most of which have not been used to attract tourism business.

The wonders of rocks, the scenery, topography and very friendly people, harbour, the growth of excellent cultural tourism beach holidays, game hunting, infrastructure ventures, historical and archaeological ventures and certainly the best wildlife photographic safaris in the continent.

Each LGA has identified special sites for tourists: ranging from cultural sites (e.g. Sukuma Cultural Museums) to wildlife in Saanane Island.

4.5.5.5 Fisheries

The main locations of fishing activities in the region are Ukerewe, Magu, Mwanza city, Sengerema, Ilmela, Misungwi and Buchosa districts.

In 2015 the region had issued 33,582 fishing licences, with about 27,629 fishermen and 6,743 registered vessels engaged in fishing business. The catch in 2015 amounted to 38,165.6 million tons of fish, valued at TZS 187 billion. Most of the income was earned by residents of Ilmela MC, Sengerema DC and Ukerewe

4.5.5.6 Mining

Mining is a promising economic activity not well developed in the region. Most of the commercial activities are still at the stages of surveys and there are researches by mostly foreign companies to establish mineral deposits in terms of quantity and quality.

Local companies have so far mainly invested in small scale mining ventures at Misungwi, Ilemela and Mwanza city council (mostly extracting gold, quarrying and sand minerals).

4.5.5.7 Industry and Trade

An industrial census conducted in 2015 revealed that Mwanza region was the 4th region after Dar es Salaam, Arusha and Kagera in terms of number of large scale manufacturing industries in the country.

The region's industrial economy is dominated by small scale industries (96 percent), followed by medium scale industries (3 percent), which are engaged in different type of manufacturing.

There were 2,420 small-scale industries in 2015 whose distribution by council was as follows: Ukerewe district council (31.5 percent), Magu (6.7 percent), Mwanza city (17.8 percent), Kwimba (8.8 percent), Sengerema (4.5 percent), Ilemela (23.9 percent), Misungwi (6.8 percent) and Buchosa did not have small scale industries data due to newness of the council.

Industries were services (16 percent). Another 303 industries were for welding services (13 percent), while 314 (13 percent) were in timber processing, 28 industries (1.0 percent) in food processing and the remaining 5 industries (0.9 percent) were in sunflower oil processing.

The distribution of medium scale industries by council in 2015 were as follows: Mwanza city (60.9 percent), Ilemela (18.3), Magu (13.7 percent) and Misungwi (6.8 percent) of the total of 87 industries which were available in the region during the survey in 2015 and some additional 7 that were established after the 2012 Census

4.5.6 Economic infrastructure

Economic infrastructure is critical for any economic development to occur. Growth in agricultural and industrial production, trade, national defense, administration, and even political integration are all dependent on the efficient and smooth operation of communication, transportation, and energy resources.

The region can easily be accessed by different modes; roads, train, water and air from all the major cities of the East African Community

The fastest mode of transport is by flying using scheduled flights such as the National Carrier, Air Tanzania, whose flight time is about one hour from Dar es Salaam, and about 40 minutes from Arusha, Nairobi, and Kigali. It takes about half an hour from Entebbe.

Air transport system: Mwanza airport receives directly international flights, but so far most are cargo planes. There are daily scheduled flights linking Mwanza with major cities in the region: Entebbe in Uganda, Kigali in Rwanda, Nairobi in Kenya and several towns in Tanzania: Dar es Salaam, Arusha, Moshi, Zanzibar and Mbeya

Road Transport: Dar es Salaam via Shinyanga, Singida, Dodoma and Morogoro; and roads linking it to Kisumu and Nairobi; and another one linking to Kagera and other towns in Uganda and Rwanda

Railway transport: The slowest mode is by train, which takes about 24 hours to travel from Dar es Salaam. The city has been expanding very rapidly after the expansion of its airport and completion of tarmac roads linking Mwanza with the rest of the country

4.5.7 Cultural Heritage

Mwanza region is a land of much wonder which include identified special cultural sites (e.g. Sukuma Cultural Museums also known as Bujora cultural centre.that was designed in 1968, and is dedicated to the preservation and display of artifacts related to the sukuma culture

4.5.8 Health Status

The vision of the health sector is to raise the health and well-being of the people, especially those who are more at risk of being affected by diseases by promoting and strengthening the system of providing health services that will meet the needs of the people.

4.5.9 Sources of Energy

Mwanza region and its districts, particularly Magu, rely on major sources of energy in their daily operations, including TANESCO's national grid. Because of the number of people who will be accommodated, the project may increase energy demand.

4.5.10 Sanitation and water supply

Mwanza Urban Water Supply and Sanitation Authority (MWAUWASA) is the water authority in Mwanza region as executive agency of government for provision of adequate, reliable and sustainable portable water and wastewater management service.

4.5.10.1 Waste Management

In Mwanza food waste is the most popular disposal, has a number of communal collection points located in various wards and streets. However, the City Council operates collection points where skip buckets are placed. Door-to-door collection and community collection points are used in the collection system.

To collect all waste stored by residents within their premises on specific days. This is a common occurrence in planned and semi-planned wards. Another collection system is the use of communal collection points, where the Council establishes locations where all nearby residents can dump their trash. Containers are available at the collection points.

4.5.10.2 Liquid Waste Management

The existing sewerage system (wastewater collection) has a length of 85 km consisting of PVC, concrete and steel (diameters DN 150 to DN 600).

It serves the Central Business district and some surrounding areas such as Kirumba, Nyamanoro, Kilimahewa, Pasiansi and Igogo. The sewer network is drained by gravity and pumping. The present number of house connections is 3,500.

All wastewater collected by the sewerage system is pumped by a Central pump station via a transmission main (DN 150, DN 400 and DN 800) to the existing, treatment plant located in Butuja Ilemela some 6 km north of the City centre.

4.5.10.2.1 Onsite Sanitation.

On-site sanitation systems adopted in urban areas address the problems associated with faecal sludge management (FSM), especially in relation to difficulties with emptying, transportation and safe disposal of faecal sludge.

Currently MWAUWASA is operating two suction truck of capacity 6.5m³ and 10m³ that offer services of emptying sludge of septic tanks and cesspits. The liquid waste of the suction trucks is discharged into the special disposal facility (MWAUWASA Waste stabilization pond) located in Butuja- Ilemela.

4.6 Physical- Geographical Environment

4.6.1 Climate and meteorological conditions

Mwanza region experiences a bimodal rainfall pattern, getting short rains from October to December and long rains between March and May, with an average annual rainfall of 930 mm; the highest being in Ukerewe islands at 1,200 mm and the lowest of about 700 mm in the Southern and South-eastern parts of the Region. The temperature, mostly influenced by Lake Victoria waters, is between 25°C and 28°C from September to December and between 11°C and 20°C from June to August.

4.6.2 Geological Conditions

4.6.2.1 Landscape

The region is located on southern parts of Lake Victoria, about 1200 - 1,400 metres above sea level; and lies between latitudes 1030' and 300' South of the Equator and between longitudes 31045' and 340 10' East of Greenwich.

The region shares borders with Lake Victoria in the North, Kagera and Geita in the West, Mara region on the East, while Shinyanga and Simiyu regions are located on the South and South-eastern side of the region.

The region is mostly flat with granite stone forming hills and small mountains scattered throughout the region. The plains drain rainwater towards the North into Lake Victoria. The soils vary from sand or sandy-loam to sand-clay or loam-clay texture "mbuga soil".

4.7 Biological Environment

Magu district in Mwanza region site located amidst degraded savannah terrain, and is occupied by scattered plots of cultivation (rice, maize, beans, sweet potato, etc.), pockets of low shrub and isolated trees (fruit, utility). Land is used for keeping livestock (cattle, sheep, and goat). Little remains in terms of undisturbed natural habitat and therefore the area is believed to have little biodiversity value.

Nevertheless small groups or individuals were noted of heron, egret, stork and ibis species, mainly feeding along and in rice fields and other cultivated areas. The area is not covered with heavy vegetation; there are few acacia trees/shrub.

4.8 Air Quality within the Project Area

4.8.1 Ambient air quality data

The consulting team conducted the actual monitoring of air quality at the project site using an Aeroqual Outdoor Air Quality Test Kit. This is a complete outdoor air monitoring kit for the measurement of criteria air pollutants and VOCs.

Features Aeroqual's proven Series 500 portable monitor with interchangeable sensor heads, measuring particulate matter (PM_{2.5}, PM₁₀), four gas pollutant gas sensors (NO₂, O₃, CO, VOCs), and a combined temperature and relative humidity sensor.

Suitable for use during wide area air quality surveys, personal exposure monitoring, and as part of a short-term fixed monitoring network. The equipment and collected data are shown in



Figure 4-2 respectively.



Figure 4-2: Ambient Air Quality Monitoring equipment used at the project

4.9 Description of Sources and levels of project emission

Heavy construction is a source of dust emissions that may have substantial temporary impact on local air quality. Emissions during the construction of a building are associated with land clearing, ground excavation, cut and fill operations (i.e., earth moving), and construction of a particular facility itself. The existing situation at the project site is in Table 4-2

Table 4-2: Ambient Air Quality data measured from different station in the vicinity of the project site

LOCATION	CO ppm	NO ₂ ppm	O ₃ ppm	VOC ppm	SO ₂ ppm	PM _{2.5} ppm	PM ₁₀ ppm
Project Site	0.00	0.036	0.00	0.00	0	0.002	0.002
Monitoring Point 1	0.00	0.018	0	0.00	0	0.012	0.010
Monitoring Point 2	0.00	0.01	0	0.00	0	0.002	0.003
Monitoring Point 3	0.00	0.012	0	0.00	0	0.000	0.002
Monitoring Point 4	0.00	0.07	0	0.07	0	0.003	0.003
Tanzania Standard [TZS 845:2005]	20	0.1	0.0	10	0.05	0.05- 0.08	0.05- 0.116

All data monitored were below standards with low detectable level so are of no significant. However, the data measured will be used for monitoring project intrusion during project implementation so as to

trace how the project has affected the air quality. The air quality data analysis results trend is shown in Figure 4-3

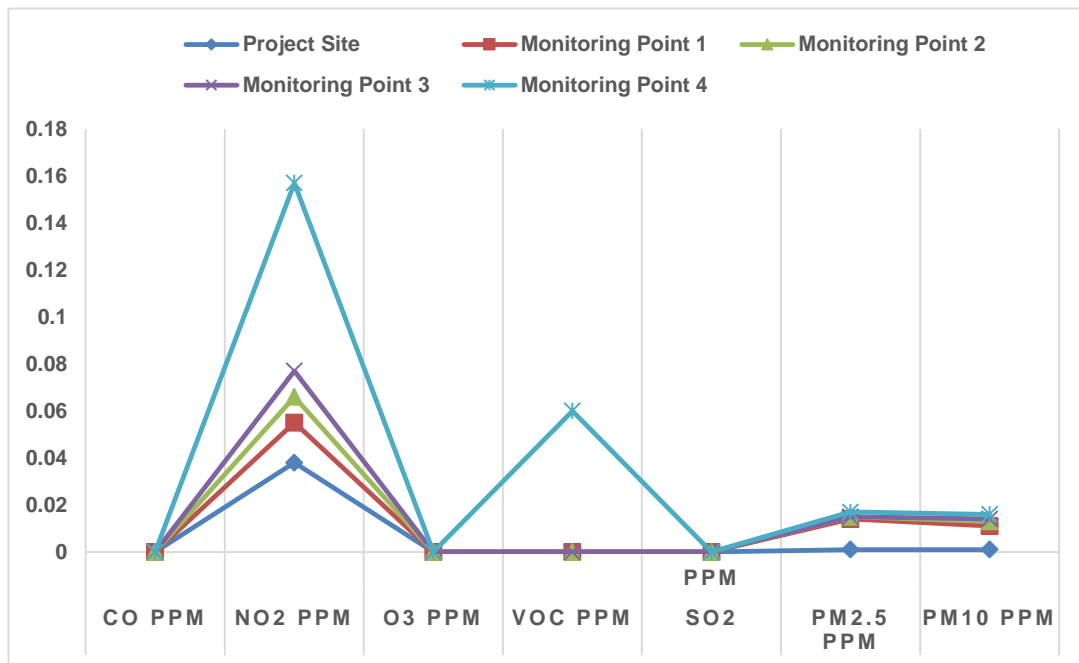


Figure 4-3: Ambient air quality data results trend (Source: Tansheq, 2022)

4.9.1 Noise and Vibration

The noise and vibration survey was conducted in terms of the provisions of International Finance Corporate Guidelines of 2007 (The measurement and rating of environmental noise with respect to annoyance and to speech communication) as well as Environmental Management (Noise and Vibration Standards) Regulations of 2015.

The following instruments were used in the noise and vibration survey as they are displayed in

- Sound Level meter – Lutron SL 4033SD Class 1;
- Free field microphone – Electric Condenser Microphone; and
- Sound Calibrator (94/114dB) – SC – 942.
- Vibration meter – VB8206SD
- Environmental meter

On taking measurements, the meter was set to the “A” weighed measurement scale, which enables the meter to respond in the same manner as the human ear. The “A” scale is applicable for workplace compliance testing, environmental measurement, and workplace design and law enforcement.

For, noise measurement the meter was held approximately 1.5 m above the ground surface and at least 0.5 m away from hard reflecting surfaces such as walls. A set of four readings were taken per point for averaging. The equipment used and data collected are shown in Figure 4-4



Figure 4-4: Noise and vibration level meters used to collect data on the project site

Table 4-3: Results on Noise and Vibration levels within the project site

Location	Noise Level [dBA]	Vibration [mm/s]
Project Site	44	1.8
Monitoring Point 1	46	1.2
Monitoring Point 2	36	1.4
Monitoring Point 3	34	0.8
Monitoring Point 4	38	0.7
Tanzanian Standards (TZS: [1471: 2015])	60-50	5

The noise and vibration level survey was executed during the day on the 22nd September 2022 at 1300hrs. In this survey, 12:00 to 14:00 represented the daytime period.

The Noise level was measured over a representative sampling period, exceeding 30 minutes at a point for different location in the vicinity of the proposed site as the result is presented in Table 4-3

CHAPTER FIVE

5 STAKEHOLDERS IDENTIFICATION AND INVOLVEMENT

5.1 Introduction

This chapter describes the major stakeholders who have been identified and contacted thus far, as well as their primary concerns about the proposed development.

Stakeholder Engagement and Information (ESS10) the involvement of stakeholders in the project's sustainability is identified through disclosure.

Stakeholder engagement is an ongoing process that occurs throughout the project's life cycle. It promotes the development of strong, constructive, and responsive relationships, which are critical for the successful management of a project's environmental and social risks when properly designed and implemented. Stakeholder engagement is most effective when it begins early in the project development process and is integrated into early project decisions as well as the assessment, management, and monitoring of the project's environmental and social risks and impacts.

Stakeholders are defined as "those individuals and organizations who have a vested interest in the project's successful design, implementation, and sustainability and will be negatively, positively, or not at all impacted by the proposed development." Section 89 of the Environmental Management Act (EMA, 2004) specifies the importance of public participation in the ESIA. Section 17 of the EIA Regulations also contains information and procedures for public participation in the ESIA process.

Stakeholder participation aims to involve processes whereby all those with a stake in the outcome of a project actively participate in decisions on planning and management. Stakeholders may share information and knowledge, and contribute to the project, to enhance the success of the project and hence ultimately their own interest.

5.2 Stakeholder Engagement Process

The Constitution of United Republic of Tanzania recognizes the sovereignty of the people and that people possess the power to guide development within their areas either directly or indirectly.

The public should therefore be involved in the evaluation process because the Environment Management Act (2004) demands it to be so. The main objectives of the stakeholder engagement process are to:

- Inform the stakeholders about the proposed project and provide opportunities for influencing/amending the plans;
- Collect stakeholders' views on the proposed project including potential positive/negative impacts the stakeholders may associate with the project
- Get an idea of Stakeholders' preferred approaches to implementation of the project;
- Get local knowledge on any sensitive areas within the project area of influence (physical, environmental, cultural or proposed facilities); and
- Get expert advice on land use/ area zoning, water availability and supply, power and road infrastructure

Stakeholder consultation is initiated mainly during the scoping phase as various stakeholders are identified and then proceed throughout the EIA process. There are different levels of public participation. Table 5-1 shows the categories of public participation according to the goals.

Table 5-1: Levels of Public Participation

LEVELS OF PUBLIC PARTICIPATION GOALS	
Inform	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.

LEVELS OF PUBLIC PARTICIPATION GOALS	
Consult	To obtain public feedback for decision-makers on analysis, alternatives and/or decisions.
Involve	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered in decision-making processes.
Collaborate	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.
Empower	Inclusion of the public in the decision-making processes.

The team put in place a stakeholder engagement process, which helps to:

- Identify and involve all potentially affected stakeholders
- Generate a good understanding of the project amongst those that was affected
- Identify issues early in the project cycle that may pose a risk to the environment, project or its stakeholders
- Ensure that mitigation measures are appropriate (implementable, effective, and efficient)
- Establish a system for long-term communication between the project and communities that is of benefit to all parties.

The primary goal of the Stakeholder Engagement Process is to ensure **transparency and involvement** of individuals, groups and organizations affected by and/or interested in the project (to be called as stakeholders) in assessing and managing the potential environmental and social impacts of the project, and to provide relevant, timely and accessible information in an appropriate and understandable format (e.g., Project Information Document).

We discuss the different steps to be taken in the next sections. The process was reported in the stakeholder engagement plan.

The **Stakeholder Engagement Plan** is the public document, which presents plans for stakeholder engagement, consultation, and disclosure, and is to be updated for each phase of the project. Parts of the report need to be published through ESIA (public involvement and disclosure). The main purpose of this document is to:

- Define the consultation approach for stakeholders,
- set up a process to address public views and/or concerns,
- Identify resources and responsibilities for implementation and monitoring of the consultation program, and
- Set up a grievance mechanism for local stakeholders.

It consists of the following information:

- Introduction (project information, project program, summary of potential environmental and social impacts);
- National and international requirements;
- Consultation undertaken to date;
- Stakeholders;
- Disclosure of information and public consultation;
- Grievance management;
- Resources and responsibilities;
- Reporting; and
- Annexes: comment/complaint form; complaint action form

The purpose of the **SEP** is to engage with organisations and people who may be affected by the project(s) or who may be interested in the Project, as mentioned above. Each stakeholder will need a different level of engagement. Throughout the process, we will make clear the level for the respective stakeholder and take the necessary steps.

5.3 Stakeholder

Stakeholders are individuals or groups who are affected or likely to be affected by the project (project affected parties PAP) and who may have an interest in the project and/or the ability to influence its outcome, either positively or negatively (other interested parties OIPs).

The identification of stakeholders under project will be based on (a) their roles and responsibilities; (b) possible influence/interest on the project; and (c) their particular circumstances they may be disadvantaged or vulnerable in different ways from each other. Stakeholders' analysis involves identifying the stakeholder groups that are likely to affect or be affected by proposed project components and sorting them according to the potential impact the activities will have on them.

The preliminary stakeholder analysis has identified the various interests of stakeholder groups and the influence these groups may have on the project. The analysis also shaped the design of stakeholder consultation events and how to engage them. Stakeholders' interest is determined based on the extent to which they may be involved in implementing elements of the project, likelihood in being impacted (positively or negatively) or in which they may benefit from components

5.4 Stakeholder Identification and Consultation

Tansheq team started with stakeholder consultations in September 2022. The below bullets capture the process undertaken to date:

- Introductory meeting with RC (Region Commissioner,) RAS, (Region Administrative Secretary) Region Education Officer, (REO), REMO,(Region Environment Management Officer)
- District Executive Director (DED) in Magu DEO, DEMO
- Initial meeting with village government, Ward officials including WEO at Ihushi village, Bujashi ward
- Meeting with communities around the proposed project area.

Each representative had an opportunity to state their understanding of what is proposed, and they fully support the project and said that they welcomed the team to undertake the requisite study.

5.4.1 Institutional Stakeholders

Institutional stakeholders were identified based on their involvement in decisions that might affect the proposed development or the stakeholder. The Institutional stakeholders include:

- Ministry of Home Affairs (Tanzania Fire and Rescue Force- Mwanza Office)
- Ministry of Labour and Employment (Occupational Safety and Health Authority, OSHA- Mwanza Office)
- Government Chemist Laboratory Authority (GCLA- Mwanza Office)
- Regional Government Regional Commissioner (RC- Mwanza) RAS, (Region administrative Secretary) and District Commissioner (DC-Magu); and
- Local Government (Bujashi Ward/ Ihushi Villages).

5.4.2 Other Stakeholders

Individual stakeholders refer to those occupying, owning, living, or working within the AOI and surroundings that may be impacted upon resulting from project implementation. They include farm owners

5.5 Vulnerable group

Means a group of people who, due to their characteristics and circumstances, are likely to suffer more adverse impacts of natural disasters than other groups in the community. **Vulnerable Person** means any person who by reason of age, infirmity, illness, disability or any other circumstance is in need of care or attention.

Vulnerable groups associated to SEQUIP area:

- Age group (children & elders)
- Indigenous
- Physical challenged group
- Women/Sexuality (Gender issue)

5.6 Main Concerns and Comments of Stakeholders

The comprehensive list of all stakeholders consulted is in **Error! Reference source not found.** Main concerns and comments from the consultation process raised by stakeholder to date are in Table 5-2.

Table 5-2 Stakeholder Consultation Views

Name of Stakeholders	Place	Dates	Comments, views and concerns from the stakeholders
Wilbord Bandolla (AG DED)	Magu	16/9/2022	<ul style="list-style-type: none"> • Since it started, everyone has taken part completely, and he insists that it should continue that way. • The project continues, and they hope it will start on time. • He insisted that cooperation and community engagement should continue in their current form.
Sumayi G. Sayi (SLO)	Magu	16/9/2022	<ul style="list-style-type: none"> • They look forward to the project's completion, and since it started, everyone has been cooperative.
Mayenga Mayenga (REME)	Magu	16/9/2022	<ul style="list-style-type: none"> • They have been following all standards ever since the project started; they just hope for its completion and operation. • Almost all staff and local government have been cooperative, and he insists they should continue that way.
Josephath Mhindilo (village Chairman)	Ihushi	17/9/2022	<ul style="list-style-type: none"> • The villagers were able to get employment opportunities when the project started, and most of them are still working and earning money. • They are looking forward to the school's opening and the village's growth and development.
Aziza M Bakari (VEO)	Ihushi	17/9/2022	<ul style="list-style-type: none"> • Our children will be motivated to study, and it will inspire parents to value school more than they previously did.
Ichobe Nyansanga (WEO)	Bujashi	17/9/2022	<ul style="list-style-type: none"> • They simply wait for the project to finish and school opening • Villagers have been so inspired by the project that they have participated in all stages
Community/villagers	Bujashi	17/9/2022	<ul style="list-style-type: none"> • They are looking forward to the project's completion with excitement since it will encourage village growth, the expansion of local companies, and the growth of well-established industries like the hotel and rental of homes. • This project has been so good since it started. Most youth and women were able to get temporary jobs. • They hope that the school operation will start on time because they are progressing well.



Figure 5-1: Consultation and site visit in Ihushi village

5.7 Way Forward

Stakeholder concerns must be verified and incorporated into the environmental and social impact assessment. All stakeholders, including the public and the community, took part in the Environmental and Social Impact Assessment process. The stakeholder engagement plan will detail and respond to all issues raised during consultation.

According to the consultations, people are optimistic about the project because it will increase employment, improve business opportunities, educational development, and social development. At all stages of the project, a Stakeholder Engagement Plan must be developed and implemented.

CHAPTER SIX

6 ASSESSMENT OF IMPACTS AND IDENTIFICATION OF ALTERNATIVES.

6.1 Introduction

This section includes expected environmental and social impact assessment during the entire lifecycle of the school construction project. Methods used for impact assessment, as well as quantitative and qualitative criteria were developed to unify and standardize the assessment system, which ensures the objectivity of the assessment.

Impact assessment methodology preparation was based on the recommendations of the World Bank and other International Financial Institutions (EBRD, IFC, and ADB). The following scheme will be used for environmental and social impact assessment of the planned activities:

Step I: Determination of basic impact types

Determination of the impact is based on general analysis of activities, which may be important for these types of projects. This is incorporated in Chapter 2 in Page.

Step II: Study of the environmental baseline – search and analysis of the existing information

Analysis of the socioeconomic and environmental status quo of the project affected. This shall also involve identification of the receptors, which are expected to be affected by the planned activities, determination of sensitivity of the receptors

Step III: Characterization and assessment of the impact

Impact character, probability, significance other characteristic determination by considering the sensitive receptors, description of the expected changes in the environment and assessment of their significance. This is covered in this Chapter.

Step IV: Determination of the mitigation measures

Significant impact mitigation, prevention, or compensating measure determination. This is detailed in subsequent Chapter 7.

Step V: Residual impact assessment

Determination of the expected value of change in the environment after implementation of the mitigation measures

Step VI: Monitoring and management strategy development

Monitoring the effectiveness of the mitigation measures is needed to ensure, that the impact must not exceed the predetermined values, effectiveness of the mitigation measures must be confirmed, or the necessity of the corrective measures must be identified.

Table 6-1: Sources, Receptors and Magnitude of Environmental Impact all Planned Phases

Receptor \ Phase	Construction	Operation	Maintenance	Decommissioning
Air				
Soil				
Water				
Flora				
Fauna				
Protected area				
Landscape & visual impact				
Land ownership				
Infrastructure				
Traffic flow				
Cultural heritage				
Socioeconomic				

Key

Negative	Positive
----------	----------

Table 6-1 gives information about sources, receptors and magnitude of environmental impact for construction and operation phase of the proposed school structures.

6.2 Impact Receptors and their Sensitivity

Implementation of the works may cause such qualitative and quantitative characteristic changes of socioeconomic, physical and biological resources in the impact area, such as:

- Socioeconomic baseline
- Air quality and acoustic background of the environment.
- Soil stability and quality.
- Capacity and quality of surface and groundwater.
- Visual changes of the landscapes.
- Flora and fauna baseline.

The population, which may be impacted by the planned activity, includes people living, working, or involved in other activities (e.g., vocation, travel) nearby the designed facility. Facility staff is considered as a potential sensitive receptor.

Receptor sensitivity is related to the impact volume and ability of the receptor to counteract the change or restore after the change, as well as with its relative ecological, social, or economic value.

6.2.1 Impact Characterization

To estimate environmental impact major impact factors are identified for mobilization, commissioning, decommissioning, and demobilization phases. Anticipated impact is assessed according to the following classification:

- ❖ **Character** – positive or negative, direct, or indirect.
- ❖ **Magnitude** - insignificant, low, medium, high or very high.
- ❖ **Likelihood** – low, medium, or high risk.
- ❖ **Impact area** – working site, project area or region.
- ❖ **Duration** – short, mid, or long-term.
- ❖ **Reversibility** – reversible or irreversible.

That is, for both project phases and for each potential impact has been determined anticipated alteration of environment and its character, area and duration of impact, reversibility, and likelihood of occurrence; based on this information has been defined significance.

Some impact types were estimated quantitatively. Assessment of impact on environmental elements is based on relevant environmental quality standards, whenever appropriate. If qualitative assessment was impossible impact was estimated based on its characteristics and elaborated criteria

The criteria applied for environmental and social impact assessment is given below. They are developed only for those receptors, which may experience significant changes.

6.3 Impact Assessment Methodology

The purpose of conducting an environmental impact assessment is to identify and assess the significant effects that are expected to happen compared to the current baseline conditions (as shown in Figure 6.1). This evaluation concentrates on the most important issues that are likely to have an impact, while disregarding concerns that are considered insignificant. The effects can be either beneficial or detrimental to the environment.

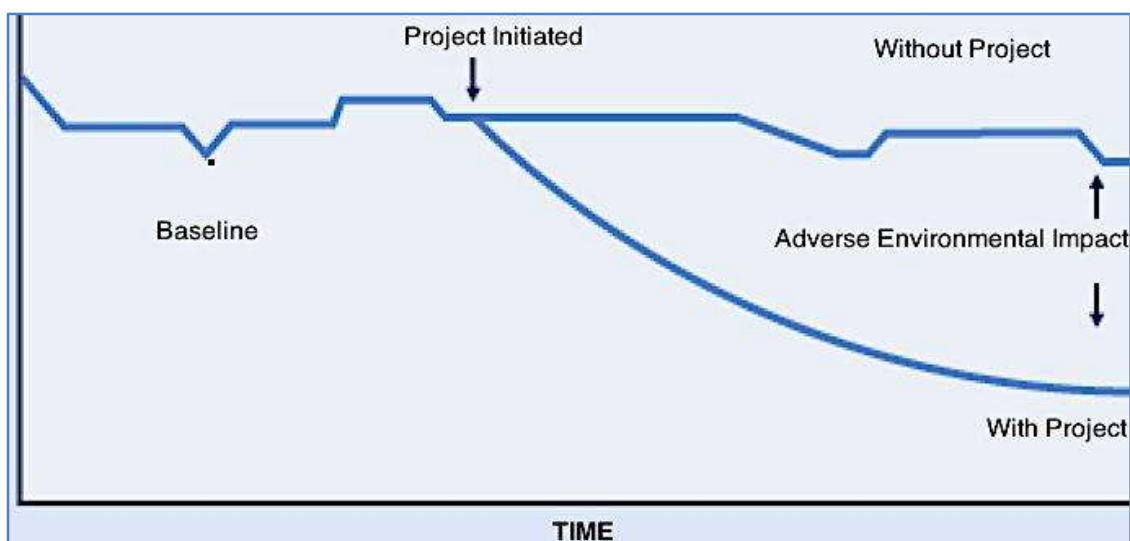


Figure 6-1: An Environmental Impact

The general method for assessing environmental impacts shall be developed based on the criteria in of the **Annex III of EU-EIA Directive (2014/52/EU)**. The primary goal of using this method is to ensure that assessments are conducted using precise and well-defined terms, and to enhance transparency in the process. The aim is to suggest potential measures to mitigate the impacts and determine any remaining effects to assist in decision-making. Table 6-6-2 describes when mitigation measures are expected with a view to reducing a given environmental impact.

Table 6-6-2: Degree of Remedial Measures (Annex III of EU-EIA Directive, 2014/52/EU)

Magnitude of impact	Mitigation Measure
Major impact	Impact considered of sufficient importance to consider whether the project should be changed or whether mitigation measures should be made to reduce this impact
Moderate impact	Impact of a magnitude where mitigation measures are considered
Minor impact	Impact of a magnitude where it is not likely that mitigation initiatives are necessary.
Negligible impact and no impact	Impacts considered so negligible that they are not relevant to take into consideration when implementing the project

A few criteria forms parts of the assessment of environmental impacts. Table below lists the most significant criteria. The likelihood of occurrence or the risk of an environmental impact-taking place has been divided into three groupings in the *Table 6-6-3*; however, as is most often the case in respect of impacts on the natural environment, this division will be more varied and detailed.

Table 6-6-3: List of Criteria for Assessment of Environmental Impacts (Annex III of EU-EIA Directive (2014/52/EU)

Criteria	Factor
Importance of the issue	<ul style="list-style-type: none"> • Importance to international interests • Importance to national interests • Importance to regional interests • Importance to local interests

	<ul style="list-style-type: none"> • Importance in respect of the area with direct impact • Negligible or not important
Persistence	<ul style="list-style-type: none"> • Permanent impact (non-reversible) in the life of the project • Temporary for >5 years • Temporary for 1-5 years • Temporary for <1 year
Likelihood of occurrence	<ul style="list-style-type: none"> • High (>75 %) • Medium (25-75 %) • Low (<25 %)

Furthermore, it is important to consider whether the impact is caused directly by the project or indirectly as a derived effect of a direct impact. **Cumulative impacts** must also be assessed; determining the impact from combined activities or other projects locally or regionally. Table 6-6-4, Table 6-6-5 and Table 6-6-6 indicate the process of assessing the magnitude of individual environmental impacts relating to a project. The following is a description of the Table:

Column 1 states the degree of disturbance: The extent of the disturbance is assessed as high, medium or low. The determination of this is based on the potentially severity of the impact, looking at the impact on some specific issues (e.g. a species), not considering the Importance of the issue, the likelihood of occurrence, or the persistence.

Column 2 assesses whether the issues (e.g. species, habitat, etc.) is important to international, national/regional or entirely local nature conservation interests.

Column 3 indicates the likelihood that the assessed disturbance occurs.

Column 4 shows the persistence of the impact. By combining these four factors the magnitude of impact is found in **Column 5**.

Table 6-6-4: Assessment of Degree of Impact (High Degree of Disturbance) (Based on Annex III of EU-EIA Directive, 2014/52/EU)

Degree of Disturbance	Importance	Likelihood of Occurrence	Persistence	Magnitude of Impact
High	International Interest	High (>75%)	Permanent (>5 years)	Major
			Temporary (1-5 years)	Major
			Short Term (0-1 years)	Moderate
		Medium (25-75%)	Permanent (>5 years)	Major
			Temporary (1-5 years)	Major
			Short Term (0-1 years)	Moderate
		Low (<25%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Moderate
			Short Term (0-1 years)	Minor
	National or Regional Interest	High (>75%)	Permanent (>5 years)	Major
			Temporary (1-5 years)	Moderate
			Short Term (0-1 years)	Moderate
		Medium (25-75%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Moderate
			Short Term (0-1 years)	Minor
		Low (<25%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Minor
			Short Term (0-1 years)	Minor
	Local Interest (important for the area directly affected or for the immediate surrounding)	High (>75%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Moderate
			Short Term (0-1 years)	Minor
		Medium (25-75%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Minor
			Short Term (0-1 years)	Negligible
		Low (<25%)	Permanent (>5 years)	Minor
			Temporary (1-5 years)	Negligible
			Short Term (0-1 years)	Negligible
	Negligible/Not Important	High (>75%)	Permanent (>5 years)	Negligible or none
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none
		Medium (25-75%)	Permanent (>5 years)	Negligible or none
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none
		Low (<25%)	Permanent (>5 years)	Negligible or none
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none

Table 6-6-5: Assessment of Degree of Impact (Medium Degree of Disturbance) (Based on Annex III of EU-EIA Directive, 2014/52/EU)

Degree of Disturbance	Importance	Likelihood of Occurrence	Persistence	Magnitude of Impact
Medium	International Interest	High (>75%)	Permanent (>5 years)	Major
			Temporary (1-5 years)	Moderate
			Short Term (0-1 years)	Moderate
		Medium (25-75%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Moderate
			Short Term (0-1 years)	Minor
		Low (<25%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Minor
			Short Term (0-1 years)	Minor
	National or Regional Interest	High (>75%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Moderate
			Short Term (0-1 years)	Minor
		Medium (25-75%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Minor
			Short Term (0-1 years)	Minor
		Low (<25%)	Permanent (>5 years)	Minor
			Temporary (1-5 years)	Minor
			Short Term (0-1 years)	Negligible
	Local Interest (important for the area directly affected or for the immediate surrounding)	High (>75%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Minor
			Short Term (0-1 years)	Minor
		Medium (25-75%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Minor
			Short Term (0-1 years)	Negligible or none
		Low (<25%)	Permanent (>5 years)	Minor
			Temporary (1-5 years)	Minor
			Short Term (0-1 years)	Negligible or none
	Negligible/Not Important	High (>75%)	Permanent (>5 years)	Negligible or none
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none
		Medium (25-75%)	Permanent (>5 years)	Negligible or none
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none
		Low (<25%)	Permanent (>5 years)	Negligible or none
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none

Table 6-6-6: Assessment of Degree of Impact (Low Degree of Disturbance) (Based on Annex III of EU-EIA Directive, 2014/52/EU)

Degree of Disturbance	Importance	Likelihood of Occurrence	Persistence	Magnitude of Impact
Low	International Interest	High (>75%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Minor
			Short Term (0-1 years)	Minor
		Medium (25-75%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Minor
			Short Term (0-1 years)	Negligible
		Low (<25%)	Permanent (>5 years)	Minor
			Temporary (1-5 years)	Minor
			Short Term (0-1 years)	Negligible
	National or Regional Interest	High (>75%)	Permanent (>5 years)	Moderate
			Temporary (1-5 years)	Minor
			Short Term (0-1 years)	Negligible
		Medium (25-75%)	Permanent (>5 years)	Minor
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none
		Low (<25%)	Permanent (>5 years)	Minor
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none
	Local Interest (important for the area directly affected or for the immediate surrounding)	High (>75%)	Permanent (>5 years)	Negligible or none
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none
		Medium (25-75%)	Permanent (>5 years)	Negligible or none
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none
		Low (<25%)	Permanent (>5 years)	Negligible or none
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none
	Negligible/Not Important	High (>75%)	Permanent (>5 years)	Negligible or none
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none
		Medium (25-75%)	Permanent (>5 years)	Negligible or none
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none
		Low (<25%)	Permanent (>5 years)	Negligible or none
			Temporary (1-5 years)	Negligible or none
			Short Term (0-1 years)	Negligible or none

6.4 Potential Environmental and Social Impacts

6.4.1 Mobilization/ Pre Construction phase

6.4.1.1 Loss of biodiversity (Fauna and Flora)

During the mobilization phase of a girl's school construction project in the Magu District, there can be potential impacts on biodiversity and the natural environment. The clearing of land, excavation, and construction activities may result in the direct loss or alteration of habitats for various plant and animal species.

The destruction or fragmentation of natural habitats can lead to the displacement or loss of indigenous flora and fauna. This can disrupt ecological processes and negatively impact the local biodiversity. Additionally, the use of heavy machinery, noise, and dust generated during construction activities can further disturb and displace species.

This is **major negative** impact High magnitude with a site-specific extent and long-term duration with significant risk.

6.4.1.2 Atmospheric air pollution due to emissions of exhaust and fugitive gases

Emissions from combustion of diesel in machineries and equipment during the mobilization/pre construction phase. The major pollutants will be CO, NO_x, CH₄, NO₂, O₃ and SO₂ and these will be monitored accordingly for which various points will be identified and the measurement will be taken by S500 Aeroqual Air Quality Monitor.

The construction facilities and materials will be transported to the proposed project site using trucks from various places. Transportation of these facilities and materials have the potential to emit pollutants such as CO₂, NO_x, SO_x, and particulate matters which may have an impact on the ambient air quality resulting to an impact on global warming and effect on human health to workers on duty. Considering the size of the project being small it is assumed that at least 3 trucks will be used to mobilize construction facilities and materials.

This is a **direct, moderately negative** impact of very low magnitude with a site-specific extent and long-term duration with low risk.

6.4.1.3 Climate change due to vehicle movement, bush clearance

When bushes and forests are cleared, the carbon stored in vegetation and soil is released into the atmosphere as carbon dioxide (CO₂), a greenhouse gas. Trees and vegetation absorb CO₂ during photosynthesis, helping to regulate atmospheric CO₂ levels. Clearing large areas of bushes at the proposed site disrupts this natural carbon cycle and leads to increased CO₂ concentrations, contributing to the greenhouse effect and global warming.

Also bushes act as carbon sinks by absorbing CO₂ from the atmosphere and storing it in their biomass and soils. When they are cleared, these carbon sinks are diminished or lost entirely. This reduction in natural carbon storage capacity exacerbates the buildup of CO₂ in the atmosphere, accelerating climate change.

This is an **indirect, minor negative** impact of very low magnitude with a site-specific extent and long-term duration with low risk

6.4.1.4 Employment Opportunity

During the mobilization phase of the project in the Magu district, there are potential employment opportunities that can arise. Construction projects typically requires a diverse workforce, including skilled and unskilled labor, engineers, architects, and other professionals. The project can contribute to the local economy by creating employment opportunities for individuals in the surrounding communities.

By engaging local labor, the project can provide job opportunities and income generation for the local population. This can help alleviate unemployment rates and improve the economic well-being of individuals and families in the Magu district. Additionally, the project can enhance skills and capacity development within the construction sector, empowering workers with valuable experience and expertise.

This is a **direct, major positive impact** of very high magnitude with long-term duration.

6.4.2 Construction phase

6.4.2.1 Atmospheric Air Pollution due to emissions of exhaust and fugitive gases

Emissions from combustion of diesel in machineries and equipment during the construction phase. The major pollutants will be CO, NO_x, CH₄, NO₂, O₃ and SO₂ and these will be monitored accordingly for

which various points will be identified and the measurement will be taken by S500 Aeroqual Air Quality Monitor.

Construction facilities and materials will be transported to the proposed project site using trucks from various places. Transportation of these facilities and materials have the potential to emit pollutants such as CO₂, NO_x, SO_x, and particulate matters which may have an impact on the ambient air quality resulting to an impact on global warming and effect on human health to workers on duty. Considering the size of the project being small it is assumed that at least 3 trucks will be used to mobilize construction facilities and materials.

This is a **direct, moderately negative** impact of very low magnitude with a site-specific extent and long-term duration with low risk.

6.4.2.2 Hearing impairment due to increased noise levels from construction vehicles and machinery

During the construction phase, there may be potential noise impacts. The activities involved in the construction process, such as excavation, foundation work, heavy machinery operation, and transportation of construction materials, can generate significant noise levels.

The mentioned noise impacts can affect both the immediate vicinity of the construction site and surrounding areas. Nearby residents may experience increased noise levels, leading to potential disturbances and inconvenience.

Any unwanted sound ("noise") produced as a result of construction activities is expected to be intermittent and of relatively short duration, and will be limited to those periods during which construction activities are occurring. The contractor shall ensure that the vehicles and machinery undergo routine maintenance and outsourced vehicles and machinery shall be checked for compliance with applicable regulations. Vehicles shall be controlled by ensuring that they all have functioning mufflers.

This is a **direct, minor negative impact** of low magnitude with short-term duration and Low Risk

6.4.2.3 Public Health

During the construction phase of girl's Secondary school in the Magu District Council, there may be potential public health impacts. These impacts can arise from various factors associated with the construction activities and the surrounding environment.

One of the primary concerns is the potential for air pollution. Construction activities often generate dust and emissions from machinery, vehicles, and construction materials. The release of particulate matter and harmful gases can contribute to poor air quality in the vicinity of the construction site. This can have negative health effects, particularly for vulnerable individuals such as children, the elderly, and those with respiratory conditions.

Additionally, noise pollution from the construction activities can also impact public health. Prolonged exposure to excessive noise levels can lead to stress, sleep disturbances, and other adverse health effects, including cardiovascular issues.

This is an **indirect, moderately negative** impact of very low magnitude with a site-specific extent and medium term duration with low risk.

6.4.2.4 Injuries and fatal accidents due to occupational health and safety issues

During the construction phase of the project in the Magu District, there are potential occupational health and safety impacts that need to be considered. The construction industry carries inherent risks, and it is essential to prioritize the well-being and safety of the workers involved in the project.

Construction activities involve various tasks, such as excavation, heavy machinery operation, lifting and handling of materials, and working at heights. These activities can expose workers to hazards such as falls, accidents, electrical risks, and exposure to harmful substances. It is crucial for the project to adhere to occupational health and safety regulations and guidelines to minimize these risks and ensure a safe working environment.

This is a **direct, major negative impact** with high magnitude, long-term duration and significant risk.

6.4.2.5 Degradation of natural beauty, outbreak of diseases and injuries due to improper management of surrounding waste materials (Solid and Liquid Waste)

During construction phase of the project, there may be potential impacts related to solid and liquid waste. Construction activities often generate various types of waste, including construction debris, packaging materials, and wastewater.

Solid waste can accumulate from excavation, and general construction activities. Without proper waste management practices in place, this waste can contribute to environmental pollution and pose health and safety risks. It is important for the project to implement appropriate waste management strategies, such as segregating waste, recycling materials when feasible, and disposing of non-recyclable waste at authorized waste disposal facilities.

Liquid waste can be generated from activities such as concrete mixing, equipment cleaning, and site dewatering. If not properly managed, liquid waste can contaminate soil and water bodies, leading to adverse environmental and health effects. The project should establish measures to collect, treat, and dispose of liquid waste in accordance with local regulations and best practices.

This is a **direct, major negative impact** with short term duration and significant risk

6.4.2.6 Road accidents from moving trucks

During the construction phase of a girl's school in Magu District Council, there can be potential risks of road accidents. The increased movement of heavy construction vehicles, equipment, and materials can pose hazards to both construction workers and the general public.

The transportation of construction materials and equipment to the project site may involve the use of large trucks and other vehicles, which can increase traffic congestion and the likelihood of accidents. The presence of construction vehicles on the roads, combined with the disruption caused by ongoing construction activities, can create unsafe conditions for motorists, pedestrians, and workers.

This is an **indirect negative impact**, medium magnitude with short term duration and low risk

6.4.2.7 Employment Opportunity

During the construction phase of the project, there are potential employment opportunities that can arise. Construction projects typically requires a diverse workforce, including skilled and unskilled labor, engineers, architects, and other professionals. The project can contribute to the local economy by creating employment opportunities for individuals in the surrounding communities.

By engaging local labor, the project can provide job opportunities and income generation for the local population. This can help alleviate unemployment rates and improve the economic well-being of individuals and families in the Magu District Council and national wise. Additionally, the project can enhance skills and capacity development within the construction sector, empowering workers with valuable experience and expertise.

This is a **direct, major positive impact** of very high magnitude with short-term duration.

6.4.3 Operation Phase

6.3.3.1 Atmospheric air pollution and effect on human health due to emissions of exhaust and fugitive gases

During the operation there can be potential air pollution impacts. These impacts are primarily associated with the transportation activities and energy consumption within the school premises.

Transportation-related air pollution can result from the daily commute of teachers, and staff to and from the school. Depending on the mode of transportation chosen, emissions from vehicles can contribute to air pollution and have adverse effects on air quality.

Another significant source of air pollution during the operation phase is the energy consumption within the school premises. Traditional energy sources, such as fossil fuels, can contribute to air pollution through the emission of greenhouse gases and particulate matter.

The impact of air pollution is considered to be minor indirect negative of long-term duration and of moderate significance

6.3.3.2 Disturbance of surrounding community due to increased noise levels

During the operation phase of the project in the Magu District Council, there can be potential noise pollution impacts. These impacts are primarily associated with the activities and operations within the school premises.

The operation of a school involves various sources of noise, including student activities, teaching and learning activities, playgrounds, and transportation. The increased presence of students and staff within the school can contribute to an overall increase in noise levels, which can potentially disturb the surrounding community.

This impact is considered to be indirect negative of long term duration and of moderate significance.

6.3.3.3 Aesthetic degradation, environmental pollution and outbreak of diseases and injuries due to improper management of surrounding hazardous and non- hazardous solid waste materials

During the operation phase of a girl's school construction project in the Magu District Council, there can be potential solid waste impacts. These impacts are primarily associated with the daily activities and operations within the school premises.

The operation of a school generates various types of solid waste, including food waste, paper and cardboard, plastic packaging, and other non-biodegradable materials such as sanitary pads. Improper management of these waste can lead to environmental pollution, health hazards, and aesthetic degradation.

Hazardous waste can include materials such as laboratory chemicals, electronic waste, batteries, fluorescent bulbs, and other substances that can pose a risk to human health to both the students, staff and surrounding community and the environment if not properly managed.

This impact is considered to be direct negative of long term duration and of high significance.

6.3.3.4 Aesthetic degradation, environmental pollution and outbreak of diseases and injuries due to improper management of surrounding liquid waste

During the operation phase of a girl's school construction project in the Magu District Council, there can be significant impacts associated with liquid waste. Liquid waste includes wastewater generated from various sources such as kitchen, toilets, cleaning activities, and other daily operations within the school.

If not properly managed, liquid waste can have adverse effects on the environment and public health. Improper disposal or untreated wastewater can contaminate water bodies, including rivers, lakes, and groundwater sources, leading to pollution and the spread of waterborne diseases. It can also negatively impact aquatic ecosystems and the biodiversity they support such as the present in the project site area.

This impact is considered to be direct negative of long term duration and of high significance.

6.3.3.5 General health and safety impacts

During the operation phase of a girl's school construction project in the Magu District Council, there can be significant impacts associated with general health and safety.

One significant health concern is indoor air quality, which can be affected by poor ventilation, the presence of dust and allergens. Inadequate ventilation and the accumulation of pollutants can lead to respiratory issues and allergies among students and staff. Another important aspect is sanitation and hygiene. Insufficient access to clean toilets, hand washing facilities, and proper waste management can contribute to the spread of diseases and compromise personal hygiene practices.

Accidents and injuries are also potential hazards in schools. Slippery floors, unsafe playground equipment, and inadequate safety measures can increase the risk of accidents, resulting in injuries among students. Fire safety is another crucial consideration, as the lack of proper fire prevention and emergency response plans can jeopardize the safety of individuals within the school premises.

Furthermore, the ergonomics of the learning environment should be addressed. Poorly designed furniture, improper workstation setups, and lack of ergonomic considerations can lead to musculoskeletal issues and discomfort among students and staff. Security is also a concern, with the potential for unauthorized access, bullying, or other safety threats that can affect the overall well-being of students.

This impact is considered to be indirect negative of long term duration and of high significance.

1.1.1.6 Loss of School Resources due to fire out break

When a fire happens while school is in operation, it can cause the school to lose important resources. These resources include things like textbooks, computers, science equipment, classroom supplies, library books, and even administrative documents. The fire can damage or destroy these items, making it difficult for students to continue their education and for teachers to carry out their lessons. It can also disrupt extracurricular activities like sports and arts programs. Replacing these resources can be expensive and take time, which can disrupt the normal operation of the school. It's important for schools to have fire safety measures in place to prevent these incidents and to have insurance to help cover the costs of recovery.

This impact is considered to be indirect negative of long term duration and of high significance.

6.3.3.7 Benefit to the Government

The operation of the school generates economic benefits for the government. The presence of a well-functioning educational institution attracts students from the local community and neighboring areas. This results in increased enrollment, which can lead to the generation of revenue through school fees and other related income sources. These financial resources can be utilized by the government to further improve the quality of education, invest in educational infrastructure, and enhance the overall educational system in the region.

Therefore, this impact is considered direct positive of long term duration and of high significance.

6.3.3.7 Employment Opportunities

During the operation phase of a girl's school project in the Magu District Council, there can be significant employment opportunities. Once the school is completed and operational, it requires a diverse range of staff to facilitate its day-to-day functioning. These employment opportunities can benefit the local community by providing jobs and contributing to the local economy.

The operation of a girl's school involves various positions, including teaching staff, administrative personnel, support staff, security personnel, and maintenance workers. These roles offer employment opportunities for individuals with different skills and qualifications, including teachers, administrators, cleaners, and security personnel. By hiring local residents for these positions, the project can provide job opportunities and contribute to the livelihoods of individuals in the Magu District Council.

Moreover, the school's operation can create indirect employment opportunities in related sectors. Local businesses may benefit from supplying goods and services to the school, such as food, stationery, uniforms, and maintenance materials. This can stimulate economic activity and foster the growth of small businesses within the community.

This impact of employment and training is considered direct positive of long term duration and of high significance.

6.3.3.8 Impacts associated with demographic change

During the operation phase of a girl's school construction project in the Magu District Council, there are several impacts associated with demographic change. Firstly, the establishment of a new school attracts students from the surrounding areas, which can lead to an increase in the local population. Families may choose to move closer to the school to ensure easy access to education for their children. This influx of families can result in changes in the demographic composition of the region, such as increased population density and changes in age distribution.

Also, the presence of a girl's school can contribute to empowering young girls and women, leading to changes in their social and economic roles within the community. Education plays a crucial role in promoting gender equality and empowering women to participate actively in society. By providing access to education for girls, the school project can result in increased female participation in various sectors, including employment, leadership positions, and decision-making processes. This can lead to a more balanced and diverse demographic landscape, with improved gender representation and opportunities for women in the region.

Furthermore, the operation of the girl's school can have long-term impacts on the overall development and growth of the region. Access to quality education has the potential to enhance the skills and capabilities of individuals, leading to improved job prospects and economic opportunities. As a result, the region may experience positive demographic changes, such as a decrease in unemployment rates, an increase in income levels, and a more educated workforce. These changes can contribute to the overall development and prosperity of the community.

This impact is considered direct positive of long term duration and of high significance

1.1.4 Decommissioning Phase

In case of decommissioning the following impacts may happen;

6.3.4.1 Degradation of the urban landscape, health hazards and danger to the public as illegal activities are attracted as a result of abandoned infrastructures

During the demolition phase of a girl's school construction project in the Magu District Council, there may be impacts associated with abandoned infrastructures. These abandoned infrastructures, if not properly managed and repurposed, can have negative consequences for the surrounding environment and community.

One of the main impacts is the visual blight caused by abandoned structures. These abandoned buildings can create an unsightly appearance in the area, affecting the aesthetic value of the surroundings.

Also, abandoned infrastructures can become safety hazards. Without proper maintenance and security measures, these structures may deteriorate over time, leading to structural instability and potential risks such as collapsing walls or roofs. These hazards pose a threat to public safety, especially if the abandoned infrastructures are accessible to unauthorized individuals, including children.

Furthermore, the presence of abandoned infrastructures can attract illegal activities and contribute to social issues. Such structures may become hotspots for vandalism, squatting, or illicit activities, which can further degrade the surrounding environment and pose risks to the community's well-being.

This impact is considered indirect negative of long term duration of high significance

6.3.4.2 Loss of revenue to the government

This phase can result in the temporary cessation of economic activities and revenue generation in the affected area.

Businesses operating in the demolished structures may experience disruptions or even closure during this phase, leading to a decline in their revenue. This, in turn, can result in a decrease in tax contributions to the government. Additionally, the demolition phase itself may involve the displacement of informal businesses or street vendors who rely on the affected area for their livelihoods. As a result, these individuals may experience income loss, which affects their ability to pay taxes and contribute to the government's revenue stream.

The impact is considered to be direct negative of long-term duration and of high significance.

6.3.4.3 Unemployment

During the demolition phase of a girl's school construction project in the Magu District Council, there may be impacts associated with unemployment. The demolition process often leads to the displacement of workers who were employed in the buildings or structures being demolished. This displacement can result in temporary or even long-term unemployment for these individuals.

This is a direct minor negative impact with low magnitude, long-term duration and significant risk

6.3.4.4 Injuries and fatal accidents

During the demolition phase of a girl's school construction project in the Magu District Council, there may be impacts associated with injuries and fatal accidents. Demolition work involves the dismantling, removal, and disposal of existing structures, which can be inherently hazardous if not managed properly. The presence of heavy machinery, falling debris, and unstable structures can increase the risk of accidents and injuries for both workers and nearby individuals.

This is an **indirect moderately negative impact, medium magnitude** with long term duration and significant risk of high significance

6.5 Residual Impact

The impacts that remain once mitigation has been put in place will be described as residual impacts adversely effects one or more environmental and social receptors. The identified residual negative impacts were subjected to a critical assessment and review and ensure that they meet the residual impacts acceptability threshold.

The assessment of impacts was conducted in the identified categories these categories were subjected to all stages of project development from mobilisation, construction, operation, and decommissioning (where applicable).

The identified residual impacts are presented with respect to the specific development stage as derived from the interaction matrices. Table 6-7 presents the identified residual impacts.

Table 6-7: Identified Residual Impacts

S N	Stage	Nature	
		Positive	Negative
1	Mobilization		<ul style="list-style-type: none"> Biodiversity loss Habitat loss and/or alteration Habitat fragmentation
2	Construction		<ul style="list-style-type: none"> Change in landscape and aesthetics
3	Operation	<ul style="list-style-type: none"> Employment creation Provision of education Minimization of vulnerability to girls 	
4	Decommissioning		<ul style="list-style-type: none"> Loss of employment

6.6 Cumulative Impact(s)

Cumulative residual environmental effects are defined as the sum of residual environmental and social effects from all past, current, and reasonably foreseeable projects and/or activities on the physical, biological, and socio-economic components of the environment. These include not only residual risks and impacts associated with this project but also arising from other projects implemented or planned to be implemented in the Project Area of Influence.

The Project will implement mitigation measures to limit incremental environmental effects that might occur however, as noted above, implementation of mitigation measures is expected to result in minor changes to the biophysical and socio-economic environments from the Project relative to baseline conditions.

Therefore, the Project implementation arrangement should consider collaboration with other projects in the area to reduce the effect of the residual impacts in ways that are possible and feasible. Focusing on the development of a site-specific mitigation measures that will result to further reduce the potential cumulative residual risks and impacts.

SEQUIP project is implemented under series of works and in phases therefore cumulative impacts will occur, these cumulative impacts include:

- Loss and creation of job opportunity
- Creating expectation in the community
- Generating tax revenue
- Increase of pressure on the provision of public services
- Changes in land value and increase in the collection of property taxes
- Changes in noise level,
- Changes in air quality

6.7 Ergonomics impacts

Ergonomics is the way you use your body to work and fitting the job or task to you to reduce your risk of injury. These musculoskeletal injuries develop slowly over time and occur in the soft tissues of your body like the nerves, tendons, muscles, ligaments and joints. Generally, the greater the exposure to a single risk factor or combination of risk factors, the greater the probability of an ergonomic injury or illness, also called Work-Related Musculoskeletal Disorders (WMSD). The big three ergonomic risk factors are

- Force (how much you lift/push/pull),
- Repetition (how often you perform the task), and
- Posture (body position).

Other potential ergonomic risk factors include vibration, contact stress, sustained exertions, and cold temperatures. Examples of these injuries are low back strain, carpal tunnel syndrome, and tendonitis. These injuries are called musculoskeletal disorders or MSDs.

This impact is likely to occur to all phases of the project cycle, mobilization, implementation and decommissioning phase

6.8 Activity Risk Assessment.

Risk Assessments are elaborated for all tasks performed at the work fronts, detailing the steps and frequency of the task, the known hazards and the appropriate precautionary measures, procedures/work releases, controls, environmental and industrial hygiene methods, collective and personal protective equipment to minimize or eliminate hazards.

The purpose of the Risk Assessment is to make it a routine to verify the safety items before the start of any activities, assisting with the detection and prevention of risks of accidents and with task planning. Table 6.17 show the risk assessment criteria

Table 6-8: Risk Assessment

S/N	Impact & Aspect Description	Nature	Magnitude	Extension	Duration	Significance of Impact	Probability of Occurrence	Risk
Mobilization/Construction phase								
1	Loss of biodiversity due to bush clearing	Direct	High	DIA	Long-term	Major	Definite	Significant Risk
2	Effect on human health due to change in ambient air quality caused by emissions from exhaust gases and dust from vehicles and earth works	Direct	Very low	IIA	Long-term	Moderate	Probable	Low Risk
4	Soil erosion due to bush clearance	Direct	Very low	RIIA	Short-term	Minor	Probable	Low Risk
5	Climate change (global warming) due to emissions from vehicle movement, bush clearance	Indirect	Very low	NIA	Long-term	Minor	Probable	Low Risk
6	Degradation of natural beauty, greenhouse emissions and outbreak of diseases due to mismanagement of waste generated (solid and liquid waste) from construction materials, bush clearance and sanitary facilities	Direct	High	DIA	Short-term	Major	Definite	Significant Risk
7	Employment Opportunities (activities will require man power)	Direct	High	NIA	Short-term	Major	Definite	Negligible Risk
8	Conflicts due to landownership as each region has to acquire land for school construction	Indirect	Very low	DIA	Short-term	Minor	Probable	Low Risk
9	Injuries and fatal accidents to workers due to heavy duties taking place	Direct	Medium	DIA	Long-term	Major	Probable	Significant Risk
10	Public health and hazard (due to emission of dust and performance of heavy duties)	Direct	Medium	NIA	Long-term	Major	Probable	Significant Risk
11	Hearing impairment, stress, headaches, fatigue due to noise and vibration pollution from transportation of material and equipment	Direct	Low	DIA	Short-term	Minor	Probable	Low Risk
Construction Phase								
1	Loss of biodiversity due to site clearing	Direct	Medium	IIA	Long-term	Major	Definite	Significant Risk
2	Effect on human health due to change in ambient air quality caused by emissions from exhaust gases and dust from vehicles and earth works	Direct	High	DIA	Short-term	Major	Probable	Low Risk

S/N	Impact & Aspect Description	Nature	Magnitude	Extension	Duration	Significance of Impact	Probability of Occurrence	Risk
3	Hearing impairment, stress, headaches, fatigue due to noise and vibration from vehicle movement, equipment and material used during construction	Direct	Low	DIA	Short-term	Minor	Probable	Low Risk
4	Injuries and fatal accidents to workers due to heavy duties	Direct	High	DIA	Long-term	Major	Definite	Significant Risk
5	Public health and hazard (due to emission of dust and performance of heavy duties)	Direct	Medium	IIA	Short-term	Moderate	Probable	Low Risk
6	Employment Opportunities (activities will require man power)	Direct	High	NIA	Long-term	Major	Definite	Negligible Risk
7	Degradation of natural beauty, greenhouse emissions and outbreak of diseases due to mismanagement of waste generated (solid and liquid waste) from construction materials, bush clearance and sanitary facilities	Direct	High	DIA	Short-term	Major	Definite	Significant Risk
8	Unemployment due to decommissioning of construction activities	Indirect	Medium	NIA	Short-term	Moderate	Definite	Low Risk
Operation Phase								
1	Employment Opportunities due to recruiting of teachers and other staff for school operation	Direct	High	NIA	Long-term	Major	Definite	Negligible Risk
2	Degradation of natural beauty, greenhouse emissions and outbreak of diseases due to mismanagement of waste generated (solid and liquid waste) from sanitary facilities, classrooms, offices, Dormitories, dining area and other areas within the school compound	Direct	High	IIA	Long-term	Major	Definite	Significant Risk
3	Health and safety (due to fire outbreak and poor housekeeping within the school compounds)	Direct	Medium	DIA	Long-term	Moderate	Probable	Significant Risk
5	Benefit to the government through taxes from the employed staff (economically and man power)	Indirect	High	NIA	Long-term	Major	Very low	Negligible Risk
Decommissioning Phase								
1	Degradation of the urban landscape and danger to the public as illegal activities are attracted due to abandoned infrastructure as a result of the project decommissioning	Indirect	Medium	DIA	Medium-term	Minor	Probable	Low Risk
2	Unemployment due to decommissioning of the project	Direct	High	NIA	Short-term	Minor	Definite	Negligible Risk

S/ N	Impact &Aspect Description	Nat ure	Magnit ude	Exten sion	Duratio n	Signific ance of Impact	Probabi lity of Occurr ence	Risk
3	Degradation of natural beauty, injuries due to solid waste from dismantling of buildings	Dire ct	Low	DIA	Long- term	Minor	Very low	Low Risk

CHAPTER SEVEN

7 CONSIDERATION OF ALTERNATIVES

7.1.1 Introduction

The EMA EIA regulations of 2005 requires that alternatives be identified during the scoping process. An important function of the Scoping Phase is to screen alternatives to derive a list of feasible alternatives that need to be assessed in further detail in the ESIA Phase. The environmental impact statement shall contain an assessment of impacts of the identified alternatives.

According to the EMA EIA regulations, analysis of alternatives includes project site, design and technologies and reasons for preferring the proposed site, design, and technologies. An alternative can be defined as a possible course of action, in place of another, that would meet the same purpose and need.

7.1.2 Project Site Alternative

The selection criteria for the location depends on the availability/ease access and ownership of the proposed land parcel for Mwanza region. In that regards various economic considerations which include the feasibility of the project in terms of financial and technical perspectives have been considered to select the project location.

Furthermore, the location shall not require demolition of property (houses and other infrastructure) to pave way for the construction and accessibility of the project site. In that regards, alternative location shall not be further considered in the EIS. Alternatives analysis in this project considered the following:

- f) No-Go alternative,
- g) Design and technological considerations

7.1.2.1 No-Go alternative

The assessment of alternatives must always include the “no-go” option as a baseline against which all other alternatives must be measured. The option of not implementing the activity must always be assessed and to the same level of detail as the other feasible and reasonable alternatives.

The no-go will see the status quo activities persist without the construction on the proposed site. The “no-go” option is taken to be the existing rights on the property, and this includes all the duty of care and other legal responsibilities that apply to the owner of the property.

8 ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES

8.1 Introduction

This chapter provides a summary of mitigation measures of those impacts which are considered of moderate to high significance, by matching the predicted impact, possible mitigation measure, the target levels, responsible entity and approximate cost. It also presents a detailed plan to monitor the implementation and success of the mitigation measures.

These mitigation measures will be incorporated into an Environmental Management Plan (EMP) to facilitate implementation during the mobilization, construction, operational and decommissioning phases. The ESMP forms part of the final ESIA report as it forms part of the authorization and thus its implementation will become binding on the project applicant and any contractors, should this project be authorized.

8.2 Pre-Construction phase

8.2.1 *Atmospheric air pollution due to emissions of exhaust and fugitive gases*

- Combustion of solid waste on the territories of site and camps is prohibited;
- A speed limit for trucks should be observed
- Bush clearance through burning should be avoided.

8.2.2 *Loss of Biodiversity both Fauna and Flora*

- Remove, without destroying, large Plants and ground cover where possible
- Replant recovered Plants and other flora from local ecosystem after construction
- The project proponent shall consult the experts for advice and for potential flora and stocks for re generation of disturbed vegetation in plant areas

8.2.3 *Climate change due to vehicle movement, bush clearance*

- **Transition to Low-Emission Vehicles:** Promote the adoption of low-emission vehicles, such as electric vehicles (EVs) or hybrid vehicles, which have lower or zero tailpipe emissions. Encourage incentives for purchasing EVs and develop charging infrastructure.
- **Improve Fuel Efficiency:** Encourage regular vehicle maintenance, proper tire inflation, and efficient driving practices to improve fuel efficiency and reduce emissions. Promote the use of cleaner fuels, such as biodiesel or renewable natural gas, where available.
- **Public Transportation and Carpooling:** Encourage the use of public transportation systems and carpooling to reduce the number of vehicles on the road. Develop and improve public transportation infrastructure to make it more accessible and convenient.
- **Restoration and Conservation:** Support initiatives for the restoration and conservation of natural habitats and ecosystems, as intact ecosystems contribute to carbon sequestration and climate regulation.

8.3 Construction phase

8.3.1 Atmospheric Air Pollution due to emissions of exhaust and fugitive gases

- Combustion of solid waste on the territories of site and camps is prohibited;
- A speed limit for trucks should be observed
- Haul roads should be routinely maintained in good condition
- The project proponent shall plant indigenous trees and grasses over a period of time on area. This will prevent fine dust entering ambient area.
- The project proponent shall observe the standards for air quality throughout the operations and comply accordingly.
- Person Protective Equipment should be well observed

8.3.2 Hearing impairment due to increased noise levels from construction vehicles and machinery

- Machinery and equipment undergo regular inspection/maintenance; fitted with silencers and mufflers, use of noise insulation.
- Personal Protective Equipment: provide and enforce use by all personnel working in noisy zones;
- The contractor should adhere to relevant noise regulations and guidelines set by the authorities.
- Limiting the duration and intensity of noisy activities during sensitive hours.
- The contractor should also consider scheduling noisy activities during periods when they would cause the least disruption to nearby residents and businesses.

7.2.4 Public Health

- i. Implementing dust control measures such as water spraying or covering loose materials to minimize dust emissions.
- ii. Using low-emission equipment and vehicles can help reduce air pollution
- iii. Scheduling and managing construction activities to minimize disruptions and noise levels during sensitive hours, particularly in close proximity to residential areas
- iv. Furthermore, the contractor should prioritize regular monitoring and assessment of air quality and noise levels to ensure compliance with relevant standards and guidelines.

8.3.3 Injuries and fatal accidents due to occupational health and safety issues

- i. The contractor should implement proper safety protocols, including providing personal protective equipment (PPE) to workers and ensuring its proper use.
- ii. Regular inspections of the construction site should be conducted to identify and address any safety concerns promptly.
- iii. Effective communication and engagement with workers and contractors are crucial to fostering a culture of safety.
- iv. Furthermore, the contractor should have clear emergency response procedures in place to handle any accidents or incidents that may occur during the construction phase.

8.3.4 Waste generation

- i. Prepare site waste management plan prior to commencement of construction works
- ii. Designate appropriate waste storage areas,
- iii. Develop collection and removal schedule, and
- iv. Institute system for supervision and monitoring.
- v. Unusable construction waste will be disposed of at an approved dumpsite.

8.3.5 Road accidents from moving trucks

- i. Designation of proper access routes to the construction site, ensuring clear signage and road markings, and establishing appropriate speed limits.
- ii. Construction vehicles should be operated by trained and licensed drivers who adhere to safe driving practices.
- iii. The contractor should also consider implementing safety protocols such as regular vehicle maintenance, inspections, and monitoring to ensure that the construction vehicles are in good working condition and meet safety standards.
- iv. Adequate lighting and visibility measures should be in place, especially during nighttime construction activities, to enhance road safety.

8.3.6 Employment Opportunities

- Employ locals for most of unspecialized labour
- Procure local for most consumables available within the district
- Manage local expectations by not overpromising
- Registering of discontent/complaints from the local community, if any, and proper response.

8.4 Operation Phase

8.4.1 Disruption of air quality and effect on human health due to emissions of exhaust and fugitive gases

- i. The school can adopt renewable energy sources, such as solar panels and gas to meet the energy needs of the school such as lighting and cooking.
- ii. The school should prioritize energy-efficient designs and equipment within the school. This can involve the use of energy-efficient lighting systems, insulation materials, and energy-saving appliances.
- iii. The school can promote sustainable transportation options such as organizing carpooling initiatives for their staffs.
- iv. Develop a comprehensive cleaning program that includes regular dusting, vacuuming, and cleaning of surfaces to minimize dust, allergens, and contaminants. Use environmentally friendly and non-toxic cleaning products.
- v. Regular monitoring of air quality and implementation of appropriate air pollution control measures should also be undertaken.

8.4.2 Noise emissions

- i. Installation of soundproofing materials in classrooms and common areas to reduce internal noise transmission.
- ii. Strategic planning of school facilities, such as locating noisy areas away from residential areas or utilizing buffer zones, can help minimize the impact on nearby communities.
- iii. Proper maintenance of equipment and facilities within the school premises can also contribute to noise reduction.
- iv. Regular monitoring of noise levels and compliance with relevant noise regulations and standards should be prioritized. This can involve periodic assessments and inspections to ensure that noise pollution levels remain within acceptable limits.

8.4.3 Waste Generation

- i. Establishment of waste segregation systems, encouraging composting initiatives for the kitchen waste, and providing sufficient waste bins and collection points throughout the school premises.
- ii. The school should establish dedicated storage areas for hazardous waste such as laboratory chemicals, faulty electrical appliances, ensuring they are secure, properly labeled, and equipped with appropriate safety measures.
- iii. The school should also establish partnerships with authorized entities to ensure the waste is handled and disposed of in compliance with environmental regulations.
- iv. Designate bins specifically for the disposal of sanitary pads. These bins should be placed in female restrooms and other private areas, and they should have lids to maintain hygiene and provide privacy.
- v. Construction of an incinerator for the management of the sanitary pads.

8.4.4 General health and safety hazards

- i. Establishment of a comprehensive health and safety policy.
- ii. Conducting regular inspections to identify and mitigate any potential hazards, such as faulty electrical systems, structural weaknesses, or unsafe equipment within the school premises.
- iii. Adequate emergency preparedness plans should be in place, including fire safety measures, first aid provisions, and clear evacuation procedures.
- iv. The school should prioritize maintaining a clean and hygienic environment to prevent the spread of diseases and ensure the availability of adequate sanitation facilities.
- v. Promoting health and wellness among students should also be a focus, with initiatives like health education programs, access to clean drinking water, and appropriate waste management practices.
- vi. Implement security measures such as fencing of the school premises. Establish anti-bullying policies and procedures to address and prevent bullying incidents.

8.4.5 Employment Opportunities

- i. **Support Staff Expansion:** Increase the number of support staff positions within the school, such as administrative staff, maintenance personnel, custodians, cafeteria workers, and IT technicians. This expansion can create more job opportunities and improve the overall functioning of the school.
- ii. **Professional Development Programs:** Offer professional development programs and training opportunities for existing staff to enhance their skills and qualifications. This can include workshops, certifications, and specialized training in areas like technology integration, special

- education, counseling, and classroom management. By investing in professional growth, employees can gain additional expertise and increase their employability within the school.
- iii. **Expanded Extracurricular Activities:** Develop a diverse range of extracurricular activities and programs within the school, such as sports teams, arts clubs, debate societies, and music groups. These activities often require additional staff, including coaches, trainers, instructors, and mentors, thereby creating more employment opportunities.
 - iv. **Community Engagement Initiatives:** Establish partnerships with community organizations, local businesses, and nonprofits to create collaborative programs and projects that involve students and require additional staff. These initiatives can include community service programs, internships, apprenticeships, and career development activities, thereby expanding employment opportunities.
 - v. **School-Based Enterprises:** Explore the establishment of school-based enterprises, such as school stores, cafeterias, or small-scale production units, where students can gain hands-on experience and create employment opportunities for support staff. These enterprises can be managed in collaboration with local businesses or as social enterprises to provide valuable learning experiences while generating employment

8.5 Decommissioning

8.5.1 Unemployment

- Preparing the workers to be employed anywhere else in the different sectors through provision of extensive training.
- Preparing the workers for forced retirement by providing skills for self-employment, wise investment.
- Ensuring that all employees are members of the National Social Security Fund and the employees should ensure that the Proponent contributions are made.

8.5.2 Abandoned infrastructure

- i. PO-RALG and other project stakeholders should develop a comprehensive demolition plan that includes proper disposal or recycling of materials, as well as strategies for repurposing or redeveloping the vacant spaces that will be created.
- ii. Creating initiatives to transform the abandoned structures into community assets, such as recreational areas, community centers, or affordable housing projects.

8.5.3 Injuries and fatal accidents

- i. Effective communication and coordination among project stakeholders, including contractors, workers, and relevant authorities, are vital for maintaining a safe working environment.
- ii. It is crucial for the contractor to prioritize safety measures and adhere to strict guidelines and regulations by implementing comprehensive safety protocols, providing appropriate personal protective equipment (PPE), conducting thorough risk assessments, and ensuring proper training for workers to significantly reduce the likelihood of accidents and injuries during the demolition activities.

CHAPTER NINE

9 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

9.1 Introduction

The Environmental and Social Impact Assessment for the proposed project operation in has identified a number of impacts that are likely to arise during the site preparation and operation stage of the proposed project. The EIA has examined bio-physical, socio-economic and cultural effects of the proposed activity from mobilization, construction and operations/maintenance.

On evaluation of environmental impact, it is observed that the real benefits of proposed project can result only if the risks of the identified adverse impacts are minimized. This can be accomplished through implementation of adequate preventive and mitigation measures outlined in this report.

Where adverse impacts have been identified, the Environmental and Social Impact Assessment has examined the intensity, extent, duration and probability to which these impacts would be mitigated through the adoption of industry standard practice and guidelines and following local legislative requirements.

The Environmental and Social Management Plan (ESMP) presented in this report describes both generic good practice measures and site specific measures, the implementation of which is aimed at mitigating potential impacts associated with the proposed project activities.

The EMP provides the means of assessing the accuracy of the predicted project impacts and the monitoring of the effectiveness of the proposed mitigation measures contained in the EIA study report.

The ESMP should therefore indicate how the environmental concerns highlighted in the EIA would be managed. Proposed Project implementation team will monitor the implementation of key contractor parties and assess compliance with the provisions of the ESMP through its contractual mechanisms and management.

9.2 Objectives of the ESMP

The objectives of the ESMP are to:

- Adhere to and address necessary legal frameworks and other requirements;
- Promote environmental management and communicate the aims and goals of the project ESMP to all stakeholders;
- Incorporate environmental management into project design and operating procedures;
- Ensure all workers, contractors, sub-contractors and others involved in the project meet all legal and institutional requirements with regard to environmental management;
- Address issues and concerns raised in the project stakeholders' consultation process;
- Serve as an action plan for environmental management;
- Provide a framework for implementing commitments of the project (i.e. mitigation measures identified in the EIA);
- Prepare and maintain records of project environmental performance (i.e. monitoring, audits and compliance tracking); and

- Prepare an environmental monitoring plan whose aim is to ensure that the negative environmental impacts identified of this EIA are effectively mitigated by way of design, construction, operational and decommissioning stages of the project

The EMPs for port rehabilitation project consists of the following:

- Management Policies;
- Management Plans; and
- Decommissioning Plan

9.3 Management Policies

Project proponent shall develop and document management policies that guide operations of the Project. The policies are vital in that:

- They enable management to develop and maintain sound relations with stakeholders;
- They enable management to put in place measures and structures that care for the safety, health and welfare of all Proposed Project users;
- They ensure that management plan for, and put in place, monitoring programmes that ensure Project activities confirm to stipulated environmental standards; and
- They ensure that management assumes its corporate responsibility for its activities regarding conservation of the environment as well as for the wellbeing of the neighboring community.

The following policies are going to be in place:

- Environmental Management Policy;
- Occupational Health and Safety Policy; and
- Community Relations Policy.

9.4 Environmental Management Policy

The environmental policy developed should be one that enables the Project management and staffs to carry out their activities with the highest regard to the natural environment and sustainable utilization of environmental resources therein. The policy should therefore cover the following, among other issues:

- Ensure that all project activities operate within legal requirements of all relevant national legislation covered in Chapter Four;
- That there are continuous environmental improvement and performance through monitoring of Project activities;
- Ensure that utilization of natural resources is optimal with measures in place to ensure resource availability for future generation;
- Awareness creation to the surrounding community regarding sustainable utilization of natural resources, protection of sensitive ecosystems and bio-diversity maintenance for communal livelihood; and
- Balancing between natural resource use, environmental conservation and economic development.

9.5 Occupational Health and Safety Policy

The Occupational Safety and Health Policy developed should enable establishment of appropriate measures that ensure that the health, safety and welfare of all users is cared for as well as the health requirements of the local community in which the project is located. The policy should highlight on the following, among others:

- Medical examination of workers;
- Sanitation in the project area;
- Proper liquid and solid waste management and disposal;
- Emergency preparedness;
- Fire safety;
- Necessity and availability of personal protective equipment
- Safety measures for cold storage equipment;
- Appropriate safety and rescue equipment are availed to Project users;
- Risk minimization of accidental damage to the community and environment; and
- Training in safety.

Preventive and protective measures should be introduced according to the following order of priority:

- Eliminating the hazard by removing the activity from the work process. Examples include substitution with less hazardous chemicals, using different manufacturing processes, etc.;
- Controlling the hazard at its source through use of engineering controls. Examples include local exhaust ventilation, isolation rooms, machine guarding, acoustic insulating, etc.;
- Minimizing the hazard through design of safe work-systems and administrative or institutional control measures. Examples include job rotation, training safe work procedures, lock-out and tag-out, workplace monitoring, limiting exposure or work duration, etc.
- Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE.

9.6 Community Relations Policy

The Local Community Policy are developed by management to ensure that the management of the project develops and maintains sound relations with all stakeholders on mutual respect and active partnership. The policy should highlight on ways the management should:

- Work with the local community and relevant government departments and agencies to achieve sustainability of the project;
- Come up with ways of enhancing information flow from management to the community and stakeholders, and vice versa;
- Community capacity building; and
- Active engagement of the local community in all project activities that impact on the local community.

9.7 Organizational Structure and Responsibilities

The overall organizational structure for environmental management on the project identifies and defines the responsibilities and authority of the various organizations and individuals involved in the project. The project structure and associated personnel shall be sufficient to ensure the required standard of environmental performance.

For the purposes of this document there shall be no distinction between developer and contracted companies and they shall be referred to collectively as the project management team

With regard to environmental management during the mobilization, construction, operation and decommissioning phase of the project, the principal responsibilities of each party within this structure will be detailed in the ESIA

For certain aspects of the programme, assistance will be needed from the Local Government Authorities and the NEMC (mainly in the form of guidance and advice and in project monitoring).

9.8 Coordination and Review of the EMP

The ESMP forms the basis for environmental management on site. Based on the results of the performance assessment and review process, the ESMP may be modified as the project progresses. Modifications will only be permitted by the Project Environmental Manager. Changes to the ESMP will only be allowed:

- a) If alternative measures with equal or improved outcomes have been identified subsequent to the compilation of the report.
- b) Prior to non-compliance, therefore requiring pro-active evaluation.

The Environmental Manager shall ensure that any modifications are communicated, explained to and discussed with all affected parties (i.e. the authorities, subcontractors, Managers and any directly affected party who requests this information). All changes to the ESMP shall be submitted to NEMC for approval.

9.9 Reporting

In addition to all reporting requirements identified in the ESMP, records shall be kept by the Environmental Management office of all monitoring results, monitoring reports, incident records, audit reports and management reviews. Minutes of all environmental project meetings shall be submitted by the Contractors.

9.10 Stakeholders

The presence and involvement of several other stakeholders develop as the project begins and during implementation of the ESMP. Mindful that most project activities will take place at or around the project site, it will be the responsibility of Proponent to coordinate involvement of relevant government authorities and service providers to maintain the project schedules.

The roles and responsibilities of some of these key stakeholders are included in the ESMP, However the detailed and described responsibilities will be illustrated in the Environmental Impact Assessment Report.

Table 9-1: Summary of Environmental and Socioeconomic Management Plan

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard, Tanzania Standard [TSS 845:2005], WHO [2005]	Responsibility	Estimated Costs [TZS]
Pre-Construction	Atmospheric air pollution due to emissions of exhaust and fugitive gases	<ul style="list-style-type: none"> Combustion of solid waste on the territories of site and camps is prohibited; A speed limit for trucks should be observed Bush clearance through burning should be avoided 	CO-4.5g/kWh NOx-1.1 g/kWh HC-8.0 g/kWh PM-0.612 g/kWh Smoke 0.15g/m	DED Magu District Council	1,000,000
	Loss of biodiversity (both Flora and Fauna)	<ul style="list-style-type: none"> Remove, without destroying, large Plants and ground cover where possible Replant recovered Plants and other flora from local ecosystem after construction The project proponent shall consult the experts for advice and for potential flora and stocks for re generation of disturbed vegetation in plant areas 	As minimum disturbance as possible	DED Magu District Council	
	Climate change due to vehicle movement, bush clearance	<ul style="list-style-type: none"> Transition to Low-Emission Vehicles: Promote the adoption of low-emission vehicles, such as electric vehicles (EVs) or hybrid vehicles, which have lower or zero tailpipe emissions. Encourage incentives for purchasing EVs and develop charging infrastructure. Improve Fuel Efficiency: Encourage regular vehicle maintenance, proper tire inflation, and efficient driving practices to improve fuel efficiency and reduce emissions. Promote the use of cleaner fuels, such as biodiesel or renewable natural gas, where available. 	As minimum emission of greenhouse gases into the atmosphere	DED Magu District Council	Parts of Project cost

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard, Tanzania Standard [TZS 845:2005], WHO [2005]	Responsibility	Estimated Costs [TZS]
		<ul style="list-style-type: none"> Restoration and Conservation: Support initiatives for the restoration and conservation of natural habitats and ecosystems, as intact ecosystems contribute to carbon sequestration and climate regulation 			
Construction Phase	<i>Atmospheric Air Pollution</i> due to emissions of exhaust and fugitive gases	<ul style="list-style-type: none"> Combustion of solid waste on the territories of site and camps is prohibited; A speed limit for trucks should be observed Haul roads should be routinely maintained in good condition The project proponent shall plant indigenous trees and grasses over a period of time on area. This will prevent fine dust entering ambient area. The project proponent shall observe the standards for air quality throughout the operations and comply accordingly. Person Protective Equipment should be well observed 	CO-4.5g/kWh NOx-1.1 g/kWh HC-8.0 g/kWh PM-0.612 g/kWh Smoke 0.15g/m	DED Magu District Council	20,000,000
	Hearing impairment due to increased noise levels from construction	<ul style="list-style-type: none"> Machinery and equipment undergo regular inspection/maintenance; fitted with silencers and mufflers, use of noise insulation. 	As minimum emission as possible	DED Magu District Council	1,000,000

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard, Tanzania Standard [TZS 845:2005], WHO [2005]	Responsibility	Estimated Costs [TZS]
	vehicles and machinery	<ul style="list-style-type: none"> Personal Protective Equipment: provide and enforce use by all personnel working in noisy zones; The contractor should adhere to relevant noise regulations and guidelines set by the authorities. Limiting the duration and intensity of noisy activities during sensitive hours. The contractor should also consider scheduling noisy activities during periods when they would cause the least disruption to nearby residents and businesses. 			
	Injuries and fatal accidents due to occupational health and safety issues	<ul style="list-style-type: none"> Noise will be limited to restricted times agreed to in the permit Machinery and equipment undergo regular inspection/maintenance; fitted with silencers and mufflers, use of noise insulation. Personal Protective Equipment: provide and enforce use by all personnel working in noisy zones; Provide education to crew about noise-sensitive aquatic life; Limit noise generating activities 	As minimum as possible	DED Magu District Council	1,000,000 (for PPEs)
	Waste generation	<ul style="list-style-type: none"> Prepare site waste management plan prior to commencement of construction works Designate appropriate waste storage areas, 	Environmental Management (Solid Waste Management) Regulations, 2009	DED Magu District Council	Part of Project cost

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard, Tanzania Standard [TZS 845:2005], WHO [2005]	Responsibility	Estimated Costs [TZS]
		<ul style="list-style-type: none"> Develop collection and removal schedule, Unusable construction waste will be disposed of at an approved dumpsite 	as amended in 2016		
	Employment Opportunity	<ul style="list-style-type: none"> Employ locals for most of unspecialized labour Procure local for most consumables available within the District Manage local expectations by not overpromising Registering of discontent/complaints from the local community, if any, and proper response 	Local procurement and Local employment	DED Magu District Council	Part of project cost
Operation Phase	Disruption of air quality and effect on human health due to emissions of exhaust and fugitive gases	<ul style="list-style-type: none"> The school can adopt renewable energy sources, such as solar panels and gas to meet the energy needs of the school such as lighting and cooking. The school should prioritize energy-efficient designs and equipment within the school. This can involve the use of energy-efficient lighting systems, insulation materials, and energy-saving appliances. The school can promote sustainable transportation options such as organizing carpooling initiatives for their staffs. Develop a comprehensive cleaning program that includes regular dusting, vacuuming, and cleaning of surfaces to minimize dust, allergens, and contaminants. Use environmentally friendly and non-toxic cleaning products. 	TZS 845:2005 Air Quality – Specification; TZS 983:2007 Air Quality - Vehicular Exhaust Emissions Limits	DED Magu District Council	5,000,000

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard, Tanzania Standard [TZS 845:2005], WHO [2005]	Responsibility	Estimated Costs [TZS]
		<ul style="list-style-type: none"> Regular monitoring of air quality and implementation of appropriate air pollution control measures should also be undertaken. 			
	Noise emissions	<ul style="list-style-type: none"> Installation of soundproofing materials in classrooms and common areas to reduce internal noise transmission. Strategic planning of school facilities, such as locating noisy areas away from residential areas or utilizing buffer zones, can help minimize the impact on nearby communities. Proper maintenance of equipment and facilities within the school premises can also contribute to noise reduction. Regular monitoring of noise levels and compliance with relevant noise regulations and standards should be prioritized. This can involve periodic assessments and inspections to ensure that noise pollution levels remain within acceptable limits 	45dBA during a day and 35dBA during night	DED Magu District Council	5,000,000
	Waste Generation	<ul style="list-style-type: none"> Establishment of waste segregation systems, encouraging composting initiatives for the kitchen waste, and providing sufficient waste bins and collection points throughout the school premises. The school should establish dedicated storage areas for hazardous waste such as laboratory chemicals, faulty electrical appliances, ensuring they are secure, 	Environmental Management (Hazardous Waste Control and Management) Regulations, 2021.	School Administration	15,000,000

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard, Tanzania Standard [TZS 845:2005], WHO [2005]	Responsibility	Estimated Costs [TZS]
		<p>properly labeled, and equipped with appropriate safety measures.</p> <ul style="list-style-type: none"> The school should also establish partnerships with authorized entities to ensure the waste is handled and disposed of in compliance with environmental regulations. Designate bins specifically for the disposal of sanitary pads. These bins should be placed in female restrooms and other private areas, and they should have lids to maintain hygiene and provide privacy. Construction of an incinerator for the management of the sanitary pads. 			
	Employment Opportunity	<ul style="list-style-type: none"> Employ locals for most of unspecialized labour Procure local for most consumables available within the District Manage local expectations by not overpromising Registering of discontent/complaints from the local community, if any, 	Local procurement and Local employment	PO-RALG and DED Magu District Council	20,000,000
	General Health and Safety hazards	<ul style="list-style-type: none"> Establishment of a comprehensive health and safety policy. Conducting regular inspections to identify and mitigate any potential hazards, such as faulty electrical systems, structural weaknesses, or unsafe equipment within the school premises. 	Zero incidents and accidents	DED Magu District Council	1,000,000

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard, Tanzania Standard [TZS 845:2005], WHO [2005]	Responsibility	Estimated Costs [TZS]
		<ul style="list-style-type: none"> Adequate emergency preparedness plans should be in place, including fire safety measures, first aid provisions, and clear evacuation procedures. The school should prioritize maintaining a clean and hygienic environment to prevent the spread of diseases and ensure the availability of adequate sanitation facilities. Promoting health and wellness among students should also be a focus, with initiatives like health education programs, access to clean drinking water, and appropriate waste management practices. Implement security measures such as fencing of the school premises. Establish anti-bullying policies and procedures to address and prevent bullying incidents. 			
Decommissioning	Injuries and fatal accident	<ul style="list-style-type: none"> Effective communication and coordination among project stakeholders, including contractors, workers, and relevant authorities, are vital for maintaining a safe working environment. It is crucial for the contractor to prioritize safety measures and adhere to strict 	Zero accident	DED Magu District Council	1,000,000

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard, Tanzania Standard [TZS 845:2005], WHO [2005]	Responsibility	Estimated Costs [TZS]
		<p>guidelines and regulations by implementing comprehensive safety protocols, providing appropriate personal protective equipment (PPE), conducting thorough risk assessments, and ensuring proper training for workers to significantly reduce the likelihood of accidents and injuries during the demolition activities.</p> <ul style="list-style-type: none"> 			
	Unemployment	<ul style="list-style-type: none"> Preparing the workers to be employed anywhere else in the different sectors through provision of extensive training. Preparing the workers for forced retirement by providing skills for self-employment, wise investment. Ensuring that all employees are members of the National Social Security Fund and the employees should ensure that the Proponent contributions are made. 	All employees	DED Magu District Council	N/A

CHAPTER TEN

10 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

Environmental and Social Management Plan (ESMP) intends to set forth “environmental and social conditions” that are to be abided by the proponent. It aims at ensuring effective implementation of the proposed mitigation measures. The Project requires regular monitoring and auditing of key environmental, health and safety indicators to:

- assess the overall performance of the project;
- to comply with local environmental, health and safety legislation; and
- Benchmark its project with other similar projects for improved management.

Key environmental parameters of concern with the operation of such a project are:

- water consumption,
- energy consumption; and
- solid and liquid waste handling;

Additionally, the following social parameters need to be keenly monitored to ensure benefits to the community and its sustainability:

- Health status of workers;
- Employment opportunities to local community; and
- Corporate Social responsibility programs.

With these factors in mind, there are a need to put in place elaborate and sound environmental management system and mechanisms of monitoring on a continuous basis the environmental performance of the Project. Undertaking monitoring and auditing of key environmental parameters and putting in place of all approved recommendation of the environmental management plan and conditions of the EIA license achieved, this Monitoring undertaken are both active and reactive.

With increased urban development come the challenges of waste handling and disposal. The monitoring programme developed must consider possible impacts of solid waste disposal. All wastes emanating from the Project and its disposal must be monitored to ensure no environmental nuisance or degradation arises.

10.1 Parameters are Monitored

Monitoring involves measuring, observing, recording and evaluation of physical, socioeconomic and ecological variables within the project area and the neighborhood. This may include the following:

Table 10-1: Environmental and Social Monitoring Plan

Phase	Potential Impacts	Parameters to be Monitored	Target Level/Standard	Monitoring Area	Monitoring Frequency	Responsibility	Estimated Cost
Pre-Construction Phase	<i>Atmospheric air pollution</i> due to emissions of exhaust and fugitive gases	SO ₂ , NO _x , CO ₂ , CO, Particulate matter (TSP, PM ₁₀ , PM _{2.5})	CO-4.5g/kWh NO _x -1.1 g/kWh HC-8.0 g/kWh PM-0.612 g/kWh Smoke 0.15g/m	Established Monitoring Area	Monthly	Magu District Council	5,000,000
	Loss of biodiversity (both Flora and Fauna)	Biodiversity	As minimum disturbance as possible	Project area	Before commissioning and once every three months	Magu District Council	N/A
	Climate change due to vehicle movement, bush clearance	Greenhouse gases (CO ₂ , CH ₄ , NO ₂ , O ₃ and HCFCs)	As minimum emission of greenhouse gases into the atmosphere	Established Monitoring area	Monthly	Magu District Council	2,000,000
Construction Phase	<i>Atmospheric Air Pollution</i> due to emissions of exhaust and fugitive gases	SO ₂ , NO _x , CO ₂ , CO, Particulate matter (TSP, PM ₁₀ , PM _{2.5})	CO-4.5g/kWh NO _x -1.1 g/kWh HC-8.0 g/kWh PM-0.612 g/kWh Smoke 0.15g/m	Established Monitoring Point	Before commissioning and once every three months	Magu District Council	5,000,000
	Hearing impairment due to increased noise levels from construction vehicles and machinery	Noise and vibration level	As minimum emission as possible	Established Monitoring Point	Once Every three months	Magu District Council	10,000,000

Phase	Potential Impacts	Parameters to be Monitored	Target Level/Standard	Monitoring Area	Monitoring Frequency	Responsibility	Estimated Cost
	Injuries and fatal accidents due to occupational health and safety issues	Incident and accident register	As minimum emission as possible	Project site	Once Every six months	Magu District Council	1,000,000
	Waste generation	Waste disposal Inspection of amount of waste not contained in specified collection containers/skips	Zero waste	Transfer stations and disposal areas	Monthly	Magu District Council	700,000
Operation Phase	Disruption of air quality and effect on human health due to emissions of exhaust and fugitive gases	SO ₂ , NO _x , CO ₂ , CO, Particulate matter (TSP, PM ₁₀ , PM _{2.5})	TZS 845:2005 Air Quality – Specification; TZS 983:2007 Air Quality - Vehicular Exhaust Emissions Limits	Established Monitoring Area	Once every six months	Magu District Council	5,000,000
	Noise emissions	dBA	Noise and Vibration Levels Regulations (United Republic of Tanzania, 2011) 45 dBA (Leq) Day and 35 dBA (Leq) Night and baseline of 50dBA (Leq)	Established Monitoring Area	Once every six months	Magu District Council and School Administration	4,000,000
	Waste Generation	Waste disposal Inspection of amount of waste not contained in specified	Zero Waste	Transfer stations and disposal areas	Monthly	School administration	1,000,000

Phase	Potential Impacts	Parameters to be Monitored	Target Level/Standard	Monitoring Area	Monitoring Frequency	Responsibility	Estimated Cost
		collection containers/skips					
	Employment Opportunity	Employees	Local procurement and Local employment	Number of Employees	Quarterly	Magu District Council	N/A
	General Health and Safety hazards	Accident and incident register	Zero incidents and accidents	School compound	Once every six months	Magu District Council	2,000,000
Decommissioning phase	Injuries and fatal accident	Accident and incident register	Zero accident	Project area	Monthly	Magu District Council	2,000,000
	Unemployment	NSSF remittance	All employees	School Compound	Once every year	Magu District Council	N/A

10.2 Environmental Health and Safety Auditing

Annual Environmental Health and Safety Audits should be carried out as provided for in the Environmental (Impact Assessment and Audit) Regulations of 2005. The Audits serve to confirm the efficacy and adequacy of the Environmental Management Plan. The audits should include but not limited to the following:

- Air, soil, and water pollution
- Waste generation, management and disposal;
- Resources utilization
- Occupational Health and Safety
- Traffic Safety;
- Monitoring and

Views and comments from neighbours and progress in implementation of Environmental Health and Safety Management Plan.

10.3 Awareness and education

The project proponent with collaboration with contractor or local workers shall encourage environmental awareness among his foremen before and during implementation of the project. The education will include:

- Provide copies of the EMP and discuss its contents with all construction foremen and workers
- Discuss techniques and answer questions about erosion and pollution control at regular site safety meetings
- Demonstrate proper housekeeping methods
- Inform the workers of actions to take in the event of spill of hazardous materials (oil, fuel, bitumen, concrete, etc.)
- Post sign at key locations reminding workers how to properly store construction materials, handle and dispose of toxic wastes, wash water, and similar instructions
- Remind workers of fines, penalties that may be levied against the project by the local permitting agencies control environmental destruction is not adhered to

CHAPTER ELEVEN

11 RESOURCE EVALUATION/COST BENEFIT ANALYSIS

11.1 Introduction

Chapter 7 and 8 of this EIS report have documented the cost/impacts of the project to Mwanza region and the degree to which they can be substantially mitigated. Cost-benefit analysis is normally done in the framework of feasibility study of an activity.

The aim of cost-benefit analysis is to inform the project developer to make a decision on: whether it makes economic sense to continue with the project; whether the chosen option is a cost-effective alternative; and the estimate of the size of a project. For this project, the costs will include: capital expenditures; operating and maintenance costs; staff costs; materials; research and development; and environment, health and other social costs.

Benefits may include: build on the achievements of previous projects in the education sector which have supported quality improvements. It will support the expansion of the secondary school network in order to substantially reduce travel distances by bringing secondary schools closer to children's homes through an expansion of the secondary school network. Construction will be guided by a minimum infrastructure package based on the School Construction and Maintenance Strategy and minimum construction standards aligned with the Projects Environmental and Social Framework.

11.2 Environmental cost and benefit analysis

Environmental cost benefit analysis is assessed in terms of the negative and positive impacts. Furthermore, the analysis is considering whether the impacts are mitigatable and the costs of mitigating the impacts are reasonable. As it has been mentioned in Chapters 7 and 8, the potential benefits of the project, in terms of economic advancement and social benefit are substantial.

The environmental impacts are reasonably mitigatable. So to mitigate negative impacts, when compared to the required data are relatively small.

11.3 Effect on the local community

The benefits from project development can be judged in terms of employment, social welfare, education development, and the local economy (wages, goods and services). Thus, there will be a substantial spread of the benefit within the community through the provision of food, accommodation and other regular services to the employees and students.

11.4 Infrastructure development

The upgrading, development and maintenance of local infrastructure are benefits that will extend far beyond the project's scope and lifetime. Also, during operation of the project there will be storage rooms and temporally office that will be constructed with engineering standards at the site especially at Ihushi Village nearby or within project area

11.5 Advantages for the broader community and country

The earnings of the project will in the final analysis it will contribute the following,

- Creating a gender sensitive, learner-friendly school environment through investing in supportive structures in the school and community including trained school guidance counselors, stronger links with the community through Parent Teacher Associations and life skills training.
- Supporting female students to avoid getting pregnant and dropping out of secondary school through measures that include
 - Encouraging community awareness of risks for girls; and

- Supporting safe passage and reducing the distance to schools to reduce the risks of gender-based violence on the way to school.
 - Supporting girls who become pregnant to access recognized, quality Alternative Education Pathways (AEPs)
- To obtain lower secondary certification and continue with upper secondary education or post-secondary education.
- Improving the quality of secondary school teaching and learning environments through the hiring of additional qualified teachers in core subjects and providing textbooks in core subjects.
- Increasing the number of secondary school spaces through the construction of new classrooms that meet minimum infrastructure standards and supporting the expansion of the school network to bring schools closer to communities.
- Using innovative digital technology to facilitate mathematics and science teaching and improve learning

CHAPTER TWELVE

12 DECOMMISSIONING PLAN

12.1 Introduction

Decommissioning is the last phase of project life. It involves terminating project activities and operations and rehabilitating site to or close to its original state. It is anticipated that the project shall continue as long as there is a demand for a project, however, individual components of the project shall be decommissioned as need be.

12.2 Components

This decommissioning plan presents a conceptual framework on how the Project can be demolished if need. The plan takes into consideration on how materials and equipment, support infrastructure and land on which the buildings are standing on can be handled.

12.3 Disposal/Demolition Of Project Storage Buildings

Decommissioning of project shall only involve dismantling of the temporary office and store room that will be constructed during construction phase.

12.4 Considerations

- All employees involved in the decommissioning and demobilization exercises must have proper protective gear throughout;
- Decommissioning and demobilization activities should be done during day time only unless it's an emergency;
- Waste resulting must be disposed at designated waste disposal sites;
- All relevant lead agencies must be involved in the exercise; and
- Emergency services such as first aid and ambulance services must be on standby in case of any eventualities.

CHAPTER THIRTEEN

13 CONCLUSION AND RECOMMENDATIONS

13.1 Conclusion

This ESIA report describes the proposed project in detail, includes a concept project description, and addresses a number of project-related issues. The issues and impacts have been assessed and described in detail in order to gain a comprehensive understanding of the project's potential environmental impacts and to develop mitigation measures in response to any negative aspects that have emerged.

By allowing the development of a deterministic model of climate change, the project will benefit both the scientific community and the human race as a whole.

Given the nature and location of the development, the conclusion is that the potential impacts associated with the proposed development are of a nature and extent that can be reduced, limited and eliminated by the application of appropriate mitigation measures.

The key findings of the ESIA study conducted by Tansheq Limited are as follows:

- The Project Development Objectives (PDOs) are to increase access to secondary education, provide responsive learning environments for girls and improve completion of quality secondary education for girls and boys. SEQUIP will contribute to addressing key challenges to girls and boys accessing education and this school will definitely target girls for their studying excel. The project aims to reduce distance to government target: 3km (or 45 minutes)
- The project will contribute to increasing the total number of students in secondary education including Alternative Education Pathways (AEP) by 250,000. It will directly benefit about 1.8 million secondary school students, including 920,000 girls, 95% of whom are enrolled in lower secondary. SEQUIP will help more girls' transition from lower to upper secondary education, as girls are underrepresented at this level

13.2 Recommendations

To ensure sustainability and achievement of the project's overall goal, the project should manage environmental, health, and safety issues in a systematic manner. This can only be accomplished if the ESMP and the Monitoring Plan developed herein are properly followed and improved upon whenever flaws are discovered.

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Appendix I: Emergency Response and Preparedness Plan

1.0 Introduction

The purpose of this Emergency Response Plan is to establish procedures and guidelines that will ensure the safety and well-being of students, staff and visitors in the event of an emergency within the school premises. This plan outlines measures to be taken before, during and after various emergencies to minimize potential risks and provide effective responses.

1.1 Emergences Contact Information

A list of emergency contact numbers for police department, fire department, hospital and relevant staff should be maintained, updated and easily accessible to key personnel.

1.2 Emergency Response Team

An emergency response team consisting of key staff members who will be responsible for coordinating emergency response efforts should be established, and roles and responsibilities for each team member should be clearly defined along with their primary and backup contacts.

1.3 Emergency procedures

1.3.1 Fire Emergency

- Ensure all staff and students are familiar with evacuation routes and assembly points.
- Conduct regular fire drills to practice evacuation procedures.
- Assign staff members to sweep designated areas to ensure everyone has evacuated safely.
- Designate a staff member to contact emergency services.

1.3.2 Chemical and Hazardous Material Spills

- Train laboratory staff and science teachers in proper safety protocols.
- Establish clear guidelines for reporting accidents or injuries.
- Implement procedures for quickly and safely evacuating students from the laboratory area.
- Designate staff members responsible for administering first aid and contacting emergency medical services, if necessary.

1.3.3 Medical Emergencies

- Train staff in basic first aid and CPR.
- Maintain a well-stocked first aid kit in a readily accessible location.
- Designate staff members as first aid responders.
- Establish procedures for contacting emergency medical services.

1.3.4 Earthquake Emergency:

Risk Assessment:

- Identify earthquake-prone areas and assess potential impacts on buildings and safety.

Response Team:

- Principal: Coordinate decisions.
- Safety Officer: Oversee safety protocols and evacuations.
- First Aid Team: Provide immediate medical assistance.
- Communication Team: Relay information to students, staff, parents.
- Search and Rescue Team: Assist trapped individuals.

Communication Strategy:

- Use loudspeakers, text messages, emails, social media.
- Centralized communication point for coordination.

Evacuation and Shelter Plans:

- Establish primary and secondary routes.
- Designate outdoor assembly points and safe areas.

Training and Drills:

- Conduct drills for evacuation and first aid.
- Train staff and students in safety procedures.

Resource Inventory:

- Classrooms have emergency kits with supplies.
- Central storage for response teams.

Coordinate with Authorities:

- Establish links with local fire and medical services.
- Share plan for coordination.

Structural Evaluation:

- Regularly assess buildings for vulnerabilities.

Public Education:

- Raise student awareness on earthquake safety.
- Distribute pamphlets to parents.

Emergency Contacts:

- Compile contacts for local services and parents.

Incident Documentation:

- Implement system for reporting incidents and injuries.

Plan Review:

- Review and update annually based on drills and feedback.
- Keep contact details and roles current

1.4 Communication

A communication plan to provide information to staff, students, parents and the community during emergencies should be developed. This may include;

- Using an intercom for announcements
- Sending text messages, emails, or automated phone calls to parents/guardians
- Utilizing of social media platforms or the school website for updates
- Appointing a designated spokesperson to provide accurate and timely information to the media and community

1.5 Training and education

Regular training sessions for staff and students should be conducted to ensure they are familiar with the emergency procedures. This includes fire drills, first aid training and other relevant emergency response protocols.

1.6 Review and evaluation

The emergency response plan should be periodically reviewed and evaluated for its effectiveness. The plan should be updated and addressed for the aim of identifying shortcomings or changes in circumstances. Feedbacks from staff, students and parents should be attained for the aim of improving the plan.

1.7 Conclusion

For everyone in the school community to be safe and secure, an efficient emergency response plan is essential. The lives of the students, staff, and visitors can be better protected within the school premises by putting this plan into action and holding frequent exercises and training sessions.

APPENDIX II: LIST OF THE STAKEHOLDERS CONSULTED

MAGU- MWANZA



SEQUIP – ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

S/N	Name/ Jina	Title/ Cheo	Contacts/ Mawasiliano	Signature/ Sahihi
1.	Wilfred Bendalla	Ag DED	0254-428488	[Signature]
2.	Sumai G. Sani	SLO	0758-190600	[Signature]
3.	MATENGA & MATENGA	INO	0753474169	[Signature]

S/N	Name/ Jina	Title/ Cheo	Contacts/ Mawasiliano	Signature/ Sahihi
1.	JOSEPH Z. NHINDILO	M/KUJI	0765865287	[Signature]
2.	AZIZAM. BAKARI	VEQ/HUSHI	0766964184	[Signature]
3.	STEPHEN G. HUBILE	MJUMBE S/KUJI	0753989384	[Signature]
4.	ANATORY PHILIMATUS	MJUMBE S/K	0763051192	[Signature]
5.	Pius LUBATULA	MJUMBE S/KUJI	0764729924	[Signature]
6.	PENDO-ELIAS	MJUMBE S/KUJI	0745073205	[Signature]
7.	DONITILA-GERVAS-SENDELIMA	MJUMBE (H) KUJI	0752336463	[Signature]
8.	ELIAS PETRO MWESEM	MJUMBE (H) KUJI	0755909010	[Signature]
9.	GETRUDA NESPATORY NKONDO	MJUMBE (H) KUJI	0764798143	[Signature]
10.	Peter -B. NONIYA Lwanga	MJUMBE (H) KUJI	0717528584	[Signature]
11.	IRHOBE -M. NYANSAGA	WEO- BUJASHI	0755935740	[Signature]

**THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF HOME AFFAIRS
FIRE AND RESCUE FORCE**

Telephone: ZIMAMOTO DODOMA
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The Regional Fire Officer
Fire and Rescue Force
P. O. Box 17019
DODOMA

Ref. No.BCD.130/150/01"A"/ 70

03rd May, 2023.

TANSHEQ
P. O. Box 31517,
DAR ES SALAAM

**RE: FIRE REPORT FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESMENT
AND SUBMISSION OF DRAWINGS FOR PROPOSED CONSTRUCTION OF
REGIONAL GIRLS SECONDARY SCHOOL AT MANCHALI VILLAGE, MANCHALI
WARD, CHAMWINO DISTRICT IN DODOMA REGION.**

(The Fire and Rescue Force Act No. 14, 2007 and Fire Precaution in Buildings Regulations, 2015)
Reference is being made to the above-mentioned project.

The Fire and Rescue Force have received your letter requesting advice on the Environmental Impact assessment of above-mentioned project. Fire and Rescue advice, you the following procedure before construction commence.

In order FRF to give the appropriate recommendation on fire safety precaution and measures, would like you to submit architectural and fire protection plans layout, Fire safety recommendation can be provided regarding to the uses of a particular building, size and height of the building, those details tends to be obtained in architectural drawings, fire protection plan and site layout.

Therefore, The Fire and Rescue Force *would like you to submit architectural and fire protection plans for the detail's safety recommendations*, which contains the following information: -

❖ **FIRE SAFETY REQUIREMENT**

1. Standard of Electrical wiring and equipment
2. Location of Emergency Information Panel
3. Provision of Warning Signs

4. Calculation of exit width and minimum number of exits (For the building office)
5. All fire escape routes shall be colored in green and the direction of travel to a safe area shall be indicated by arrows drawn at short interval along the route
6. All firefighting equipment to be highlighted in red

❖ **FIRE DETECTION AND MANUALLY ACTIVATED FIRE ALARM SYSTEM CONNECTED TO CONTROL PANEL (In Office building)**

- a) General arrangement plan, layout and outline drawing, dimensional detail drawings, position plans and section installation details, including location of detection points and zones
- b) Cabling diagrams, block diagrams, termination diagrams and zoning schedules

❖ **SPRINKLER SYSTEM (Power Station – Automatic fire suppression system it can be FM 200, CO2 Extinguishing agent or water mist)**

- a) Dimensional drawings, giving sprinkler spacing, distance from walls to sprinklers and size of pipes
- b) Key plan
- c) Drawing grid
- d) Section of building including height of the highest sprinkler
- e) Type and size of control valve
- f) Number, type, size, and temperature rating of sprinklers per valve
- g) Reference to symbols used
- h) Type of pipe and size
- i) Distance of sprinkler deflector from roof or ceiling
- j) Hydraulic calculations, also design points marked in drawing
- k) Location of manual call points and sounders.


❖ **FIRE FIGHTING SYSTEM & OTHER IMPORTANT SAFETY REQUIREMENTS**

- i. Position and size of water supply tanks and pumps for firefighting purposes
- ii. Position and type of flammable liquid and gas installation
- iii. Type of sealing materials for horizontal and vertical openings
- iv. Standard used for designing all active and passive fire Protection systems.
- v. Position of fire hydrant at the main vehicular entrance
- vi. Position of hose reels and diameter of pipe
- vii. Position, size and type of fire extinguishers

Lastly FRF Remind that, you're supposed to submit mentioned drawings and you are not allowed to start any construction activities without approval for fire Engineering

Plans (The Fire and Rescue Force Act No. 14, 2007 and Fire Precaution in Buildings Regulations, 2015), Hence Fire safety prevention and measures starts from Plan designing Stage of the premises, during construction and after Construction.

Thanks


M. A. Ngata- SF

For REGIONAL FIRE OFFICER
P.O. Box 17019
DODOMA

For: REGIONAL FIRE OFFICER
FIRE AND RESCUE FORCE - DODOMA

	Name/Jina	Title/Jina	Contacts/Mawasiliano	Date/Tarehe	Signature/Sahihi
1	Salim Mwandawire	OHJ (OSHA)	97235661	28/04/23	[Signature]
2	Regina Mwalawa	TAMISEMI	75336461	28/04/2023	[Signature]
3					



SEQUIP – ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
Stakeholder consultation

Institution/Organization..... OSHA Region..... DODOMA
Date... 28/04/2023
District... DODOMA CC

The Government of the United Republic of Tanzania (URT) in co-operation with the World Bank developed the Secondary Education Quality Improvement Project (SEQUIP). The objectives of SEQUIP are to increase access to secondary education, provide responsive learning environments for girls and in result, improve completion of quality secondary education for girls and boys.

SN	QUESTION AND RESPONSE
1.	Do you know the proposed/undertaking project? If yes, how NO
2.	What is the importance of involving your organization/institution in this project? To ensure the safety and health of workers during the project implementation
3.	What impact do you expect from this project (Negative and Positive) +Ve - Ensure the provision of better education for our children
4.	What are your concerns/comments on the undertaking To comply with Safety and Health Act No 5 of 2003
5.	What are your suggestions and advice for the project implementation team in order to make it environmental and social friendly Ensure all stakeholders are involved

APPENDIX III: LAND OCCUPANCY CERTIFICATE

TITLE No: **106325 LR Mw. 1123**
 REGISTERED ON: **04/04/2023**
 AT: **01:00 P** M
 Senior Asst. Registrar of Titles

LAND FORM NO. 22

TANGANYIKA STAMP DUTY ACT
 Stamp Duty Shs: **100F** Paid
 Receipt No: **928072166131519**
 of: **13/03/2023**
 Stamp Duty Officer

THE UNITED REPUBLIC OF TANZANIA

THE LAND ACT, 1999
 (NO. 4 OF 1999)

CERTIFICATE OF OCCUPANCY
 (Under section 29)

Title No. **106325 LR Mw. 1123**
 L.O.No. **682402**
 L.D.No **LD/MG/6698**

The **29th** day of **March** Two Thousand and Twenty Three

THIS IS TO CERTIFY that MAGU DISTRICT COUNCIL established under section 9 and 10 of the local government (District authorities Act) Cap 287 RE 2002 of P.O. BOX 200 MAGU, (Hereinafter called 'the occupier') 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 Years** from the **First Day of January, Two Thousand and Twenty Three** according to the intent and meaning of the Land Act and subject to the provisions thereof and to any regulations made hereunder and to any enactment in substitution therefore or amendment thereof and to the following special conditions:

1. The Occupier having paid rent up to the thirtieth day of **June 2023**, shall thereafter pay rent of **Shillings Five Thousand (Tshs.5,000)** only a year in advance on the **First day of July** in every year of the term without deduction **PROVIDED** that the rent may be revised by the Commissioner for Lands.
2. The Occupier shall:
 - i. Be responsible for the protection of all beacons on the land throughout term of the Right. Missing beacons will have to be re-established any time at the Occupier's expenses as assessed by the Director responsible for surveys and Mapping.

TANGANYIKA STAMP DUTY ACT
 Stamp Duty Shs: **400F** Paid
 On Original Receipt No: **928072166131519**
 of: **13/03/2023**
 Stamp Duty Officer

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

(iii) Plant, maintain, protect and preserve or conserve not less than five trees on the land within thirty six months from the day of commencement of the Right. The occupier may plant fruit or wood trees depending on the climatic conditions of such land or as it can be directed by planning authority and shall ensure such trees are kept, maintained or replaced throughout the term of such Right of occupancy.

(iv) Maintain on the land building (hereinafter called "the building") in permanent materials designed for use in accordance with the conditions for the right and which conform to the building line (if any) decided by the **MAGU DISTRICT COUNCIL** (hereinafter called "the **AUTHORITY**")

(v) At all times during the term of the Right have on the land building as approved by the **Authority** and maintain them in good order and repair to the satisfaction of the Commissioner for Lands. (Hereinafter called "the Commissioner").

(vi) Not erect or commence to erect on the land any building except in accordance with building plans and specifications which shall have been first approved by the Authority as here in before provided.

(vii) Approval of plans of any building by the **Authority** shall not imply that the construction of such building will satisfy the occupier's obligation under the conditions of the **Right** and shall not imply waiver or modification any condition in the **Right**.

3. **USER:** The land and the buildings to be erected thereon shall be used for **Educational Buildings Purpose Only**. Use Group "K" use class (c) as defined in Urban Planning Act (use groups and use classes) Regulation, 2018.

4. The Occupier shall not assign the right within three years of the date hereof without the prior approval of commissioner.

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

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

MAGU DISTRICT

INSET SHOWING DETAILS OF PLOT.



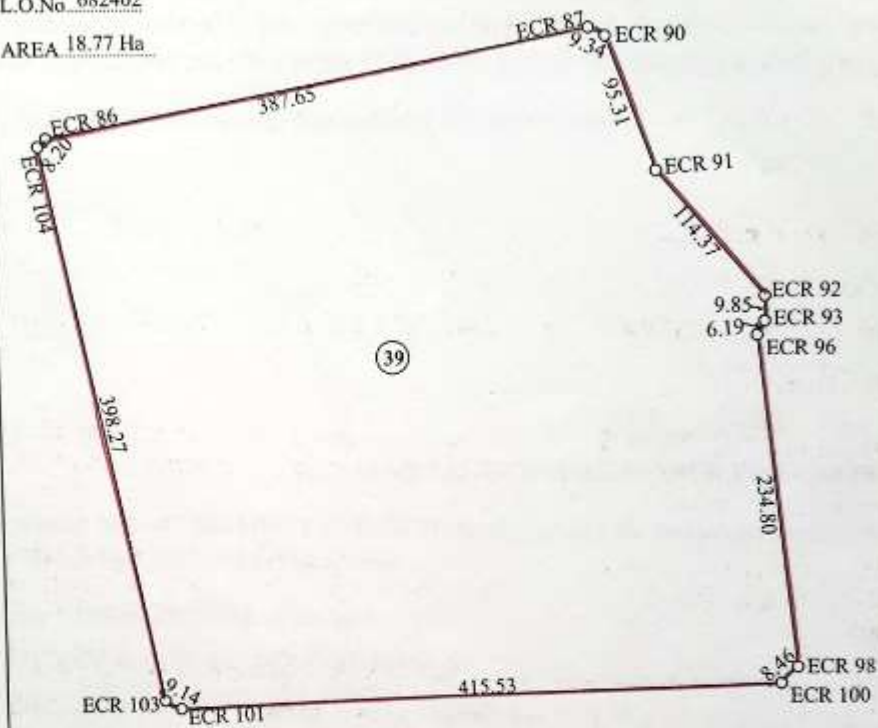
LOCATION IHUSHI

BLOCK "B"

PLOT No. 39

L.O.No. 682402

AREA 18.77 Ha



This plan, prepared in accordance with Registered plan No **126851** is approved for the purpose of Land Registration ordinance.

[Signature]
For Director of Surveys and Mapping.

Date 03/03/2023


Ministry of Lands, Housing and Human Settlement Development
Dodoma.

The Issue of The plan Implies no guarantee or admission of title of Government.

SCHEDULE

ALL that land known as **PLOT No 39 BLOCK "B"** Situated at **Ihushi** in **Magu District** containing **Eighteen Decimal Point Seven Seven Hectors (18.77 Ha)** shown for identification only edged red on the plan attached to this Certificate and defined on the registered Survey Plan Numbered **126851** Deposited at the office of the Director for Survey and Mapping at Dodoma.

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


ASSISTANT COMMISSIONER FOR LANDS

We, the within named **MAGU DISTRICT COUNCIL** hereby accept the terms and conditions contained in the foregoing Certificate of Occupancy.

SEALED with the **COMMON SEAL** of the said

MAGU DISTRICT COUNCIL and **DELIVERED** in the
Presence of us this 13th day of MARCH 2023)

WITNESS NAME FIDELICA G. MYOVELLA)

SIGNATURE [Signature])

POSTAL ADDRESS 200 - MAGU)

QUALIFICATION DGS)

WITNESS NAME MPHOTLAME S. MPANDHUMU)

SIGNATURE [Signature])

POSTAL ADDRESS 200 MAGU)

QUALIFICATION COUNCIL CHAIRPERSON)

APPENDIX IV: GEOTECHNICAL REPORT



THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORT
TANZANIA NATIONAL ROADS AGENCY
Regional Manager's Office
P.O.Box 1410, MWANZA. Tel (028) 2500340, Fax (028) 2500956, MWANZA.
MATERIALS TESTING LABORATORY
MOISTURE CONTENT, BULK DENSITY AND
UNIT WEIGHT OF UNDISTURBED SAMPLE



PROJECT:	PROPOSED CONSTRUCTION OF STRUCTURES FOR GIRLS SECONDARY SCHOOL		
CLIENT			
SOURCE/SAMPLE NO.	IHUSHA VILLAGE, PIT 2, DEPTH 1.0M		
GPS COORDINATES	Elevation asl(m): S: 2° 29' 22.31304" LAT, E: 33° 4' 1.60104" LONG		
MATERIAL FOR	SOIL INVESTIGATION		
DATE OF SAMPLING	04.08.2023	TESTING DATE	09.08.2023

TEST METHOD	REF. BS 1377 Part 2:1990
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Specimen reference			
Container no.		g	C14
Mass of wet soil + container		g	243.60
Mass of dry soil + container		g	214.50
Mass of container		g	48.80
Mass of moisture		g	29.10
Mass of dry soil		g	165.7
Moisture content	W	%	17.56
Particle Density	ρ_s	kg/m ³	2640
Length of cylinder	l_1	cm	12.70
Sample to edge	l_2	cm	0.00
Sample to edge	l_3	cm	0.00
Length of sample	$L = l_1 - l_2 - l_3$	cm	12.70
Internal diameter	D	cm	10.28
Area of sample	$A = \frac{\pi}{4} \times D^2$	cm ²	83.0330
Volume of sample	$V = L \times A$	cm ³	1054.52
Mass of cylinder + sample	m_t	g	3989
Mass of cylinder	m_c	g	1856
Mass of sample	$M = m_t - m_c$	g	2133.0
BULK DENSITY	$\rho = \frac{M}{V} \times 1000$	kg/m ³	2022.72
DRY DENSITY	$\rho_d = \frac{100\rho}{100 + W}$	kg/m ³	1720.56
VOID RATIO	$e = \frac{\rho_s}{\rho_d} - 1$		0.5344
DEGREE OF SATURATION	$S = \frac{W\rho_s}{e} \times 10^{-3}$	%	86.760
BULK UNIT WEIGHT	$\gamma = \rho \times 9.81 \times 10^{-3}$	kN/m ³	19.84
DRY UNIT WEIGHT	$\gamma = \rho \times 9.81 \times 10^{-3}$	kN/m ³	16.88

TESTED BY: Seif Janga 22/08/2023 LABORATORY TECHNICIAN	CHECKED BY: [Signature] 22/08/2023 LABORATORY INCHARGE	APPROVED BY: TANZANIA TANROADS MWANZA P. O. Box 1410 - MWANZA Construction Material Testing Laboratory No. 014 L MATERIAL ENGINEER DATE: 22/08/23
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THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORT
TANZANIA NATIONAL ROADS AGENCY
Regional Manager's Office
P.O.Box 1410, MWANZA. Tel (028) 2500340, Fax (028) 2500956, MWANZA.
MATERIALS TESTING LABORATORY
MOISTURE CONTENT, BULK DENSITY AND
UNIT WEIGHT OF UNDISTURBED SAMPLE



PROJECT:	PROPOSED CONSTRUCTION OF STRUCTURES FOR GIRLS SECONDARY SCHOOL		
CLIENT			
SOURCE/SAMPLE NO.	IHUSHA VILLAGE, PIT 2, DEPTH 2.0M		
GPS COORDINATES	Elevation asl(m): 5: 2° 29' 22.31304" LAT, E: 33° 4' 1.60104" LONG		
MATERIAL FOR	SOIL INVESTIGATION		
DATE OF SAMPLING	04.08.2023	TESTING DATE	09.08.2023

TEST METHOD	REF. BS 1377 Part 2:1990
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Specimen reference			
Container no.		g	C20
Mass of wet soil + container		g	254.10
Mass of dry soil + container		g	221.80
Mass of container		g	47.90
Mass of moisture		g	32.30
Mass of dry soil		g	173.9
Moisture content	W	%	18.57
Particle Density	ρ_s	kg/m ³	2640
Length of cylinder	l_1	cm	12.60
Sample to edge	l_2	cm	0.00
Sample to edge	l_3	cm	0.00
Length of sample	$L = l_1 + l_2 + l_3$	cm	12.60
Internal diameter	D	cm	10.3
Area of sample	$A = \frac{\pi \times D^2}{4}$	cm ²	83.3564
Volume of sample	$V = L \times A$	cm ³	1050.29
Mass of cylinder + sample	m_T	g	3998
Mass of cylinder	m_c	g	1854
Mass of sample	$M = m_T - m_c$	g	2144.0
BULK DENSITY	$\rho = \frac{M}{V} \times 1000$	kg/m ³	2041.34
DRY DENSITY	$\rho_d = \frac{100\rho}{100 + W}$	kg/m ³	1721.58
VOID RATIO	$e = \rho_s - 1$		0.5335
DEGREE OF SATURATION	$S = \frac{W\rho_s}{e} \times 10^{-3}$	%	91.916
BULK UNIT WEIGHT	$\gamma = \rho \times 9.81 \times 10^{-3}$	kN/m ³	20.03
DRY UNIT WEIGHT	$\gamma_d = \rho_d \times 9.81 \times 10^{-3}$	kN/m ³	16.89

TESTED BY: Seif Uange
22/08/2023
LABORATORY TECHNICIAN

CHECKED BY: [Signature]
22/08/2023
LABORATORY INCHARGE

APPROVED BY: [Signature]
TANROADS MWANZA
P.O. Box 1410 - MWANZA
Construction Material Testing Laboratory No 014 L
MATERIAL ENGINEER DATE: 22/08/23



THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORT
TANZANIA NATIONAL ROADS AGENCY

Regional Manager's Office
P.O.Box 1410, MWANZA. Tel (028) 2500340, Fax (028) 2500956, MWANZA.

MATERIALS TESTING LABORATORY
MOISTURE CONTENT, BULK DENSITY AND
UNIT WEIGHT OF UNDISTURBED SAMPLE



PROJECT:	PROPOSED CONSTRUCTION OF BUILDINGS FOR MWANZA GIRLS SECONDARY SCHOOL		
CLIENT			
SOURCE/SAMPLE NO.	KISESA TOWNSHIP, PIT 1, DEPTH 1.0M		
GPS COORDINATES	Elevation asl(m): S: 2° 29' 21.74712" LAT, E: 33° 4' 1.48656" LONG		
MATERIAL FOR	SOIL INVESTIGATION		
DATE OF SAMPLING	04.08.2023	TESTING DATE	09.08.2023

TEST METHOD	RET. BS 1377 Part 2:1990
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Specimen reference			
Container no.		g	C35
Mass of wet soil + container		g	172.70
Mass of dry soil + container		g	154.10
Mass of container		g	48.60
Mass of moisture		g	18.60
Mass of dry soil		g	105.5
Moisture content	W	%	17.63
Particle Density	ρ_s	kg/m ³	2623
Length of cylinder	l_1	cm	12.90
Sample to edge	l_2	cm	0.00
Sample to edge	l_3	cm	0.00
Length of sample	$L = l_1 - l_2 - l_3$	cm	12.90
Internal diameter	D	cm	10.3
Area of sample	$A = \frac{\pi \times D^2}{4}$	cm ²	83.3564
Volume of sample	$V = L \times A$	cm ³	1075.30
Mass of cylinder + sample	m_T	g	3998
Mass of cylinder	m_c	g	1858
Mass of sample	$M = m_T - m_c$	g	2140.0
BULK DENSITY	$\rho = \frac{M}{V} \times 1000$	kg/m ³	1990.15
DRY DENSITY	$\rho_d = \frac{100\rho}{100 + W}$	kg/m ³	1691.86
VOID RATIO	$e = \frac{\rho_s - 1}{\rho_d}$		0.5504
DEGREE OF SATURATION	$S = \frac{W\rho_s}{e} \times 10^{-3}$	%	84.026
BULK UNIT WEIGHT	$\gamma = \rho \times 9.81 \times 10^{-3}$	kN/m ³	19.52
DRY UNIT WEIGHT	$\gamma_d = \rho_d \times 9.81 \times 10^{-3}$	kN/m ³	16.60

TESTED BY: Seif Vanga
22/08/2023
LABORATORY TECHNICIAN

CHECKED BY: [Signature]
22/08/2023
LABORATORY INCHARGE

APPROVED BY: [Signature]
P.O. Box 1410 - MWANZA
Construction Material Testing Laboratory No. 014
SIGN: [Signature] DATE: 21/8/23
MATERIAL ENGINEER



THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORT
TANZANIA NATIONAL ROADS AGENCY

Regional Manager's Office
P.O. Box 1410, MWANZA. Tel (028) 2500340, Fax (028) 2500956, MWANZA.
MATERIALS TESTING LABORATORY
MOISTURE CONTENT, BULK DENSITY AND
UNIT WEIGHT OF UNDISTURBED SAMPLE



PROJECT:	PROPOSED CONSTRUCTION OF BUILDINGS FOR MWANZA GIRLS SECONDARY SCHOOL		
CLIENT			
SOURCE/SAMPLE NO.	KISESA TOWNSHIP, PIT 1, DEPTH 2.0M		
GPS COORDINATES	Elevation asl(m): S: 2° 29' 21.74712" LAT, E: 33° 4' 1.48656" LONG		
MATERIAL FOR	SOIL INVESTIGATION		
DATE OF SAMPLING	04.08.2023	TESTING DATE	09.08.2023

TEST METHOD	REF. BS 1377 Part 2:1990
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Specimen reference			
Container no.		g	C23
Mass of wet soil + container		g	204.40
Mass of dry soil + container		g	180.00
Mass of container		g	49.00
Mass of moisture		g	24.40
Mass of dry soil		g	131
Moisture content	W	%	18.63
Particle Density	ρ_s	kg/m ³	2640
Length of cylinder	l_1	cm	12.60
Sample to edge	l_2	cm	0.00
Sample to edge	l_3	cm	0.00
Length of sample	$L=l_1+l_2+l_3$	cm	12.60
Internal diameter	D	cm	10.3
Area of sample	$A=\frac{\pi}{4} \times D^2$	cm ²	83.3564
Volume of sample	$V=L \times A$	cm ³	1050.29
Mass of cylinder + sample	m_1	g	4001
Mass of cylinder	m_c	g	1855
Mass of sample	$M=m_1-m_c$	g	2146.0
BULK DENSITY	$\rho = \frac{M}{V} \times 1000$	kg/m ³	2043.24
DRY DENSITY	$\rho_d = \frac{100\rho}{100+W}$	kg/m ³	1722.43
VOID RATIO	$e = \frac{\rho_s}{\rho_d} - 1$		0.5327
DEGREE OF SATURATION	$S = \frac{W\rho_s}{e} \times 10^{-3}$	%	92.304
BULK UNIT WEIGHT	$\gamma = \rho \times 9.81 \times 10^{-3}$	kN/m ³	20.04
DRY UNIT WEIGHT	$\gamma_d = \rho_d \times 9.81 \times 10^{-3}$	kN/m ³	16.90

TESTED BY: Seif Tanga 22/08/2023 LABORATORY TECHNICIAN	CHECKED BY: [Signature] 22/08/2023 LABORATORY INCHARGE	APPROVED BY: [Signature] TANROADS MWANZA P.O. Box 1410 - MWANZA Construction Material Testing Laboratory No. 014 L MATERIAL ENGINEER DATE: 22/08/23
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THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORTATION
TANZANIA NATIONAL ROADS AGENCY
Regional Manager's Office
P.O. Box 1410, MWANZA. Tel (028) 2500340, Fax (028) 2500956, MWANZA.
MATERIALS TESTING LABORATORY
SIEVE ANALYSIS

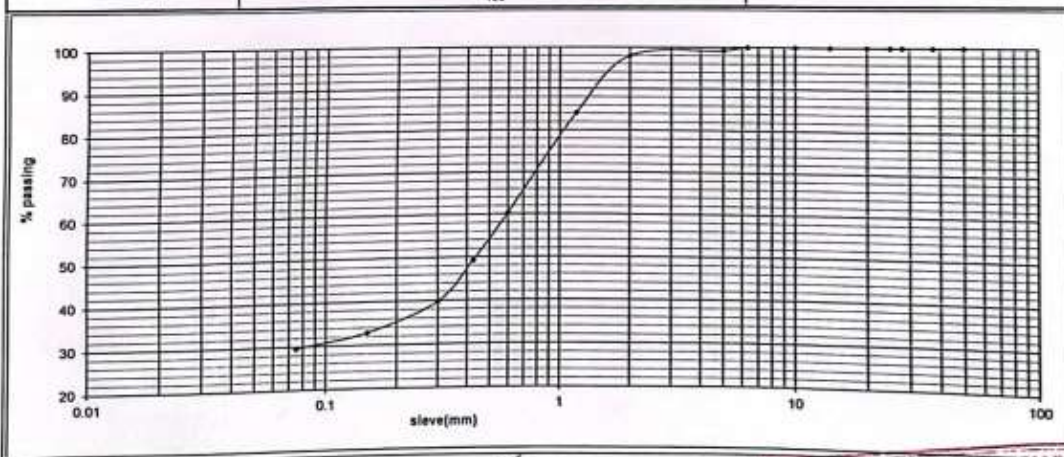


PROJECT:	PROPOSED CONSTRUCTION OF BUILDINGS FOR MWANZA GIRLS SECONDARY SCHOOL		
CLIENT			
SOURCE/SAMPLE NO./DEPTH	IHUSHA VILLAGE, PIT 02, DEPTH 1.0M		
GPS COORDINATES	Elevation asl(m): S: 2° 29' 22.31304" LAT, E: 33° 4' 1.60104" LONG		
MATERIAL FOR	SOIL INVESTIGATION		
DATE OF SAMPLING	04.08.2023	DATE OF TESTING	10.08.2023

REF. BS 1377 Part 2 AASHTO T88:1990 & ASTM D422-63

EQUIVALENT DRY MASS (g)=		1026.14		REMARKS:
Sieve (mm)	Wt retained	% retained	% passing	
			100.0	EXISTING WATER CONTENT (ASTM D2216-65)
50.0	0.00	0.0	100.0	Tin + Wet soil (g) 289.40
37.5	0.00	0.0	100.0	Tin + Oven dry soil (g) 277.90
28.0	0.00	0.0	100.0	Weight of empty tin (g) 82.40
25.0	0.00	0.0	100.0	Moisture Content (%) 5.88
20.0	0.00	0.0	100.0	
14.0	0.00	0.0	100.0	
10.0	0.00	0.0	100.0	Equivalent dry mass
6.3	0.00	0.0	100.0	Mass before washing (g) 1086.50
5.00	8.40	0.8	99.2	Mass after washing (g) 581.30
2.00	12.70	1.2	97.9	Equivalent dry mass (g) 1026.14
1.18	141.60	13.8	84.1	Passing sieve 0.075 (%) 33.61
0.600	244.80	23.9	60.3	mass of washed fine (g) 344.84
0.425	113.70	11.1	49.2	Mass in Pan 2.8
0.300	97.20	9.5	39.7	
0.150	70.50	6.9	32.9	
0.075	33.60	3.3	29.6	
Pan	303.64	29.6	0.0	

GRADING MODULUS (GM):	300 - %pass 2mm - %pass 0.425mm - %pass 0.075mm = 100	1.2
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TESTED BY: Seif Tanga Tanga 22/08/2023 LABORATORY TECHNICIAN	CHECKED BY: [Signature] 22/08/2023 LABORATORY INCHARGE	APPROVED BY: [Signature] TANZANIA TANROADS MWANZA P.O. Box 1410 - MWANZA Construction Material Testing Laboratory No. 014 L DATE: 22/8/23 SIGN: [Signature] MATERIAL ENGINEER
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THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORTATION
TANZANIA NATIONAL ROADS AGENCY
Regional Manager's Office
P.O. Box 1410, MWANZA. Tel (028) 2500340, Fax (028) 2500956, MWANZA.
MATERIALS TESTING LABORATORY
SIEVE ANALYSIS

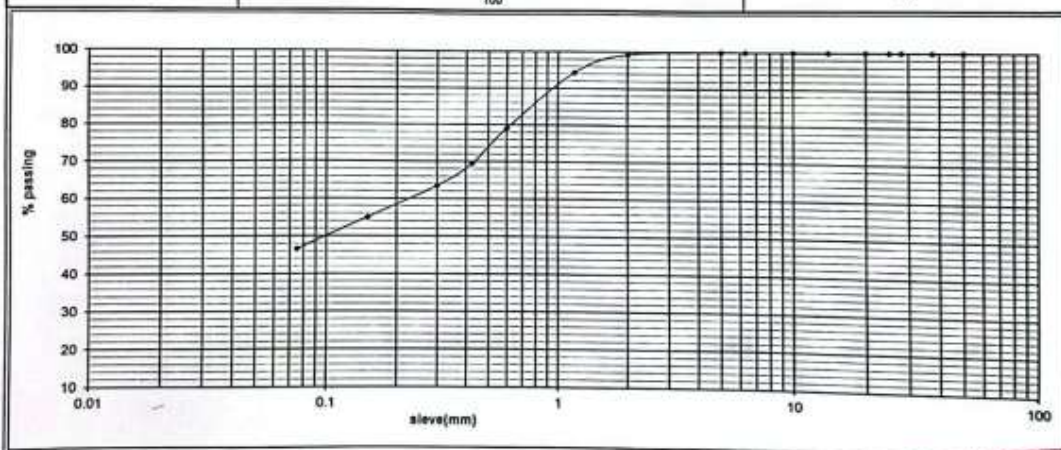


PROJECT:	PROPOSED CONSTRUCTION OF BUILDINGS FOR MWANZA GIRLS SEC SCHOOL	
CLIENT		
SOURCE/SAMPLE NO./DEPTH	KISESA TOWNSHIP, PIT 01, DEPTH 2.0M	
GPS COORDINATES	Elevation asl(m): S: 2° 29' 21.74712" LAT, E: 33° 4' 1.48656" LONG	
MATERIAL FOR	SOIL INVESTIGATION	
DATE OF SAMPLING	04.08.2023	DATE OF TESTING 10.08.2023

REF. BS 1377 Part 2 AASHTO T88:1990 & ASTM D422-63

EQUIVALENT DRY MASS (g)*		968.93		REMARKS:
Sieve (mm)	Wt retained	% retained	% passing	
			100.0	EXISTING WATER CONTENT (ASTM D2216-05)
50.0	0.00	0.0	100.0	Tin + Wet soil (g) 278.90
37.5	0.00	0.0	100.0	Tin + Oven dry soil (g) 268.20
28.0	0.00	0.0	100.0	Weight of empty tin (g) 85.90
25.0	0.00	0.0	100.0	Moisture Content (%) 5.87
20.0	0.00	0.0	100.0	
14.0	0.00	0.0	100.0	
10.0	0.00	0.0	100.0	Equivalent dry mass
6.3	0.00	0.0	100.0	Mass before washing (g) 1025.80
5.00	0.00	0.0	100.0	Mass after washing (g) 527.50
2.00	7.50	0.8	99.2	Equivalent dry mass (g) 968.93
1.18	48.00	5.0	94.3	Passing sieve 0.075 (%) 45.56
0.600	148.50	15.3	78.9	Mass of washed fine (g) 441.43
0.425	92.00	9.5	69.5	Mass in Pan 2.2
0.300	58.00	6.0	63.5	
0.150	82.00	8.5	55.0	
0.075	61.50	8.4	46.6	
Pan	451.43	46.6	0.0	

GRADING MODULUS (GM):	$300 - \% \text{pass } 2\text{mm} - \% \text{pass } 0.425\text{mm} - \% \text{pass } 0.075\text{mm} =$	0.8
	100	



TESTED BY: Seif Tanga
Tanga
22/08/2023
LABORATORY TECHNICIAN

CHECKED BY: [Signature]
22/08/2023
LABORATORY INCHARGE

APPROVED BY: REGISTRAR
TANZANIA
TANROADS MWANZA
P.O. Box 1410 - MWANZA
Construction Material Testing Laboratory No. 014
[Signature] DATE 22/08/23
SIG MATERIAL ENGINEER



THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORTATION
TANZANIA NATIONAL ROADS AGENCY
Regional Manager's Office
P.O. Box 1410, MWANZA. Tel (028) 2500340, Fax (028) 2500956, MWANZA.
MATERIALS TESTING LABORATORY
SIEVE ANALYSIS

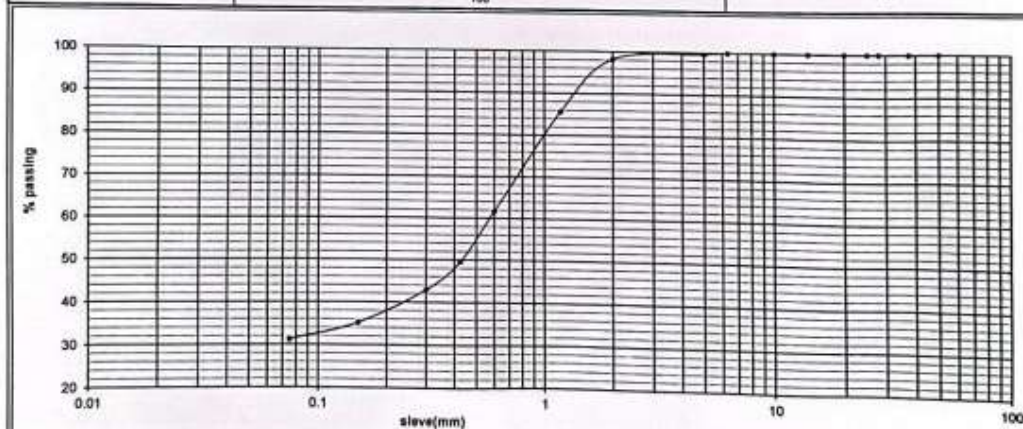


PROJECT:	PROPOSED CONSTRUCTION OF BUILDINGS FOR MWANZA GIRLS SECONDARY SCHOOL	
CLIENT		
SOURCE/SAMPLE NO./DEPTH	KISESA TOWNSHIP, PIT 01, DEPTH 1.0M	
GPS COORDINATES	Elevation asl(m): S: 2° 29' 21.74712" LAT, E: 33° 4' 1.48656" LONG	
MATERIAL FOR	SOIL INVESTIGATION	
DATE OF SAMPLING	04.08.2023	DATE OF TESTING 10.08.2023

REF. BS 1377 Part 2, AASHTO T88-1990 & ASTM D422-63

EQUIVALENT DRY MASS (g)*		1056.43		REMARKS:
Sieve (mm)	Wt retained	% retained	% passing	
			100.0	EXISTING WATER CONTENT (ASTM D2216-05)
50.0	0.00	0.0	100.0	Tin + Wet soil (g) 380.10
37.5	0.00	0.0	100.0	Tin + Oven dry soil (g) 365.00
28.0	0.00	0.0	100.0	Weight of empty tin (g) 83.00
25.0	0.00	0.0	100.0	Moisture Content (%) 5.35
20.0	0.00	0.0	100.0	
14.0	0.00	0.0	100.0	
10.0	0.00	0.0	100.0	
6.3	0.00	0.0	100.0	Equivalent dry mass
5.00	4.00	0.4	99.6	Mass before washing (g) 1113.00
2.00	15.20	1.4	98.2	Mass after washing (g) 735.50
1.18	132.70	12.6	85.6	Equivalent dry mass (g) 1056.43
0.600	253.50	24.0	61.6	Passing sieve 0.075 (%) 30.38
0.425	127.50	12.1	49.6	mass of washed fine (g) 320.93
0.300	70.60	6.7	42.9	Mass in Pan 2.8
0.150	81.40	7.7	35.2	
0.075	41.70	3.9	31.2	
Pan	329.83	31.2	0.0	

GRADING MODULUS (GM):	$\frac{300 - \% \text{pass } 2\text{mm} - \% \text{pass } 0.425\text{mm} - \% \text{pass } 0.075\text{mm}}{100} = 1.2$
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TESTED BY: Seif Janga
22/08/2023
LABORATORY TECHNICIAN

CHECKED BY: [Signature]
22/08/2023
LABORATORY INCHARGE

APPROVED BY: [Signature]
TANZANIA
TANROADS MWANZA
P.O. Box 1410 - MWANZA
Construction Material Testing Laboratory No. 014 L
SIGNATURE: [Signature] DATE: 22/8/23



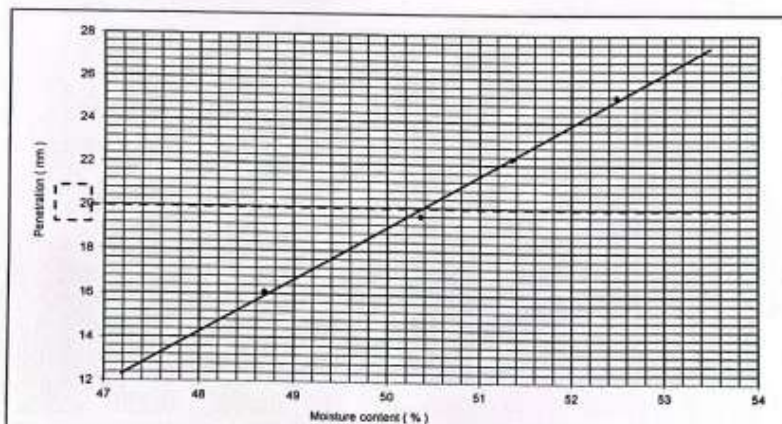
THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORTATION
TANZANIA NATIONAL ROADS AGENCY
Regional Manager's Office
P.O. Box 1410, Tel (028) 2500340, Fax (028) 2500056, MWANZA.
MATERIALS TESTING LABORATORY
LIQUID AND PLASTIC LIMIT
LINEAR SHRINKAGE AND SHRINKAGE PRODUCTS



PROJECT:	PROPOSED CONSTRUCTION OF GIRLS SEC SCHOOL STRUCTURES		
CLIENT	MWAWASA		
SOURCE/SAMPLE NO./DEPTH	IHUISHA VILLAGE, PIT 01, DEPTH 2.0M		
GPS COORDINATES	Elevation asl(m): S: 2° 29' 22.31304" LAT, E: 33° 4' 1.60104" LONG		
MATERIAL FOR	SOIL INVESTIGATION		
DATE OF SAMPLING:	04.08.2023	DATE OF TESTING	14.08.2023

TEST METHOD CML TESTS 1,2,1.3 and 1.4, ref. RD. 1277/Part 2, 1890
Test 2(A): Cone penetrometer

Property		Liquid Limit				Plastic Limit		Remarks
TEST NO		1	2	3	4	1	2	
Initial gauge reading	mm	0.0	0.0	0.0	0.0			
Final gauge reading	mm	16.1	19.6	22.3	25.2			
Cone penetration	mm	16.1	19.6	22.3	25.2			
Container no.		A30	A32	A35	A33	A37	A39	
wt. Cont+wet soil	g	39.10	37.50	38.80	37.90	29.20	29.40	
wt. Cont+dry soil	g	31.70	30.40	31.20	30.50	26.60	26.40	
wt. of moisture	g	7.40	7.10	7.60	7.40	2.60	3.00	
wt. of container	g	16.50	16.30	16.40	16.40	16.30	16.40	Average PL (whole number)
wt. of dry soil	g	15.20	14.10	14.80	14.10	10.30	10.00	
Moisture content	%	48.7	50.4	51.4	52.5	25.2	30.0	



Sample preparation:

- a) As received
- b) Air dried: °C
- c) washed on 425µm
- d) Oven dried °C
- e) Not known

Proportion retained on
425µm sieve %

Atterberg limits



LIQUID LIMIT	
LL(%)=	50
PLASTIC LIMIT	
PL(%)=	28
PLASTICITY INDEX	
PI(%)=	22

LINEAR SHRINKAGE AND SHRINKAGE PRODUCT		
Specimen reference		
Initial Length, L_0	mm	140
Ovendried Length, L_d	mm	126
Linear Shrinkage, $LS=100(1-L_d/L_0)$		
L_0	%	10
Shrinkage product, $SP=LS \times \% < 425\mu m$		0

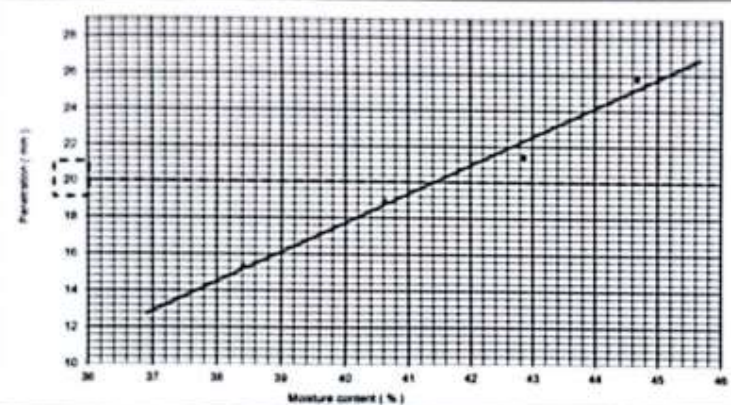
TESTED BY: Seif Janga
22/08/2023
LABORATORY TECHNICIAN

CHECKED BY: [Signature]
22/08/2023
LABORATORY INCHARGE

APPROVED BY: [Signature]
TANZANIA
TANROADS MWANZA
P.O. Box 1410 - MWANZA
Construction Material Testing Laboratory No. 014
MATERIAL ENGINEER

	THE TANGANYIKA NATIONAL BUILDING SURVEY MINISTRY OF WORKS AND INFRASTRUCTURE TANZANIA NATIONAL BUILDING SURVEY Regional Manager's Office P.O. Box 10101, Dar es Salaam, P.O. Box 10101, DAR ES SALAAM REGIONAL TESTING LABORATORY LIQUID AND PLASTIC LIMIT LINEAR SHRINKAGE AND SHRINKAGE PRODUCT	
PROJECT:	PROPOSED CONSTRUCTION OF BUILDINGS FOR NYAKINDA GIRLS SEC. SCHOOLS	
CLIENT:		
SOURCE (SAMPLE NO./DEPTH):	BAHUNA VILLAGE, RT 03, DEPTH 1.0M	
GPS COORDINATES:	Elevation: 621.29 23.5000° LAT, 6.50° E 1.0000° LONG	
SUBSTRATE FOR:	SOIL INVESTIGATION	
DATE OF SAMPLING:	04.08.2023	DATE OF TESTING: 14.08.2023
TEST METHOD:	OML TESTS 1.3.1.3 and 1.4. NORMS 1377 Part 2.1999	
Test (A): Time permeation		

Property	TEST NO.	Liquid Limit				Plastic Limit		Remarks
		1	2	3	4	1	2	
Initial gauge reading	mm	0.0	0.0	0.0	0.0			Average PL (whole number)
Final gauge reading	mm	15.0	18.5	21.4	25.9			
Cone penetration	mm	15.0	18.5	21.4	25.9			
Container no.		68	68	621	67	A15	A3	
wt. Container soil	g	27.30	29.10	28.40	28.20	30.10	30.80	
wt. Container soil	g	21.50	22.80	21.80	21.50	27.40	27.70	
wt. of moisture	g	5.80	6.30	6.60	6.70	2.70	2.90	
wt. of container	g	16.80	16.30	16.60	16.70	18.50	18.50	
wt. of dry soil	g	15.70	16.50	15.20	14.80	14.70	14.80	
Moisture content	%	36.4	40.8	42.9	44.7	24.8	25.9	



Moisture content (%)

Sample preparation:
 a) As received
 b) Air dried - C
 c) Washed on 425µm
 d) Oven dried - C
 e) Not known

Proportion retained on 425µm sieve %



Atterberg limits
 LIQUID LIMIT
 LL(N)= 41
 PLASTIC LIMIT
 PL(N)= 25
 PLASTICITY INDEX
 PI(N)= 16

LINEAR SHRINKAGE AND SHRINKAGE PRODUCT		
Specimen reference		
Initial Length, L_0	mm	140
Oven dried Length, L_d	mm	130
Linear Shrinkage, $LS = 100 \frac{(L_0 - L_d)}{L_0}$	%	7
Shrinkage product $SP = LS \times PI = 425 \mu m$		0

TESTED BY: *Seif Uanga*
Seif Uanga
 22/08/2023
 LABORATORY TECHNICIAN

CHECKED BY: *[Signature]*
 22/08/2023
 LABORATORY INCHARGE

APPROVED BY: *[Signature]*
 P.O. Box 1010 - DAR ES SALAAM
 Construction Material Testing Laboratory No 014 L
 SIGN: *[Signature]* DATE: 22/8/23
 MATERIAL ENGINEER

	THE UNITED REPUBLIC OF TANZANIA MINISTRY OF WORKS AND TRANSPORTATION TANZANIA NATIONAL ROADS AGENCY Regional Manager's Office P.O. Box 1410, Tel (028) 2500545, Fax (028) 2500056, MWANZA MATERIALS TESTING LABORATORY LIQUID AND PLASTIC LIMIT LINEAR SHRINKAGE AND SHRINKAGE PRODUCTS						
PROJECT: PROPOSED CONSTRUCTION OF BUILDINGS FOR MWANZA GIRLS SEC SCHOOL							
CLIENT: MWANZA							
SOURCE/SAMPLE NO./DEPTH: KISEKA TOWNSHIP, PIT 01, DEPTH 2.0M							
GPS COORDINATES: Elevation as(m) : 5 2° 29' 21.74712" LAT, E 33° 4' 1.48656" LONG							
MATERIAL FOR: SOIL INVESTIGATION							
DATE OF SAMPLING: 04.08.2023		DATE OF TESTING: 14.08.2023					
TEST METHOD: CML TESTS 1.2.1.3 and 1.4, ref BS 1377 Part 2:1990							
Test 2(A). Cone penetrometer							
Property	Liquid Limit				Plastic Limit		Remarks
	1	2	3	4	1	2	
TEST NO							
Initial gauge reading mm	1.2	0.7	1.3	1.8			
Final gauge reading mm	13.4	17.3	21.8	26.2			
Cone penetration mm	12.2	16.6	20.5	24.4			
Container no	A47	A55	A61	A62	A67	A65	
wt. Container soil g	36.90	38.90	44.40	44.60	24.40	24.60	
wt. Cont+dry soil g	30.00	31.00	34.60	34.40	22.40	22.50	
wt. of moisture g	6.90	7.90	9.80	10.20	2.00	2.10	
wt. of container g	16.30	16.10	16.60	16.40	16.40	16.00	Average PL (whole number)
wt. of dry soil g	13.70	14.90	18.00	18.00	6.00	6.50	
Moisture content %	50.4	53.0	54.4	56.7	33.3	32.3	33
Sample preparation:							
a) As received							
b) Air dried: °C							
c) washed on 425µm							
d) Oven dried °C							
e) Not known							
Proportion retained on 425µm sieve %							
Atterberg limits							
LIQUID LIMIT							
LL(%)=	54						
PLASTIC LIMIT							
PL(%)=	33						
PLASTICITY INDEX							
PI(%)=	21						
LINEAR SHRINKAGE AND SHRINKAGE PRODUCT							
Specimen reference							
Initial Length, L_0	mm	140					
Ovendried Length, L_d	mm	124					
Linear Shrinkage, $LS=100(1-L_d/L_0)$							
L_0	%	11					
Shrinkage product, $SP=LS \times \% < 425\mu m$		0					



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MINISTRY OF WORKS AND TRANSPORTATION
TANZANIA NATIONAL ROADS AGENCY
Regional Manager's Office
P.O.Box 1410, Tel (028) 2500340, Fax (028) 2500956, MWAHAZA
MATERIALS TESTING LABORATORY
LIQUID AND PLASTIC LIMIT
LINEAR SHRINKAGE AND SHRINKAGE PRODUCTS

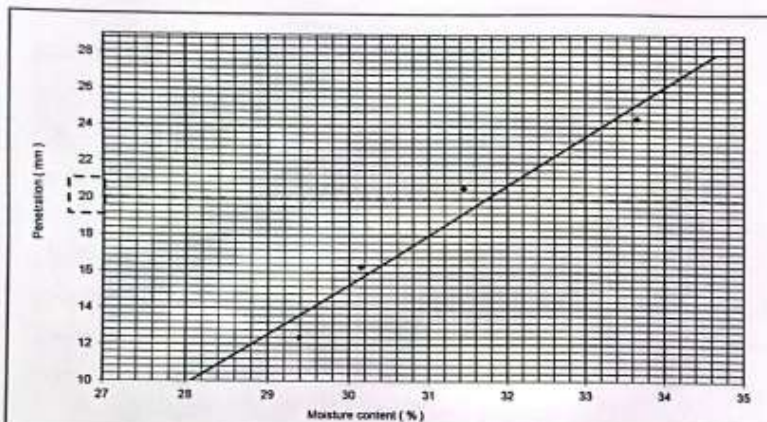


PROJECT:	PROPOSED CONSTRUCTION OF BUILDINGS FOR MWANZA GIRLS SEC SCHOOL		
CLIENT:			
SOURCE/SAMPLE NO./DEPTH	KISESA TOWNSHIP, PIT 01, DEPTH 1.0M		
GPS COORDINATES	Elevation asl(m): S: 2° 29' 21.74712" LAT, E: 33° 4' 1.48656" LONG		
MATERIAL FOR	SOIL INVESTIGATION		
DATE OF SAMPLING:	04.08.2023	DATE OF TESTING	14.08.2023

TEST METHOD CML TESTS 1.2,1.3 and 1.4, ref:BS 1377:Part 2:1990

Test 2(A): Cone penetrometer

Property		Liquid Limit				Plastic Limit		Remarks
TEST NO.		1	2	3	4	1	2	
Initial gauge reading	mm	1.2	1.3	1.5	1.6			
Final gauge reading	mm	13.6	17.6	22.1	26.1			
Cone penetration	mm	12.4	16.3	20.6	24.5			
Container no.		A11	A16	A17	A19	A23	A24	
wt. Cont+wet soil	g	43.90	43.70	41.70	44.50	27.70	27.80	
wt. Cont+dry soil	g	37.70	37.40	35.60	37.40	26.10	26.20	
wt. of moisture	g	6.20	6.30	6.10	7.10	1.60	1.60	
wt. of container	g	16.60	16.50	16.20	16.30	16.50	16.50	Average PL (whole number)
wt. of dry soil	g	21.10	20.90	19.40	21.10	9.60	9.70	
Moisture content	%	29.4	30.1	31.4	33.6	16.7	16.5	



Sample preparation:

- a) As received
- b) Air dried: °C
- c) washed on 425µm
- d) Oven dried °C
- e) Not known

Proportion retained on
425µm sieve %

Atterberg limits

LIQUID LIMIT	
LL(%)=	32
PLASTIC LIMIT	
PL(%)=	17
PLASTICITY INDEX	
PI(%)=	15

LINEAR SHRINKAGE AND SHRINKAGE PRODUCT

Specimen reference		
Initial Length, L_0	mm	140
Ovendried Length, L_d	mm	132
Linear Shrinkage, $LS=100(L-L_0)/L_0$	%	6
Shrinkage product, $SP=LS \times \% < 425\mu m$		0

TESTED BY: Seif Tanga
22/08/2023
LABORATORY TECHNICIAN

CHECKED BY: [Signature]
22/08/2023
LABORATORY INCHARGE

APPROVED BY: TANROADS MWAHAZA
P.O. Box 1410 - MWANZA
Construction Material Testing Laboratory No. 014 L
[Signature]
DATE: 22/08/2023
MATERIAL ENGINEER





THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORTATION
TANZANIA NATIONAL ROADS AGENCY
Regional Manager's Office
P.o.Box 1410,MWANZA. Tel (028) 2500340, Fax (028) 2500956.
MATERIALS TESTING LABORATORY
PARTICLE DENSITY
SMALL PYKNOMETER



PROJECT:	PROPOSED CONSTRUCTION OF GIRLS SCHOOL STRUCTURES
CLIENT	
SOURCE/SAMPLE NO./DEPTH	IHUSHA, PIT 02, DEPTH 2.0M
GPS COORDINATES	Elevation asl(m): , S: 2° 29' 22.31304" LAT, E: 33° 4' 1.60104" LONG
MATERIAL FOR	SOIL INVESTIGATION
DATE OF TESTING	11.08.2023

REF. BS 1377 :Part 2:1990

Specimen reference			
Depth:	2.0m		
Pyknometer number		B	CA
Mass of Pyknometer alone	m ₁	gm	70.00
Mass of Pyknometer +soil	m ₂	gm	93.10
Mass of Pyknometer+soil +water	m ₃	gm	249.90
Mass of Pyknometwter full of water	m ₄	gm	235.50
Mass of soil	m ₂ - m ₁	gm	23.10
Mass of water in full pyknometer	m ₄ - m ₁	gm	165.50
Mass of water used	m ₃ - m ₂	gm	156.80
Volume of soil particle	(m ₄ -m ₁)-(m ₃ -m ₂)	ml	8.70
Particle density	ρ_s	Kg/m ³	2655
Average value		Kg/m ³	2635

TESTED BY: <i>Seif Uanga</i> 22/08/2023 LABORATORY TECHNICIAN	CHECKED BY: <i>[Signature]</i> 22/08/2023 LABORATORY INCHARGE	APPROVED BY: TANZANIA TANROADS MWANZA P.O. Box 1410 - MWANZA Construction Material Testing Laboratory No. 014 SIGN. <i>[Signature]</i> DATE 22/8/23 MATERIAL ENGINEER
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Regional Manager's Office
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MATERIALS TESTING LABORATORY
PARTICLE DENSITY
SMALL PYKNOMETER



PROJECT:	PROPOSED CONSTRUCTION OF GIRLS SCHOOL STRUCTURES
CLIENT	
SOURCE/SAMPLE NO./DEPTH	IHUSHI VILLAGE, PIT 02, DEPTH 1.0M
GPS COORDINATES	Elevation asl(m): S: 2° 29' 22.31304" LAT, E: 33° 4' 1.60104" LONG
MATERIAL FOR	SOIL INVESTIGATION
DATE OF TESTING	11.08.2023

REF. BS 1377 :Part 2:1990



Specimen reference				
Depth:	2.0m			
Pyknometer number			A	D
Mass of Pyknometer alone	m ₁	gm	72.20	72.70
Mass of Pyknometer +soil	m ₂	gm	96.30	94.80
Mass of Pyknometer+soil +water	m ₃	gm	248.50	246.80
Mass of Pyknometwter full of water	m ₄	gm	233.60	233.10
Mass of soil	m ₂ - m ₁	gm	24.10	22.10
Mass of water in full pyknometer	m ₄ - m ₁	gm	161.40	160.40
Mass of water used	m ₃ - m ₂	gm	152.20	152.00
Volume of soil particle	(m ₄ -m ₂)-(m ₃ -m ₂)	ml	9.20	8.40
Particle density	P _s	Kg/m ³	2620	2631
Average value		Kg/m ³	2625	

TESTED BY:
Seif Tanga
Tanga
22/08/2023
LABORATORY TECHNICIAN

CHECKED BY:

22/08/2023
LABORATORY INCHARGE

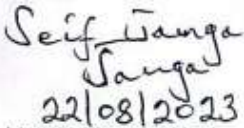
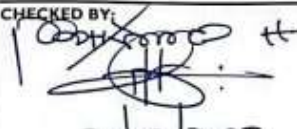

APPROVED BY: ENGINEERS REGISTRATION BOARD
TANZANIA
TANROADS MWANZA
P.O. Box 1410 - MWANZA
Construction Material Testing Laboratory No. 014 L
SIGN: DATE: 22/8/23
MATERIAL ENGINEER

	<p>THE UNITED REPUBLIC OF TANZANIA MINISTRY OF WORKS AND TRANSPORTATION TANZANIA NATIONAL ROADS AGENCY Regional Manager's Office P.O.Box 1410, MWANZA. Tel (028) 2500340, Fax (028) 2500956. MATERIALS TESTING LABORATORY PARTICLE DENSITY SMALL PYKNOMETER</p>	
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PROJECT:	PROPOSED CONSTRUCTION OF GIRLS SCHOOL STRUCTURES
CLIENT	
SOURCE/SAMPLE NO./DEPTH	KISESA TOWNSHIP, PIT 01, DEPTH 2.0M
GPS COORDINATES	Elevation asl(m): , S: 2° 29' 21.74712" LAT, E: 33° 4' 1.48656" LONG
MATERIAL FOR	SOIL INVESTIGATION
DATE OF TESTING	11.08.2023

REF. BS 1377 :Part 2:1990

Specimen reference			
Depth:	2.0m		
Pyknometer number		D	A
Mass of Pyknometer alone	m ₁	gm	72.70
Mass of Pyknometer + soil	m ₂	gm	92.90
Mass of Pyknometer + soil + water	m ₃	gm	244.50
Mass of Pyknometer full of water	m ₄	gm	231.90
Mass of soil	m ₂ - m ₁	gm	20.20
Mass of water in full pyknometer	m ₄ - m ₁	gm	159.20
Mass of water used	m ₃ - m ₂	gm	151.60
Volume of soil particle	(m ₄ -m ₁)-(m ₃ -m ₂)	ml	7.60
Particle density	p _s	Kg/m ³	2658
Average value		Kg/m ³	2640

TESTED BY:  22/08/2023 LABORATORY TECHNICIAN	CHECKED BY:  22/08/2023 LABORATORY INCHARGE	APPROVED BY:  MATERIAL ENGINEER
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MINISTRY OF WORKS AND TRANSPORTATION
TANZANIA NATIONAL ROADS AGENCY
Regional Manager's Office
P.O.Box 1410,MWANZA. Tel (028) 2500340, Fax (028) 2500956.
MATERIALS TESTING LABORATORY
PARTICLE DENSITY
SMALL PYKNOMETER



PROJECT:	PROPOSED CONSTRUCTION OF GIRLS SCHOOL STRUCTURES
CLIENT	
SOURCE/SAMPLE NO./DEPTH	KISESA TOWNSHIP, PIT 01, DEPTH 1.0M
GPS COORDINATES	Elevation asl(m): S: 2° 29' 21.74712" LAT, E: 33° 4' 1.48656" LONG
MATERIAL FOR	SOIL INVESTIGATION
DATE OF TESTING	11.08.2023

REF. BS 1377 :Part 2:1990

Specimen reference			
Depth:	2.0m		
Pyknometer number		CA	B
Mass of Pyknometer alone	m ₁	gm	70.80
Mass of Pyknometer +soil	m ₂	gm	94.20
Mass of Pyknometer+soil +water	m ₃	gm	249.40
Mass of Pyknometwter full of water	m ₄	gm	235.00
Mass of soil	m ₂ - m ₁	gm	23.40
Mass of water in full pyknometer	m ₄ - m ₁	gm	164.20
Mass of water used	m ₃ - m ₂	gm	155.20
Volume of soil particle	(m ₄ -m ₁)-(m ₃ -m ₂)	ml	9.00
Particle density	ρ_s	Kg/m ³	2600
Average value		Kg/m ³	2623

TESTED BY:
Seif Tanga
Tanga
22/08/2023
LABORATORY TECHNICIAN

CHECKED BY:

22/08/2023
LABORATORY INCHARGE

APPROVED BY:
TANZANIA
TANROADS MWANZA
P.O. Box 1410 - MWANZA
Construction Material Testing Laboratory No. 014 L
SIGN: DATE: 22/8/23
MATERIAL ENGINEER



THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORTATION
TANZANIA NATIONAL ROADS AGENCY
Regional Manager's Office
P.O.Box 1410, MWANZA.
Tel (028) 2500340, Fax (028) 2500956, MWANZA.
MATERIALS TESTING LABORATORY
Light Dynamic Cone Penetration Test



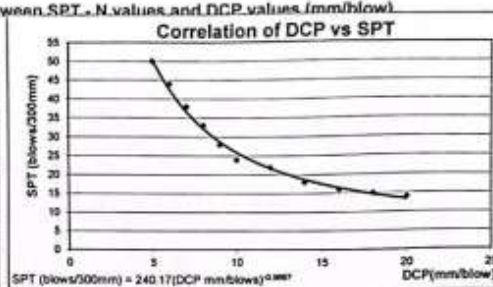
PROJECT: PROPOSED CONSTRUCTION OF GIRLS SEC SCHOOL
CLIENT:

Site Location (St) IHUSHA VILLAGE
GPS Elevation m S: 2° 29' 21.747" E: 33° 4' 1.487"
Offset from g (m) -
Surface Condition Wet Foam soil
Zero Reading (mm) = 50
Test Method TRL
Test Number I
Date Tested 17.07.2023
Tested By KATUMA HLELE
Start Elevation (cm)

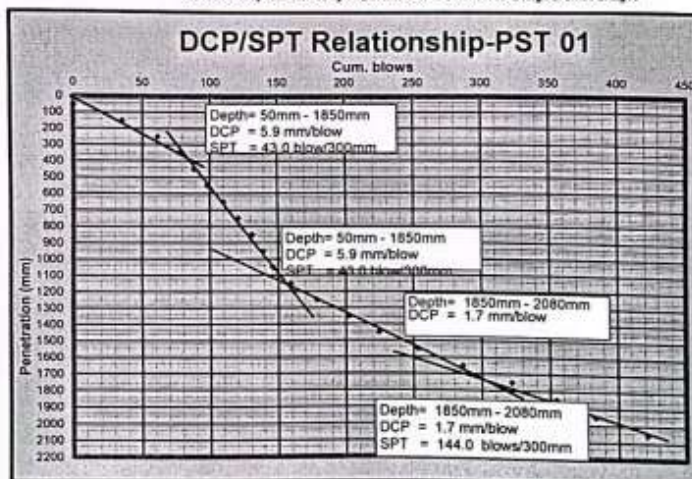
No. of blows	cum. blows	reading	cum. penet.
0	0	50	50
35	35	100	150
26	61	200	250
18	77	300	350
11	88	400	450
10	98	500	550
12	110	600	650
11	121	700	750
10	131	800	850
8	139	900	950
7	146	1000	1050
13	159	1100	1150
19	178	1200	1250
24	202	1300	1350
22	224	1400	1450
29	253	1500	1550
33	286	1600	1650
36	322	1700	1750
32	354	1800	1850
29	383	1900	1950
38	421	2000	2050
40	461	2100	2150
55	516	2170	2220

Typical Correlation between SPT, N values and DCP values (mm/blow)

DCP value (mm/blow)	SPT value (blows/300mm)
5	50
6	44
7	38
8	33
9	28
10	24
12	22
14	18
16	16
18	15
20	14



Note: The relationship is an exponential function
The relationship was derived by TRL in Road Note 9: Manual for Design of Small Bridges




TESTED BY: Seif Tanga
22/08/2023


CHECKED BY: [Signature]
22/08/2023

APPROVED BY: P. O. [Signature]
Construction Material Testing Laboratory No. 014 L
SIGN: [Signature] DATE: 22/08/23





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TANZANIA NATIONAL ROADS AGENCY
Regional Manager's Office
P.O. Box 1410, Mwanza.
Tel (028) 2500340, Fax (028) 2500956, Mwanza.
MATERIALS TESTING LABORATORY
Light Dynamic Cone Penetration Test



PROJECT: PROPOSED CONSTRUCTION OF GIRLS SEC SCHOOL

CLIENT:

Site Location (St.) KISESA - MAGU

GPS Elevation: m S: 2° 29' 22.313" E: 33° 4' 1.601"

Offset from g. (m) -

Surface Condition Wet Foam soil

Zero Reading (mm) = 50

Test Method TPL

Test Number 11

Date Tested 04.08.2023

Tested By NATURA MUSEMI

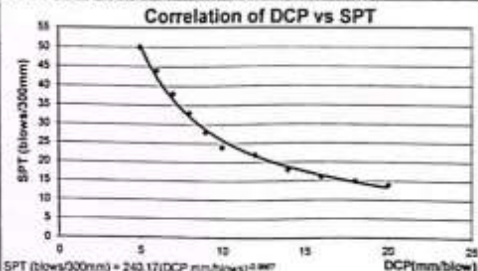
Start Elevation (cm)

No. of blows	cum. blows	reading	cum. penet.
0	0	50	50
38	38	100	150
23	61	200	250
14	75	300	300
12	87	400	450
12	99	500	550
11	110	600	650
10	120	700	750
10	130	800	850
12	142	900	950
9	151	1000	1050
12	163	1100	1150
22	185	1200	1250
27	212	1300	1350
25	237	1400	1450
40	277	1500	1550
40	317	1600	1650
35	352	1700	1750
31	383	1800	1850
37	420	1900	1950
38	458	2000	2050
44	502	2100	2150

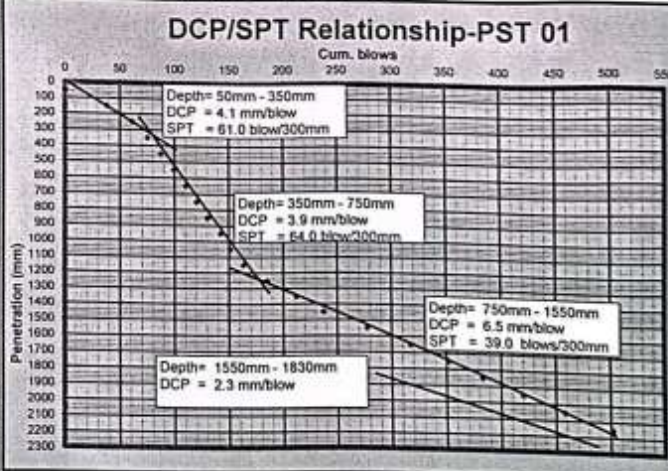
Typical Correlation between SPT - N values and DCP values (mm/blow)

DCP value (mm/blow)	SPT value (blows/300mm)
5	50
6	44
7	38
8	33
9	28
10	24
12	22
14	18
15	16
18	15
20	14

Correlation of DCP vs SPT



DCP/SPT Relationship-PST 01



TESTED BY: Seif Tanga Tanga
22/08/2023

CHECKED BY: [Signature]
22/08/2023

APPROVED BY: [Signature]
ENGINEERS REGISTRATION BOARD TANZANIA
TANROADS Mwanza
P.O. Box 1410 - Mwanza
Construction Materials Testing Laboratory No. 014 L
DATE: 22/08/2023



THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORTATION
TANZANIA NATIONAL ROADS AGENCY
Regional Manager's Office
P.O. Box 1410, MWANZA. Tel (028) 2500340, Fax (028) 2500956, MWANZA.
MATERIALS TESTING LABORATORY
SIEVE ANALYSIS

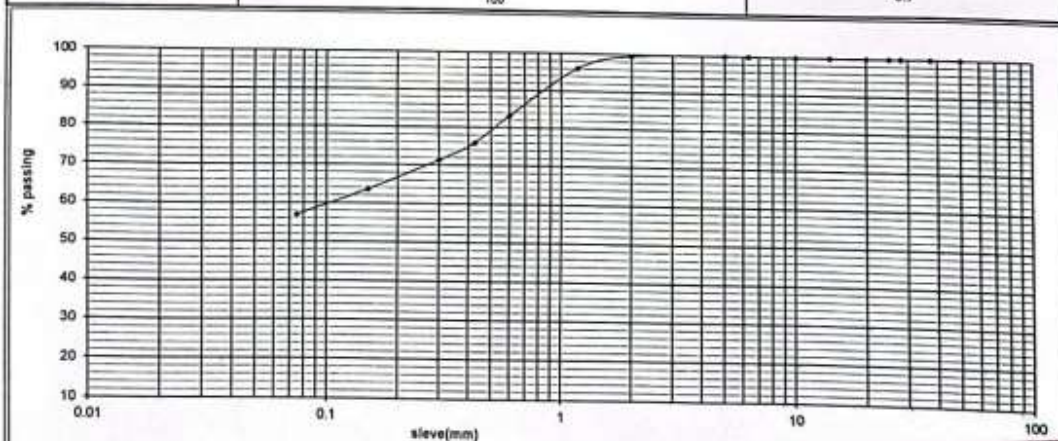


PROJECT:	PROPOSED CONSTRUCTION OF BUILDINGS FOR MWANZA GIRLS SEC SCHOOL	
CLIENT		
SOURCE/SAMPLE NO./DEPTH	IHUSHA VILLAGE, PIT 02, DEPTH 2.0M	
GPS COORDINATES	Elevation asl(m): 5: 2° 29' 22.31304" LAT, E: 33° 4' 1.60104" LONG	
MATERIAL FOR	SOIL INVESTIGATION	
DATE OF SAMPLING	04.08.2023	DATE OF TESTING 10.08.2023

REF. BS 1377 Part 2, AASHTO T88:1990 & ASTM D422-63

EQUIVALENT DRY MASS (g)*		1172.41		REMARKS:
Sieve (mm)	Wt retained	% retained	% passing	
			100.0	EXISTING WATER CONTENT (ASTM D2216-05)
50.0	0.00	0.0	100.0	Tin + Wet soil (g) 301.80
37.5	0.00	0.0	100.0	Tin + Oven dry soil (g) 299.90
28.0	0.00	0.0	100.0	Weight of empty tin (g) 85.30
25.0	0.00	0.0	100.0	Moisture Content (%) 5.82
20.0	0.00	0.0	100.0	
14.0	0.00	0.0	100.0	
10.0	0.00	0.0	100.0	
6.3	0.00	0.0	100.0	Equivalent dry mass
5.00	0.00	0.0	100.0	Mass before washing (g) 1240.60
2.00	5.80	0.5	100.0	Mass after washing (g) 517.10
1.18	40.10	3.4	99.5	Equivalent dry mass (g) 1172.41
0.600	151.60	12.9	86.1	Passing sieve 0.075 (%) 83.20
0.425	85.70	7.3	75.8	Mass of washed fine (g) 655.31
0.300	53.20	4.5	71.3	Mass in Pan 2.2
0.150	90.10	7.7	63.6	
0.075	78.40	6.7	56.9	
Pan	667.51	56.9	0.0	

GRADING MODULUS (GM):	$300 - \% \text{pass } 2\text{mm} - \% \text{pass } 0.425\text{mm} - \% \text{pass } 0.075\text{mm} =$	0.7
	100	



TESTED BY: Seif Tanga
Tanga
22/08/2023
LABORATORY TECHNICIAN

CHECKED BY: [Signature]
22/08/2023
LABORATORY INCHARGE

APPROVED BY: [Signature]
TANROADS MWANZA
P.O. Box 1410 - MWANZA
Construction Material Testing Laboratory No. 014
SIGN: [Signature] DATE: 22/08/2023
MATERIAL ENGINEER

CHAPTER THREE

ANALYSIS AND RECOMMENDATION

3.1 Site ground profiling

Figures 5 to 11 shows the tests done at the project site. The field characterisations of the soil layers were taken to laboratory for further investigation as they were excavated. The field ground investigation was undertaken from 4th to 5th August, 2023.

The investigation trial pit was dug at the site where up to 2m below ground level as per the layout shown on Figure 2 and 12. Table 1 shows the details of the DCP geotechnical investigation points at the site.

The trial pits were excavated by hand through the soil. In this technique a 1500mm to 1500mm trial pits were dug to depth 1800mm and at every 1000mm undisturbed sample were collected for laboratory tests in connection to that field classified and arranged on the ground in a line sequence as in the order they were exhumed so as to define the ground profile. Water was added in the excavation to ease excavation as necessary.

Bulk disturbed samples were taken from every different stratum layer encountered along the excavation profile as well as using the 50-mm diameter split spoon sampler slightly disturbed samples were done. A U4 sampler 4 inches (100mm) diameter 130mm short steel tube with a 10mm hardened cutting edge and hammering mechanism was used to take 'undisturbed samples' of slightly cohesive to cohesive soils whenever encountered.

Figures 8 to 12 summarise images of the site's ground surface and the ground profiles from the three boreholes performed on site.

Investigation point	Coordinates	Elevation a.m.s.l (m)	Remarks
LDCP1	2°29'21.75"S	1170	IHUSHI VILLAGE
	33°4'1.49"E		
LDCP2	2°29'22.31"S	1170	IHUSHI VILLAGE
	33°4'1.60"E		
LDCP3	2°29'21.82"S	1170	IHUSHI VILLAGE
	33°4'0.88"E		

Table 1: Details of the investigation points undertaken for the proposed structures construction at Ihushi village, Magu District in Mwanza Region, Tanzania.

3.2 Laboratory Testing

All soil samples collected during the field ground investigation were carefully handled on site and submitted to the Tanroads Materials soil Laboratory for further characterisation. Laboratory results from all samples tested are summarised in Figures 5 through 10. Tests performed on the samples included soils classification, density, moisture state and strength tests all conducted on trial pits and LCPT/SPT tests.

3.3 Findings

- (i) The ground conditions assessed in this investigation the soil entail the substructures for the Storey building, the table below indicates the minimum foundation depth in respect to load carrying capacity of the soil.

Table 1 Summary for Calculated Allowable minimum depth of the foundation for vertical Concentric loading

Analysis Method	Minimum depth (m)	Depth (m) Provided	Remarks
Rankine's Method for foundation depth calculation	1.04	1.8	OK

From the above findings the depth of foundation provided is adequate.

- (ii) The safe bearing capacity of soil was computed using different methods and the results were summarized in table 2 that shows Calculated Allowable vertical Concentric loading Bearing Capacity (KN/m³) for the Foundation at allowable Settlement of 25mm

Depth (m)	Estimated Filed (SPT/LCP) Bearing Capacity (KN/m ²)	Estimated Laboratory Bearing Capacity(KN/m ²)			Proposed average Safe Bearing Capacity (KN/m ²)
		Terzaghi's (KN/m ²)	Meyerhof's (KN/m ²)	IS Code Method (6403- 1981) (KN/m ²)	
0.0 – 0.5	71.50	83.01	90.18	107.12	87.95
0.5 – 1.0	143.00	111.56	117.31	132.56	126.11
1.0 – 1.5	334.18	140.10	144.45	158.01	194.18
1.5 – 2.0	755.33	168.65	171.58	183.45	319.75
2.0 – 2.5	944.17	197.19	198.71	208.90	387.24
2.5 – 3.0	1133.00	225.73	225.85	234.34	454.73
3.0 – 3.5	1321.83	254.28	252.98	259.78	522.22

Table 2: Allowable safe bearing Capacity from the investigation points undertaken for the proposed construction of base foundation for structures at Ihushi village, magu District in Mwanza Region, Tanzania

Generally, the ground conditions assessed in this investigation and it was observed that the soil entail the substructures for the foundation construction on the earmarked location at Ihushi village, Magu District in Mwanza can be founded on shallow pad foundation. Since hard ground was encountered from about 1.5m b.g.l and the soil can be classified as brownish to grey Dense SAND Clay of thickly bedded medium to high plasticity *within the depths investigated*. The natural bulk unit weight of the ground profile was assessed as 19.52kN/m³, the dry unit weight was 16.60kN/m³, and the average specific gravity was 2.623. The natural water content of the soil was reported as 17.63. A liquid limit of 43.0, plastic limit of 25.0% and plasticity index of 18.0% is reported; the average soil void ratio was 0.5504. The strength of the ground was determined by correlation method between CPT/SPT N-values and Soil strength was compared to Laboratory bearing capacity whereby the lowest obtained value was considered as a safe bearing capacity of the layered soil. The designer can choose allowable safe bearing capacity on the hard stratum from Table 2 above in respect to average pressure exerted by the structure.

3.4 Recommendation

The results and analysis in this study indicates that the substructures for the Construction of the foundation on the earmarked Location at Ihushi Village in Magu District, Mwanza region can be founded pad/Raft foundation. Since hard ground is encountered from about 1.8m b.g.l it is recommended to apply pad/Raft foundation directly on the hard stratum that can be transferring the load from the super structure and substructures to the ground through the Pad/Raft foundation. The allowable bearing capacity of from table 2 above is recommended be adopted in the design.

From the analysis, the footing load settlement is expected to be less than 25mm at the design load and its behaviour is to be confirmed on site by static axial load test to be undertaken on a test foundation as per supervision consultant's instruction. Further, the allowable settlement of not more than 25mm is allowable in design refers Building research and Uro-code 19. The regional seismic risk map from the Tanzania Technical Guideline of Loads for Structural Design similarly categorises in Mwanza as Zone 1 which is weak and not frequent seismic events, 3 – 5 on the Richter scale with a ground acceleration factor, k_a of 0.025. Further, the ring beam shall be designed to the foundation that will reduce potential for differential foundation movements and hence structural distress cracking.

NON TECHNICAL EXECUTIVE SUMMARY FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED CONSTRUCTION OF REGIONAL GIRLS SECONDARY SCHOOL AT IHUSHI, BUJASHI WARD, MAGU DISTRICT IN MWANZA REGION



28 March 2024

Introduction

The Government of United Republic of Tanzania (URT) in collaboration with the World Bank has prepared the Secondary Education Quality Improvement Project (SEQUIP). The objectives of SEQUIP are to increase access to secondary education, provide responsive learning environments for girls and improve completion of quality secondary education for girls and boys. In summary, activities under SEQUIP will be structured into four main components:

Component 1: Empowering Girls through Secondary Education and Life Skills

1.1 Creating Safe Schools: Implementation of the Safe Schools Program including:

- vi. Trained school guidance and counselling teachers;
- vii. Students' life skills training through girls' and boys' clubs by the guidance and counselling teachers; In-service training of secondary school teachers on the teacher code of conduct and gender sensitive pedagogical approaches;
- viii. Training of school heads and School Boards on GBV, safe school issues etc.;
- ix. School and classroom monitoring system for early identification of and intervention on girls at risk of drop out; and
- x. Community-based mechanism for safe passage to school.

1.2 Promoting Girls' Completion of Secondary Education through Quality Alternative Education Pathways including:

- vi. Setting up an ICT-enabled system for tracking girls dropping out at national and district level to provide key information for AEP planning and implementation.
- vii. Alternative Education Centers and LGAs undertaking local outreach activities to out-of-school girls in the community which will include activities such as AEP center-organized community meetings, information via local radio, flyers and brochures.
- viii. Enhancing access to Alternative Education Pathways through (i) expansion of the network of AEP centers; and (ii) tuition fee subsidies for vulnerable girls.
- ix. A quality package for strengthening student learning in Alternative Education Pathways will also be implemented
- x. Environmental and Social Management Framework –Tanzania - Secondary Education Quality Improvement Project (SEQUIP)

Component 2: Digitally Enabled Effective Teaching and Learning

2.1 Effective Teaching and Learning

- v. Minimum package of critical teaching and learning resources for all schools: This package consists of an adequate number of textbooks and teacher guides in core subjects (English, Math and Sciences).
- vi. Equitable, gender-balanced teacher deployment to schools
- vii. In-service teacher training/continuous professional development (CPD) to improve classroom teaching practice for secondary English, Mathematics and Science teachers
- viii. Evaluate student learning in lower secondary to provide opportunities for remedial use: to allow for targeted early intervention to prevent girl dropout due to learning difficulties

2.2 Digitally-enabled Teaching of Math Sciences and English:

- iii. Development of an ICT in Education Strategy and plan for secondary education.
- iv. Digital content and connectivity package to facilitate the teaching of English, Mathematics and Science in phases.

Component 3: Reducing Barriers to Girls' Education through Facilitating Access to Secondary Schools

Expansion of the secondary school network to substantially reduce the distance to secondary schools through an expansion of the secondary school network, especially in rural areas. SEQUIP will disburse project funding on the basis of the number of schools in each LGA meeting minimum infrastructure standards

Support upgrading existing secondary schools with the minimum infrastructure package (number of classrooms/students, adequate WASH facilities; multi-purpose science labs, electricity, etc.) with the objective is that at least 50 percent of all existing schools in all LGAs will meet the minimum standards set.

Component 4: Technical Assistance, Impact Evaluation and Project Coordination Environmental and Social Management Framework –Tanzania - Secondary Education Quality Improvement Project (SEQUIP). SEQUIP will be jointly implemented by the Ministry of Education, Science and Technology (MoEST) and the President's Office, Regional Administration and Local Government (PO-RALG).

Tansheq Limited, a NEMC registered environmental consulting firm with offices at House No. 83 Wakulima/Ngano Rd, Hananasif Estate and P.O. Box 31517 Dar es Salaam, has been contracted by Po-RALG as Implementing Supporting Team (IST).

Project Description

The Project will apply the new Environmental and Social Standards (ESS's), as a requirement for the Bank financing. The Government has prepared this Environmental and Social Management Framework (ESMF) for the application of the following Environmental and Social Standards: Assessment and Management of Environmental and Social Risks and Impacts.

The proposed project site is administratively located at Ihushi village, Bujashi ward in Magu Municipal-Mwanza Region and is bordered by individual owned farm to the West, South there is seasonal river, east there is kayenze Road connecting from Sirali Mbeya Road and railway and Isalmic Chemichemi foundation institute to the North

Accessibility

The site is accessible through Mbeya Sirali (Musoma) near kisesa bus terminal through coordinate - 2.5538878, 33.0727465

Project Planning and Design

The school construction and design will consist of a required infrastructure package based on the school construction and maintenance strategy (e.g. number of classrooms/students, adequate WASH facilities, especially important for girls; multi-purpose science labs, electricity, etc.). The construction package will involve the following buildings;

Classrooms

The classrooms are designed following Education Bulletin number 1 of 2007 that directs capacity of each classroom level, 30 students for advance and 40 students for ordinary level. However, schedule of materials indicates each classroom will be having capacity of 40 students.

Construction will be undertaken in two phases. The first phase will involve construction of 12 classrooms within six blocks followed by the second phase that will involve the construction of 6 classrooms which will be of 3 different designs (2 classrooms with office, 2 classrooms with toilet and a 2 classrooms block).The proposed project development will adhere to the fire and rescue force directives for public premises.

The Education Global Practice Africa Region report prepared by World Bank provides the following directives; Student classroom ratios of 50:1 or less, student to functioning latrine ratio of 25:1 for girls and 30:1 for boys, at least one multipurpose science laboratory, student textbook ratios in mathematics and science subjects of 1:1, teacher: teacher guide availability of 2:1.

Laboratories

Education Bulletin number 1 of 2007 explain the capacity and set up of laboratory building for each level is 40 students, The scheduling of materials will adhere the bulletin as the following laboratory rooms will be constructed;

- Physics and geography lab
- Chemistry and biology lab,
- ICT room which is to be constructed in the second phase, and

- Domestic science

Administration block

The bulletin indicate for the school having capacity of 1000 student plus need to have not less than 40 teachers excluding other staffs such as school bursar, secretary etc. The administrative building will be constructed as an elevated building whereas only one (1) building will be constructed.

Toilets

The proposed toilet facility will comprise of one block with 16 holes to be constructed standalone as scheduling shows with estimates of one (1) hole for twenty (20) people, nevertheless, some of classrooms will be having sanitary rooms as designed, dormitory, and dining hall will also be having sanitary rooms.

The development of sanitary facilities is necessary to ensure the surrounding environment is well-managed and ensuring social well-being and practical operation of the school since human dignity is directly linked to access of safety and hygienic sanitation.

Dining hall

The Dining Hall is a pivotal gathering space on School's campus and is emblematic of The Family Boarding School ideal. The school will be having enough dinning space to all students since it is a boarding school thus meal will be served. According to the designs of the dining hall, it has the capacity of 2000 students.

Staff houses

The teachers' houses are designed to attract teachers out to the countryside, as well as to increase teachers morally to perform their duties unlike if they are coming far from the school. The design considers the staff house to have one (1) master bedroom, two (2) bedrooms/ one (1) master bedroom, three (3) bedrooms with Public toilet, Sitting room/dining, Kitchen and Store. Four (4) of the staff houses will be constructed.

Dormitories

Dormitories are places where students stay. The student housing must also aim to provide healthy and acoustically pleasant environments for the protection, comfort, and productivity of the students. The dormitories are designed as per provided to meet the SEQUIP objectives having a capacity to accommodate 120 students. For phase one five (5) buildings will be constructed while for phase two four (4) buildings.

Library

The library is important because it affects cultures, it affects innovation, and it affects individuals. Because of all this, library architecture has the responsibility to enhance these effects by providing a knowledge center that is inspirational and conducive to good communication and teaching interactions.

According to designs, the library to be constructed will accommodate 52 students for readings and the computer learning room will accommodate 8 students.

Sick bay

A sick bay provides a dedicated space for students who may feel unwell or require immediate medical attention. It will serve as a primary point of care within the school premises, allowing for timely assessment and treatment of minor illness or injuries.

Incinerator

This will provide a safe and efficient means of disposing waste specifically biomedical waste such as used sanitary pads, medical supplies and other potentially hazardous materials.

Other components that will be constructed within school compounds area are Playgrounds, Water tunnel, Water tank (hippo) and its pillars), Manhole and gully trap, Walkway & Paving.

Project activities

Main activities of the project include preconstruction, Construction, Operations, and decommissioning.

Mobilization phase/Pre-Construction Activities

The mobilization phase of the project, which is estimated to take average of maximum three months, will entail the following activities:

- Establishment of construction of camps, material and equipment storage areas, materials processing yards, including sanitation facilities. The following activities will be involved during establishment of the camp.
 - Bush clearing.
 - Construction of Material and equipment storage areas
 - Construction of sanitation facilities
 - Installation of electrical infrastructure
 - Installation of water and wastewater infrastructure
- Identification of naturally-occurring material borrow sites (sand, fill, gravel borrow and quarry sites),
- Identification of sources of water for domestic and construction works

Construction Phase

The construction phase of the project, which is estimates to take 12 month for each of the phase one and will encompass following major activities:

- Earth works to facilitate widening and re-alignment of the road. Earth works will entail the following activities:
 - e) Clearing and grubbing (clearing of vegetation, including trees).
- Extraction of naturally occurring construction materials. This will include:
 - f) Excavation and transport of natural sand, gravel, and sub-base materials to construction sites
 - g) Stone quarrying (including blasting), crushing and transport of crushed aggregates to construction sites
 - h) Transport and handling of fuel, lubricants etc. from their sources to the project site
- Transport of construction materials from source to site such as roof, steel, woods, nails, rope

Operation phase

The maintenance activities of the Overall, SEQUIP will contribute to increasing total enrolment in secondary school by 1.8 million students and increase the number of girls graduating from both secondary schools and alternative secondary education pathways.

Decommissioning Phase

After completion of construction, all the utilities which were used shall be reverted to the Municipal Director who will decide on their future use. The main activities during demobilization phase, will engross the following:

- Collection and disposal of storage facilities such as pallets, packing, boxes
- Collection and disposal of construction materials and waste such as waste oil, sewage, solid waste (plastics, wood, metal, papers, etc.) at the workshop, site office etc. to authorized dumpsite
- Restoration of material borrows areas to safer condition

Environmental and Social Management Framework

The ESF instruments that have been prepared for SEQUIP incorporate measures for project site Selection and to ensure designs and school construction align with the ESF requirements.

It has been agreed that civil works will follow building standards acceptable to the World Bank and required under the ESF; taking into account structural safety, universal access, changes in the standard drawings, water source availability and quality, efficient use of materials (wood) to reduce pressure on natural resources,

Water and Sanitation for Health (WASH) and solid waste management at the schools, among other risks identified as part of the due diligence process. Site selection for school construction is very important to avoid possible direct and indirect environmental and social impacts and lack of water sources for construction and during operation.

Vulnerable group

Means a group of people who, due to their characteristics and circumstances, are likely to suffer more adverse impacts of natural disasters than other groups in the community. **Vulnerable Person** means any person who by reason of age, infirmity, illness, disability or any other circumstance is in need of care or attention.

Vulnerable groups associated to SEQUIP:

- Age group (children & elders)
- Indigenous
- Physical challenged group
- Women/Sexuality (Gender issue)

Project Cost

Total Project Cost is four billion Tanzanian shillings

National Legislation

Tanzania has ample legislation for the protection of the environment, health, safety and social welfare which is relevant for the application of the World Bank Environmental and Social Standards included in the ESF.

The main environmental, biodiversity, water, health, cultural resources, social and labor, policies and regulations relevant to SEQUIP and its commitment to this legislation during implementation has been discussed in this report, relevant legislation that applies to the project has been discussed too.

Baseline information

In order to gauge the extent of impact, it is crucial to establish the status quo. The consulting team conducted the baseline study of the current level of impacts. This involved a study on flora and fauna, air, soil and water. It also covered socioeconomic issues, noise and vibration.

The aim of ascertaining the baseline it to appreciate to what extent the proposed project can alleviate or exacerbate the current situation and Issues from Key Stakeholders.

Stakeholders Opinions and Concerns

The stakeholder consultations identified both positive opinions and negative concerns. Stakeholders had positive opinions of the project in terms of:

- Education opportunities to the specific project area and surrounding communities
- Rising of Bujashi Ward's economy as a result of population increase

Stakeholders were concerned about:

- During project implementation, citizens of the specific ward and Tanzanians as whole should be given priority in terms of employment opportunities.

ENVIRONMENTAL AND SOCIAL IMPACTS

The following impacts were identified in the various project development stages such as mobilization and construction, operational as well as decommissioning stage. These impacts were as follows:

Mobilization/Construction Stage:

- Loss/disturbance of biodiversity and threatened species
- Atmospheric emissions from engines of vehicles
- Dust and noise pollution from mobilization vehicles.
- Public health hazards and safety from construction of supportive infrastructure.
- Land disturbance.
- Roads accidents of the moving vehicles

Operation Stage:

- Disruption of air quality from emissions of exhaust and fugitive gases
- Disturbance to surrounding communities due to increased noise levels
- Aesthetic degradation, environmental pollution and outbreak of diseases and injuries due to improper management of surrounding hazardous and non-hazardous solid waste materials
- General health and safety impacts
- Increased population density

Socio – Economic Aspects:

- A more educated workforce in the country
- Decrease in unemployment rates
- Increase in income levels resulting to benefit to the government from taxes provided
- Women empowerment
- A more balanced and diverse demographic landscape with improved gender representation and opportunities for women in the respective regions and country

Decommissioning Stage:

- Abandoned infrastructure.
- Unemployment.
- Loss of revenue to the government

Enhancement of Positive Socio-Economic Impacts:

- Employment and training especially during construction
- Increased income/revenue/induced development.
- Increased income by utilization of local resources.
- Support to local social services and livelihood.

PROJECT ALTERNATIVES AND CONSIDERATION

The selection criteria for the location depends on the availability/ease access and ownership of the proposed land parcel for Mwanza region. In that regards various economic considerations which

include the feasibility of the project in terms of financial and technical perspectives have been considered to select the project location.

Furthermore, the location shall not require demolition of property (houses and other infrastructure) to pave way for the construction and accessibility of the project site. In that regards, alternative location shall not be further considered in the EIS. Alternatives analysis in this project considered the following:

- h) No-Go alternative,
- i) Design and technological considerations
- j) Location
- k) Energy alternative
- l) Water and waste management alternative

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The Environmental Impact Assessment for the proposed construction of Mwanza Regional Girls Secondary School, has identified a number of impacts that are likely to arise during construction and operation stage of the proposed project.

The EIA has examined bio-physical, socio-economic and cultural effects of the proposed activity from site clearance, school construction and the school operation.

The real benefits of the proposed project can result only if the risks of the identified adverse impacts are minimized. This can be accomplished through implementation of adequate preventive and mitigation measures by formulating policies to cover them accordingly.

Environmental Management Policy

This will ensure that Project management and staffs are carrying out their activities with the highest regard to the natural environment and sustainable utilization of environmental resources therein. The policy should therefore cover the following, among other issues:

- Ensure that all Project activities operate within legal requirements of all relevant national legislation
- That there are continuous environmental improvement and performance through monitoring of Project activities;
- Ensure that utilization of natural resources is optimal with measures in place to ensure resource availability for future generation;
- Awareness creation to the surrounding community regarding sustainable utilization of natural resources, protection of sensitive ecosystems and bio-diversity maintenance for communal livelihood; and
- Balancing between natural resource use, environmental conservation and economic development.

Occupational Health and Safety Policy

It is developed for this project so as enable establishment of appropriate measures that ensure that the health, safety and welfare of all users is cared for as well as the health requirements of the local community in which the project is located. The policy should highlight on the following, among others:

- Medical examination of workers;
- Sanitation in the Project area;
- Proper liquid and solid waste management and disposal;
- Emergency preparedness;
- Fire safety;
- Necessity and availability of personal protective equipment
- Risk minimization of accidental damage to the community and environment

Community Relations Policy

The Local Community Policy are developed by management of the Project to ensure that the management of the project develops and maintains sound relations with all stakeholders on mutual respect and active partnership. The policy should highlight on ways the management should:

- Work with the local community and relevant government departments and agencies to achieve sustainability of the project;
- Come up with ways of enhancing information flow from management to the community and Project stakeholders, and vice versa;
- Community capacity building; and
- Active engagement of the local community in all Project activities that impact on the local community.

With regard to environmental management during the pre-construction, construction, operation and decommissioning phase of the project, the principal responsibilities of each party as described below. For certain aspects of the programme, assistance will be needed from the Local Government Authorities and the NEMC (mainly in the form of guidance and advice and in project monitoring).

ENVIRONMENTAL MONITORING PLAN

This report contains a detailed plan to monitor the implementation of mitigation measures and the impacts of the project during its execution. This plan includes a cost estimate for carrying out the proposed monitoring plan.

COST BENEFIT ANALYSIS AND RESOURCES EVALUATION

Environmental cost benefit analysis is assessed in terms of the negative and positive impacts. Furthermore, the analysis is considering whether the impacts are mitigatable and the costs of mitigating the impacts are reasonable. As it has been mentioned in Chapters 9 and 10, the potential benefits of the project, in terms of economic advancement and social benefit are substantial.

The environmental impacts are reasonably mitigatable. So to mitigate negative impacts, when compared to the required data are relatively small.

Social Cost Benefit Analysis

The benefits from project development can be judged in terms of employment, social welfare, education development, infrastructure development and the local economy (wages, goods and services). Thus, there will be a substantial spread of the benefit within the community through the provision of food, accommodation and other regular services to the employees and students.

Furthermore, the upgrading, development and maintenance of local infrastructure are benefits that will extend far beyond the project's scope and lifetime.

DECOMMISSIONING

Decommissioning is the last phase of project life. It involves terminating project activities and operations and rehabilitating site to or close to its original state. It is anticipated that the project shall continue as long as there is a demand for a project, however, individual components of the project shall be decommissioned as need be.

CONCLUSION

The project will have both positive and negative impact to the environment and the local communities along it. Measures have been proposed to enhance impacts which are positive to the environment and the local people.

For those impacts that are negative, mitigation measures have been proposed to avoid or abate them to the extent possible for the purpose of maximizing benefits of the school project and minimizing detriments of the project intervention to the communities.

Overall, the project shall act as a catalyst for positive change in the surrounding communities by improving education, infrastructure and social well-being, and by involving and engaging the local residents, the project can have a lasting impact and contribute to the overall development of the region.

MUHTASARI

UTANGULIZI

Serikali ya Jamhuri ya Muungano wa Tanzania (JMT) kwa kushirikiana na Benki ya Dunia wameandaa Mradi wa Kuboresha Ubora wa Elimu ya Sekondari. Lengo la mradi ini kuongeza upatikanaji wa elimu ya sekondari, kutoa mazingira bora ya kujifunzia kwa wasichana na kuboresha uhitimu wa elimu ya sekondari kwa wasichana na wavulana. Kwa ufupi, shughuli za mradi zitajumuishwa katika sehemu kuu nne:

Sehemu ya 1: Kuwawezesha Wasichana kupitia Elimu ya Sekondari na Ujuzi wa Maisha

1.1 Kuunda Shule Salama: Kutekeleza Programu ya Shule Salama ikiwa ni pamoja na:

- i. Walimu wa ushauri;
- ii. Mafunzo ya stadi za maisha kwa wanafunzi kupitia klabu za wasichana na wavulana zinazoendeshwa na walimu wa ushauri; Mafunzo ya walimu wa shule za sekondari kuhusu kanuni za tabia na njia za ufundishaji zenye kuzingatia usawa wa kijinsia;
- iii. Mafunzo ya viongozi wa shule na Bodi za Shule kuhusu Ukosefu wa usawa wa kijinsia, masuala ya shule salama nk.
- iv. Mfumo wa ufuatiliaji wa shule na darasa kwa kutambua mapema na kuingilia kati kwa wasichana waliohatarini kuacha shule; na
- v. Mfumo wa jamii kwa ajili ya njia salama ya kufika shuleni.

1.2 Kuchochea Uhitimu wa Wasichana wa Elimu ya Sekondari kupitia Njia za Elimu Mbadala Bora, ikiwa ni pamoja na:

- i. Kuweka mfumo ulio na teknolojia ya habari na mawasiliano wa kufuatilia wasichana wanaoacha shule kwa kiwango cha kitaifa na wilaya ili kutoa taarifa muhimu kwa ajili ya kupanga na utekelezaji wa Programu ya Elimu Mbadala.
- ii. Vituo vya Elimu Mbadala na Halmashauri za Wilaya kufanya shughuli za kuwafikia wasichana ambao hawako shuleni katika jamii, ambazo zitajumuisha shughuli kama vile mikutano ya jamii iliyoandaliwa na vituo vya Programu ya Elimu Mbadala, taarifa kupitia redio za ndani, vipeperushi na brosha.
- iii. Kuongeza upatikanaji wa Programu za Elimu Mbadala kupitia (i) upanuzi wa mtandao wa vituo vya Programu ya Elimu Mbadala; na (ii) ruzuku ya ada ya masomo kwa wasichana walio katika mazingira hatarishi.
- iv. Pia kuwepo kwa mfuko wa ubora wa kuimarisha ufunzaji kwa wanafunzi katika Programu za Elimu Mbadala
- v. Mfumo wa Usimamizi wa Mazingira na Jamii - Tanzania - Mradi wa Kuboresha Ubora wa Elimu ya Sekondari

Sehemu ya 2: Ufundishaji na Ujifunzaji Uliomaswa Kwa Kutumia Teknolojia

2.1 Ufundishaji na Ujifunzaji Uliofaa

- i. Vifurushi vya chini vya rasilimali muhimu za kufundishia na kujifunzia kwa shule zote: Kifurushi hiki kinajumuisha vitabu vya kutosha na miongozo ya walimu katika masomo ya msingi (Kiingereza, Hisabati na Sayansi).
- ii. Upangaji wa walimu wenye usawa na usawa wa kijinsia katika shule.
- iii. Mafunzo ya walimu katika utumishi/ukufunzi wa kitaaluma
- iv. Kuimarisha mazoezi ya ufundishaji darasani kwa walimu wa Kiingereza, Hisabati na Sayansi katika shule za sekondari.
- v. Kuchunguza ujifunzaji wa wanafunzi katika elimu ya sekondari ya chini ili kutoa fursa za matumizi ya marekebisho: ili kutoa fursa ya kuingilia kati kwa lengo la kuzuia wasichana kuacha shule kutokana na ugumu wa kujifunza.

2.2 Ufundishaji kwa Kutumia Teknolojia ya Mawasiliano na Habari katika Hisabati, Sayansi na Kiingereza:

- i. Kuandaa Mkakati na mpango wa Teknolojia ya Habari na Mawasiliano katika Elimu ya Sekondari.
- ii. Kifurushi cha maudhui ya kidijitali na huduma za mawasiliano kufanikisha ufundishaji wa Kiingereza, Hisabati na Sayansi kwa awamu.

Sehemu ya 3: Kupunguza Vizuizi vya Elimu ya Wasichana kwa Kurahisisha Upatikanaji wa Shule za Sekondari Upanuzi wa mtandao wa shule za sekondari ili kupunguza umbali kwa kiasi kikubwa kwa shule za sekondari kwa njia ya kupanua mtandao wa shule za sekondari, hasa katika maeneo ya vijijini.

Mradi utatoa ufadhili wa mradi kulingana na idadi ya shule katika kila Halmashauri inayokidhi viwango vya miundombinu ya chini kusaidia kuboresha shule za sekondari zilizopo na mpango wa miundombinu ya chini (idadi ya madarasa/wanafunzi, miundombinu ya usafi ya kutosha; maabara za sayansi za shughuli mbalimbali, umeme, nk.) kwa lengo la kuhakikisha kuwa angalau asilimia 50 ya shule zote zilizopo katika Halmashauri zote zinakidhi viwango vya chini vilivyowekwa.

Sehemu ya 4: Msaada wa Kiteknolojia, Tathmini ya Athari, na Ushirikiano wa Mradi Mfumo wa Usimamizi wa Mazingira na Jamii – Tanzania - Mradi wa Kuboresha Ubora wa Elimu ya Sekondari. Mradi utatekelezwa kwa pamoja na Wizara ya Elimu, Sayansi na Teknolojia na Ofisi ya Rais, Tawala za Mikoa na Serikali za Mitaa (TAMISEMI).

Tansheq Limited, kampuni ya ukaguzi wa mazingira iliyosajiliwa na Baraza la uhifadhi na usimamizi wa mazingira Tanzania yenye ofisi katika Nyumba Na. 83, Wakulima/Ngano Rd, Hananasif Estate, na S.L.P 31517, Dar es Salaam, imepewa mkataba na TAMISEMI kama Timu ya Utekelezaji na Msaada.

MAELEZO YA MRADI

Mradi utatumia viwango vipya vya Mazingira na Jamii vya benki ya dunia, kama mahitaji kwa ufadhili wa Benki. Serikali imeandaa Mfumo wa Usimamizi wa Mazingira na Jamii kwa ajili ya matumizi ya viwango vifuatavyo vya Mazingira na Jamii: Tathmini na Usimamizi wa Hatari na Athari za Mazingira na Jamii.

Eneo lililopendekezwa la mradi lipo kihistoria katika kijiji cha Ihushi, kata ya Bujashi katika Manispaa ya Magu, Mkoa wa Mwanza, na linapakana na shamba la mtu binafsi upande wa magharibi, kusini kuna mto wa msimu, mashariki kuna Barabara ya Kayenze inayounganisha Barabara ya Sirali Mbeya na reli, na Taasisi ya Isalmic Chemichemi inayofundisha dini ya Kiislamu upande wa kaskazini..

UPATIKANAJI

Eneo linaweza kufikiwa kupitia Mbeya Sirali (Musoma) karibu na kituo cha basi cha Kisesa kupitia kwenye Coordinate za usawa -2.5538878, 33.0727465.

MPANGILIO NA UBUNIFU WA MRADI

Ujenzi na ubunifu wa shule utajumuisha vipengele vya miundombinu inayohitajika kulingana na mkakati wa ujenzi na matengenezo ya shule (kwa mfano, idadi ya madarasa/wanafunzi, miundombinu ya usafi ya kutosha, ambayo ni muhimu hasa kwa wasichana; maabara za sayansi za shughuli mbalimbali, umeme, nk.). Vipengele vya ujenzi vitajumuisha majengo yafuatayo:

Madarasa

Madarasa yameundwa kufuatana na Kanuni za Elimu namba 1 ya mwaka 2007 ambazo zinaelekeza uwezo wa kila darasa, wanafunzi 30 kwa darasa la juu na wanafunzi 40 kwa darasa la kawaida. Hata hivyo, ratiba ya vifaa inaonyesha kila darasa litakuwa na uwezo wa wanafunzi 40.

Ujenzi utafanyika kwa awamu mbili. Awamu ya kwanza itahusisha ujenzi wa madarasa 12 katika majengo sita, ikifuatiwa na awamu ya pili ambayo itahusisha ujenzi wa madarasa 6 ambayo yatakuwa na miundo tofauti (madarasa 2 yatakuwa na ofisi, madarasa 2 yatakuwa na choo, na majengo 2 ya madarasa). Maendeleo ya mradi yaliyopendekezwa yatazingatia maelekezo ya idara ya zimamoto na uokoaji kwa majengo ya umma.

Ripoti ya Kampuni ya Elimu ya Global Practice Africa iliyoandaliwa na Benki ya Dunia inatoa maelekezo yafuatayo; uwiano wa wanafunzi na madarasa 50:1 au chini, uwiano wa wanafunzi kwa choo zinazofanya kazi 25:1 kwa wasichana na 30:1 kwa wavulana, angalau maabara moja ya sayansi inayotumiwa kwa matumizi mbalimbali, uwiano wa vitabu vya wanafunzi katika masomo ya hesabu na sayansi 1:1, upatikanaji wa walimu kwa mwongozo wa walimu 2:1.

Maabara

Kanuni za Elimu namba 1 ya mwaka 2007 inaelezea kuwa uwezo na muundo wa majengo ya maabara kwa kila ngazi ni wanafunzi 40. Ratiba ya vifaa itazingatia kanuni hiyo na maabara zifuatazo zitajengwa:

- Maabara ya Fizikia na Jiografia
- Maabara ya Kemia na Biolojia
- Chumba cha Teknolojia ya Habari na Mawasiliano ambacho kitajengwa katika awamu ya pili.

Jengo la Utawala

Kanuni inaonyesha kuwa shule yenye uwezo wa wanafunzi 1000 au zaidi inapaswa kuwa na walimu wasiopungua 40 bila kuhesabu wafanyakazi wengine kama mhasibu wa shule, katibu, nk. Jengo la utawala litajengwa kama jengo lililoinuliwa ambapo jengo moja tu litajengwa.

Vyoo

Kituo cha choo kilichopendekezwa kitajumuisha jengo moja lenye mashimo 16 ambalo litajengwa kama jengo huru kulingana na ratiba inayoonyesha na makisio ya shimo moja kwa watu ishirini (20). Hata hivyo, baadhi ya madarasa yatakuwa na vyoo kama ilivyopangwa, bweni, na chumba cha chakula pia vitakuwa na vyoo.

Maendeleo ya miundombinu ya vyoo ni muhimu kuhakikisha mazingira yanayozunguka yanadhibitiwa vizuri na kuhakikisha ustawi wa kijamii na uendeshaji wa shule kwa kuwa utu wa binadamu unahusiana moja kwa moja na upatikanaji wa vyoo salama na safi.

Chumba cha Chakula

Chumba cha chakula ni nafasi muhimu ya kukusanyika kwenye eneo la shule na ni ishara ya wazo la Shule ya Bweni kama familia. Shule itakuwa na nafasi ya kutosha ya chakula kwa wanafunzi wote kwa kuwa ni shule ya bweni hivyo chakula kitahudumiwa. Kulingana na muundo wa chumba cha chakula, kinaweza kuhudumia wanafunzi 2000.

Nyumba za wafanyakazi

Nyumba za walimu zimeundwa ili kuwavutia walimu kuishi vijijini, pamoja na kuongeza motisha kwa walimu kutekeleza majukumu yao kuliko wakija kutoka mbali na shule. Muundo unazingatia kuwa nyumba za wafanyakazi zitakuwa na vyumba vitatu vya kulala / vyumba vinne vya kulala vyenye choo cha umma, sebule/jiko, chumba cha kulia na ghala. Nyumba nne (4) za wafanyakazi zitajengwa.

Mabweni

Mabweni ni sehemu ambapo wanafunzi wanakaa. Makazi ya wanafunzi lazima pia yalenge kutoa mazingira yenye afya na sauti nzuri kwa ulinzi, faraja, na ufanisi wa wanafunzi. Mabweni yameundwa kulingana na malengo ya Mradi na kwa uwezo wa kuhifadhi wanafunzi 120. Katika awamu ya kwanza, majengo matano (5) yatajengwa, wakati katika awamu ya pili, majengo manne (4) yatajengwa.

Maktaba

Maktaba ni muhimu kwa sababu inaathiri utamaduni, inaathiri ubunifu, na inaathiri watu binafsi. Kwa sababu ya hayo yote, usanifu wa maktaba una wajibu wa kuimarisha athari hizi kwa kutoa kituo cha maarifa ambacho kinatoa hamasa na kinafaa kwa mawasiliano bora na mwingiliano wa kufundisha.

Kulingana na miundo, maktaba itakayojengwa itakuwa na uwezo wa kuhudumia wanafunzi 52 kwa ajili ya kusoma, na chumba cha kujifunzia kompyuta kitakachohudumia wanafunzi 8.

Chumba cha huduma za afya

Chumba cha Huduma za Afya kwa Wanafunzi Wagonjwa hutoa nafasi maalum kwa wanafunzi ambao wanaweza kujisikia vibaya au wanahitaji huduma ya matibabu ya haraka. Itatumika kama kituo kikuu cha huduma ndani ya eneo la shule, kuruhusu tathmini na matibabu ya wakati unaofaa kwa magonjwa madogo au majeraha.

Kichomea taka

Kichomea taka hiki kitatoa njia salama na yenye ufanisi ya kuharibu taka, hasa taka za kitabibu kama vile pedi zilizotumika, vifaa vya matibabu, na vifaa vingine hatari.

Vipengele vingine vitakavyojengwa ndani ya eneo la shule ni Maeneo ya Kuchezea, Mtaru wa Maji, Tanga la Maji (Tanga la maji 'hippo' na nguzo zake), Mfereji wa Maji, Njia za Kutembelea.

Shughuli za Mradi

Shughuli kuu za mradi zinajumuisha maandalizi kabla ya ujenzi (pre-construction), ujenzi (construction), uendeshaji (operations), na kufuta (decommissioning).

Maandalizi kabla ya ujenzi

Maandalizi kabla ya ujenzi, ambayo yanakadiriwa kuchukua muda wa kati ya miezi mitatu, yatajumuisha shughuli zifuatazo:

- Kuanzishwa kwa kambi za ujenzi, maeneo ya kuhifadhi vifaa na vifaa, maeneo ya usindikaji vifaa, pamoja na miundombinu ya vyoo. Shughuli zifuatazo zitahusika wakati wa kuanzisha kambi:

- Kufyeka vichaka.
 - Ujenzi wa maeneo ya kuhifadhi vifaa na vifaa.
 - Ujenzi wa miundombinu ya vyoo.
 - Ufungaji wa miundombinu ya umeme.
 - Ufungaji wa miundombinu ya maji na maji taka.
- Kutambua maeneo ya asili ambapo vifaa vinaweza kukopwa (kama vile mchanga, kifusi, na jiwe kutoka kwenye machimbo),
 - Kutambua vyanzo vya maji kwa ajili ya matumizi ya nyumbani na kazi za ujenzi.

Hatua ya Ujenzi

Hatua ya ujenzi ya mradi, ambayo inakadiriwa kuchukua miezi 12 kwa kila awamu ya kwanza, itajumuisha shughuli kuu zifuatazo:

- Uundaji wa ardhi ili kurahisisha upanuzi na urekebishaji wa barabara. Kazi za uundaji wa ardhi zitajumuisha shughuli zifuatazo:
 - a) Kufyeka na kutoa mizizi (kuondoa mimea, ikiwa ni pamoja na miti).
- Kuchota vifaa vya ujenzi vilivyopo asili. Hii itajumuisha:
 - b) Kuchimba na kusafirisha mchanga, kifusi, na vifaa vingine kwa ajili ya msingi wa ujenzi kwenye maeneo ya ujenzi.
 - c) Kuchimba mawe (ikiwa ni pamoja na kulipua), kuyavunja na kusafirisha vifusi vilivyovunjwa kwenye maeneo ya ujenzi.
 - d) Kusafirisha na kushughulikia mafuta, mafuta ya kupaka, n.k. kutoka vyanzo vyao hadi eneo la mradi.
- Kusafirisha vifaa vya ujenzi kutoka chanzo hadi eneo la ujenzi kama vile bati, chuma, mbao, misumari, kamba, nk.

Hatua ya Utekelezaji

Shughuli za matengenezo ya jumla, Mradi utachangia kuongeza idadi jumla ya wanafunzi wa shule za sekondari kwa wanafunzi milioni 1.8 na kuongeza idadi ya wasichana wanaohitimu kutoka shule za sekondari na njia mbadala za elimu ya sekondari.

Hatua ya Kumaliza mradi

Baada ya kukamilika kwa ujenzi, huduma zote zilizotumiwa zitarudishwa kwa Mkurugenzi wa Halmashauri ambaye atachukua uamuzi juu ya matumizi yao ya baadaye. Shughuli kuu wakati wa hatua ya kuvunjika zitajumuisha yafuatayo:

- Kukusanya na kutupa vifaa vya kuhifadhi kama vile paleti, vifurushi, masanduku
- Kukusanya na kutupa vifaa vya ujenzi na taka kama mafuta machafu, maji taka, taka ngumu (plastiki, mbao, chuma, karatasi, nk.) katika karakana, ofisi ya eneo la ujenzi nk. kwenye dampo lililoruhusiwa
- Kurejesha maeneo ya kukopa vifaa katika hali salama

Mfumo wa Usimamizi wa Mazingira na Jamii

Vyombo vya usimamizi na uhifadhi wa mazingira vilivyotayarishwa kwa mradi vinaleta hatua za uteuzi wa eneo la mradi na kuhakikisha miundo na ujenzi wa shule inalingana na mahitaji ya vyombo hvo

Imekubaliwa kuwa kazi za raia zitafuata viwango vya ujenzi vinavyokubalika na Benki ya Dunia kwa kuzingatia usalama wa muundo, upatikanaji wa kawaida, mabadiliko katika michoro ya kawaida, upatikanaji na ubora wa vyanzo vya maji, matumizi bora ya vifaa (mbao) ili kupunguza shinikizo kwenye rasilimali asilia, Maji na Usafi kwa Ajili ya Afya (WASH) na usimamizi wa taka ngumu katika shule, pamoja na hatari nyingine zilizotambuliwa kama sehemu ya mchakato wa tathmini ya kina.

Uchaguzi wa eneo la ujenzi wa shule ni muhimu sana ili kuepuka athari za moja kwa moja na zisizo za moja kwa moja za mazingira na kijamii na ukosefu wa vyanzo vya maji kwa ujenzi na wakati wa uendeshaji.

Kikundi Hatarishi

[Inamaanisha](#) kikundi cha watu ambao, kwa sababu ya sifa na hali zao, wanaweza kupata athari mbaya zaidi za majanga ya asili kuliko vikundi vingine katika jamii. [Watu wenye mahutaji maalumu](#) maana yake yeyote ambaye kwa sababu ya umri, udhaifu, ugonjwa, ulemavu au hali nyingine yoyote anahitaji huduma au tahadhari.

Vikundi Hatarishi vinavyohusiana na Mradi

- Kundi la umri (watoto na wazee)
- Wakazi wa asili
- Kundi lenye changamoto za kimwili
- Wanawake/Utambulisho wa Kijinsia (Kizazi)

Gharama za Mradi

Jumla ya Gharama ya Mradi ni shilingi bilioni nne za Kitanzania.

Sheria za Kitaifa

Tanzania ina sheria nyingi za ulinzi wa mazingira, afya, usalama na ustawi wa jamii ambazo zinafaa kwa matumizi ya Viwango vya Mazingira na Jamii vya Benki ya Dunia. Sheria kuu za mazingira, bioanuai, maji, afya, rasilimali za kitamaduni, kijamii na ajira, sera na kanuni zinazofaa kwa Mradi na ahadi yake kwa sheria hii wakati wa utekelezaji zimejadiliwa katika ripoti hii, sheria inayofaa kwa mradi imejadiliwa pia.

Taarifa ya Misingi

Ili kupima kiwango cha athari, ni muhimu kuweka hali ya sasa. Timu ya ushauri ilifanya utafiti wa hali ya sasa ya athari. Hii ilihusisha utafiti juu ya mimea na wanyama, hewa, udongo na maji. Pia ilijumuisha masuala ya kijamii ya kiuchumi, kelele, na mtetemo.

Lengo la kuamua msingi ni kuthamini kwa kiwango gani mradi uliopendekezwa unaweza kupunguza au kuongeza hali na masuala ya sasa kutoka kwa Wadau muhimu.

Maoni na Masuala ya Wadau

Mashauriano na wadau yaligundua maoni chanya na wasiwasi hasi. Wadau walikuwa na maoni chanya juu ya mradi kwa upande wa:

- Fursa za elimu kwa eneo maalum la mradi na jamii zinazozunguka
- Kuongezeka kwa uchumi wa Bujashi Ward kutokana na ongezeko la idadi ya watu

Wadau walikuwa na wasiwasi kuhusu:

- Wakati wa utekelezaji wa mradi, wananchi wa kata maalum na Watanzania kwa ujumla wanapaswa kupewa kipaumbele kwa fursa za ajira.

Athari za Mazingira na Kijamii

Athari zifuatazo ziligunduliwa katika hatua mbalimbali za maendeleo ya mradi kama vile hatua za kuanzisha na ujenzi, hatua ya uendeshaji pamoja na hatua ya kufuta. Athari hizi zilikuwa kama ifuatavyo:

Hatua ya Kuanzisha/Ujenzi:

- Kupotea/kusumbuliwa kwa bioanuai na spishi zilizo hatarini
- Uchafuzi wa anga kutokana na injini za magari
- Hatari za afya ya umma na usalama kutokana na ujenzi wa miundombinu ya kusaidia.
- Uvurugaji wa ardhi.
- Ajali za barabarani za magari yanayosonga

Hatua ya Uendeshaji:

- Kuvuruga ubora wa hewa kutokana na uzalishaji wa gesi za kutolea nje na gesi zilizovuja
- Kuvuruga jamii zinazozunguka kutokana na kiwango kikubwa cha kelele
- Uvunjaji wa estetiki, uchafuzi wa mazingira na kuzuka kwa magonjwa na majeraha kutokana na usimamizi usiofaa wa taka ngumu na zisizo hatari katika mazingira yanayozunguka
- Athari za afya na usalama kwa ujumla
- Ongezeko la msongamano wa watu

Aina za Kiuchumi-Kijamii:

- Mkufunzi mwenye elimu zaidi nchini
- Kupungua kwa viwango vya ukosefu wa ajira
- Kuongezeka kwa viwango vya mapato vinavyosababisha faida kwa serikali kupitia kodi zinazotolewa
- Kuwezesha wanawake
- Mazingira ya kijamii na kiuchumi yaliyosawazika na yenye mchanganyiko bora na uwakilishi na fursa bora kwa wanawake katika mikoa na nchi husika

Hatua ya Kumaliza mradi:

- Miundo isiyotumiwa tena.
- Ukosefu wa ajira.

- Kupoteza mapato kwa serikali

Kuongeza Athari Chanya za Kiuchumi-Kijamii:

- Ajira na mafunzo haswa wakati wa ujenzi
- Kuongezeka kwa mapato/mafanikio/maendeleo yaliyochochewa.
- Kuongezeka kwa mapato kwa kutumia rasilimali za ndani.
- Kuunga mkono huduma za kijamii za ndani na kipato cha maisha.

Mbinu na Kuzingatia Mradi

Vigezo vya uchaguzi wa eneo hutegemea upatikanaji/rufaa rahisi na umiliki wa kipande cha ardhi kilichopendekezwa kwa Mkoa wa Mwanza. Kwa hivyo, kwa kuzingatia maoni ya kiuchumi, upatikanaji na umiliki wa ardhi, na upatikanaji wa eneo la mradi, viwango vya kifedha na kiufundi vimezingatiwa kuchagua eneo la mradi.

Zaidi ya hayo, eneo halipaswi kuhitaji kubomolewa kwa mali (nyumba na miundombinu nyingine) ili kupisha ujenzi na upatikanaji wa eneo la mradi. Kwa hivyo, eneo mbadala haitazingatiwa zaidi katika Ripoti ya tathmini ya mazingira. Uchambuzi wa mbadala katika mradi huu ulizingatia yafuatayo:

- a) Mbadala wa Kutokwenda,
- b) Uchambuzi wa Ubunifu na Teknolojia
- c) Eneo
- d) Mbadala wa Nishati
- e) Mbadala wa Maji na Usimamizi wa Taka.

MPANGO WA USIMAMIZI WA MAZINGIRA NA JAMII

Tathmini ya Athari za Mazingira kwa ujenzi uliopendekezwa wa Shule ya Sekondari ya Wasichana Mkoa wa Mwanza, imebaini athari kadhaa ambazo zinaweza kutokea wakati wa hatua ya ujenzi na uendeshaji wa mradi uliopendekezwa.

Tathmini hii imechunguza athari za kibaolojia, kiuchumi-kijamii, na kitamaduni za shughuli inayopendekezwa kutoka kwa kusafisha eneo, ujenzi wa shule, na uendeshaji wa shule.

Manufaa halisi ya mradi uliopendekezwa yanaweza kuonekana tu ikiwa hatari za athari mbaya zilizotambuliwa zinapunguzwa. Hii inaweza kufanikiwa kupitia utekelezaji wa hatua za kuzuia na kupunguza kwa kutosha kwa kutunga sera za kuzishughulikia ipasavyo.

Sera ya Usimamizi wa Mazingira

Hii itahakikisha kuwa usimamizi na wafanyikazi wa Mradi wanatekeleza shughuli zao kwa kuzingatia mazingira asilia na matumizi endelevu ya rasilimali za mazingira katika eneo hilo. Sera hiyo inapaswa kufunika mambo yafuatayo, pamoja na mambo mengine:

- Hakikisha kuwa shughuli zote za Mradi zinaendeshwa kwa kuzingatia mahitaji ya kisheria ya sheria zote za kitaifa husika
- Kuwepo kwa uboreshaji endelevu wa mazingira na utendaji kupitia ufuatiliaji wa shughuli za Mradi;
- Hakikisha matumizi bora ya rasilimali asilia kwa kuweka hatua za kuhakikisha upatikanaji wa rasilimali kwa vizazi vijavyo;
- Kuhamasisha jamii inayozunguka kuhusu matumizi endelevu ya rasilimali asilia, ulinzi wa mifumo ya ikolojia nyeti, na uhifadhi wa bioanuwai kwa maisha ya pamoja; na
- Kupata usawa kati ya matumizi ya rasilimali asilia, uhifadhi wa mazingira, na maendeleo ya kiuchumi.

Sera ya Afya na Usalama Mahali pa Kazi

Imeandaliwa kwa mradi huu ili kuwezesha kuanzishwa kwa hatua sahihi zinazohakikisha afya, usalama na ustawi wa watumiaji wote pamoja na mahitaji ya afya ya jamii ya eneo ambalo mradi unapatikana. Sera hiyo inapaswa kuzingatia mambo yafuatayo, pamoja na mambo mengine:

- Uchunguzi wa matibabu kwa wafanyakazi;
- Usafi katika eneo la Mradi;
- Usimamizi na kutolewa kwa taka za majimaji na taka ngumu kwa usahihi;
- Maandalizi ya dharura;
- Usalama wa moto;
- Umuhimu na upatikanaji wa vifaa vya kinga binafsi;
- Kupunguza hatari ya uharibifu usio wa kusudi kwa jamii na mazingira.

Sera ya Mahusiano na Jamii

Sera za Jamii za Mitaa zinaandaliwa na usimamizi wa Mradi ili kuhakikisha kuwa usimamizi wa mradi unajenga na kudumisha mahusiano mazuri na wadau wote kwa msingi wa heshima ya pamoja na ushirikiano wa kazi. Sera hiyo inapaswa kuzingatia njia ambazo usimamizi unapaswa:

- Kufanya kazi na jamii ya eneo na idara na taasisi za serikali zinazohusika kufikia endelevu ya mradi;
- Kuanzisha njia za kuongeza mzunguko wa habari kutoka kwa usimamizi kwenda kwa jamii na wadau wa Mradi, na kinyume chake;
- Ujenzi wa uwezo wa jamii; na
- Kushirikisha jamii ya eneo katika shughuli zote za Mradi ambazo zinaathiri jamii ya eneo.

Kuhusu usimamizi wa mazingira wakati wa hatua za kabla ya ujenzi, ujenzi, uendeshaji, na kufuta mradi, majukumu makuu ya kila chama kama ilivyoielezwa hapa chini. Kwa vipengele fulani vya programu, msaada utahitajika kutoka kwa Mamlaka za Serikali za Mitaa na NEMC (hasa kwa mfumo wa mwongozo na ushauri na ufuatiliaji wa mradi).

MPANGO WA UFUATILIAJI WA MAZINGIRA

Ripoti hii ina mpango wa kina wa kufuatilia utekelezaji wa hatua za kupunguza athari na athari za mradi wakati wa utekelezaji wake. Mpango huu unajumuisha makadirio ya gharama ya kutekeleza mpango wa ufuatiliaji uliopendekezwa.

UCHAMBUZI WA FAIDA NA GHARAMA NA TATHMINI YA RASILIMALI

Uchambuzi wa gharama na faida za mazingira unakaguliwa kwa kuangalia athari hasi na chanya. Zaidi ya hayo, uchambuzi unazingatia ikiwa athari zinaweza kupunguzwa na gharama za kupunguza athari hizo ni za busara. Kama ilivyoelezwa katika Sura 9 na 10, faida za uwezekano wa mradi, kwa maendeleo ya kiuchumi na faida za kijamii ni kubwa.

Athari za mazingira zinaweza kuzuilika kwa kiwango kikubwa. Kwa hivyo, ili kupunguza athari hasi, inalinganishwa na data inayohitajika ni ndogo kwa kulinganisha.

Uchambuzi wa Faida na Gharama za Kijamii

Faida za maendeleo ya mradi zinaweza kuonekana katika suala la ajira, ustawi wa kijamii, maendeleo ya elimu, maendeleo ya miundombinu, na uchumi wa ndani (mishahara, bidhaa, na huduma). Hivyo, kutakuwa na upana mkubwa wa faida katika jamii kupitia utoaji wa chakula, malazi, na huduma nyingine za kawaida kwa wafanyakazi na wanafunzi.

Zaidi ya hayo, uboreshaji, maendeleo na ukarabati wa miundombinu ya ndani ni faida ambazo zitaenea mbali zaidi ya wigo na muda wa mradi.

KUMALIZA MRADI

Ndiyo hatua ya mwisho ya maisha ya mradi. Inahusisha kusitisha shughuli na uendeshaji wa mradi na kurejesha eneo kwa hali yake ya awali au karibu nayo. Inatarajiwa kuwa mradi utaendelea kwa muda mrefu kama kuna mahitaji ya mradi, hata hivyo, vipengele binafsi vya mradi vitafutwa kama inavyohitajika.

HITIMISHO

Mradi utaleta athari chanya na hasi kwa mazingira na jamii za eneo hilo. Hatua zimependekezwa kuimarisha athari chanya kwa mazingira na watu wa eneo hilo. Kwa athari zile ambazo ni hasi, hatua za kupunguza zimependekezwa ili kuepuka au kupunguza kwa kiwango kinachoweza kwa lengo la kuongeza faida ya mradi wa shule na kupunguza madhara ya kuingilia kati kwa mradi kwa jamii.

Kwa ujumla, mradi utafanya kama mhimili wa mabadiliko chanya katika jamii zinazozunguka kwa kuboresha elimu, miundombinu, na ustawi wa kijamii, na kwa kushirikisha na kuwahusisha wakazi wa eneo hilo, mradi unaweza kuwa na athari ya kudumu na kuchangia katika maendeleo ya jumla ya mkoa.

