

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT FOR THE PROPOSED CONSTRUCTION OF REGIONAL SCHOOL ON PLOT NO.1, BLOCK “B” AT IGEKU VILLAGE, SAPIWI WARD, BARIADI DISTRICT IN SIMIYU 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' 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 Igegu village, Sapiwi ward in Bariadi district Simiyu Region and Bariadi District Council is located North of Tanzania and South East of Lake Victoria it lies between Latitude 2°15" and 3°10' South of Equator and longitude 33°40" and 35°10" East of Greenwich.

The Council is bordered by Busega Districts (Simiyu Regions) to the West, Bunda and Serengeti Districts (Mara Region) to the North, Maswa Game Reserve to the East, Maswa and Itilima Districts (Simiyu Region) to the South

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 indicates 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 of 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 estimated to take 12 months 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 Sapiwi 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 Simiyu 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 Simiyu 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 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.

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.

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ACRONYMS AND ABBREVIATIONS

ADB	African Development Bank
AIDS	Acquired Immune Deficiency Syndrome
CBOs	Community Based Organisations
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
dB	Decibels
DC	District Commissioner
DED	District Executive Director
EMA	Environmental Management Act
EMP	Environmental Management Plan
GW	Gigawatts
GWh	Gigawatt hour
IFC	International Finance Institution
ISO	International Organization for Standardization
IUCN	International Union for Conservation of Nature
LGAs	Local Government Authorities
NEMC	National Environment Management Council
NGOs	Non-Governmental Organisations
NO _x	Oxides of Nitrogen
NSGRP	National Strategy for Growth and Reduction of Poverty
OHS	Occupational Health and Safety
OP	Operational Policy
OSHA	Occupational Safety and Health Authority
TDV	Tanzania Development Vision
ToR	Terms of Reference
URT	United Republic of Tanzania
VEC	Valued Environmental Component
VOCs	Volatile Organic Compounds
WB	World Bank
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 for girls and improve completion of quality secondary education for girls and boys

With this support from the World Bank, the Government of the United Republic of Tanzania is implementing the Secondary Education Quality Improvement Project (SEQUIP) with the intention increase access to secondary education, provide responsive learning environments for girls and in result, improve completion of quality secondary education for girls and boys.

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 specifically has 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. Dropout 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. SEQUIP will help more girls 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 and student retention, 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 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 Bariadi district 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 land in Bariadi was previous owned by the Ministry of livestock, which was 75 acres by size for research purposes and later own given to the citizens by the fifth term president of URT for community activities. As per construction directives from PO-RALG, specific land size requirement is 5 acres in rural areas and 3 acres in urban areas. Nevertheless, Simiyu like other region has put aside about 27 acres for the construction.

1.4 Scope of the study

The ESIA was conducted in accordance to the guidelines laid down by the Environment Management Act of 2004, and its regulations as well as the World Bank requirements as provided in the Environmental and Social Framework which goes down to the ten environmental and social standards. In its undertaking, the key consideration among others included 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.

1.5 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 following approach: The process for conducting the Impact Assessment is closely related to the flowchart in Figure 1-1.

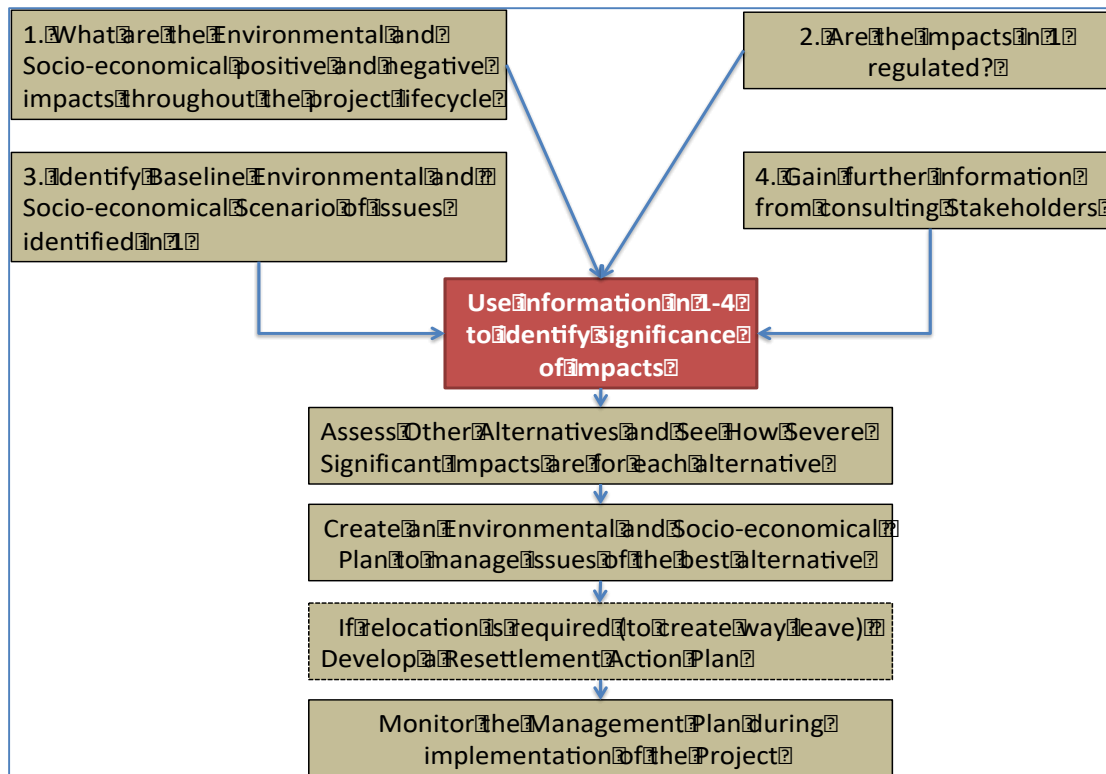


Figure 1-1: Impact Assessment Process

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)

In order to gauge the extent of impact, it is crucial to establish the status quo (Chapter 4). 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, vibration, air quality, etc. The aim of ascertaining the baseline it to appreciate to what extent the proposed project can alleviate or exacerbate the current situation.

1.5.4 Issues from Key Stakeholders

This ESIA 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.

1.5.5 Assessment of Impacts (Both Positive 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.

1.5.6 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 is described 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.

1.5.7 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.

1.5.8 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) as amended in 2018 and as per the process of conducting ESIA. Table 1-1 provides the list of chapters within the study as the law requires.

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

Chapter	Description
	<ul style="list-style-type: none"> 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	<p>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:</p> <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	<p>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 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</p> <p>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.</p>
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 minimise 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

Chapter	Description
	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

CHAPTER TWO

2 PROJECT BACKGROUND DESCRIPTION

2.1 Overview

The Project Development Objectives (PDOs) 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

2.2 Project location

The proposed project site is administratively located at Igegu village, Sapiwi ward in Bariadi district Simiyu Region and Bariadi District Council is located North of Tanzania and South East of Lake Victoria it lies between Latitude 2°15" and 3°10' South of Equator and longitude 33°40" and 35°10" East of Greenwich.

The Council is bordered by Busega Districts (Simiyu Regions) to the West, Bunda and Serengeti Districts (Mara Region) to the North, Maswa Game Reserve to the East, Maswa and Itilima Districts (Simiyu Region) to the South as shown in Figure 2-1.

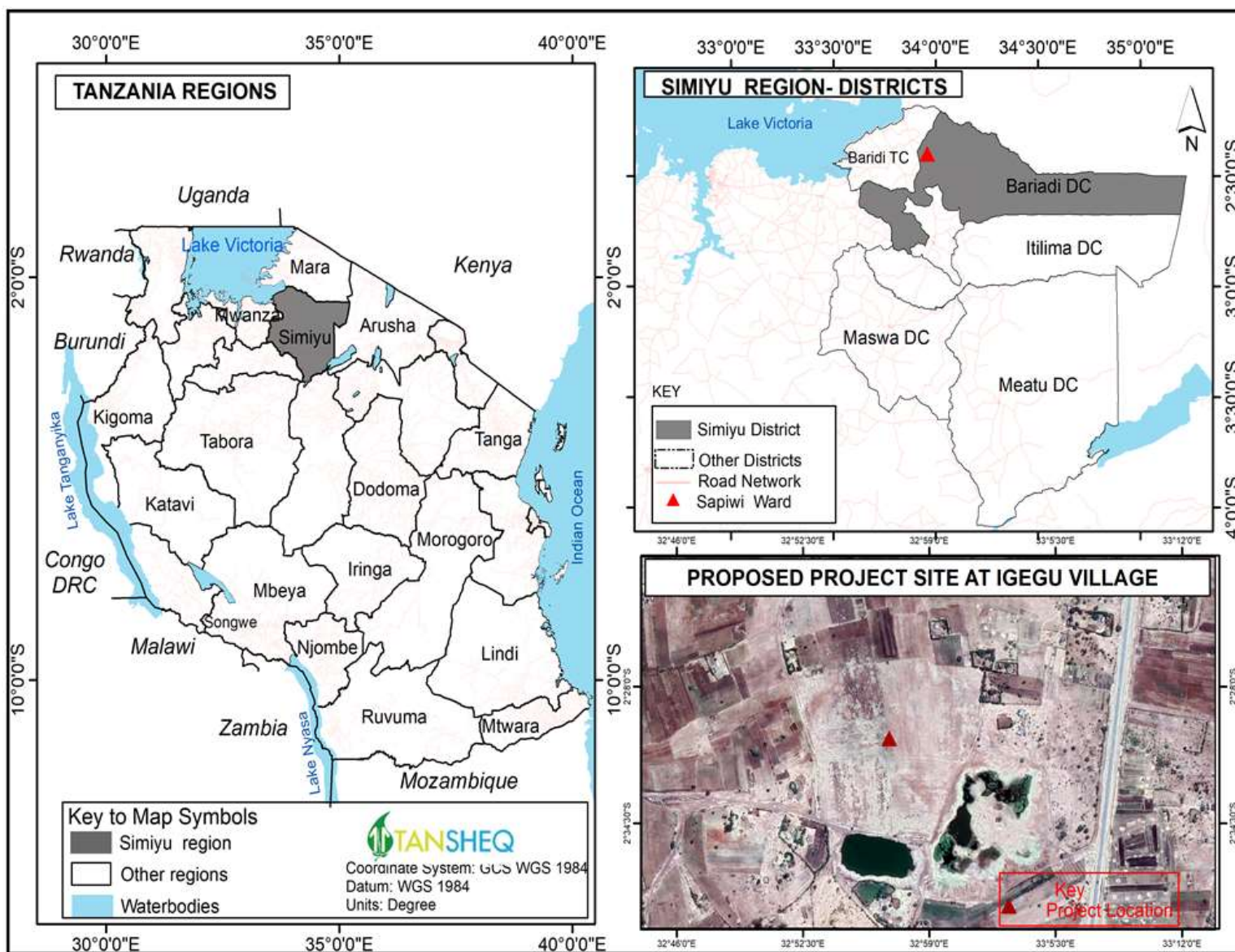


Figure 2-1: Map of the proposed project area (Source: Tansheq, 2022)

2.3 Project Planning and Design

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 2-2 showing the proposed classroom design.

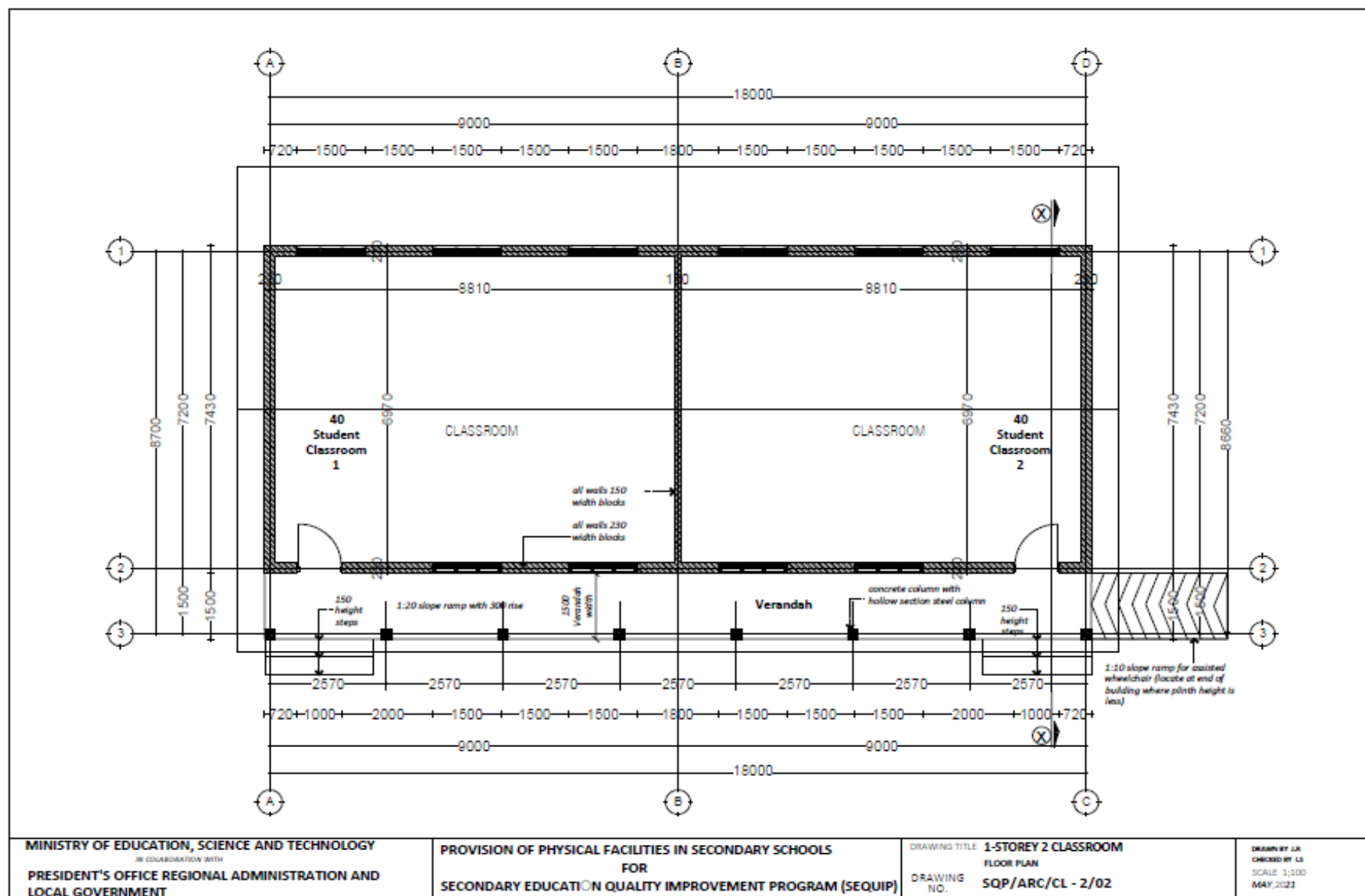


Figure 2-2: Classroom Design

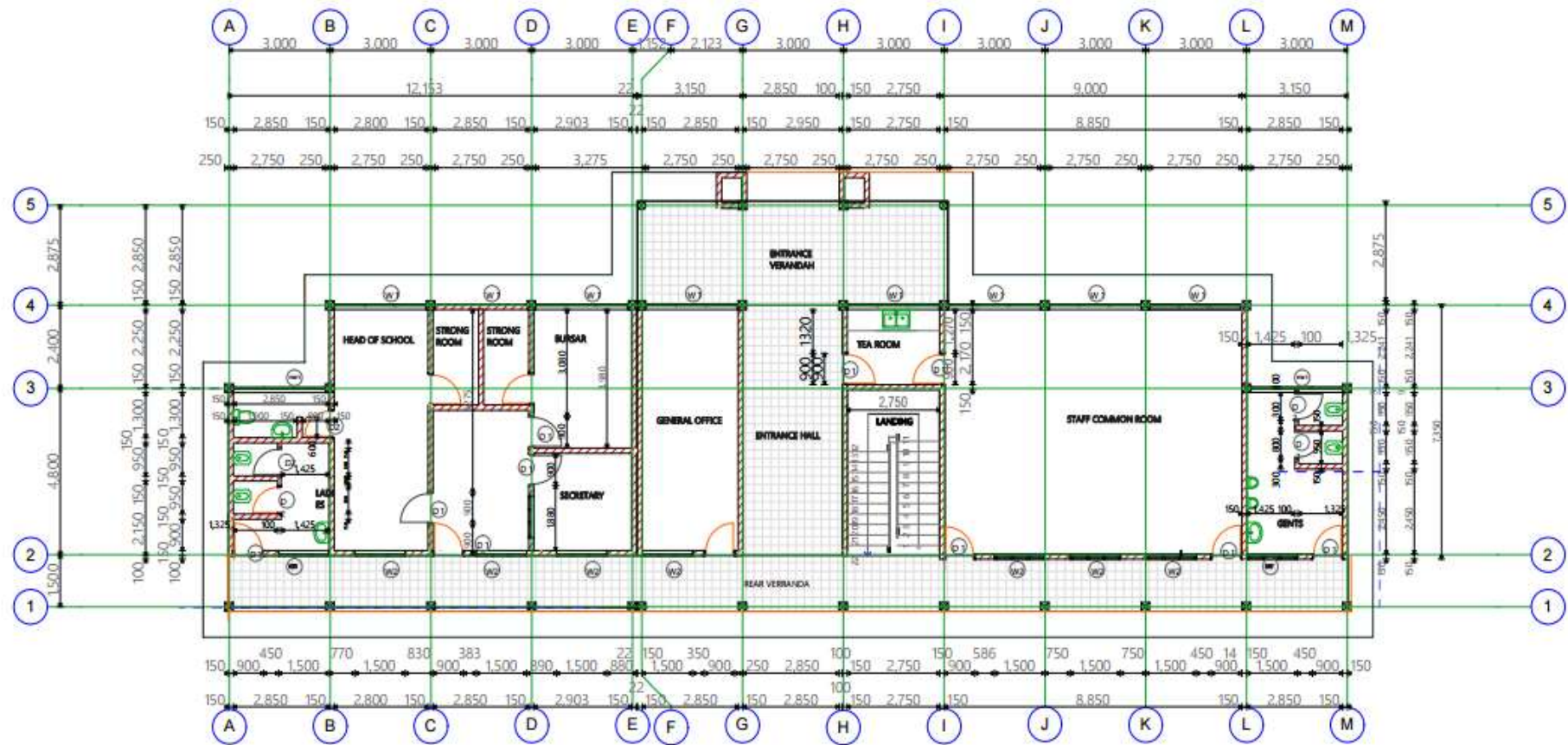


Figure 2-3: Proposed Design for School Administration block



Figure 2-4: Proposed layout of the Laboratory room to be constructed

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 in Appendix VI and the design layout is shown in Figure 2-4.

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 2-3 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 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. Drawings are obtained in Appendix VI.

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 vital gathering place at the school, representing The Family Boarding School values. It accommodates all boarding students and can hold up to 2000 students at once. To cook for such a large number, different fuel options are being considered, including wood. This choice reflects the school's eco-friendly approach and its focus on sustainability. The decision is still pending, but considering wood as a cooking fuel highlights the school's commitment to both student needs and environmental responsibility.

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 as as shown in Figure 2-5. Four (4) buildings of the staff houses will be constructed.

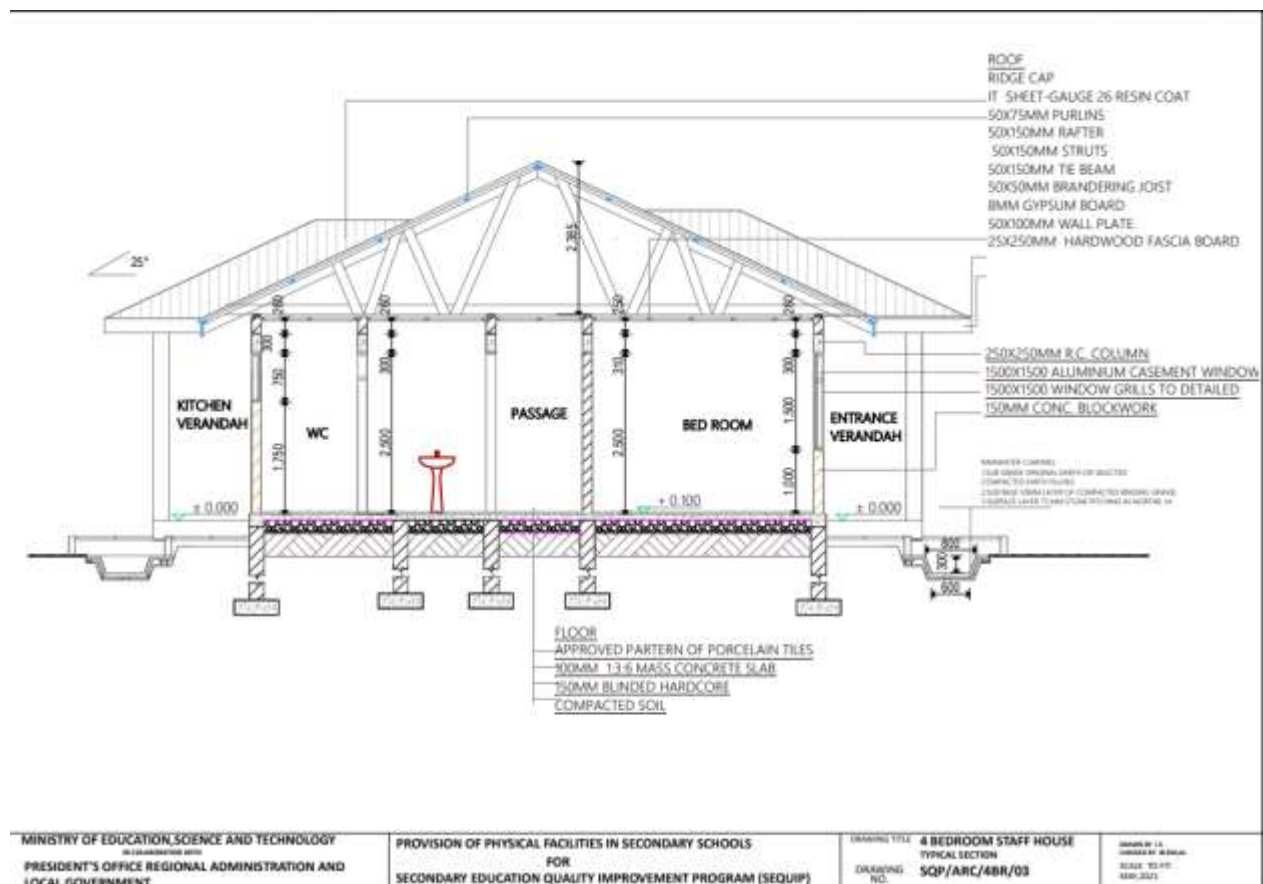


Figure 2-5: Teacher's-house structure

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. The drawings are attained in Appendix VI.

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 drawings, the library to be constructed will accommodate 52 students for readings and the computer learning room will accommodate 8 students as illustrated in Appendix VI.

2.3.10 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. Drawings are attained in Appendix VI.

2.3.11 Incinerator

This will provide a safe and efficient mean of disposing waste specifically biomedical waste such as used sanitary pads, medical supplies and other potentially hazardous materials. Drawings attained in Appendix VI.

The proposed project will have two incinerators which will be located far from residential houses and all school facilities. However they will be nearby dormitories as well as toilets.

As per Tanzania Bureau Standards and WB EHS Guidelines, the incinerator shall have two chambers: Primary and secondary chambers. It will meet the following design criteria:

- It shall be capable of destructing waste into ashes by 95%.
- Fuel burners shall be used.
- Emission shall conform to national and international standards
- Design, selection and efficiency of incinerators shall conform to TZS1681, TZS 1682, and TZS 1683 respectively

The incinerator is built on site will use locally available materials (aggregate, sand, cement, Blocks, morram, Refractory fire cement, steel, Fuel pipe Stainless, fuel tape etc.). It has a secondary combustion chamber to reduce harmful emissions.

When residual combustible gases reach the secondary combustion chamber they meet a further supply of air and undergo secondary combustion, raising the temperature even higher, and reducing the gases to stable compounds such as carbon dioxide. The incinerator is loaded at start-up and may then be re-loaded from time to time while in operation.

The incinerator will operate with natural draught, requires fuel to start and takes time to reach operating temperature from cold. It is therefore best operated for long periods, not less than four hours at a time. It is not suitable for operation in a closed room. Smoke will be emitted whenever the loading door is opened. A roof may be fitted to protect the operator from rain, but only minimum walls.

The walls of the incinerator will never become dangerously hot to touch, even during operation, because of the double walls and sand infill between the walls.

Generally, waste incineration at schools focuses on the disposal of non-recyclable and non-compostable waste, such as certain types of plastics, papers, and other materials that cannot be effectively recycled or composted.

It is recommended to install a controlled air incinerator, also known as a controlled air combustion incinerator. This type of incinerator ensures efficient and controlled combustion of waste materials.

The incinerator should have an appropriate capacity to handle the waste generated by 1000 students. A recommended capacity for this school would be a small-scale incinerator with a capacity of approximately 50-100 kilograms per hour.

The quantity of waste to be incinerated will depend on the waste generation rate of the school. Based on an average waste generation rate per student, an estimate of 0.5 kilograms of waste per student per day can be used. Therefore, the incinerator should have the capacity to handle approximately 500 kilograms to 1000 kilograms of waste per day.

To ensure the safety of the school and nearby residential areas, it is recommended to place the waste incinerator at a sufficient distance from both the school and residential areas.

2.3.12 Playgrounds

These hold significant importance for the holistic development of students. They provide a dynamic and interactive space where students can engage in various, physical, cognitive and emotional activities. These will involve football ground, global goal, handball, netball, volleyball, basketball and a running track pitch.

2.3.13 Water tanks along with a water tunnel

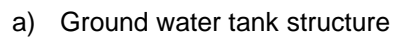
Additionally, the proposed project intend to construct the two water storage tanks as the separate structures which will be ground tanks and elevated water tanks. For ground water tank, the project will use the reinforced concrete of grade 20 with $f_{cu}=20\text{N/mm}^2$ at 28 days of age while reinforcements shall be high tensile steel with $f_y=460\text{N/mm}^2$ and the nominal cover to the reinforcements.

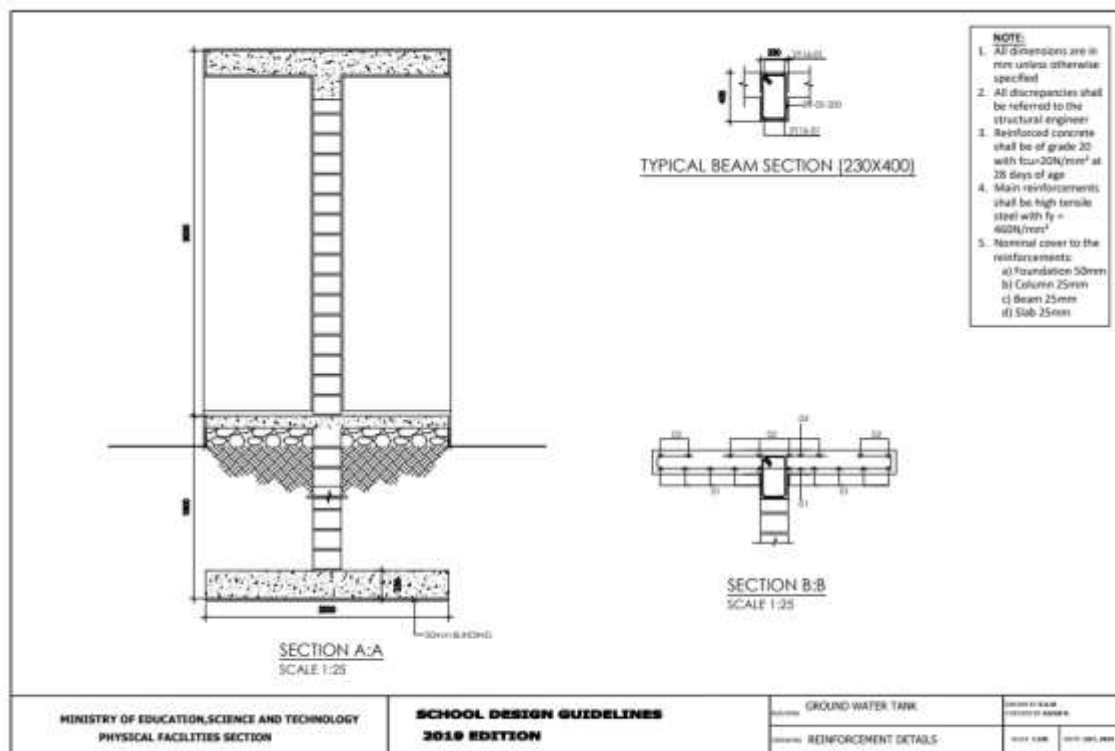
- Foundation 50mm
- Column 25mm
- Beam 25mm
- Slab 25mm

The proposed project opted for overhead (-elevated) tank to allow the natural flow of water by gravity within the entire area of the school. Not only flow but also will be used in fire protection. In designing this elevated tank, the following were observed:

- Thickness of wall
- Free board 0.3m
- Lower slab thickness
- Bottom ring beam
- Size of braces
- Column size
- Number of column
- Staging height
- Height of tank
- Zone factor

Figure 2-6, shows the structure for ground tank and elevated tank to be constructed for water supply within the proposed school accordingly, the elevated tank discourage the use of pump in distributing water within the school.





b) Elevated water tank structure

Figure 2-6: Water storage tanks designed for the project

Other components that will be constructed within school compounds area are, 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			

CONSTRUCTION			
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
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 three (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• 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 sources of construction materials (borrow pits 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 that 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 Labour recruitment

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

- Electrical Engineer for the Installation of Electrical Infrastructure
- Water Engineer or Technician for Installation of Water Infrastructure
- Construction worker for construction activities

- Manual workers are needed for bush clearing and other manual work at the project site.

2.4.2.4 Wastes Generated During Mobilization Phase

Mobilization phase of the project will generate the wastes shown in Table 2-3 below.

Table 2-3: Wastes 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 wastes, 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 wastes	Sanitary wastes	None
Servicing of construction equipment	Used batteries, used tyres, used metals parts, used oil and fuel filters, empty oil drums	Waste oil	None

2.4.2.5 Treatment and Disposal of Wastes Generated During Mobilization Phase

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

- During site clearing, top soil and green cutting shall disposed off in old borrow pits or other areas approved by the Engineer
- Concrete and cement blocks wastes shall be disposed of in borrow pits during their reinstatement as approved by the Engineer.
- Metal wastes 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. Engineer shall approve the metal scraps disposing companies.
- Degradable materials such as paper cement bags and paper boxes shall be treated on site by either controlled burning.
- Non-degradable wastes 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 (campsites) for the disposal of sanitary wastes.

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:
 - a. Excavation and transport of natural sand, gravel, and sub-base materials to construction sites
 - b. Stone quarrying (including blasting), crushing and transport of crushed aggregates to construction sites
 - c. 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 (Table 2-4) will be required:

Table 2-4: Materials required During Construction Phase

No	Material	U	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	Locally
7.	Nails	Nails for fixing timber form	Dar es salaam/
8.	Water	Drinking, concrete works, dust	DAWASA andboreholes

2.4.3.2 Labour recruitment

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

- Civil Engineer for construction activities
- Manual workers are needed for caring sand, gravels, cement, bricks and other related activities at the project site.

2.4.3.3 Wastes Generated During Construction Phase

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

Table 2-5: Wastes 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	-	-	-
	Aluminium cans	-	-	-
	Food wastes	-		
				Biohazard wastes (medical wastes)
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
	-	Lubricant, coolants (radiator fluid), hydraulic fluid, waste water)	-	Lubricants, hydraulic fluid

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.

2.4.3.4 Treatment and Disposal of Wastes Generated During Construction Phase

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

2.4.4 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. .

2.4.4.1 Labour recruitment

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

- Teachers
- Librarians
- Laboratory technicians
- Cooks
- Matrons
- Security officers and;
- Other staff for various activities required for operation of a boarding school

2.4.4.2 Material required during operational phase

Material required during the operational phase will include books, chalks, a printing and photocopy machine, laboratory equipment and specimen

2.4.4.3 Waste generated during operation phase

The waste generated during operational phase of the project is a result of different activities that conducted throughout the project lifetime, includes

- Solid waste from dining hall, kitchen, classroom and office
- Liquid waste from sanitary facilities, canteens and kitchen
- 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 wastes such as waste oil, sewage, solid wastes (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 wastes.

2.4.5.3 Wastes Generated During Demobilization Phase

The following wastes 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 Wastes Generated During Demobilization Phase

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

2.4.5.5 Lifespan of the project

The Project Lifecycle is the sequence of phases through which a project progresses. It includes initiation, planning, execution, and closure therefore this project will take 12 months

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 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 Project Associated Facilities

The International Finance Corporation (IFC) defines 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 (IFC 2012). ESIA studies vary in scope and type of analysis, depending on the characteristics of the proposed project. In doing so, each element of a project should be analysed for its potential to affect the environment and/or society during each phase of the project (including construction, operation, and decommissioning).

ESIAs address a project's environmental and social costs and benefits, including an appraisal of the economic implications of the proposed project. The ESIA should consider the project as designed, in addition to potential alternative options (including that of no action). In addition to the direct effects outlined above, the possible interactions between different environmental components (indirect effects) should also be considered, together with the impacts that could occur in conjunction with other activities taking place in the near vicinity at the same time (cumulative effects).

The construction of school in Simiyu region has identified the following activities in the category of associated facilities;

- Land
- Levelling of the area
- Utilities (water and electricity)
- Access roads
- First aid unit
- Personal protective equipment (PPEs)
- Water channels for storm water
- Sanitary facilities
- Office and store rooms
- Car parking
- Construction materials permitting such as sand.
- Construction supervising committee, for all levels of administration, such village committee, ward, and district committee.

2.6.1 Levelling of the area

Levelling of the site area is necessary to easier construction of the buildings due to the area having hills. This activity was not included in the Bills of Quantity (BOQ) but it was necessary to be conducted so as to give way for construction to take place.

2.6.2 Access Roads

The development of access roads is necessary providing access to staff and students within the school during operation due to the landscape of the area. Access route design must take several factors into account, including existing ground strength, expected weather condition and the area's landscape since the site area is in a hilly environment.

2.6.3 Utilities Systems (water and energy)

2.6.3.1 Power Plants

The fact that all the streets including Igegu and along the project are connected to TANESCO National power grid and therefore will be used as power source, But in case of TANESCO shortage of power. 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

2.6.3.2 Water Supply

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. Water for construction works will be obtained from Swamp around project area. The amount of water required during construction of the project is yet to be established.

2.6.3.2.1 Water channels for storm water

The development of water channels for storm water is necessary preventing water accumulation within the school compounds and easier movement and prevent water accumulation within the school premises due

to the landscape of the site area. The water channels will be directed to the Dam that exists within the site area, as shown in Figure 2-8.



Figure 2-8: Dam existing around site area

2.6.3.2.2 *Parking area*

The development of parking areas is necessary for the project implementation so as to avoid congestion problems for inhabitants of neighboring properties and ensure safety issues for visitors and staff.

2.6.4 **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

2.6.5 **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.

2.6.6 **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

This chapter provides an overview of the policy, legal, and institutional framework for environmental management in United Republic of Tanzania and the specific national and international environmental requirements and standards relevant to the proposed project. This includes regulations about environmental and 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, take into account legal frameworks for promoting gender equality. Flag any areas where the project might fall short on compliance.

3.2 Constitution of united republic of Tanzania

3.2.1 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 Strategies

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

3.3.1 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:

- (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.

3.3.2 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.

3.3.3 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.*

3.3.4 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.

3.3.5 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.

3.4 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.

The NEP enables sectoral and cross-sectoral policy analysis to mainstream environmental considerations into all aspects of planning and development.

3.4.2 The Energy Policy of Tanzania (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, mini hydropower generators and use of liquefied petroleum gas (LPG) as well as natural gas. The use of alternative energy sources such as biogas, briquettes both for domestic and industrial uses is encouraged to minimize the use of charcoal and firewood to prevent massive deforestation.

3.4.3 The National Land Policy (1995)

The National Land Policy emphasizes the importance of undertaking EIA for the management of land based development. Additionally, the policy advocates the protection of land resources from degradation for sustainable development. The policy addresses several environmental issues; of relevance to this project is land use planning. Land use planning takes into consideration the land capability, ensures proper management of coastal/urban/rural land resources, promote resource sharing and multiple land use techniques in area of conflicting land use, and lastly advocates the involvement of community in resource management, land use and conflict resolution. Important sections of the policy relevant to this project are 2.4 on the use of land to provide social economic development and section 2.8 on protection of land resources, the project proponent shall observe this provision.

3.4.4 The Construction Industry Policy (2003)

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

3.4.5 The National HIV/AIDS Policy (2001)

The overall goal of this policy is to provide for a framework for leadership and coordination of the national multi-sectoral response to the HIV/AIDS pandemic. This includes the formulation by all sectors of appropriate interventions which will be effective in preventing transmission of HIV/AIDS and other sexually transmitted infections, protecting and supporting vulnerable groups, and mitigating the social and economic impacts of HIV/AIDS. For project sustainability the project proponent will have to closely observe the above policy.

3.4.6 National Human Settlements Development Policy (2000)

The overall goal of the National Human Settlements Development Policy (NHSDP) is to promote the development of sustainable human settlement and to facilitate the provision of adequate and affordable shelter to all people, including the poor. The policy outlines a number of objectives including environmental protection within human settlements and protection of natural ecosystems against pollution, degradation and destruction.

The NHSDP recognizes the role of the NEP and other sector policies in achieving rural development. Thus, the NHSDP identifies the need for co-ordination and cooperation with other sectors and stakeholders, including CBOs, and NGOs in urban development planning.

The NHSDP recognizes environmental planning and management as one of the broad human settlement issues. According to this Policy; “environment means the physical, economic and social conditions in which people live, influencing their feelings and development”. In that regard the NHSDP identifies environmental protection as one of the strategic issues in human settlement planning and development.

Among other issues, the NHSDP addresses:

- Lack of solid and liquid waste management, leading to environmental deterioration;
- Encroachment into fragile and hazardous lands (river valleys, steep slopes and marshlands) leading to land degradation, pollution of water sources, etc.;
- Increasing dependence on firewood and charcoal as a main source of energy in human settlements leading to depletion of forests, environmental deterioration and air pollution; and

Therefore, the relevancy of this policy towards the proposed project is the improvement in quality of life in human settlements through improvement of social services such as education. At the same time, the project proponent must recognize that quality life includes the right to live in clean and safe environment. Hence, the project proponent should avoid air pollution, waste pollution or any other environmental or social impact that will deteriorate the quality of life in the settlement development.

3.4.7 National Economic Empowerment Policy (2004)

The policy is intended to address economic empowerment needs of the individual citizens of Tanzania and local companies. The policy takes on board all economic actors including farmers, livestock keepers, fishermen, employees, traders as well as other groups of individuals in various economic activities. The policy puts in place the general guidelines for formulation of strategies to be used by respective sectors depending on the prevailing circumstances. In this respect, each sector is enjoined to come up with concrete implementation strategies. As this policy touches the energy sector which this project has a bearing.

Hence, education availability by constructing schools in each Tanzania region will play a key role in this case.

3.4.8 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 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 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.

3.4.9 The National Employment Policy (2008)

The major aim of this policy is to stimulate national productivity, to attain full, gainful and freely chosen productive employment, in order to reduce unemployment, underemployment rates and enhance labour productivity. Relevant sections of this policy are (i) accelerating and making the pattern of economic growth more employment intensive ii) Balancing the number of new entrants and the proportion that can get paid employment iii) Improvement and Transformation of the Informal Sector for creating decent jobs iv) Enhancing the promotion of youth employment v) Reducing rural unemployment and underemployment and rural to urban migration. This project implementation will enable to meet the objective in various sections of the policy as in all phases of the project implementation recruitment of labour force is required.

3.4.10 National Gender Policy (2002)

The key objective of this policy is to provide guidelines that will ensure that gender sensitive plans and strategies are developed in all sectors and institutions. While the policy aims at establishing strategies to eradicate poverty, it puts emphasis on gender quality and equal opportunity of both men and women to participate in development undertakings and to value the role-played by each member of society.

3.4.11 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 on 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.

3.4.12 Cultural Policy, 1997

Section of the 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”.

3.4.13 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 in 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,

3.4.14 Antiquities Policy of 2008

Antiquities Policy 2008 section defines Physical Cultural Resources as any tangible material that represent 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.

3.4.15 National Health Policy, 2007

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 Population Policy, 2006

The Policy recognizes the impacts of population growth on natural resources and environment. The policy goal is to prepare and implement coordinated urban, rural and regional development plans for rapid development in the country and to reduce the rate of rural-urban migration.

3.4.18 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 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.

This policy is relevant to the project as there will be transportation of construction materials and staffs to the project site during construction, transportation of students and staffs during project implementation hence there is a need of transport systems enhancement.

3.4.19 National Women and Gender Policy, 2000

The key objective of the Policy is to provide guidelines that will ensure that gender sensitive plans and strategies in all sectors and institutions are developed. While the Policy aims at establishing strategies to eradicate poverty, it emphasizes gender equality and equal opportunity for both men and women to participate in development undertakings and to value the role played by each member of society. Specifically, this Policy advocates for opportunities for both men and women in projects including construction works and related activities, and for women to be involved at all levels of the project from planning to implementation.

On employment strategies for women, Section 30 of the Policy requires presence of equal employment opportunities between men and women depending on required qualifications at all level. In addition, there should be records of exact number of women and men at levels in order to assist monitoring and follow-ups, less bureaucratic special system in the provision of business licences especially to women working in the informal sector.

The developer must adopt such an approach during all stages of the implementation of this project that is in line with the aims of this Policy.

3.4.20 Urban Planning and Space Standards Policy 2012

The policy provides guidance for continuing delivery of a high-quality pedestrian and other people friendly public realm within the city centers in order to support the economic, social, cultural and environmental attractiveness of the city centers to businesses, residents and visitors. The policy explains more as the management of space is a key foundation of the asset management strategy. Also, the provision of appropriate space is becoming even more important as institutions increasingly competing in urban areas. Therefore, the project will plan for proper utilization of urban space during its implementation.

3.4.21 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

3.4.22 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.

3.5 Legal framework

3.5.1 Environmental Management Act (2004)

The Environmental Management Act (2004) introduces a concept of right of Tanzanians to clean, safe and healthy environment and right of Tanzanians to access various segment of environment for recreational, educational, health, spiritual, cultural and economic purposes (Section 4 (1) and (2)). The Act imposes an obligation on developers to conduct an EIA prior to the commencement of the project to determine whether the project may/or is likely to have, or will have a significant impact on the environment. Section 81 makes EIA mandatory to all projects that fall under the EIA mandatory list (Schedule 3) into which this project falls.

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

3.5.2 The Electricity Act (2008)

This Act main objective is to provide for the facilitation and regulation of generation, transmission, transformation, distribution, supply and use of electric energy, to provide for cross-border trade in electricity and the planning and regulation of rural electrification and to provide for related matters. Pertinent Sections that must be observed include;

Section 14 (8) states that “the licensee shall take into account the need to preserve natural beauty, flora and fauna, buildings and sites of geological, archaeological, or cultural significance”

Section 39 (4) states that “for the promotion of the National Energy Policy in relation to rural electrification every licensee shall be required to supply electrical energy to the local communities where electrical supply installations are located or along transmission lines”

Section 39 (5) states that “where electrical generation is done by using natural resources obtained in Mainland Tanzania the licensee shall be required to participate in development projects initiated by communities located near the generation point”

The Project Developer would endeavour to adhere to the requirement of this Act.

3.5.3 Engineers Registration Act (2007)

The Engineers Registration (Amendment) Act (2007) oversees the process of registration of engineers in Tanzania. The engineering registration Act is overseen by the Engineers Registration Board. The Board has been given the responsibility of monitoring and regulating engineering activities and the conduct of the engineers and engineering consulting firms in Tanzania through registration of engineers and engineering consulting firms. Under the law, it is illegal for an engineer or an engineering firm to practice the profession if not registered with the Board. The Board has also been given legal powers and has the obligation to withdraw the right to practice from registered engineers if found guilty of professional misconduct or professional incompetence. Registration with the Board is, thus, a license to practice engineering in Tanzania.

Engineering is among the noble professions that have the privilege and responsibility of self-regulation. The Board has worked out a Code of Ethics which aims at regulating the engineering activities and conduct of engineers and engineering consulting firms. The Code thus forms the basis and framework for responsible

professional practice as it prescribes standards of conduct to be observed by engineers and engineering consulting firms. The Code is based on broad tenets of truth, honesty and trustworthiness, respect for human life and welfare, fairness, openness, competence and accountability; engineering excellence, protection of the environment and sustainable development. *The Developer and its Contractors and subcontractors will make use of engineers during construction and operation phases.*

3.5.4 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.

3.5.5 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) have set clear procedures for compensation while acquiring Land from citizens.

3.5.6 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.

3.5.7 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 Occupation Health and Safety Act (2003)

This Act makes provisions for the safety; health and welfare of persons at work in factories and other places of work. Also it provides for the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with activities of persons at work. Relevant sections of the Act, applicable to the proposed project, include Part IV section 43 (1) - Safe means of access and safe working place and part V on health and welfare provisions, which includes provisions of supply of clean and safe water, sanitary convenience and first aid facility.

3.5.9 Water Resources Management Act (2009)

The Act is the principle legislation governing the utilization and pollution control of the water resources. Section 17 of Act stipulates, among other things, that "That the water used: shall not be polluted with any matter derived from such use to such extent as to be likely to cause injury either directly or indirectly to public health to livestock, or fish, to crops, orchards or garden which are irrigated by such water or to any product in the processing of which such water is used". Standards are established under Water Utilization and Regulation Act for effluents and receiving waters and it is an offence not to abide by these standards before and during discharge into watercourses, receiving waters or sewers.

3.5.10 Employment and Labor Relationship Act (2004)

An Act to make provisions for core Labor rights, to establish basic employment standards, to provide a framework for collective bargaining, to provide for the prevention and settlement of disputes, and to provide for related matters.

Part two of the act states that children under the age of 14 are not permitted to do any heavy or harmful work. Children of this age can do light work but not if it interferes with schooling. Children younger than 18 are prohibited from working in mines or other hazardous positions.

The act deems it unlawful for any employee to be forced into labor by the threat of penalty from his employer. This part of the law excludes military personnel, civic obligations, convicts and community service work. The project proponent has the responsibility to ensure that it complies with the provisions of this.

3.5.11 The Land Use Planning Act (2007)

The Act provides for the procedures for preparation, administration and enforcement of land use plans; to repeal the National Land Use Planning Commission and to provide for related matters. Clearly the Act has distinctive authorities of land use planning in Tanzania laid down with their functions and powers. The power vested to authorities which give them teeth to bite is to enforce approved land use plans including taking defaulters to court of law.

Appropriate local Community Societies will plan the project surrounding areas as per the requirement of the Act and regulations.

3.5.12 Land Act (1999)

The Land Act is the principle land legislation on all land matters. The Land Act signifies that land in Tanzania is public land and remain vested in the President as trustee for and on behalf of all citizens of Tanzania. For the purposes of the management of land under the Land Act and all other laws applicable to land, public land is in the following categories: (1) general land; (2) village land and (3) reserved land. The transfer of land from one category to another is provided in the Act.

The Act specifies that an interest in land has a value and that value is taken into consideration in any transaction affecting that interest. The recognized land ownership is the granted right of occupancy and customary ownership. The act states that where the local community resident with a right of occupancy (including land which is occupied by persons under customary law) are to be moved or relocated, they must be compensated for loss of interest in the land and for other losses. They also have the right to reap crops that are sown before any notice for vacating that land is given. According to the Land Act, assessment of compensation on land acquired shall be based on the following: i) Market value of the real property; ii) Disturbance allowance; iii) Transport allowance; iii) Loss of profit or accommodation; iv) Cost of acquiring or getting the subject land; v) Any other cost loss or capital expenditure incurred to the development of the subject land, iv) Interest at market rate will be charged

3.5.13 The Land Acquisition Act (2002)

The Land Acquisition Act of 2002 stipulates the power and procedures for acquiring land and the required degree of compensation. Section 3 and 4 of the Act gives the President of Tanzania powers to acquire any land for any estate or term where such land is required for public purpose such as exclusive government use, general public use, any government scheme, development of social services or commercial development of any kind including declamation.

The act makes provision for the procedures and method of compulsory acquisition of land for public purposes whether for temporary or permanent use. The Minister responsible for land may authorize any person to enter upon the land and survey the land to determine its suitability for a public purpose. The Government of Tanzania is supposed to pay compensation to any person who suffers damage as a result of any action. Any dispute as to compensation payable is to be referred to the Attorney General or court for decision.

The Land Acquisition Act does not go beyond compensation. It is not required under the Act to provide alternative land for the affected people by the project. Each affected person entitled to be compensated; on receipt of his/her compensation is expected to move and has no further claim. Once they are promptly and adequately compensated, then the obligations stop there. This act also sets out the legal process for payment of compensation.

The ICS will set out compensation and see through the any matter related to land compensation as per this act and other relevant regulations.

3.5.14 Workers' Compensation Act (2008)

This is an Act to provide for compensation to employees for disablement or death caused by or resulting from injuries or diseases sustained or contracted in the course of employment; to establish the Fund for administration and regulation of workers compensation and to provide for related matter. *If the proposed project will employ more than 20 personnel the provisions of this Act will apply. .*

3.5.15 EWURA Act (2006)

The revised edition of the Energy and Water Utilities Regulatory Authority (EWURA) Act consolidate the laws in relation to energy and water utilities in Tanzania mainland. Under this act the EWURA with prior approval of the minister, make rules in respect of the regulated goods and services (being the electricity, petroleum, natural gas and water and sewerage sectors). The act gives EWURA the legal mandates to issue, renew and cancel licenses of service provider in the regulated sectors. EWURA has put in place regulations for bulk selling of electricity to the National Grid. This will be followed by the project proponent.

3.5.16 HIV and AIDS (Prevention and Control) Act (2008)

The law provides for public education and programs on HIV and AIDS. Section 8(1) of the law states that "The Ministry (Health), health practitioners, workers in the public and private sectors and NGOs shall for the purpose of providing HIV and AIDS education to the public, disseminate information regarding HIV and AIDS to the public". Furthermore, Section 9 states that "Every employer in consultation with the Ministry (Health) shall establish and coordinate a workplace program on HIV and AIDS for employees under his control and such programs shall include provision of gender responsive HIV and AIDS education" This project shall abide to HIV/AIDS Act in the fight against the disease.

3.5.17 The Contractors Registration Act (2002)

The Contractors Registration Act requires contractors to be registered by the Contractors Board (CRB) before engaging in practice. It requires foreign contractors to be registered by the Board before gaining

contracts in Tanzania. The project proponent shall ensure any contractors and subcontractors engaged in development of the project shall comply with the provision of the Act.

Important national legislation with particular relevance to offshore activities includes that related to existing or proposed environmental, fisheries and merchant shipping legislation. Details of pertinent national legislation are summarised below and their relevance to the operation indicated. This EIA has been conducted with these legislations in mind.

3.5.18 Employment and Labour Relations Act (2004)

This Act guarantees fundamental labour rights and establishes basic employment standards. The Act provides broad protection against discrimination. Specifically, the Act mandates that employers "promote equal opportunity in employment and strive to eliminate discrimination in any employment policy or practice".

It prohibits direct or indirect discrimination by employers, trade unions and employers' associations on a number of grounds, including gender, pregnancy, marital status or family responsibility, disability, HIV/AIDS and age. Harassment of an employee on any of these grounds is equally prohibited. The Act also requires employers to take "positive steps" to guarantee women and men the right to a safe and healthy environment.

Reflected in project developer management of key social issues, the intention is to observe both the Tanzania and international labour laws and to work with local authorities (District/village) to allocate jobs fairly, giving preference to local people, women and youth, etc. The project will employ skilled and unskilled labour.

3.5.19 Forest Act No. 7 of 2002

The Act provides for management of forests and requires carrying out of Environmental Impact Assessment (EIA) for certain development projects. The Act obliges establishment of forest management plan for all types of forest to ensure sustainable management in the long-term. The Act provides for designation of Community Forest Reserves, Mangrove Forest Reserves and encourages community-based management.

3.5.20 Wildlife Conservation Act No. 5 of 2009

The Act provides for the conservation of wildlife and ensures protection, management and sustainable utilization of wildlife resources, habitats, ecosystems and the non-living environment supporting such resources, habitats or ecosystems with actual or potential use or value.

3.5.21 Water Supply and Sanitation Act No. 5 of 2019:

It has provisions to ensure water quality by protecting water works and storage facilities against pollution. It gives mandate to LGA to enact by-laws of water supply and sanitation.

3.5.22 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.

3.5.23 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.

3.5.24 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 six miscellaneous provisions.

Provisions for management of industrial and consumer chemicals that include:

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

This act is relevant to this project since there will be presence of laboratories in the constructed schools thus presence of various chemicals within the school.

3.5.25 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

3.5.26 The Urban Planning Act No. 6 of 2007

The Act provides for the procedures for preparation, administration and enforcement of urban plans. It encourages the development of technology to prevent or minimize adverse effects that endanger people's health and welfare. The Act restricts development activities that have serious impact on the urban ecological systems (environment) including wetland, flood hotspots area, ground and surface water pollution.

3.5.27 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.

3.5.28 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 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 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 include 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 Organization (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 the 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. In order 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.

3.5.29 Road Act 2007

For purposes of this project, the Road Act 2007 serves as a guide to the use of the road reserve. Contrary to previous informal understanding, the reserve is exclusive to road related activities that do not include other utilities. However section 29 (2) does give provision for the request and terms of approval for use of the road reserve by utilities such as power lines and water pipes.

3.5.30 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.

3.6 National regulations

3.6.1 EIA & Audit Regulations (2005)

According to this regulation, the developer first registers the project, by submitting form EA1 to NEMC, with outline details of the project and its likely impacts. An Environmental Impact Statement (EIS) will be submitted to the Technical Advisory Committee (TAC), coordinated by NEMC, for review. The proponent shall meet the costs of the review.

By carrying out an EIA-process and preparing this EIS, Kastan has complied with the requirements of the regulations. The regulations advocate for periodic and independent reassessment and that the outcome of such assessment will serve to provide instructive feedback into the environmental management process.

3.6.2 Other Environmental Regulations

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

3.6.2.1 Environmental Management (Air Quality Standards) Regulation, 2007:

Gives 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

3.6.2.2 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.

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

3.6.2.4 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.

3.6.2.5 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.

3.6.2.6 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.

3.6.2.7 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.

3.6.2.8 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.

3.6.2.9 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.

3.6.2.10 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.

3.6.2.11 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 International agreements, conventions and treaties

Tanzania has ratified or acceded to a large number of international treaties and conventions. Among those, the following are relevant to the project.

3.7.1 UNFCCC/Kyoto Protocol

The Kyoto Protocol is an international treaty, which extends the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that commits parties to reduce greenhouse gases emissions, based on the premise that

- (a) Global warming exists; and
- (b) Man-made CO₂ emissions have caused it.

Tanzania has implemented the UNFCCC since 1996 and has been undertaking climate change studies (implemented by the Division of Environment under the Vice President's Office) since 1992. Tanzania recognized the need for greater awareness of climate change and stated that a comprehensive awareness programme was planned. The main challenge facing the country is a need to balance accelerated economic growth with a more efficient management of the environment and use of natural resources to ensure sustainability and address the climate change issue. In 2007, the Tanzania Vice President's Office, Division of Environment, produced the National Adaptation Programme of Action (NAPA).

3.7.2 Convention on Biological Diversity (CBD) (Ratified- 1996)

To promote conservation of biological diversity; sustainable use of its components; and fair and equitable sharing of benefits arising out of the utilization of genetic resources.

3.7.3 Ramsar Convention on Wetlands (Ratified - 1975)

Provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

3.7.4 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.

3.7.5 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.

3.7.6 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.

3.7.7 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".

3.7.8 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 on the basis of merit".

3.7.9 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 on the basis of 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.

3.7.10 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”.

3.8 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; Neighbourhood (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.

3.8.1 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 as a result of which the environment or part of it is or may be seriously endangered or detrimentally affected.

3.8.2 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.

3.8.3 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).

3.8.4 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.

3.8.5 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.

3.8.6 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:

- I. ensuring enforcement of EMA;
- II. advising the Environment Management Committee on all matters relating to environment;
- III. promoting environmental awareness relating to protection of the environment and the conservation of natural resources;
- IV. gathering and managing information on the environment and the utilization of natural resources;
- V. preparing periodic reports on the state of the environment;
- VI. the preparation, review and approval of environmental impact assessments for local investment; ^[SEP]
- VII. by-laws on environmental management and on sector specific activities related to environment; and
- VIII. 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.

3.8.7 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 environment within their designated areas.

3.9 World Bank Environmental and Social Framework

3.9.1 World Bank Environmental and Social Standards

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

The World Bank Environmental and Social Policy for Investment Project Financing sets out the requirements that the Bank must follow regarding projects it supports through Investment Project Financing. The Environmental and Social Standards set out the requirements for Borrowers relating to the identification and assessment of environmental and social risks and impacts and mitigation measures associated with projects supported by the Bank through Investment Project Financing. The E&S standards are expected to: (a) support Borrowers in achieving good international practice relating to environmental and social sustainability, (b) assist Borrowers in fulfilling their national and international environmental and social obligations; (c) enhance non-discrimination, transparency, participation, accountability and governance; and (d) enhance the sustainable development outcomes of projects through ongoing stakeholder engagement. The ten ESSs as per the WB ESF are: ESS 1: Assessment and Management of Environmental and Social Risks and Impacts; ESS 2: Labor and Working Conditions; ESS 3: Resource Efficiency and Pollution Prevention and Management; ESS 4: Community Health and Safety; ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement; ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources; ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities; ESS 8: Cultural Heritage; ESS 9: Financial Intermediaries; and ESS 10: Stakeholder Engagement and Information Disclosure. Given the nature of activities of this project, with the exception of ESS 9: Financial Intermediaries almost all the ESSs will be relevant.

3.9.2 Project Classification According to the World Bank ESF

According to the WB ESF, The Bank will classify all projects (including projects involving Financial Intermediaries (FIs)) into one of four classifications: **High Risk, Substantial Risk, Moderate Risk or Low**

Risk. In determining the appropriate risk classification, the Bank takes into account relevant issues, such as the type, location, sensitivity, and scale of the project; the nature and magnitude of the potential environmental and social risks and impacts; and the capacity and commitment of the Borrower (including any other entity responsible for the implementation of the project) to manage the environmental and social risks and impacts in a manner consistent with the ESSs. Other areas of risk may also be relevant to the delivery of environmental and social mitigation measures and outcomes, depending on the specific project and the context in which it is being developed. These could include legal and institutional considerations; the nature of the mitigation and technology being proposed; governance structures and legislation; and considerations relating to stability, conflict or security. The Bank will disclose the project's classification and the basis for that classification on the Bank's website and in project documents. The Bank will review the risk classification assigned to the project on a regular basis, including during implementation, and will change the classification where necessary, to ensure that it continues to be appropriate. Any change to the classification will be disclosed on the Bank's website.

3.9.3 Other World Bank Instruments

Table 3-1 Summarizes the Environmental and Social Standards (ESSs) that project entities responsible for the project implementation will apply during entire project cycle

Table 3-1: The World Bank Environmental and Social Standards (ESS) Applicable to Project and Associated Instruments

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.

3.10 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 3-2 below shows the Sustainable development goals which are relevant to this project.

Table 3-2 Sustainable Development Goals (SDGs)

Goal	Target
Goal 1: End poverty in all its form everywhere	Target 1.1 By 2030, eradicate extremely 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 5 : Achieve gender equality and empower all women and girls	Target 5.1 End all forms of discrimination against all women and girls everywhere 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
Goal 6: Ensure access to water and sanitation to all	Target 6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all 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
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	Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries Target 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
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	Target
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>

CHAPTER FOUR

4 BASELINE CONDITIONS

4.1 Introduction

This chapter describes the existing environmental conditions within the project area, focusing on the factors and environmental components that may be impacted by, or have a direct impact on the proposed construction of regional school at Igegu village, Sapiwi ward and Bariadi district within Simiyu region. Following is a detailed description of the project baseline environment, including its major environmental elements.

These include: physical, biological, socio-economic and cultural environments. 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

This project will be implemented Simiyu region, Bariadi district in Sapiwi ward, Igegu village. The district covers an area of 5,921.29 Square Kilometers and administratively it consist of 1 Council, 3 divisions, 21 wards, 84 villages and 515 hamlets.

The climate of the district is generally of a tropical type. The annual rainfall ranges from 700mm-950mm pa. There are two districted periods of rain seasons. The short rain period is normally between October – December with a dry spell in January and February. Long rain falls in between March to mid-May. The period from June to September is hot and dry. The average temperature during the day is 29°C and 19°C at night.

The Topography of the districtl is mostly covered by gently undulating land from sedimentary plains to rocky outcrop hills scattered in most part of the Council. There are few volcanic plains in the eastern parts that extend to the boarder formed by Lake Ndutu. Other volcanic plains subject to longtime erosion can be traced in Dutwa division.

The Council soils are dominated by heavy black soils (Mbuga) with area of red loamy and sandy soil. Soil erosion is widely spread and seen as environmental disaster

4.3 General conditions

4.3.1 Current Land Uses and Activities at the Proposed Project Site

The proposed land site which is located in Igegu village was once a reserve area with a size of 32.6 hectares. Currently there are no any activities that conducted within the project area as shown in the Figure 4-1: Existing situation of the project site



Figure 4-1: Existing situation of the project site

4.3.2 Displacement and Relocation

No people relocation is envisaged for this location.

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

Human settlement and dam that located 100m from the proposed site location surround the location.



Figure 4-2: Surrounding environment to the project area

4.4 Socio-economic baseline

4.4.1 Background

A development envelope (Area of Interest - AOI) is situated at Igegu village, Sapiwi Ward, Bariadi, Simiyu Region. Details of the study area for the Social Impact Assessment (SIA) is in Table 4-1

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 Sapiwi and Igegu village

Study Area	Definition	Areas included for this project
Regional study area	Area likely to experience economic impacts of the project	Bariadi (since most of the development envelope falls within this district). This is set against the backdrop of Simiyu Region and Tanzania as a whole

4.4.2 Administrative Set up

The proposed project fall under Igegu village, Sapiwi ward, Bariadi Districts in Simiyu region.

4.4.3 Demographic Condition

Bariadi district is one among five districts of Simiyu region with population 267,296 (127,870 male and 139, 426 female) According to 2012 national census. Dependency ration of district is 21 whereby number of dependent (young & old people and economically active is shown in Table 4-2 below

Dependency ration is a measure that shows how economically active population supports the young and old population, the age of Dependents are from 0-18 years and those above 65 years.

Table 4-2: Dependency ratio

	2012 POP Census		
	No. of dependents	Economically active	Dependency ratio
Bariadi	166,558	35,253	21

4.4.4 Ethnic Composition

Bariadi district has residents from different ethnic groups found in all wards within the district but sukuma people are natives of the district. The following are ethnic group found on Bariadi district

4.4.4.1 Sukuma - The Ntuzu people

Bariadi is inhabited by mainly one ethnic group the Sukuma people. The Sukuma people of Bariadi are known as the Ntuzu.

4.4.4.2 Others:

Most of these are immigrants from other regions which including the Chagga, Kurya, Kerewe, Zanaki, Waha, Haya etc settled in trading centers like Nkololo, Dutwa and Ngulyati and some villages.

Table 4-3: Location of Ethnic groups and their main occupations.

Ethnic Group	Location	Main Economic Activities
Sukuma/Ntuzu	In all villages throughout the District	Agriculture (cotton growers) livestock keeping& cattle traders
Others	Mainly in large Villages and Trading centres	Business Employed in both Government and private sectors

(Source; Socioeconomic profile of Buriadi)

4.4.5 Education sector

4.4.5.1 Pre and Primary education

4.4.5.1.1 Pre – primary school:

Statistics of bariadi districts shows improvement of Pre Primary Education in the Council, during 2011 Students enrolled in public and private school were 14,126 as shown in Table 4-4

Table 4-4: Pre-primary school enrollment -year 2016

District	No of Govt Pre primary	Gov. Primary School Student	Pre No of Private Pre – Primary School	Private Primary School Students	Total NOS of Pre Primary Students
Bariadi DC	73	14,126	0	0	14,126

(Source; Socioeconomic profile of Buriadi)

4.4.5.1.2 Primary school

Total Registered Primary Schools in Bariadi District Council is 73 which has ability to carry 54,336 students as shown Table 4-5 below

Table 4-5: Primary School statistics

DISTRICT	NUMBER OF SCHOOL REGISTERED		NUMBER OF STUDENTS		
			BOYS	GIRLS	TOTAL
	Govn	Private			
Bariadi	73	0	26,018	28,318	54,336

Status of public primary school facilities shows almost the Council have significant shortages in number of class rooms, Number of teacher's houses and number of Desks as shown in the Table 4-6

Table 4-6: Status of Public Primary School Facilities 2016:

No	Type of Facility	Required No/Amount	Available	Deficit	% of Deficit
1	Classrooms	1,522	597	925	61
2	Teacher's houses	1,522	319	1,203	79
3	Offices	219	86	133	61
4	Stores	219	43	176	80
5	Desks	22,821	12,005	10,816	47
6	Tables	2,796	785	2,011	72
7	Chairs	2,796	680	2,116	76
8	Cupboards	1,635	359	1,276	78
9	Water Tanks	146	18	128	88

Table 4-7: Status of Public primary schools Teachers in Bariadi DC 2016

District	Required Number	Available	Deficit	% Deficit
Bariadi DC	1,522	1,175	347	23

4.4.5.2 Secondary education

The Bariadi District Council has 24 secondary school whereby 23 public school and 1 private school as shown in Table 4-8 and Table 4-9

Table 4-8: Secondary School Enrollment in 2016:

District	Number of Secondary School		Enrolled Students		Total		
	Public	Private	Public	Private	Boy	Girls	Total
Bariadi Dc	22	1	5,810	156	3,462	2,513	5,975

Table 4-9: Form five enrollment in public and private secondary school:

District	Number of Secondary School		Enrolled Students		Total		
	Public	Private	Public	Private	Boy	Girls	Total
Bariadi DC	1	0	34	0	0	34	34

4.4.5.3 Colleges and Vocational Training Schools/Centers:

In Bariadi District Council, there is no Colleges and Vocational Training Schools/Centers.

4.4.5.4 Agriculture sector

Bariadi District Council has land area of 5,921.29 sq. Km with about 185,729 hectares are suitable land for agriculture. Currently, the area under agriculture is 134,839 hectares or 55 percent of the total area suitable for agriculture. The food crops grown in the Council includes maize, sorghum, paddy, cassava, sweet potatoes, pulses and groundnuts.

Agricultural production is adversely affected by various factors which includes unpredictable and unequal distribution of rainfall, low soil fertility due to wind and water erosion, non-adherence to proper crop husbandry, dependency on rain fed agriculture, lack of access to credits by farmers, use of low yielding local seed varieties and low use of farmyard manure and industrial fertilizers.

Normally, food shortages occur during years of prolonged drought which lead to poor harvests. Other causes of food shortage include lack of storage and handling structures at household level and low use of pesticides. Some farmers are forced to sell food stocks for fear of losing their reserves to storage pesticides.

4.4.5.5 Livestock sector

Livestock keeping in Bariadi District Council is one of the major economic activities. Livestock population is predominantly of indigenous stock. Bariadi has a total population of 262,835 cattle 113,013 goats; 54,328 sheep, 657 donkeys; 644 pigs; and 373,738 poultry.

The area used for grazing annually is estimated at 185,729 hectares. Out of which 50,890 hectares is potential for grazing. The area earmarked for grazing is equivalent to 27 percent of the total District land. Due to a large number of livestock, some crop production lands are normally used for grazing after crop harvests.

Livestock diseases lead to poor livestock health reduces milk production and even result to deaths of animals. Diseases which causes hazard to livestock in the district are tick borne diseases namely East Coast Fever (ECF), Anaplasmosis, Babesiosis, black quarter, and Heart Water. Others include Contagious Bovine Pleuropneumonia (CBPP) and Trypanosomiasis in areas infested with tsetse fly. As for poultry production, the major diseases include; New Castle, Fowl Pox, Typhod, Coccidiosis and Cholera

4.4.6 Economic infrastructure

Transportation infrastructure and transport system are the blood vein of the economy and are a prerequisite for rural development and poverty eradication. Goods and services cannot flow to reach every part of economy if the roads are in bad condition.

Bariadi district has improved transport enabling people to access social services, welfare amenities and economic facilities. The district has growing telecommunications and electricity supply. Bank services are also available. The social infrastructures include health and education services as well as water supply.

The Council has a total road length of 727.6 km, which comprises of:

- District Roads 296.6 km
- Feeder Roads 429.1 km

Most manicured goods, medicine raw food crops and cash crops etc. are transposed via road services. The District does not have transport companies

4.4.7 Health Status

There is no District Hospital or referral Hospital but the Council has Health Centres and Dispensaries. There is a total of 2 health centres and 28 Dispensaries. As shown in Table 4-10 below

Table 4-10: Status of Health Facilities in Bariadi District Council:

District	Facility	Ownership			Total
		Govt	Private	FBO	
Bariadi DC	Hospital	0	0	0	0
	Health Centres	1	0	1	2
	Dispensary	25	2	1	28

Table 4-11: Distribution of health facilities, beds and doctors (ratio):

FACILITY	QUANTITY (NOS)	DISTRICT RATIO
Hospital	0	0
Hospital Beds	0	0
Rural health Centre	2	2:21
RHC Beds	126	1:6
Dispensaries	28	1:3
Medical Doctors	1	1:21

4.4.8 Sources of Energy

Electricity Supplied in the Council is through National Grid. All the disowners of Council are accessed by electricity

4.4.9 Sanitation and water supply

Clean and safe water accessibility in the Bariadi District Council is estimated to cover 39.7 % of the Bariadi District Council population as shown in Table 4-12 below

Table 4-12: Water supply infrastructure

No	Type of Infrastructure	Bariadi DC
1	Pumping Sources	-
2	Boreholes (deepwell)	13
3	Shallow wells	415
4	Dams	2
5	Reservoir (Charco Malambo)	24
6	Water Tanks	27
7	Water users Group (Wug's)	392

No	Type of Infrastructure	Bariadi DC
8	Operation & Maintenance Accounts	392
9	Urban Water supply Coverage	-
10	Rural water supply coverage	39.7%
11	Total water supply coverage	39.7%

4.5 Physical- Geographical Environment

4.5.1 Climate and meteorological conditions

The climate of the District is generally of a tropical type. The annual rainfall ranges from 700mm-950mm pa. There are two districted periods of rain seasons. The short rain period is normally between October – December with a dry spell in January and February.

Long rain falls in between March to mid-May. The period from June to September is hot and dry. The average temperature during the day is 29°C and 19°C at night.

4.6 Biological environment

4.6.1 Flora and Fauna

Most wards in Bariadi district are still growing there are areas that are still covered with vegetation due to the fact that Bariadi is a recent district thus still growing in terms of infrastructures. This is proved with the fact that the project area was initially a forest under the Ministry of Livestock with a size of 32.6 Hectares

4.7 Air quality within the project area

4.7.1 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 Table 4-13 respectively.



Figure 4-3: Ambient Air Quality Monitoring equipment used at the project site

Table 4-13: Ambient Air Quality data measured from different station in the vicinity of the project site

LOCATION	POSITION 37 L UTM-WGS 84		CO ppm	NO ₂ ppm	O ₃ ppm	VOC ppm	SO ₂ ppm	PM _{2.5} ppm	PM ₁₀ ppm
	X	Y							
Project Site	0606700	9734353	0.00	0.037	0.00	0.00	0	0.002	0.012
Monitoring Point 1	0606481	9734363	0.00	0.027	0	0.00	0	0.011	0.010
Monitoring Point 2	0606279	9734326	0.00	0.041	0	0.00	0	0.001	0.003
Monitoring Point 3	0606342	9734149	0.00	0.051	0	0.00	0	0.003	0.001
Monitoring Point 4	0606343	9734033	0.00	0.082	0	0.06	0	0.014	0.004
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 to trace how the project has affected the air quality.

4.8 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 4023SD;
- Free field microphone – Electric Condenser Microphone; and
- Sound Calibrator (94/114dB) – SC – 942.
- Vibration meter – VB8206SD

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 Table 4-14



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

Table 4-14: Noise and Vibration data

Location	Position WGS 84; 37UTM		Noise Level [dBA]	Vibration [mm/s]
	X	Y		
Project Site	0606700	9734353	42	1.8
Monitoring Point 1	0606481	9734363	44	1.3
Monitoring Point 2	0606279	9734326	36	0.8
Monitoring Point 3	0606342	9734149	34	1.4
Monitoring Point 4	0606343	9734033	37	0.7
Tanzanian Standards	TZS: [1471: 2015]		60-70	5

CHAPTER FIVE

5 STAKEHOLDERS IDENTIFICATION AND INVOLVEMENT

5.1 Introduction

This chapter describes the main stakeholders that have been identified and contacted to date as well as their main concerns regarding the proposed development.

Stakeholders are identified as “those people and institutions that have an interest in the successful design, implementation and sustainability of the project and will either be negatively, positively or not at all impacted by the proposed development”.

ESS10 of the environmental and social framework directs borrower to assess the level of stakeholder interest and support for the project and enable stakeholder views to be taken into consideration during project design and implementation so as to ensure that appropriate project information on environmental and social risks and impacts are disclosed to the stakeholders in a timely, understandable, accessible and in appropriate manner.

Section 89 of the Environmental Management Act (EMA, 2004) provides directives on public participation and its importance to ESIA. Furthermore, section 17 of the EIA Regulations provides details 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.
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 collaborate 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)
- Municipal Director (MD) in Bariadi DEO, DEMO
- Initial meeting with street government, Ward officials including WEO at Sapiwi 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- Simiyu Office)
- Ministry of Labour and Employment (Occupational Safety and Health Authority, OSHA- Simiyu Office)
- Regional Government Regional Commissioner (RC- Simiyu) RAS, (Region administrative Secretary) and Municipal Director (MD-Bariadi); and
- Local Government (Sapiwi Ward/ Igegu village).

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:

- Landowners
- Farm owners
- Residents/house owners affected village.

5.5 Main Concerns and Comments of Stakeholders

The comprehensive list of all stakeholders consulted is in appendix I. 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
Madam Prisca J Kayombo (RAS)	Simiyu	21/092022	<ul style="list-style-type: none"> It is very important to follow all the procedures for project implementation including preliminary study. The project has been delayed in Simiyu so they have to allocate funds for implementation
Madam Ester C Marwa (Ag. REO)	Simiyu	21/092022	<ul style="list-style-type: none"> The project is taking too long to start, in that regard, the landowners need that area to keep cultivating while waiting for funds
Mr. Charles Maganga (Cultural Officer)	Simiyu	21/092022	<ul style="list-style-type: none"> They are waiting for the project to begin
Fadhili Wilhelm (RCDO)	Simiyu	21/092022	<ul style="list-style-type: none"> They know about the project and they are already for the implementation
Mr. Halid. M. Mbwana (DED)	Bariadi DC	21/092022	<ul style="list-style-type: none"> They know about the project and they are already for implementation, They got the area from the villagers Igegu and they sold it to the municipals willingly.
Madam Caroline Ngaiza (CDO)	Bariadi DC	21/092022	<ul style="list-style-type: none"> They know about the project and they are already for the implementation
Mr. Stephen T. Masunga (DSEO)	Bariadi DC	21/092022	<ul style="list-style-type: none"> They are aware about the project and they are ready for implementation
Mr. Kwembea M. Senso (DNREO)	Bariadi DC	21/092022	<ul style="list-style-type: none"> On behalf of the Simiyu officials they only wait the project to start.
Madam. Wamdenge Kalingoji (SMO)	Bariadi DC	21/092022	<ul style="list-style-type: none"> They know about the project and they are already for the implementation
Stanslaus Nkobi (Ag. DE)	Bariadi DC	21/092022	<ul style="list-style-type: none"> They know about the project and they are already for the implementation
Mazengo F Sabaya	Bariadi DC	21/092022	<ul style="list-style-type: none"> They know about the project and they are already for the implementation
Mr. Lulionge (village chairperson)	Igegu village (bariadi)	22/092022	<ul style="list-style-type: none"> They know about the project and they are already for the implementation
Madam Zenaida E. Naluyanga (VEO)	Igegu village (bariadi)	22/092022	<ul style="list-style-type: none"> They know about the project and they are already for the implementation
Mr. Mtalasi L. Bagi (mkiti kijiji)	Igegu village (bariadi)	22/092022	<ul style="list-style-type: none"> The project will accelerate township in their villages
Igegu village community	Igegu village (bariadi)	22/092022	<ul style="list-style-type: none"> They are aware of the project, they have been waiting for it from 2020 They are curious waiting for the project because it will boost village development, growth of small businesses and large businesses such as hotelians and renting the house
Landowners igeu village	Igegu village (bariadi)	22/092022	<ul style="list-style-type: none"> They willing gave their farms for the love of development, and therefore the government is taking so long to implement.



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

5.6 Way Forward

Issues raised by stakeholders shall be assessed on their veracity and included in environmental and social impacts assessment. During the Environmental and Social Impact Assessment process, all stakeholders including public and community participated accordingly. All issues raised during consultation will be detailed responded in the stakeholder engagement plan.

From the consultations, it can be concluded that people are positive about the project as it will generate more employment, enhance business opportunities, education development and social development. Stakeholder Engagement Plan shall be prepared and implemented through all phases of the project.

CHAPTER SIX

6 IMPACTS IDENTIFICATION AND ASSESSMENT

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.

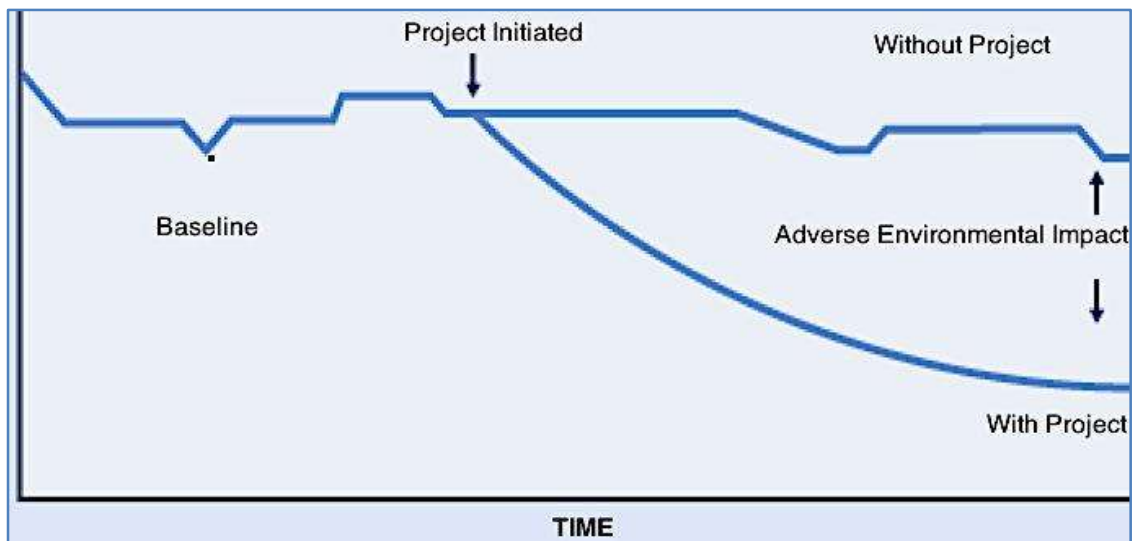


Figure 6-1: An Environmental Impact

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 6-2 describes when mitigation measures are expected with a view to reducing a given environmental impact.

Table 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 6-3, however, as is most often the case in respect of impacts on the natural environment, this division will be more varied and detailed.

Table 6-3: 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

Criteria	Factor
	<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 6-4, Table 6-5 and Table 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 6-4: 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 6-5: 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: 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 Bariadi 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 Bariadi 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 Bariadi 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 of school construction project in the Igegu, 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 Bariadi 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 Bariadi 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 Bariadi 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 Bariadi 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

6.4.3.1 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

6.4.3.2 Disturbance of surrounding community due to increased noise levels

During the operation phase of the project in the Bariadi 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.

6.4.3.3 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 Bariadi 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.

6.4.3.4 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 Bariadi 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.

6.4.3.5 General health and safety impacts

During the operation phase of a girl's school construction project in the Bariadi 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.

6.4.3.6 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.

6.4.3.7 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.

6.4.3.8 Employment Opportunities

During the operation phase of a girl's school project in the Bariadi 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 Bariadi 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.

6.4.3.9 Impacts associated with demographic change

During the operation phase of a girl's school construction project in the Bariadi 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

6.4.4 Decommissioning Phase

In case of decommissioning the following impacts may happen;

6.4.4.1 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 Bariadi 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 Bariadi 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 Bariadi 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

6.4.4.2 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

6.4.4.3 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

6.4.4.4 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 phases.

6.4.4.5 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 6-8 show the risk assessment criteria

Table 6-8: Risk Assessment for school construction at Simiyu Region

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 IDENTIFICATION OF ALTERNATIVES

7.1 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.

7.1.1 Project Site Alternative

The selection criteria for the location depends on the availability/ease access and ownership of the proposed land parcel for Simiyu 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

7.1.1.1 Location 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 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.

7.1.1.2 Design and technological consideration

The schools design will consider several aspects which were previously not part of the school design system. The current design which will be implemented will utilize the standardized updated design from the MoE which will be customized when implemented.

The designed prepared so far are prototypes to be utilized in specific site in this case the Girls Secondary schools the utilization of prototype will involve the fit in exercise to include all experts in the respective District.

7.1.1.3 Location

The selection of project location was conducted prior to conducting ESIA this has been identified as a limitation in this study however the same was conducted utilizing a checklist developed the clients safeguard team in the same line for projects which were not developed the consulting has a chance of raising issues for alternation of the selected site. The site selection was conducted while considering the following:

- Location of the site
- School character such as **Estimated number of students, estimated number of classrooms Estimated number of teachers needed, Will the school have**
- Environmental character such as water, vegetation, terrain fauna
- Social character Land Tenure, Land Use, who are the neighbors of this plot of land, Vulnerable Groups
- Type of community Urban
- Geographical location
- Demand of water per total estimated number of students: (l/s/day)
- Materials Use and Need
- The site is located within a protected area, designated by government (national park, natural reserve, world heritage site etc.)?

CHAPTER EIGHT

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.

8.3.3 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.

8.3.4 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.

8.3.5 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.

8.3.6 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.

8.3.7 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. The Contractors shall submit minutes of all environmental project meetings.

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	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	Bariadi District Council under PO-RALG	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	Bariadi District Council under PO-RALG	500,000
	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. 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 	As minimum emission of greenhouse gases into the atmosphere	Bariadi District Council under PO-RALG	1,000,000

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard	Responsibility	Estimated Costs [TZS]
Construction Phase	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 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	Bariadi District Council under PO-RALG along with the Contractor	2,000,000
	Hearing impairment due to increased noise levels from construction vehicles and machinery	<ul style="list-style-type: none"> 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 	As minimum as possible	Bariadi District Council under PO-RALG along with the Contractor	1,000,000

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard	Responsibility	Estimated Costs [TZS]
		<ul style="list-style-type: none"> 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 emission as possible	Bariadi District Council under PO-RALG along with the Contractor	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, Develop collection and removal schedule, Unusable construction waste will be disposed of at an approved dumpsite 	Environmental Management (Solid Waste Management) Regulations, 2009 as amended in 2016	Bariadi District Council under PO-RALG along with the Contractor	5,000,000
	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	Bariadi District Council under PO-RALG along with the Contractor	N/A

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard	Responsibility	Estimated Costs [TZS]
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. Regular monitoring of air quality and implementation of appropriate air pollution control measures should also be undertaken. 	TZS 845:2005 Air Quality – Specification; TZS 983:2007 Air Quality - Vehicular Exhaust Emissions Limits	School Administration along with Bariadi District Council under PO-RALG	5,000,000
	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 	45dBA during a day and 35dBA during night	School Administration along with Bariadi District Council under PO-RALG	5,000,000

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard	Responsibility	Estimated Costs [TZS]
		inspections to ensure that noise pollution levels remain within acceptable limits			
	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, properly labeled, and equipped with appropriate safety measures. 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. 	Environmental Management (Hazardous Waste Control and Management) Regulations, 2021.	School Administration along with Bariadi District Council under PO-RALG	15,000,000
	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	School Administration along with Bariadi District Council under PO-RALG	N/A

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard	Responsibility	Estimated Costs [TZS]
	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. 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. 	Zero incidents and accidents	School Administration along with Bariadi District Council under PO-RALG	10,000,000
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. 	Zero accident	Bariadi District Council under PO-RALG	1,000,000

Phase	Potential Impacts	Management/Mitigation Measures	Target Level/Standard	Responsibility	Estimated Costs [TZS]
		<ul style="list-style-type: none"> 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. 			
	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	Bariadi District Council under PO-RALG	N/A
Total Estimated Cost					47,500,000

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	Atmospheric air pollution 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	Bariadi District Council under PO-RALG along with the contractor	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	Bariadi District Council under PO-RALG along with the contractor	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	Bariadi District Council under PO-RALG along with the contractor	2,000,000
Construction Phase	Atmospheric Air Pollution 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	Contractor along with Bariadi District Council under PO-RALG	5,000,000
	Hearing impairment due to increased noise levels from construction	Noise and vibration level	As minimum emission as possible	Established Monitoring Point	Once Every three months	Contractor along with Bariadi District	10,000,000

Phase	Potential Impacts	Parameters to be Monitored	Target Level/Standard	Monitoring Area	Monitoring Frequency	Responsibility	Estimated Cost
	vehicles and machinery					Council under PO-RALG	
	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	Contractor along with Bariadi District Council under PO-RALG	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	Contractor along with Bariadi District Council under PO-RALG	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	Bariadi District Council under PO-RALG and School Administration	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	Bariadi District Council under PO-RALG and School Administration	4,000,000

Phase	Potential Impacts	Parameters to be Monitored	Target Level/Standard	Monitoring Area	Monitoring Frequency	Responsibility	Estimated Cost
	Waste Generation	Waste disposal Inspection of amount of waste not contained in specified collection containers/skips	Zero Waste	Transfer stations and disposal areas	Monthly	Bariadi District Council under PO-RALG and School administration	1,000,000
	Employment Opportunity	Employees	Local procurement and Local employment	Number of Employees	Quarterly	Bariadi District Council under PO-RALG and School administration	N/A
	General Health and Safety hazards	Accident and incident register	Zero incidents and accidents	School compound	Once every six months	Bariadi District Council under PO-RALG and School administration	2,000,000
Decommissioning phase	Injuries and fatal accident	Accident and incident register	Zero accident	Project area	Monthly	Bariadi District Council under PO-RALG	2,000,000
	Unemployment	NSSF remittance	All employees	School Compound	Once every year	Bariadi District Council under PO-RALG	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

Environmental Management Act of 2004, Tanzania Mainland, requires that an Environmental and Social Impact Statement should contain a discussion of the Project's Resource Evaluation or Cost Benefit Analysis as described in Chapter 9 and 10 of this EIS report, document the cost/impacts of the project to Simiyu 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 Socio-environmental cost and benefit analysis

Total cost of investment in the proposed project, costs and benefits are identified/estimated based on the outlined project activities, identified positive and negative environmental impacts, implementation of identified mitigation and enhancement measures, carrying out of environmental and social monitoring activities and decommissioning operations.

The estimates would include the direct costs of equipment, materials, labour for the services, various fees and indirect costs of project management, and operation activities.

The proposed project will potentially include both costs and benefits to the nation and the local communities. The socio-environmental costs and benefits of the project are as follows

11.2.1 Benefit related to the project

Several benefits are associated with the proposed development both at local level and other communities around and at the national level in terms of revenue generation and the multiplier effects associated with linkages with local and national economy. The following summarizes the Costs and Benefits of the project:

11.2.1.1 Tangible cost

- Proposed project implementation costs.
- Wages paid to workers employed by the proposed project.

11.2.1.2 Tangible benefit

- Revenues to be accrued from the operation of the proposed project (direct benefit to District);
- Fees paid to various government institutions including Ministries (direct benefit to the country);
- Wages received by people who are employed by the project (direct benefit to district and locals)

11.2.1.3 Intangible costs and benefits

The intangible Costs and Benefits include mainly those that could not be quantified, including:

11.2.1.4 Intangible cost

- Potential for increased prostitution and hence the spread of sexually transmitted infections, including HIV;
- Increased resource usage

11.2.1.5 Intangible benefits

- Potential for increased earnings to nearby communities due to increase in production of foods and services to meet the demand and expanded cash economies;
- Increased government revenue, from payments of all legal levies.

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 camps that will be constructed with engineering standards at the site especially at Igegu village nearby or within project camps

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. Decommissioning phase, key features would include:

- Collection of all removable and usable utilities, which would be put to better use elsewhere.
- Demolishing of buildings, removal of rubble and usable material, and restoration of the area.

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

The potential environmental and social impacts of the proposed construction of regional school at Simiyu have been assessed through a process of Environmental and Social Impact Assessment and have been reported in this Environmental Management Plan. It is therefore concluded that, as long as the proposed mitigation measures which are well aligned with the ESMP are meticulously monitored to reduce impacts, there will be no major environmental and social impacts and all moderate impacts will be reduced to "As Low As Reasonable Possible" (ALARP) levels.

In order to ensure that the mitigation measures are adhered to and that the relevant legislations are obeyed during the project operation, Ministry shall have to carry out a monitoring programme in collaboration with other relevant authorities and prepare monthly and terminal reports

The project shall have massive benefit to the scientific community and human race as a whole as it shall enable development of a deterministic model of climate change.

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

The Project should systematically manage environmental as well as health and issues so as to ensure sustainability and attainment of overall goal of the project.

This can only be achieve if the ESMP and the Monitoring Plan developed hereinwhithin is properly adhered to and improved upon whenever shortcomings are identified.

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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 Response Procedures

1.1.1 Fire Emergences

Students, staff, visitors, and members of the school community are kindly requested to remain vigilant and promptly report any signs or evidence of fire within the school premises. It is essential to observe and identify the following indicators:

I. Smoke:

- Report any sight or smell of smoke, regardless of its source or location within the school buildings or surrounding areas.
- Pay attention to areas where smoke may accumulate, such as stairwells, restrooms, or utility rooms.

II. Burning smell:

- Take note of any unusual or strong burning odors that may indicate a fire.
- Report any such smell, even if there is no visible smoke or flames.

III. Abnormal heating of any material or machines:

- Be observant of any objects, equipment, or machinery that exhibit abnormal or excessive heat.
- Report any instances where materials or devices feel unusually hot to the touch.

The swift detection and reporting of potential fire incidents are crucial for ensuring the safety and security of everyone within the school. All members of the school community are encouraged to remain alert and immediately inform the designated authorities or the emergency response team upon discovering any of these fire-related signs or evidence. Remember, early detection and timely reporting can help prevent the escalation of fire hazards and facilitate prompt response and evacuation procedures if necessary.

1.1.1.1 Fire response Plan (for Large Fires)

- I. Use emergency communication systems to notify the Emergency Coordinator/Supervisor immediately of the fire's location.
- II. Ensure that doors in large buildings open outwardly to facilitate easier movement of people outside the building.
- III. Activate the nearest fire alarm within the premises to alert others of the emergency.
- IV. If safe to do so, rescue any person in immediate danger and move them to a place of safety.
- V. If someone's clothing is on fire, cover them with fire blankets. If fire blankets are not available, use water from showers or other sources to extinguish the flames.
- VI. Proceed to the nearest exit and evacuate the building area using the nearest available exit.
- VII. Close doors behind you to contain any smoke and prevent the fire from spreading further within the building.
- VIII. Proceed to the designated assembly area and do not re-enter the building until it has been deemed safe to do so by emergency personnel.
- IX. If you are unable to exit the room, try to prevent smoke from entering by using available materials to block gaps under doors or windows.

- X. Make efforts to draw attention to your location if you are trapped. Use a phone, window, or call for help to alert others. Remember, smoke inhalation is a significant danger in fires.
- XI. Only attempt to use a fire extinguisher if the fire is small and you have been properly trained to operate it safely.
- XII. If you have any doubts about operating the fire extinguisher or if the fire extinguishing attempts are ineffective, evacuate immediately from the building.
- XIII. Call the firefighting crew or emergency services (e.g., dial 911) immediately for professional assistance.

1.1.2 Chemical and Hazardous Material Spills

This section covers important information for emergence involving the release of chemical or hazardous substance that could harm people health and environmental.

- 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.

1.1.3 Medical Emergencies

- I. Remain calm and focus on ensuring the safety and well-being of all individuals involved, without compromising your own safety.
- II. Immediately seek help by contacting the designated emergency phone number for the clinic and inform the Supervisor or appropriate personnel.
- III. Provide the necessary First Aid services to the injured person(s) as trained and within your capabilities.
- IV. Avoid moving an injured person unless they are in immediate danger of further harm. Stabilize the person and wait for medical professionals to assess the situation.
- V. Alert personnel in adjacent areas of any potential hazards to their safety, such as fire explosions, chemical contamination, or civil disturbances.
- VI. If a person's clothing is on fire, cover them with a fire blanket if available. If not, instruct them to roll on the floor to extinguish the flames. If showers are immediately available, use them to douse the person with water.
- VII. If chemicals have entered the eye, promptly flush the affected eye with plenty of water for at least 15 minutes, ensuring to wash the eyeball and inner surface of the eyelid.
- VIII. If necessary, transport the injured person(s) to the nearest dispensary or hospital. If an ambulance is not readily accessible, utilize the available means of transportation to ensure timely medical attention.

1.2 Resources and Equipment

1.2.1 First Aid Kits

In the school area, each designated area will be equipped with a First Aid Kit, which will be stored in a readily accessible location for emergency team members. These kits will contain essential first aid items that can be used before seeking further medical assistance at the clinic.

To maintain the effectiveness of the First Aid Kits, the clinic staff and/or Office Supervisor will conduct regular inspections to ensure that the items are in good condition and have not expired. This includes checking the integrity of the packaging, verifying the expiration dates of medications and perishable items, and replenishing any used or depleted supplies

1.2.3 Fire Extinguisher

To ensure the safety of the school compound, fire extinguishers will be strategically placed in all buildings, including classrooms, dormitories, laboratories, the dining hall, and offices. These fire extinguishers will be regularly inspected to ensure they are operational and ready for use.

A yearly inspection will be conducted to verify the functionality and condition of each fire extinguisher. Trained personnel or a designated fire safety team will perform these inspections, checking for any signs of damage, ensuring that pressure gauges are within the recommended range, and confirming that safety seals are intact. If any issues are identified during the inspection, immediate maintenance or replacement of the fire extinguisher will be arranged.

1.2.5 Alarms

The school's alarm system serves as a crucial tool for emergency notification. In the event of an emergency, all students, staff, visitors, and contractors are required to respond promptly and gather at the designated assembly point once the alarm is activated. The safety and well-being of everyone within the school compound are of utmost importance, and this response protocol ensures a swift and organized evacuation or response to any potential threat or emergency situation. By adhering to this procedure, we can maintain a secure environment and effectively practice our emergency preparedness measures

1.3 Accident / Incident Reporting Obligation

- All incidents/accidents must be reported
- Notify the department responsible, Safety Managers and Environmental personnel if the accident/ Incident have led into Environmental impacts
- Report all incidents and accidents using and incidents/ Accident form to ensure that corrective measures are in place to prevent re occurrence in future
- The filled incident and Accident form will be signed off when all corrective is already done.

1.4 Responsibilities

1.4.1 Workers and Students

- Workers and Students are responsible to ensure that all incidents or suspicious situations are reported immediately
- When fire alarm signal has sounded or shout for fire, workers and students are required to immediately evacuated the buildings and if possible, knocking on their neighbor doors and while saying **EMERGENCE GET OUT!**
- Familiarize with the Emergence Response Plan
- Familiarize with the signs **EXIT, EMERGENCY EXIT, ASSEMBLY POINT**
- Observe the fire warning sign such as **DO NOT SMOKE, FIRE**
- To know where the assembly point is it

1.4.2 Office Supervisor/ Emergence Coordinator

Emergence Coordinator or office Supervisor will be responsible to responsible the rescue team (Fire crew, first aiders and emergence response team) during emergencies cases
To identify OHS training needs depending upon the existing requirement

1.4.3 District Secondary Education Officer

- To provide recourses to implement Emergence Preparedness Plan

1.4.4 Emergence Respond Team

- To quickly respond, evacuate the facility within the designated timeframe, and follow all other procedures as listed in the emergency plan.
- Know where emergency and first aid equipment are found in the building (s) and how to use such equipment.
- Know the Emergency number and understand how the chain of command works.
- Known Emergence numbers and understand how the chain of command works

1.5 Trainings Programs

- Workers and Students will be trained depending upon the Training needs of each section
- Occupational Health, Safety and Environmental meeting will be held in month basis to ensure that issues from department are communicated and managed according
- Key personnel will be trained on evacuation procedures, use of fire Equipment's, first aid procedure etc.
- Notices indicting contact details for first aiders or appointed persons, the emergence contact number and where the first – aid box is must be posted at the site

1.6 Emergence Contact Detail

Table 1.1 List of Emergency Contacts

S/N	Organisation	CONTACT
1.	Bariadi District Executive Director	
2.	Bariadi District Secondary Education Officer	
3	Fire and Rescue Office	
4	TANESCO	
5	Sapiwi Ward Executive Officer	
7	Bariadi District Hospital	

APPENDIX II: LIST OF THE STAKEHOLDERS CONSULTED



SEQUIP – ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

Location SINIYU REGIONAL - OFFICE Date 21/09/2022

S/N	Name/ Jina	Title/ Cheo	Contacts/ Mawasiliano	Signature/ Sahihi
01	PRISCA J. KAYOMBO	RAJ	0788-136840	
02	ESTHER C. MARWA	Ag- RED	0762606584	
03	CHARLES MAGANGA	CULTURAL OFFICER	0786265630	
04	FADHIL WILHEM	RCDD	0769780189	

Location BARADI D.C Date 21/09/2022

S/N	Name/ Jina	Title/ Cheo	Contacts/ Mawasiliano	Signature/ Sahihi
01	HARIDI M. MBWANA	DED	0712431642	
02	CAROLINE J. NGWIZA	CEO	0654921226	
03	STEPHEN T. MASUNGUWA	DSEO	0755481984	
04	KWAMBWA M. SINDIGA	Ag-DMRSD	0787843861	
05	WAMBENGE KALINGONSI	SWD	0762453971	
06	STANSLAND NKOBI	Ag-DE	0792356168	
07	MAZENGO F. SABAHA	DPO	0755789775	

Location SIKANI - Village Government - SINYU Date 21/09/2022

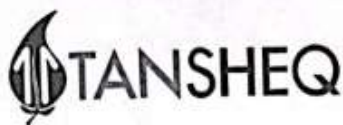
S/N	Name/ Jina	Title/ Cheo	Contacts/ Mawasiliano	Signature/ Sahihi
	LULENDA LULUNGE	M/KITUNGOZI	0785845990	
	ZENAIDA E. NALUYAGA	VED	0764266493	
	MIALASI L. BARI	M/Kili Kijiji	0712206085	

Location IGEGU - PAPS - SIMIYU Date 21/09/2022

S/N	Name/ Jina	Title/ Cheo	Contacts/ Mawasiliano	Signature/ Sahihi
01	SHANI MUKINGWA	SHANI	0765-394943	Shani
02	DONDO MUKINGWA	DONDO	078567449	Dondo
03	MAYUNGA MAKEJA	MWANANCHI	0787667189	Pf
04	MATHEKA SAGUDA	MWACHA	0722242889	MATHEKA
05	AMOS MADUBU	MWACHA	0694132807	Amos
06	KABULA MAGEVIBE	MWANANCHI	0782147066	KABULA

Location IGEGU VILLAGE / COMMUNITY - SIMIYU Date 21/09/2022

S/N	Name/ Jina	Title/ Cheo	Contacts/ Mawasiliano	Signature/ Sahihi
	THELEZA NGUMILA	MWANANCHI	0678446348	T. KITULA
	KWIANDU LIMBU	MWANANCHI		
	MASALU MADUBU	MWANANCHI	0785656372	
	NEEMA MASUNGA	MWANANCHI		



SEQUIP - ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

SN	Name/Jina	Title/Jina	Contacts/Mawasiliano	Date/Tarehe	Signature/Sahihi
1.	INSPIRATION 2 KILAYO	QC- LEGAL	0717-158253	04/05/2023	M. KILAYO

**THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF HOME AFFAIRS
FIRE AND RESCUE FORCE**

Telephone: ZIMAMOTO DODOMA
Telephone: +0262321339
Telefax: 0252321339
Email: dodoma@frf.go.tz



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**



SEQUIP – ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
Stakeholder consultation

Institution/Organization OSTHA 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 <u>NO</u>
2.	What is the importance of involving your organization/institution in this project? <u>To ensure the safety and health of workers during the project implementation</u>
3.	What impact do you expect from this project (Negative and Positive) <u>+Ve - Ensure the provision of better education for our children</u>
4.	What are your concerns/comments on the undertaking <u>To comply with Safety and Health Act No 5 of 2013</u>
5.	What are your suggestions and advice for the project implementation team in order to make it environmental and social friendly <u>Ensure all stakeholders are involved</u>



SEQUIP – ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
Stakeholder consultation

Name Salem Mwanasipile Title OSTA
Signature [Signature] Date 28/04/2023

S/N	Name/Jina	Title/Jina	Contacts/Mawasiliano	Date/Tarehe	Signature/Sahihi
1	Salim Mwendapire	OHJ (ASHA)	071336661	28/04/23	
2	Reina Mbalawa	TANZANIA 755336461	755336461	28/04/2023	
3					

APPENDIX III: CERTIFICATE OF OCCUPANCY

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

Telegrams: LANDS
Telephone: 2121241-9
In reply please quote:
Ref. No. LR/T 79320



LAND REGISTRY,
P.O Box 1191,
Dar es salaam.
Date: 19 May, 2023

BARIADI DISTRICT COUNCIL
P.O Box 109 BARIADI
BARIADI
Sir/Gentlemen/Madam,

ASSISTANT REGISTRAR OF TITLES
MINISTRY OF LANDS, HOUSING AND HUMAN
SETTLEMENTS DEVELOPMENT
SIMIYU
P.O. Box 290
BARIADI - SIMIYU

RE: TITLE NO: 79320 LAND OFFICE NO: 1229123
PLOT NO. 1 BLOCK B AT IGEU TRADING CENTRE

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


REGISTRAR OF TITLES

Copy to: Commisioner for Lands
Your LD File No: BRD/DC/IGG/B1 refers

Land Form 23 A

TANZANIA

THE LAND ACT 1999
(NO. 4 OF 1999)

CERTIFICATE OF OCCUPANCY

(Under Section 29)

Date of Issue:

Title Number: 79320 LR Simiyu

Land Office Number: 1229128

Land: PLOT No 1 BLOCK "B" IGHEGU IN BARIADI DISTRICT COUNCIL

Term: NINETY NINE YEARS 99

TITLE No. 79320
 REGISTERED ON: 02-05-2023
 AT: 1:00 P.
 Senior Asst. Registrar of Titles

LR Simiyu

TANGANYIKA STAMP DUTY ACT
 Land Form No. 12
 Stamp Duty Shs. 100/- Paid
 Receipt No. 92307616690443
 of 17-03-2023
 Stamp Duty Officer

THE UNITED REPUBLIC OF TANZANIA

THE LAND ACT, 1999

NO. 4 OF 1999

CERTIFICATE OF OCCUPANCY

(Under Section 29)

TANGANYIKA STAMP DUTY ACT
 Stamp Duty Shs. 400/- Paid
 On Original Receipt Shs. 92307616690443
 of 17-03-2023
 Stamp Duty Officer

Title No. 79320
 L. O. No. 1229123

LR Simiyu

L. D. No. BRD/DC/IGG/B1

The 20th day of April Two Thousand and Twenty Three

THIS IS TO CERTIFY that BARIADI DISTRICT COUNCIL Established under The Local Government (District Authorities) Act No, 7 of 1982 of P. O. BOX 109 BARIADI (hereinafter called the "Occupier") is entitled to the Right of Occupancy (hereinafter called "the Right") in and over the land described in the Schedule hereto (hereinafter called "the Land") for a term of Ninety Nine years from the First day of January, Two Thousand and Twenty Three according to the true intent and meaning of the Land Act and subject to the provisions thereof and to any regulations made thereunder 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 the rent of shillings Five Thousand (5,000/-) (nominal) only a year in advance on the first day of July 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 ali beacons on the land throughout the term of the Right. Missing beacons will have to be re-established at any time at the Occupier's expenses as assessed by the Director responsible for Survey and Mapping.

- (ii) Building to be in permanent materials.
- (iii) Building plans to be submitted to the **Bariadi District Council** within six months from the date of the commencement of the Right.
- (iv) Building construction to begin within six months after approval of the plans.
- (v) Building to be completed within thirty-six months from the date of the commencement of the Right.

3. **USER:** The land and the existing buildings erected thereon shall be maintained and the same shall be used for **Educational** purposes only. **Use Group "K"**, Use Classes (c), as defined in the Urban Planning Act No 8 of 2007 And Urban Planning (Use Groups And Use Classes) Regulations, 2018.
4. The Occupiers shall not assign the Right within three years of the date hereof without the prior approval of the Commissioner.
5. The Occupiers shall deliver to the Commissioner notification of disposition in prescribed form before or at the time the disposition is carried out together with the payment of all premia, taxes and dues prescribed in connection with that disposition.
6. The President may revoke the right for good cause and in public interest.

SURVEY OF PLOTS NO. 1 BLOCK B IGEGU
BARIADI DISTRICT COUNCIL

121,703 sq.m.
1

SCALE=1:2500

COORDINATE	Easting	Northing
NCF213	673388.588	808988.8238
IPC24	673388.588	808988.8238
NCF214	673388.588	808988.8238
NCF212	6734000.447	808988.8238
NCF211	6734001.812	808988.8238
IPC21	6734001.812	808988.8238
NCF210	6734007.248	808988.8238
NCF209	6734184.885	808988.8238
NCF208	6734321.789	808988.8238
IPC22	6734328.484	808988.8238
NCF207	6734327.488	808988.8238
NCF206	6734383.175	808988.8238
NCF205	6734383.184	808988.8238
IPC23	6734383.184	808988.8238
NCF204	6734348.128	808988.8238
NCF203	6734285.886	808988.8238
NCF202	6734182.533	808988.8238
NCF201	6734182.533	808988.8238
NCF200	6734113.83	808988.8238

SEE T.P.DRG.NO:25/BRDDC/28/092021

DATE: 07-03-2023

REGIONAL LAND SURVEYOR
KILONZO PHILIP DANIEL

REG. PLAN NO. 172902

OFFICE RECORDS REFERENCE	AMMENDMENTS MADE BY:
COMPS. <u>E18 28 K</u>	1. <u>Philip C. (SURV T. II)</u>
M.P. <u>36/III/1</u>	2. _____
STD SHEET NO. <u>36/IV</u>	3. _____
ACTION TAKEN _____	PHOTOSTAT COPIES SENT TO:-
PLAN NO. <u>E18 28/552</u>	1. _____
	2. _____
	3. _____

Plan drawn by:- Philip C. (SURV T. II)
I hereby certify that the Survey represented by this plan was carried out in accordance with regulations
Date: 13.02.2023
Philip C.
KILONZO PHILIP DANIEL
GOVERNMENT LAND SURVEYOR
REG. PLAN NO. 172902

SCHEDULE

All land known as Plot No. 1 situated at Block 'B' situated at Igegu in Bariadi District Council containing One Hundred Twenty One Thousand Seven Hundred Three (121,703) Square meters shown for identification only edged red on the Plan attached to this Certificate and defined on the registered Survey Plan numbered 172902 deposited at the Office of the Director for Survey and Mapping at Dodoma.

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

COMMISSIONER FOR LANDS

We, within named BARIADI DISTRICT COUNCIL hereby accept the terms and conditions contained in the foregoing Certificate of Occupancy.

SEAL with the COMMON SEAL of the said BARIADI DISTRICT COUNCIL

and DELIVERED in presence of us
this 16th day of MARCH 2023

Witnesses

Name... HALDI - M. NBWANA
Signature...
Postal Address... P.O. BOX 109 BARIADI
Qualification... DIRECTOR

Witnesses

Name... MAYANA LUCAS SHIMINJI
Signature...
Postal Address... P.O. BOX 109 BARIADI
Qualification... CHAIRMAN

APPENDIX IV: GEOTECHNICAL REPORT

ARUSHA TECHNICAL COLLEGE
NAIROBI ROAD, P.O. BOX 296, ARUSHA-TANZANIA
Telephone: +255-27-2970056, Fax: +255-27-2548337
Web site: <http://www.atc.ac.tz>; E-mail: rector@atc.ac.tz ; adm@atc.ac.tz



ATC-Production and Consulting Bureau

PROJECT: PROPOSED CONSTRUCTION OF GIRL'S SECONDARY SCHOOL AT SIMIYU REGIONAL.

ASSIGNMENT: GEOTECHNICAL INVESTIGATIONS FOR PROPOSED CONSTRUCTION OF GIRLS SECONDARY SCHOOL AT SIMIYU REGIONAL.

LOCATION: IGEU –BARIADI SIMIYU

CLIENT: DISTRICT EXECUTIVE DIRECTOR
BARIADI SIMIYU

CONTRACTOR: MATINDE ENGINEERING CO.LTD

TEST DATE: 24/08/2023 - 05/10/2023.

TESTED BY: G. KITANGE
D.CHARLES
J. MMASI
MWITA

REPORTED BY: George P. Kitange
ATC-Production and Consulting Bureau



Executive Summary

E1: Project Brief

The Simiyu Regional intend to carry out carryout Design and Construction of girl's secondary school at Igegu-Bariadi in Simiyu Regional. As a part of the design procedures, The Simiyu regional appointed Arusha Technical College Production and Consulting Bureau to carryout Geotechnical Investigations so as to characterize the ground and provide recommendations for foundation design and other geotechnical aspects for the proposed design and construction of girl's secondary school at Simiyu Regional

E2: Soil Profile

The ground stratification is such that, from ground surface to 700mm depth is very dark gray clay soil; from 700mm depth to 1500mm depth is Very Dark grayish Brown Clayey GRAVEL mixed with Stone Boulders; below 1500mm depth is a Bedrock/Hardstrata

E3: Hard strata / Bedrocks

At the proposed site for construction of the new secondary school, the depth at which the bedrock is found various from 1000mm to 1500mm below the existing ground surface. The average depth at which the bedrock is found is 1500mm below the existing ground surface. It has the bulk unit weight of 25.642kN/m^3

E4: Bearing Capacity of the Soil

The recommended design safe or allowable bearing capacity of the soil should be 250kN/m^2 provided the foundation footing rests at 1500mm depth. Otherwise, values given in Tables eight (9) should be used.

E5: Foundation Type and Foundation Depth

The recommended minimum depth for foundation trench at which the footing shall rest is 1500mm below the existing ground surface. After excavating the foundation trench, the ground should be well compacted to remove any weak pockets in the soil mass. A well reinforced cement concrete shallow depth foundation such as strip foundation, pad foundation joined together with a ground beam or raft foundation is suitable for supporting the proposed buildings. The size of the foundation footing should be calculated such that the applied contact pressure does not exceed the allowable bearing capacity.



The foundation should be adequately reinforced cement concrete to withstand both applied load and minor earth tremors.

E6: Backfilling around the Foundation Structure

Selectively, the subsoil Very dark grayish brown clayey GRAVEL Mixed with stone boulders excavated from the foundation trench can be used for backfilling around the foundation. Alternatively any borrowed Gravelly soil or Granular soil or crushed rock material can be used for backfilling around the foundation.

E7: Ground Water

In the course of field investigations, no ground water was found in the soil stratum or within the proposed foundation depth. Therefore there is no ground water seepage problem which may occur and affect the foundation structure; however considerations should be given to the natural moisture content of the soil

E8: Surface Drainage

Surface drainage should be provided to control rainwater runoff to avoid erosion gullies around the foundation.



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Abbreviations

AASHTO	American Association for State Highway & Transportation officials
ASTM	American Society for Materials Testing
ATC	Arusha Technical College
BS	British Standard
CBR	California Bearing Ratio
CML	Central Materials Laboratory
DCP	Dynamic Cone Penetrometer
LL	Liquid limit
LS	Linear shrinkage
PI	Plasticity index
PL	Plastic limit
TP	Trial Pit
UCS	Unconfined Compression Strength
SP	Shrinkage Product
SPT	Standard Penetration test



1.0 Introduction

1.1 Introduction

The Simiyu Regional intends to construct girl's secondary school at Igegu - Bariadi in Simiyu Regional. As a part of the design procedures, appointed Arusha Technical College Production and Consulting Bureau to carry out geotechnical investigations for the purpose of characterizing the ground properties and provide recommendations for the foundation design and other geotechnical aspects for the proposed girl's secondary school.

1.2 Objective

The objective of this geotechnical investigations work is to determine the characteristics of the ground for design and construction of girl's secondary school at Igegu - Bariadi in Simiyu Regional.

1.3 Scope of work

The scope of the geotechnical investigations was limited to the following:

- a) Excavation of Three (3) trial test pits within the proposed site.
- b) Sampling both disturbed and undisturbed soil samples
- c) Carrying out field and laboratory tests
- d) Preparation of geotechnical investigations report.

1.4 Method of work

The geotechnical investigations work comprised of both field and laboratory testing work to determine the engineering properties of the soil so as to provide basis for assessing the bearing capacity of the soil and the foundation depth. The field work comprised of site reconnaissance, excavation of test pits, conducting dynamic cone penetration (DCP) test, unconfined compression strength test and collecting disturbed and undisturbed soil samples. The laboratory work comprised of soil classification tests, shear strength tests, and soil compressibility tests.

1.4.1 Field investigation and testing

During field investigation the following were done:

- (a) Excavation of Three (3) trial pits to enable physical examination of the soil and bedrock
- (b) Examination of the soil stratification and the underlying bedrock
- (c) Determination of the strength of each soil layer
- (d) Determination of field density and field moisture content
- (e) Soil sampling, both disturbed and undisturbed soil samples

1.4.2 Soil Classification tests

Soil classification tests comprised of the following:

- (a) Sieve analysis
- (b) Specific gravity test
- (c) Liquid limit
- (d) Plastic limit
- (e) Linear shrinkage
- (f) Soil expansiveness analysis

1.4.3 Soil Strength tests

Soil strength tests comprised of the following:

- (a) In situ unconfined compression strength test
- (b) Dynamic cone penetrometer test

2.0 Site Location and its Geological Nature

2.1 Site Location and Test Positions

The site is located at Igegu - Bariadi in Simiyu Region. The topographical view of site is such that, it is slightly inclined with a minor slope. The site is open it is not occupied any building; it cleared from natural vegetation ready for the proposed construction. Tables 1 and 2 show coordinates at which trial pits were opened for soil examination, soil sampling and determination of ground stratification.

Table 1: Trial Pit test locations

Trial Pit	UTM Coordinates		Remarks
	Easting	Northing	
Trial Pit 1	606745	9733989	
Trial Pit 2	606570	9733985	
Trial Pit 3	606432	9734022	



Table 2: Dynamic Cone Penetration Test Locations

DCP	UTM Coordinates		Remarks
	Easting	Northing	
DCP 1	606747	9733990	
DCP 2	606594	9734074	
DCP 3	606441	9734036	
DCP4	606529	9733810	
DCP5	606686	9733858	

2.2 Geology of the area

Geologically the area is occupied with a Grayish Brown Clayey SILT soil stratum that extends starting from ground surface up to an average depth of 1500mm; below 1500mm depth is bedrock/Hardstrata.

3.0 Field Investigation**3.1 Ground Stratification**

The ground stratification was deduced from the observations of trial pits excavations and Dynamic Cone Penetration test. The lightweight Dynamic Cone Penetration test was carried out using the 10kg rammer falling over a 500mm height and the number of blows required to penetrate each 100mm intervals was recorded. This test was carried out to determine the soil stratification and evaluate the relative strength of each soil layer. Table 3 shows the summary of observations from the excavation of trial pits and the lightweight Dynamic Cone Penetration test. Appendix presents detailed findings from trial pits and dynamic cone penetration test.



Table 3: Ground Stratification & Dynamic Cone Penetration test

Depth (mm)	Soil description	DCP- Value (mm/blow)	CBR Value (%)	Equivalent SPT Value
000-700mm	Very dark gray clay soil	10	33	18
700-1500mm	Very dark grayish brown clayey GRAVEL Mixed with stone Boulders	3.13	151	88
Below 1500mm	Hardstrata/ Bedrock	-	-	-

3.2 Soil Profile

The ground stratification is such that, from ground surface to 700mm depth is Very dark gray clay soil; from 700mm depth to 1500mm depth is Very dark grayish brown clayey GRAVEL Mixed with stone Boulders; below 1500mm depth is an Hardstrata/ Bedrock.

Bedrock

At the proposed site for construction of the girls secondary school, the depth at which the bedrock is found varies from 1000mm to 1500mm. The average depth at which the bedrock is found is 1500mm below the existing ground surface. Table 4 shows the depth at which the bedrock was found from existing ground surface at different tested locations.



Table 4: Depth of Bedrock from Existing Ground Level

Remarks from Trial Pit		Remarks from DCP test	
Trial Pit No	Thickness of soil Stratum from Ground level to Bedrock (mm)	DCP No.	Thickness of Soil Stratum form Ground Level to Bedrock (mm)
Trial Pit No.1	1200	DCP No 1	1000
Trial Pit No.2	1400	DCP No 2	1200
Trial Pit No.3	1500	DCP No 3	1500
Average depth (mm)	1500	DCP No 4	1000
		DCP No 5	1200
		Average	1220

3.3 Ground Water

During geotechnical investigations which advanced up to Bedrock at 1500mm depth; no ground water was found within the soil exploration depth. Therefore no ground water seepage problems are expected to occur and affect the foundation. However, considerations should be given to the natural moisture content of the soil.

4.0 Engineering properties of the soil

Both Field and laboratory tests were carried to measure the engineering properties of the soil. These properties include particle size distribution, Liquid limit, Plastic limit, Linear shrinkage, Plasticity index, natural moisture content, and unit weight of the soil. Other engineering properties which were measured include field moisture content, field unit weight; in-situ strength of the soil, Specific gravity, Maximum dry density, soil expansiveness and Bearing capacity of the soil.



4.1 Particle Size distribution of the soil

Particle Size distribution of the soil gives a view on soil composition and strength of the soil. Poor grading (Particle Size distribution) affects the ultimate bearing capacity of the soil to support the foundation structure. Wet sieving analysis was carried out to determine the particle size distribution of the soil.

Particle size distribution analysis found that, from the existing ground surface to 700mm depth the soil is fine grained having average percent passing 0.075mm sieve ranging from 49.30% to 63.38% with grading modulus ranging from 0.6 to 0.91; from 700mm depth to 1500mm depth the soil is coarse grained having average percent finer 0.075mm ranging from 16.32 to 52.38% and grading modulus from 0.3 to 2.44; below 1500mm depth is an Bedrock/Hardstrata.

4.2 Atterberg limits

Atterberg limits tests were carried out on a soil mass passing 0.425mm sieve to determine the consistency properties or plasticity characteristics of fines, silt and clay soil. These tests include; Liquid Limit, Plastic Limit, and linear Shrinkage test. From Atterberg limits test results; it was found that the soil stratum which extends from ground surface to 700mm has the plasticity index ranging from 18.13% to 28.44% and the Linear shrinkage from 10% to 14.29%; from 700mm depth to 1500mm depth the soil has the plasticity index ranging from 9.08% to 20.58% and the Linear shrinkage from 10.00% to 12.86%; Below 1500mm depth is hard stratum / Bedrock. Table 5 show the summary of Atterberg limits tests results.

Table 5: Particle Size Distribution of the Soil

Depth	Trial Pit 1, 0.0-0.7m	Trial Pit 1, 0.7-1.3m	Trial Pit 2, 0.0-0.6m	Trial Pit 2, 0.6 - 1m	Trial Pit 3, 0. - 0.70m	Trial Pit 3, 0.7 - 1.0m
BS Soil Description	Very dark gray Clay Silt Soil	Light Brownish Gray Clay Silty GRA VEL	Very light Gray Clay Silty Soil	Grayish Brown Clay GRA VEL	Very dark gray Clay Silt Soil	Dark Grayish Brown Clay GRA VEL with stone Boilders
%passing on 2.0mm sieve	95.96	75.02	98.32	65.76	92.38	21.11
%passing on 0.425mm sieve	79.36	62.16	87.98	57.85	66.86	18.13
%passing on 0.075mm sieve	63.38	34.38	77.73	33.04	49.3	16.32
Liquid limit %	57.3	43.2	62.7	50.5	50.6	57.3
Plastic Limit %	31.51	30.46	34.26	26.76	32.47	36.72
Plasticity Index %	25.79	12.74	28.44	23.74	18.13	20.58
Linear Shrinkage %	12.14	6.71	14.29	12.86	13.57	10
Weighted Plasticity index	24.44	7.15	1.37	23.84	8.96	8.12
Shrinkage Product	963.7	666	1110.4	810.5	668.6	246.1
AASHTO Soil Classification	A-7-5(15)	A-2-7 (0)	A-7-6(0)	A-2-7 (2)	A-7-5 (6)	A-2-6(0)

Table 6: Field Moisture Content and Unit weight of the soil and Bedrock

Depth (mm)	Soil description	In-situ Moisture content	In-situ bulk unit weight (kN/m ³)	In-situ dry unit weight(kN/m ³)	Specific gravity of soil / rock
000-700mm	Very dark gray clay soil	5.7	18.618	17.61	2.501
700-1500mm	Very dark grayish brown clayey GRAVEL Mixed with stone Boulders	11.2	17.704	15.80	2.477
Below 1500mm	Hardstrata/ Bedrock	-			

4.5 Strength of the soil

The strength of the soil was measured using the proctor penetrometer test and dynamic cone penetration test. The proctor penetrometer test was used to determine the unconfined compression strength of the soil in the field. Dynamic Cone Penetrometer test was carried out to measure the relative field strength of the soil. Two important parameters were recorded; these are the rate of penetration (DCP value) and its equivalent SPT value together with the field (insitu) CBR value.

Dynamic Cone Penetrometer test was carried out to measure the relative field strength of the soil. Also it gave an equivalent value to Standard Penetration test to measure the bearing capacity of the soil for foundation design. Two important parameters were recorded from the Dynamic Cone Penetrometer test; the rate of penetration (DCP value) and its equivalent SPT value together with the field CBR value. The CBR Value is the measure of bearing capacity of the subgrade soil for design of the pavement of the parking area and associated access road at the proposed site. It measures the shearing resistance of a soil under controlled moisture and density conditions. Also it gives information on soil swelling characteristics resulting from soil expansion beneath the pavement when the soil becomes saturated and it gives an indication of strength loss from field saturation.

Further analysis was done from soil Classification tests and dynamic cone penetration test to determine the effective shear strength parameters of the soil. The two important parameters of shear strength that were determined are Cohesion (C) and Angle of internal friction (ϕ). The Unconfined Compression



Strength test was conducted in each trial pit at 1m depth intervals. Tables 7 shows the summary of strength characteristics of the soil and Appendix shows detailed information the soil strength test results.

Table 7; Strength of the soil

Depth (mm)	Soil description	Effective shear strength parameters of the soil		DCP-Value (mm/blow)	In -situ CBR Value (%)	Equivalent SPT Value	In -situ Unconfined Compressive strength (kN/m ²)
		Cohesion (kN/m ²)	Angle of Internal Friction				
000-700mm	Very dark gray clay soil	40	15°	10.00	33	18	429
700-1500mm	Very dark grayish brown clayey GRAVEL Mixed with stone Boulders	35	20°	3.13	151	88	474
Below 1500mm	Hardstrata/Bedrock	-					

4.6 Soil Consolidation and Soil Settlement

Soil consolidation process occurs in saturated fine-grained soils when subjected to loading. During consolidation, water contained in the voids between soil particles is gradually squeezed out of voids causing repacking of soil particles thus leading to deformation of the soil underneath and settlement of the structure.

Looking on the soil profile, consistency properties, and particle size distribution properties of the soil at the proposed site for construction of girls Secondary School, the fine grained soil (Very dark gray clay soil) that extends to 700mm is susceptible to consolidation process and consolidation process. The coarse grained soil (Very dark grayish brown clayey GRAVEL Mixed with stone Boulders) which extends from 700mm depth up to the bedrock at 1500mm is not susceptible to undergo consolidation process as well as shrinkage and swelling; it is only liable to immediate settlement which commences at the beginning of

construction (loading) and ends up at the moment the construction process is completed or maximum load is applied.

4.7 Expansiveness of the Soil

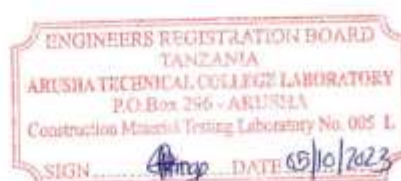
Expansiveness is a measure of fine-grained soil which tells if the soil is susceptible to volumetric movements under cyclic periods of wetting and drying. An expansive fine-grained soil expands upon saturation and on drying it shrinks. It is necessary to pay attention during foundation design and construction in expansive fine-grained soils because of their susceptibility to volumetric movements under cyclic periods of wetting and drying because which can damage the foundation structure. CML states that, at first the soil is suspected to be expansive if its weighted plasticity index is greater than 20%. CML states that, if expansiveness is less than 20 then the soil has a low susceptibility to volumetric movements, if the soil has expansiveness between 20 and 50, the soil has a medium susceptibility to volumetric movements. If the expansiveness is greater than 50, then the soil has a high susceptibility to volumetric movements.

Analysis on weighted plasticity index found that, the entire soil stratum that extends from ground surface up to 1500mm depth the soil is has Intermediate Plasticity. It has the average weighted plasticity index ranging between ranging between 9.08% to 20.58% which is less than 20 the maximum limit for the soil to be considered not expansive. Therefore there shall be no soil volumetric movements under cyclic periods of wetting and drying that shall occur and cause damage to the foundation structure. Table 8 shows the susceptibility of the soil to expansiveness.



Table 8: Weighted Plasticity Index and Soil Expansiveness

Depth (mm)	Soil description	AASHTO Soil Classification	% Passing 0.425mm Sieve	Plasticity Index (%)	Weighted Plasticity Index	Remarks
000 to 700mm	Very dark gray clay soil	A-7-6(15)	62.16	20.76	24.44	None expansive soil
700 to 1500mm	Very dark grayish brown clayey GRAVEL Mixed with stone Boulders	A-2-7(2)	34.65	18.50	6.76	None expansive soil
Below 1500mm	Hardstrata/ Bedrock	-	-	-	-	None expansive soil



5.0 Conclusion & Recommendations

Geologically the area is occupied with soil stratum (very dark grayish brown clayey soil) which extends starting from ground surface up to an average depth of 1500mm; lower than 1500mm depth is bedrock.

5.1 Soil Profile

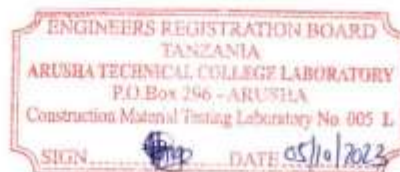
The ground stratification is such that, from ground surface to 700mm depth is very dark grayish soil; from 700mm depth to 1500mm depth is Very dark grayish brown clayey GRAVEL Mixed with stone Boulders; below 1500mm depth is a bedrock. Figure 1 shows the typical view of the soil profile.

5.2 Bedrock

At the proposed site for construction of the girl's Secondary School, the depth at which the bedrock is found varies from 700mm to 1500mm below the existing ground surface. The average depth at which the bedrock is found is 1500mm below the existing ground surface. The bedrock has the bulk unit weight of 25.642kN/m^3 .

5.3 Ground Water

During geotechnical investigations which advanced up to the bedrock at 1500mm depth; no ground water was found within the soil exploration depth. Therefore no ground water seepage problems are expected to occur and affect the foundation. However considerations should be given to the natural moisture content of the soil.



**GEO TECHNICAL INVESTIGATIONS FOR PROPOSED CONSTRUCTION OF GIRLS
SECONDARY SCHOOL AT SIMIYU REGIONAL**




LOCATION:	TP 1	606745E	9733989N
Groundwater Depth:		Elevation:	Total Depth of Boring:
	N/A		1.5m
Depth (feet)	Graphic Log	Soil Group Name: modifier, color, moisture, density/consistency, grain size, other descriptors Rock Description: modifier color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	
000mm ↓ 700mm		Very dark gray clay soil	
700mm ↓ 1500mm		Very dark grayish brown clayey GRAVEL Mixed with stone Boulders	
1500mm ↓		Hardstrata/ Bedrock	

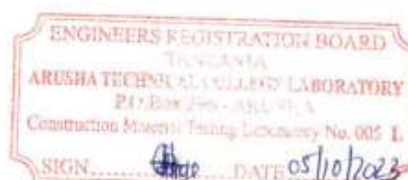
Figure 1: Typical Views of the Soil profile

5.4 Soil Classification Properties

Particle size distribution analysis found that, starting from the existing ground surface to 700mm depth the soil is fine grained having average percent passing 0.075mm sieve ranging from 49.30% to 63.38% with grading modulus ranging from 0.6 to 0.91; from 700mm depth to 1500mm depth the soil is coarse grained having average percent finer 0.075mm sieve equal 16.32 to 52.38% and grading modulus from 0.3 to 2.44; below 1500mm depth is bedrock.

Analysis Atterberg limits test results shows that, the entire soil stratum which extends starting from ground surface up to the bedrock at 1500mm depth has Low Plasticity. Its liquid limit is ranging from 18.13% to 28.44% with an average of 23.29%; Plasticity index is ranging from 9.08% to 20.58% with an average of 14.83%; and the linear shrinkage is ranging from 10.00% to 12.86%; with an average of 11.43%. Table 5 shows classification properties of the soil.

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settlement which commences at the beginning of construction (loading) and ends up at the moment the construction process is completed or maximum load is applied. It has average percent finer 0.075mm sieve equal to 18.65%. Therefore provided the foundation footing rests at depth not less than 1500mm there will be no effect of consolidation process.

5.7 Foundation depth

According to the soil profile, indicator properties of the soil, Shear strength properties, soil compressibility characteristics, bearing capacity of the soil, and nature of the proposed building; the recommended minimum depth of excavation of the foundation trench at which the foundation footing should rest is 1500mm from the existing ground surface.

5.8 Foundation type

A well reinforced cement concrete shallow depth foundation such as strip foundation, pad foundation joined together with a ground beam or raft foundation is suitable for supporting the proposed girls Secondary School. The size of the foundation footing should be calculated such that the applied contact pressure does not exceed the allowable bearing capacity. The foundation should be adequately reinforced cement concrete to withstand both applied load and minor earth tremors.

5.9 Bearing Capacity

Considering the soil classification properties, Shear strength properties and soil consolidation properties; the recommended design safe bearing capacity or allowable bearing capacity of the soil should be 250kN/m^2 provided the foundation footing resist at 1500mm depth. Otherwise those values give in Table eight (9) should be used. This allowable bearing capacity takes into account the Shear failure of soil, the amount of expected soil settlement and the ability of the given structure to withstand that settlement.

5.10 Minor earthquakes

Looking on historical back-ground of the country, Tanzania can experience very minor earthquakes which may occur very seldom. Therefore the design of the foundation or substructure should take into account the effect of these very minor earth tremors which may occur and affect the proposed girls Secondary School; it should not be ignored completely.



6.0 Recommendations

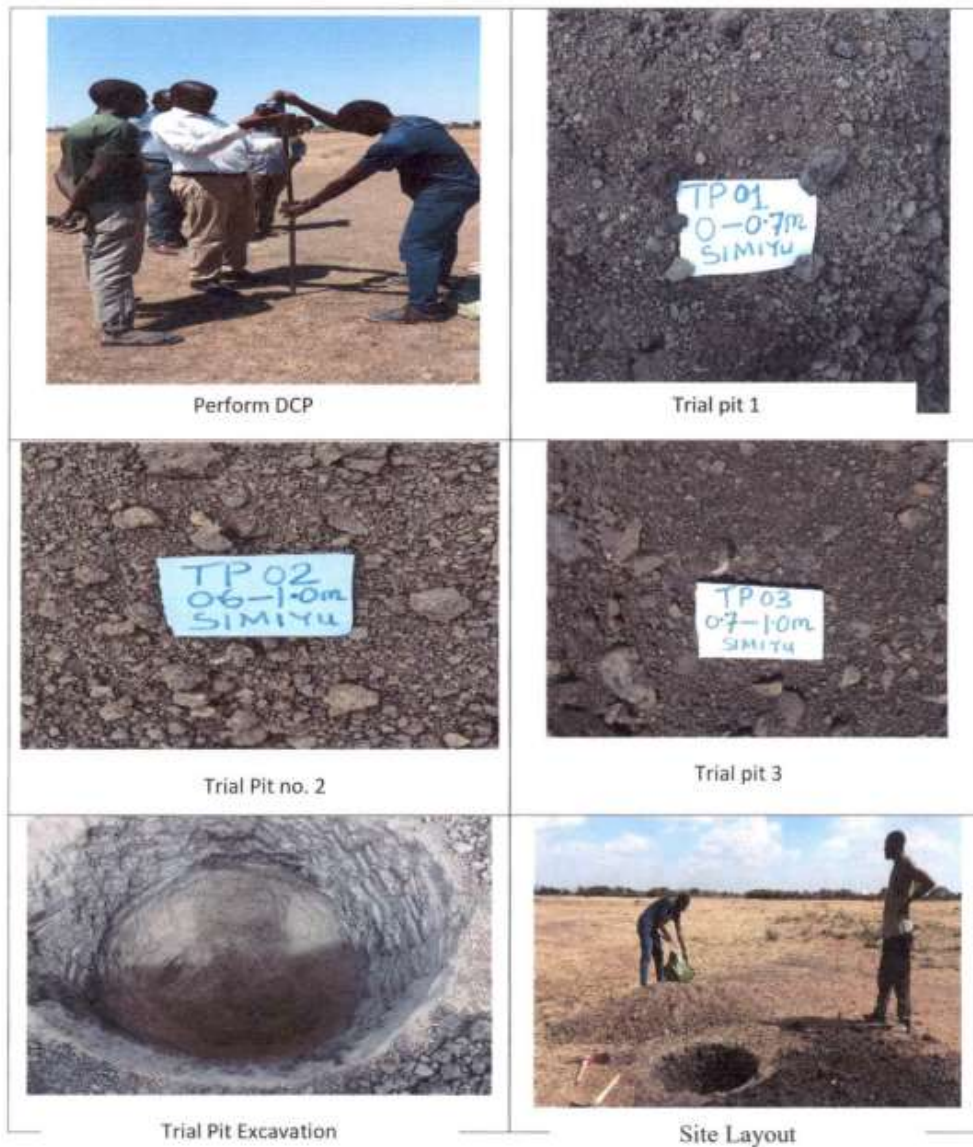
In design and construction of the foundation for the proposed New Secondary School, the following are recommended:

- (a) The recommended minimum depth of excavation of the foundation trench at which the foundation footing shall rest should be 1500mm from the existing ground surface.
- (b) The recommended design safe or allowable bearing capacity of the soil should be 250kN/m^2 provided the foundation footing resist at 1500mm depth. Otherwise, those values given in Table eight (9) should be used.
- (c) A well reinforced cement concrete shallow depth foundation such as strip foundation, pad foundation joined together with a ground beam or raft foundation is suitable for supporting the proposed girls Secondary School at Igegu – Bariadi Simiyu. The foundation should be adequately reinforced cement concrete to withstand both applied load and minor earth tremors.
- (d) The size of the foundation footing should be calculated such that the applied contact pressure is equal or less than allowable bearing capacity.
- (e) The bottom of the foundation trench should be well compacted to bridge any weak pockets. Compacting the soil helps also to increase the shear strength of the soil, reduce the settlement of the soil upon loading and increases the bearing capacity of the soil.



Appendix 1: Soil Photographs





Appendix 3: Field and Laboratory test Results

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ARUSHA TECHNICAL COLLEGE
SOILS & BITUMEN LABORATORY
ATTERBERG LIMITS DETERMINATION
(CASSAGRANDE METHOD - ASTM D.420 / AASHTO T. 86)

PROJECT: Geotechnical Investigations for proposed construction of girl's secondary school at Igegu Bariadi Simiyu

LOCATION: Igegu – Bariadi Simiyu

TESTED BY: Kitange/Dotto/Mwita/Mmasi **DATE:** 24/08/2023 – 05/10/2023

Depth	Soil Description	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Linear Shrinkage (%)	% Passing 0.425mm Sieve	Shrinkage Product	Weighted Plasticity Index
0.0m to 0.7m	Very dark gray clay soil	47.50	36.73	10.77	10.71	90.2	966.4	9.71

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0.7m to 1.5m	Very dark grayish brown clayey GRAVEL Mixed with stone Boulders	41.70	27.52	14.18	8.57	81.4	697.71	11.54
Below 1.5 m		Hard strata	Hard strata	Hard strata	Hard strata	Hard strata	Hard strata	Hard strata

ARUSHA TECHNICAL COLLEGE
SOILS & BITUMEN LABORATORY
ATTERBERG LIMITS DETERMINATION
(CASSAGRANDE METHOD - ASTM D.420 / AASHTO T. 86)

PROJECT: Geotechnical Investigations for proposed construction of girl's secondary school at Igegu
Bariadi Simiyu

LOCATION: Igegu – Bariadi Simiyu

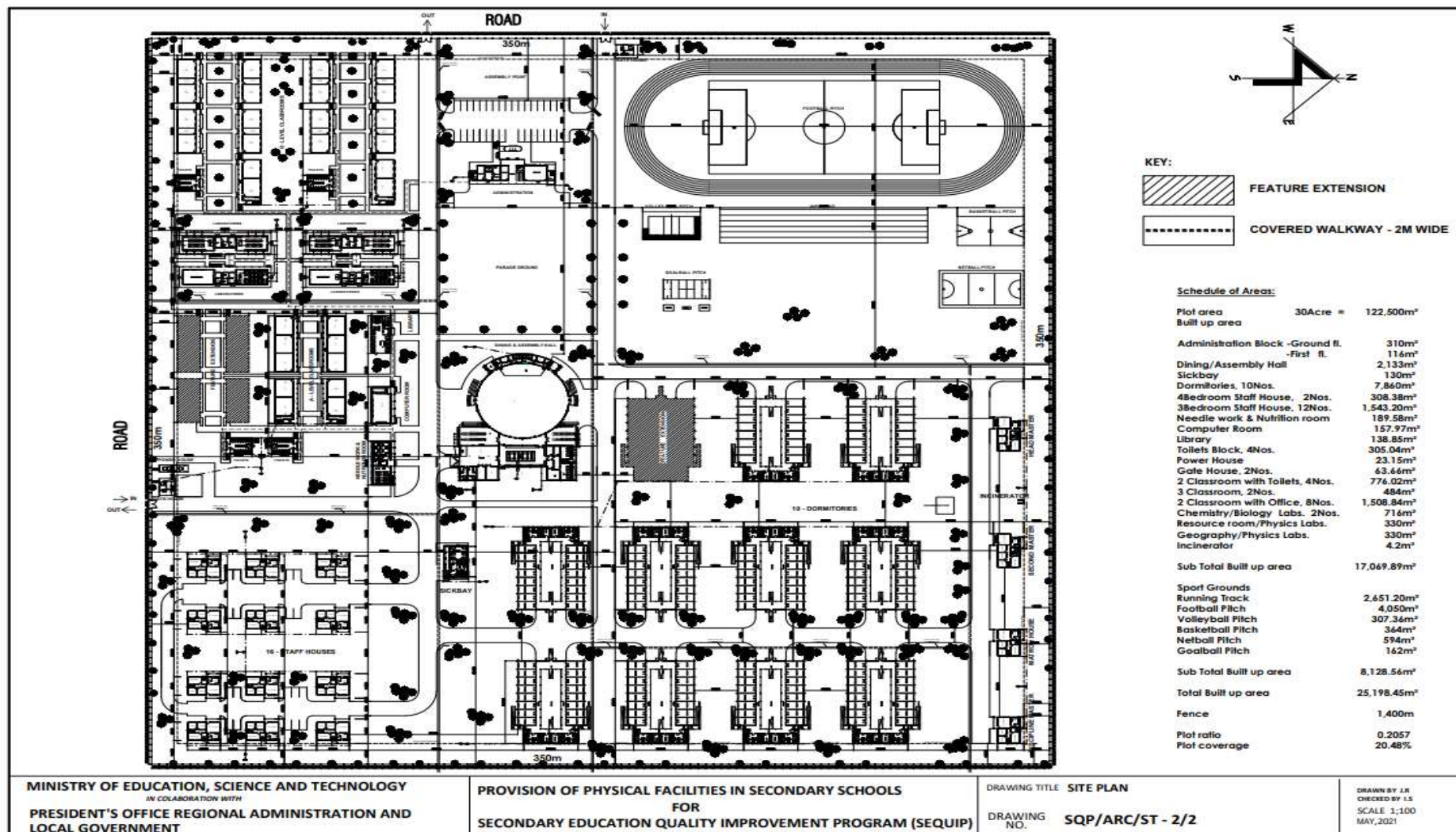
TESTED BY: Kitange/Dotto/Mwita/Mmasi

DATE: 24/08/2023 – 05/10/2023

Depth	Soil Description	Specific Gravity				Average Specific Gravity
		Trial Pit No 1	Trial Pit No 2	Trial Pit No 3	Trial Pit No 4	
0.0m to 0.5m	Very dark gray clay soil	2.560	2.567	2.602	2.632	2.590
0.7m to 1.5m	Very dark grayish brown clayey GRAVEL Mixed with stone Boulders	2.706	2.641	2.644	2.554	2.636
Below 1.5m		Hard strata	Hardstrata	Hardstrata	Hardstrata	Hardstrata



APPENDIX V: SITE LAYOUT PLAN



General Layout

Dining hall

**NON-TECHNICAL EXECUTIVE SUMMARY
FOR
ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT (ESIA) FOR THE PROPOSED
CONSTRUCTION OF REGIONAL GIRLS
SECONDARY SCHOOL AT PLOT NO.1, BLOCK
“B”, IGE GU VILLAGE, SAPIWI WARD, BARIADI
DISTRICT IN SIMIYU REGION**

Library

Administration Block

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' 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 Igegu village, Sapiwi ward in Bariadi district Simiyu Region and Bariadi District Council is located North of Tanzania and South East of Lake Victoria it lies between Latitude 2°15" and 3°10' South of Equator and longitude 33°40" and 35°10" East of Greenwich.

The Council is bordered by Busega Districts (Simiyu Regions) to the West, Bunda and Serengeti Districts (Mara Region) to the North, Maswa Game Reserve to the East, Maswa and Itilima Districts (Simiyu Region) to the South

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 estimated to take 12 months 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 Sapiwi 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 Simiyu 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:

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

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The Environmental Impact Assessment for the proposed construction of Simiyu 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 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.

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 huu ni 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, Mradi huu 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 Ulionaswa 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 huu utatoa ufadhili wa mradi kulingana na idadi ya shule katika kila Halmashauri inayokidhi viwango vya miundombinu ya chini kusaia kuboresha shule za sekondari zilizopo na mpango wa miundombinu ya chini (idadi ya madarasa/wanafunzi, miundombinu 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 huu 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 inayojishughulisha na ushauri elekezi wa mazingira iliyosajiliwa na Baraza la Taifa la Uhifadhi na Usimamizi wa Mazingira, yenye Namba za Usajili **NEMC/EIA/0034** ofisi zake katika mkoa wa Dar es Salaam, S.L.P 31517, Dar es Salaam, imeingia mkataba na TAMISEMI kwa ajili ya utekelezaji wa kufanya tathmini ya Athari ya Mazingira.

MAELEZO YA MRADI

Mradi utatumia viwango vipya vya Mazingira na Jamii, 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 la mradi lililopendekezwa lina eneo la utawala katika kijiji cha Igegu, kata ya Sapiwi wilaya ya Bariadi, Mkoa wa Simiyu, na Halmashauri ya Wilaya ya Bariadi iko Kaskazini mwa Tanzania na Kusini Mashariki mwa Ziwa Victoria. Inapatikana kati ya Latitudo 2015" na 3010' Kusini ya Ikweta na longitudo 33040" na 35010" Mashariki ya Greenwich.

Halmashauri hii inapakana na Wilaya ya Busega (Mkoa wa Simiyu) upande wa Magharibi, Wilaya za Bunda na Serengeti (Mkoa wa Mara) upande wa Kaskazini, Hifadhi ya Wanyama ya Maswa upande wa Mashariki, Wilaya za Maswa na Itilima (Mkoa wa Simiyu) upande wa Kusini.

Maelezo ya Mradi:

Ujenzi na ubunifu wa shule utajumuisha mfuko wa miundombinu uliohitajika kulingana na mkakati wa ujenzi na matengenezo ya shule (k.m. idadi ya madarasa/wanafunzi, miundombinu ya maji inayotosha, hasa muhimu kwa wasichana; maabara ya sayansi ya matumizi mbalimbali, umeme, nk.). Mfuko wa ujenzi utahusisha 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.

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 ambayo itajengwa 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

Muundo wa choo uliopendekezwa utajumuisha jengo moja lenye mashimo 16 ambalo litajengwa kama jengo huru na kila shimo moja kwa watu ishirini (20). Vyoo vingine vitajengwa kwenye majengo ya madarasa, mabweni na sehemu ya chakula.

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 80. 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, ujenzi, uendeshaji, na kufunga mradi.

Uhamasishaji wa Mradi

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, maeneo ya usindikaji vifaa, pamoja na miundombinu ya vyoo. Shughuli zifuatazo zitahusika wakati wa kuanzisha kambi:
 - Kufyeka vichaka.
 - Ujenzi wa maeneo ya kuhifadhi 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 kupatikana (kama vile mchanga, kifusi, na jiwe kutoka kwenye machimbo),
 - Kutambua vyanzo vya maji kwa ajili ya matumizi ya 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:

- Kusafisha eneo la Mradi
- Kupata vifaa vya ujenzi. Hii itajumuisha: Kusafirisha vifaa vya ujenzi kutoka chanzo hadi eneo la ujenzi kama vile bati, chuma, mbao, misumari, kamba, nk.

Hatua ya Uendeshaji

Shughuli za matengenezo za mradi huu zitasaidia kuongeza idadi ya wanafunzi wanaojiandikisha katika shule za sekondari kwa wanafunzi milioni 1.8 na kuongeza idadi ya wasichana wanaohitimu katika shule za sekondari na njia mbadala za elimu ya sekondari.

Hatua ya ukamilishaji wa mradi

Baada ya kukamilika kwa ujenzi, vifaa vyote vilivyotumiwa vitarejeshwa kwa Mkurugenzi wa Manispaa ambaye atachukua uamuzi juu ya matumizi yao ya baadaye. Shughuli kuu wakati wa hatua ya kufuta ni pamoja na yafuatayo:

- Kukusanya na kuharibu vituo vya kuhifadhi kama paleti, makasha ya ufungaji.
- Kukusanya na kuharibu vifaa vya ujenzi na taka kama mafuta yaliyotumika, maji taka, taka ngumu (plastiki, mbao, metali, karatasi, nk) katika karakana, ofisi ya eneo, nk. hadi dampo lililoidhinishwa.
- Kurudisha maeneo ya kukopa vifaa katika hali salama.

Gharama za Mradi

Gharama Jumla ya Mradi ni shilingi bilioni nne za Tanzania

Mfumo wa Kisheria

Sera za sekta husika na za mseto ambazo zinatoa maelekezo juu ya jinsi miradi inavyopaswa kuendeshwa katika/au kuhusiana na rasilimali za asili na mazingira yanayohitaji tahadhari ni:

- Sera ya Taifa ya Nishati, 2015
- Sera ya Elimu na Mafunzo, 2014
- Sera ya Taifa ya Mazingira, 2021
- Sera ya Afya na Usalama Kazini, 2009
- Sera ya Taifa ya Ajira, 2008
- Sera ya Taifa ya Utafiti na Maendeleo, 2010
- Sera ya Taifa ya Bioteknolojia, 2010

Sheria muhimu ambazo TAMISEMI lazima zichukue kuzingatia wakati wa utekelezaji wa mradi huu ni pamoja na:

- Sheria ya Elimu, Sura 353.
- Sheria ya Mtoto, Sura 13 R.E 2019

- Sheria ya Usajili wa Wahandisi, Sura 63
- Sheria ya Wakandarasi na Wasanifu Majengo, Sura 267
- Sheria ya Fidia kwa Wafanyakazi, Sura 263
- Sheria ya Watu Wenye Ulemavu, Sura 183
- Sheria ya Dhima ya Wenyeji, Sura 64
- Sheria ya Viwango, Sura 130
- Sheria ya Usimamizi wa Mazingira, Sura 191
- Sheria ya Usimamizi wa Maliasili za Maji, Sura 331
- Sheria ya Misitu, Sura 323 R.E 2022
- Sheria ya Umeme, Sura 131
- Sheria ya Serikali za Mitaa (Mamlaka za Wilaya) Sura, 287
- Sheria ya Serikali za Mitaa (Mamlaka za Miji) Sura, 288
- Kanuni za Jeshi la Zimamoto na Uokoaji (Uangalizi na Vyeti vya Usalama) za 2008 Kama Zilivyorekebisha Mwaka 2017
- Kanuni za Jeshi la Zimamoto na Uokoaji (Kinga dhidi ya Moto katika Majengo) za 2015
- Kanuni za Usimamizi wa Mazingira (Kudhibiti na Kusimamia Taka za Vifaa vya Umeme na Umeme) za 2021

Wadau Mbalimbali wa Mradi

Mshauri Elekezi waligundua mashirika, vikundi, na watu binafsi kama wadau muhimu ambao wanaweza kuathiri vipengele vya mradi au kuwa na ushawishi kwenye mradi.

- Afisa Elimu wa Mkoa,
- Mkurugenzi Mtendaji wa Wilaya ya Bariadi na Afisa wa Mazingira wa Wilaya, na Afisa Elimu wa Wilaya.
- Maafisa wa Kata ikiwa ni pamoja na Afisa Mtendaji wa Kijiji cha Igegu na Afisa Mtendaji Kata ya Sapiwi
- Mkutano na wanakijiji katika eneo lililopendekezwa la mradi.

Maoni na mapendekezo ya wadau yamegawanyika katika vipengele vifuatavyo

- Fursa za elimu kwa eneo maalum la mradi na jamii zinazozunguka
- Kuongezeka kwa uchumi wa Kata ya Sapiwi kutokana na ongezeko la idadi ya watu Wadau walikuwa na wasiwasi kuhusu:

Athari za Mazingira na Kijamii

Athari zifuatazo ziligunduliwa katika hatua mbalimbali za maendeleo ya mradi kama vile hatua ya kukusanya nguvu na ujenzi, hatua ya uendeshaji, na hatua ya kufuta. Athari hizi ni kama ifuatavyo:

Hatua ya Uhamasishaji/Ujenzi:

- Kupotea/kuvurugwa kwa viumbe hai na spishi zilizo hatarini
- Uzalishaji wa gesi angahewa kutoka kwenye injini za magari
- Uchafuzi wa vumbi na kelele kutokana na magari yanayokusanya nguvu
- Hatari za afya ya umma na usalama kutokana na ujenzi wa miundombinu inayosaidia mradi
- Kuvuruga ardhi
- Ajali za barabarani za magari yanayohamia

Hatua ya Uendeshaji:

- Kuvuruga ubora wa hewa kutokana na uzalishaji wa gesi chafu na gesi hatarishi
- Kuvuruga jamii zinazozunguka kutokana na ongezeko la viwango vya kelele

- Uharibifu wa mandhari, uchafuzi wa mazingira na kuzuka kwa magonjwa na majeraha kutokana na usimamizi mbaya wa taka ngumu na taka zisizo na hatari zinazozunguka
- Athari za kiafya na usalama kwa ujumla
- Ongezeko la wingi wa watu

Masuala ya Kiuchumi na Kijamii:

- Nguvu kazi iliyosoma zaidi nchini
- Kupungua kwa viwango vya ukosefu wa ajira
- Kuongezeka kwa viwango vya mapato ambavyo vitawanufaisha serikali kupitia kodi zinazolipwa
- Kuwawezesha wanawake
- Mandhari bora na tofauti zaidi ya demografia na uwakilishi bora wa jinsia na fursa kwa wanawake katika mikoa na nchi husika

Hatua za kukamilika kwa Mradi

- Miundo mbinu ambayo haijatumika tena.
- Ukosefu wa ajira.
- Kupoteza mapato kwa serikali

Kuimarisha Athari Chanya za Kiuchumi na Kijamii:

- Ajira na mafunzo hasa wakati wa ujenzi
- Kuongezeka kwa mapato/ukuaji wa mapato/maendeleo ya kusababisha.
- Kuongezeka kwa mapato kupitia matumizi ya rasilimali za ndani.
- Kusaidia huduma za kijamii na maisha ya watu katika eneo la asili.

Uchambuzi wa Njia Mbadala

Chaguzi tofauti zilizingatiwa kwa ajili ya mradi. Uchambuzi wa chaguzi unalinganisha chaguzi zinazoweza na eneo la mradi lililopendekezwa, teknolojia, muundo, na uendeshaji kwa mtazamo wa athari zake za mazingira na kijamii; uwezekano wa kupunguza athari hizo; gharama zake za mtaji na za kawaida; ufaa wake chini ya hali za ndani; na mahitaji yake ya taasisi, mafunzo, na ufuatiliaji.

Pia inaelezea msingi wa kuchagua muundo maalum wa mradi uliopendekezwa na kuthibitisha viwango vya uzalishaji vilivyopendekezwa na njia za kuzuia na kupunguza uchafuzi.

Njia Mbadala zilizozingatiwa kwenye Mradi huu ni kama Zifuatazo

- a) Hakuna Mbadala
- b) Teknolojia Mbadala
- c) Eneo Mbadala
- d) Nishati Mbadala
- e) Maji Mbadala

Mpango wa Usimamizi wa Mazingira Na Jamii

Tathmini ya Athari za Mazingira kwa ujenzi uliopendekezwa wa Shule ya Wasichana ya Kikanda, imetambua idadi ya athari zinazoweza kutokea wakati wa ujenzi na hatua za uendeshaji za mradi uliopendekezwa.

Tathimini ya Athari za Mazingira imechunguza athari za kibiolojia, za kiuchumi na kitamaduni za shughuli zilizopendekezwa kuanzia kuondoa eneo, ujenzi wa shule, na uendeshaaji wa shule hiyo.

Faida halisi za mradi uliopendekezwa zinaweza kutokea tu ikiwa hatari za athari hasi zilizotambuliwa zitapunguzwa. Hii inaweza kufanikiwa kupitia utekelezaji wa hatua za kuzuia na kupunguza kwa kutosha kwa kutunga sera za kuzifunika ipasavyo.

Sera ya Usimamizi wa Mazingira

Hii itahakikisha kuwa uongozi wa mradi na wafanyakazi wanatekeleza shughuli zao kwa kuzingatia mazingira ya asili na matumizi endelevu ya rasilimali za mazingira katika eneo husika. Sera hii inapaswa kufunika mambo yafuatayo, pamoja na masuala mengineyo:

- Kuhakikisha kuwa shughuli zote za Mradi zinaendeshwa kwa kuzingatia mahitaji ya kisheria ya sheria za kitaifa zinazohusiana na mazingira.
- Kuhakikisha kuboresha na kufuatilia kwa muda mrefu utendaji na matokeo ya mazingira kupitia ufuatiliaji wa shughuli za Mradi.
- Kuhakikisha matumizi bora ya rasilimali za asili na kuweka hatua za kuhakikisha upatikanaji wa rasilimali kwa vizazi vijavyo.
- Kuhamasisha jamii ya jirani kuhusu matumizi endelevu ya rasilimali za asili, ulinzi wa mazingira hatarishi na uhifadhi wa bioanuwai kwa maisha ya pamoja ya jamii.
- Kupata usawa kati ya matumizi ya rasilimali za asili, uhifadhi wa mazingira na maendeleo ya kiuchumi.

Sera ya Afya na Usalama Kazini:

Imeandaliwa kwa mradi huu ili kuwezesha kuanzishwa kwa hatua sahihi ambazo zinahakikisha afya, usalama na ustawi wa watumiaji wote unazingatiwa pamoja na mahitaji ya afya ya jamii ya eneo ambapo mradi unapatikana. Sera inapaswa kuzingatia mambo yafuatayo, miongoni mwa mambo mengine:

- Uchunguzi wa matibabu kwa wafanyakazi;
- Usafi katika eneo la Mradi;
- Usimamizi na utupaji sahihi wa maji taka na taka ngumu;
- Tayari kwa dharura;
- Usalama wa moto;
- Umuhimu na upatikanaji wa vifaa binafsi vya kinga
- Kupunguza hatari ya uharibifu wa bahati mbaya kwa jamii na mazingira

Sera ya Mahusiano na Jamii

Sera za Mahusiano na Jamii za Jamii zinaandaliwa na uongozi wa Mradi ili kuhakikisha kuwa uongozi wa mradi unajenga na kuendeleza mahusiano ya kuaminiana na wadau wote kwa msingi wa kuheshimiana na ushirikiano wa pande zote. Sera inapaswa kuelezea njia ambazo uongozi unapaswa:

- Kufanya kazi na jamii ya eneo na idara na mashirika husika ya serikali kufikia endelevu ya mradi;
- Kuja na njia za kuboresha mtiririko wa habari kutoka kwa uongozi kwenda kwa jamii na wadau wa Mradi, na kinyume chake;
- Uwezo wa jamii; na
- Kuhusisha 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, uendeshaaji, na kufuta mradi, majukumu makuu ya kila upande kama yalivyoelezwa hapo chini. Kwa baadhi ya vipengele vya mpango huo, msaada utahitajika kutoka kwa Mamlaka za Serikali za Mitaa na Baraza la Taifa la Uhifadhi na Usimamizi wa Mazingira (kwa kutoa mwongozo na ushauri na kufuatilia mradi).

Mpango wa Ufuatiliaji wa Mazingira

Ripoti hii ina mpango uliokamilika wa kufuatilia utekelezaji wa hatua za kupunguza na athari za mradi wakati wa utekelezaji wake. Mpango huu unajumuisha makisio ya gharama za kutekeleza mpango wa ufuatiliaji uliopendekezwa.

Uchambuzi wa Gharama na Faida

Uchambuzi wa gharama na faida za mazingira unahusisha kutathmini athari hasi na chanya. Zaidi ya hayo, uchambuzi unazingatia ikiwa athari hizo zinaweza kuzuiwa na gharama za kuzuiwa kwa athari hizo ni za kufaa. Kama ilivyotajwa katika Sura 7 na 8, faida za uwezekano wa mradi, kwa maendeleo ya kiuchumi na faida za kijamii ni kubwa.

Athari za mazingira zinaweza kuzuiwa kwa kiasi kikubwa. Kwa hivyo, kuzuiwa kwa athari hasi, ikilinganishwa na data inayohitajika, ni ndogo.

Uchambuzi wa Faida za Jamii

Faida za maendeleo ya mradi zinaweza kuhukumiwa kwa kutazama ajira, ustawi wa kijamii, maendeleo ya elimu, maendeleo ya miundombinu, na uchumi wa ndani (mshahara, bidhaa na huduma). Kwa hivyo, kutakuwa na mgawanyiko mkubwa wa faida katika jamii kupitia utoaji wa chakula, malazi na huduma nyingine za kawaida kwa wafanyakazi na wanafunzi.

Zaidi ya hayo, kuboresha, kuendeleza na kudumisha miundombinu ya ndani ni faida ambazo zitaendelea zaidi ya wigo na muda wa mradi.

Kumalizika/Kufungwa kwa mradi

Kufuta ni hatua ya mwisho ya maisha ya mradi. Inahusisha kusitisha shughuli na uendeshaji wa mradi na kurejesha eneo hadi hali yake ya awali au karibu na hali yake ya awali. Inatarajiwa kuwa mradi utaendelea muda mrefu kama kuna mahitaji ya mradi, hata hivyo, sehemu za kipekee za mradi zitafutwa kama inavyohitajika.

Mwisho

Mradi huu utakuwa na athari chanya na hasi kwa mazingira na jamii za eneo linalopitiwa. Hatua zimependekezwa ili kuongeza athari chanya kwa mazingira na watu wa eneo hilo.

Kwa athari zinazoweza kuwa hasi, hatua za kupunguza madhara zimependekezwa ili kuepuka au kupunguza kwa kiwango kikubwa iwezekanavyo madhara ya kuingilia kati kwa jamii.

Kwa ujumla, mradi huu utakuwa kama kichocheo cha mabadiliko chanya katika jamii za karibu kwa kuboresha elimu, miundombinu, na ustawi wa kijamii, na kwa kushirikisha wakazi wa eneo hilo, mradi huu unaweza kuwa na athari endelevu na kuchangia katika maendeleo ya jumla ya eneo hilo.

APPENDIX VI: SCHEDULE OF MATERIALS AND ARCHITECTURAL DRAWINGS