ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT FOR THE PROPOSED CONSTRUCTION OF KATAVI GIRLS SECONDARY AT PLOT 1, BLOCK B, KAPALALA VILLAGE, SONGAMBELE WARD, NSIMBO DISTRICT IN KATAVI REGION

PROPONENT	
The Permanent Secretary President's Office Regional Administration and Local Government (PORALG) P. O. Box 1923 Dodoma, Tanzania Telephone: +255 262 321 234 Email: ps@tamisemi.go.tz	TAMISEMI
PREPARED BY:	
Tansheq Limited Plot No. 83, Wakulima Road, Hananasif Estate, Kinondoni, P.O. Box 31517, Dar es Salaam Phone: +255735100105 E-mail: info@tansheq.co.tz; Website: www.tansheq.co.tz	TANSHEQ
SUBMITTED TO:	
National Environmental Management Council Western Zone Office, 1st Floor NSSF Mafao House, Mnarani Street, P.O.Box 974, Kigoma /Ujiji, Tanzania, Phone: +255 738 037307; e-mail: nemckigoma@nemc.or.tz Website: www.nemc.or.tz	

February 2, 2023

EXECUTIVE SUMMARY

Introduction

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

In summary, activities under SEQUIP will be structured into four main components: Component 1: Empowering Girls through Secondary Education and Life Skills

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

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

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

i. Setting up an ICT-enabled system for tracking girls dropping out at national and district level to provide key information for Alternative Education Pathway (AEP) planning and implementation.
ii. Alternative Education Centers and Local Government Authorities (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, Mathematics, 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 based on 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. With that regard PO-RALG has contracted Tansheq Limited, a NEMC registered environmental consulting firm to supervise the SEQUIP implementation.

Project Description,

The Project will apply the 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 nine (9) Environmental and Social Standards:

- ESS1: Assessment and Management of Environmental and Social Risks and Impacts
- ESS2: Labor and Working Conditions
- ESS3: Resource Efficiency and Pollution Prevention and Management
- ESS4: Community Health and Safety
- ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities
- ESS8: Cultural Heritage
- ESS10: Stakeholder Engagement and Information Disclosure

The proposed project site is administratively located at Kapalala village, Songambele ward in Nsimbo District, Katavi Region and is bordered by individual owned farm to the West, South and East, while in North there is Tabora - Kigoma Region.

Location and Accessibility

The project is in Kapalala Village, Songambele Ward of Nsimbo District in Katavi Region. Proposed site can be easily accessed by using Katavi-Kigoma trunk road a tarmac road in good condition. The proposed site is within a mixed agricultural and sparsely populated settlement and it is the Greenfield site as it is not disturbed and no any development within the site

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

Table 0-1: Summary of buildings to be constructed.

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

No	Buildings	No. of Buildings	No. of rooms
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	1
11	Teacher's house (2 in 1)	1	5
12	Dormitories @ 120	5	4
Surrounding activities			Cubicle 15
1	Water Tunnel (1050m)	1	1
2	Waste incinerators	1	1
3	Fence (chain link)- 350m	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	3
6	Dormitories @ 120 Students	4	

Project activities

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

Pre-Construction Activities

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

- Design finalization, establishment of construction camps, material and equipment storage areas, materials processing yards, including sanitation facilities. The following specific activities will be involved during this stage.
  - ✓ Design finalization
  - ✓ Equipment and labour mobilization
  - ✓ Workers/ security temporally house construction
  - ✓ Bush clearing.
  - ✓ Construction of Material and equipment storage areas
  - ✓ Construction of sanitation facilities
  - ✓ Installation of electrical infrastructure
  - ✓ Installation of water and wastewater infrastructure
  - ✓ Establishment of temporary waste facilities for both domestic and hazardous
- Identification of naturally occurring material borrow sites (sand, fill, gravel borrow and quarry sites), and
- Identification of sources of water for domestic and construction works

Construction Phase

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

- Earth works which include excavation and levelling of soil for foundation and to facilitate widening and re-alignment of the road. Earth works will entail the following activities that include 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
- Foundation works (Footing Concrete and Column Casting)
- Construction of Walls (Lintel, Plastering Works and painting)
- Roofing and Tiles laying
- Windows and Doors fixing
- Fixing of Electrical and Plumbing Works
- Miscellaneous works (landscaping works, False Ceiling and Installation of Furniture)

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.

The specific activities during operation of the school will involve looking into social and community relation issues about schools positive and negative impacts to the community and maintain a balance between the two.

However, during operation phase of the established school, there will be repair of infrastructures such as water supply and sanitation facilities, painting, and replacement of the wornout/destroyed facilities/equipment such as Bulb, window, doors etc.

Decommissioning Phase

It is worth noting that the decommissioning phase may not exist for public school buildings, they can be retired or replaced/renovated when they reach the end of their useful life or if there are significant structural issues that cannot be effectively addressed. This is to the following reasons:

- Longevity and continued use: Public school buildings are typically designed and constructed with the intention of serving the community for several decades. They are built to withstand regular wear and tear and to accommodate changing educational needs. As a result, they are expected to remain functional for a long time without requiring decommissioning.
- Repurposing and renovation: If a public school building becomes outdated or needs significant changes, it is often more cost-effective to renovate or repurpose the existing structure rather than decommission it. This allows for the continued use of the building while addressing any deficiencies or adapting to new educational requirements.
- Community resource: Public school buildings often serve as community resources beyond their role as educational institutions. They may be utilized for after-school programs, adult education, community events, or emergency shelters during crises. By keeping these buildings operational, communities can maximize their use and ensure they continue to benefit the public.

In such cases, the decommissioning process will involve ceasing the use of the building, assessing its condition, and potentially demolishing or repurposing the structure. The decision-making process for retiring or replacing a public school building is typically undertaken by Ministry of Educational and Technology in conjunction with Local Government entities.

Environmental and Social Management Framework (ESMF)

The ESMF was prepared in advance to guide the preparation of Environmental and Social Impact Assessment (ESIA) which includes Environmental and Social Management Plan (ESMP) for SEQUIP and also the framework incorporate measures for project site Selection and to ensure designs and school construction align with the World Bank Environment and Social Framework requirements.

It has been agreed that civil works will follow building standards acceptable to the World Bank and required under the WB 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 electricity, Water and Sanitation for Health (WASH) and solid waste management at the schools, air pollution risk associated with the installation of incinerators and e-waste generation through the installation of ICT equipment and 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 groups

Means a group of people who, due to their characteristics and circumstances, are likely to suffer more adverse impacts of social, economic and health challenges than other groups in the community. These groups often face various barriers that can make them more susceptible to negative outcomes or limited opportunities

Vulnerable Person means any person who because 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 labour, 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 in chapter three,

Baseline

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 field study of flora and fauna, air, soil and water.

It also covered socioeconomic issues, noise, and vibration etc. 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.

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. The analysis of impacts also looked into the cumulative and negative impacts of the proposed project.

Impacts, which are unavoidable or irreversible, are also identified. Wherever possible, impacts are described quantitatively in terms of environmental costs and benefits.

Positive impacts

- Mitigating girls abuse which was a factor of distance they walk from home to schools
- Increased employment opportunities to workers and teachers
- Educational opportunities

Negative impacts

Mobilisation

- Impact on Air quality
- Exposure to Noise and vibration
- Habitat alteration and fragmentation
- Biodiversity loss
- Effect on Community Health, Safety and Security
- Displacement of people and properties
- Increased Spread of HIV Infection
- Impact on Cultural Heritage

Construction

- Impact on Air quality
- Impact on Noise and vibration
- Habitat alteration and fragmentation
- Biodiversity loss
- Effect on Community Health, Safety and Security
- Displacement of people and properties
- Increased Spread of HIV Infection
- Restrictions to Access Routes and to ecosystem services
- Impact on Cultural Heritage
- Increased level of waste generation
- Increase pressure of natural resources
- Non-compliance with Labour and Working Conditions
- Loss of employment at the conclusion of the construction phase
- Violation of Human rights

Operation

- Impact on community Health and Safety
- Increased level of waste generation
- Increase pressure of natural resources
- Human rights issues

Decommissioning

- Impacts on air quality
- Impacts on noise and vibration
- Impacts on community health and safety
- Loss of employment

Summary of Enhancement and Mitigation measures

- Equal opportunity in employment be given to all including women who have the requisite qualifications;
- Contractor shall develop and implement a gender equality and gender abuse policy;
- Confine construction work within the acquired project areas (right of way, sources of material and worker's camps)
- Use most effective and efficient machines and cars

- Provide PPE to all workers.
- Contractor to sort out all waste at source according to type;
- All hazardous waste should be treated at designated disposal sites;
- Where involuntary land acquisition is inevitable, undertake valuation of the affected properties and provide compensation as per the national laws as well as ESS 5 requirements;
- A Cultural Heritage Management Plan shall be developed which outlines the Projects approach to management of cultural and archaeological heritage in accordance with ESF and Tanzanian Grave yard removal requirements.

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.

A number of alternatives have been looked into to compare and determine the optimal use of the site. These alternatives range from No action, relocation and alternative designs. The assessment concluded that the proposed project definitely fits the site given that the site already accommodates and tilted as the area for Educational buildings hence hosting the same functions and also that there is ample land belonging to Village Council which can be acquired in future by the school if need be.

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.

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 and responsible parties for those duties.

Conclusion and recommendations

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 that 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 road project and minimizing detriments of the project intervention to the communities.

LIST OF REGISTERED EXPERTS INVOLDED IN CONDUCTING THE STUDY

S/N	EXPERTS	SPECIALTY	SIGNATURES
1.	Gwakisa Mwakyusa	Team Leader	
2.	Lusako Raphael	Senior Environment expert	
3.	Anamary Philemon	Monitoring and Waste Management Expert	
4.	Erick Gagalla	Environmental expert	
5.	Ignatius Ngamesha	Social Development Specialist	
Other Experts Involved in the Study			
1.	Lilian Kapinga	GBV and Gender Specialist	
2.	Nyasaila Nyakia	Sociologist	
3.	Veronica Msolla	Environmental Planner	
4.	Asia Abibu	Environmental Officer	
5.	Yerusalem Mwaipopo	Environmental Engineer	
6.	Joachim Marawiti	Environmentalist and GIS Expert	

DOCUMENT QUALITY CONTROL PLAN

Rev	Action	Responsibility	Date
1.	First Draft		
2.	Reviewed Internally		
3.	Verified by the Client		
4.	Complied and proofread		

ACRONYMS AND ABBREVIATIONS

ADB	African Development Bank
AIDS	Acquired Immune Deficiency Syndrome
AEP	Alternative Education Program
ARAP	Abbreviated Resettlement Action Plan
CBOs	Community Based Organisations
CO	Carbon Monoxide
CDP	Community Development Program
CO_2	Carbon Dioxide
dB	Decibels
DC	District Commissioner
DP	Development Partner
DEO	District Education Officer
DOE	Director Of Environment
DEMO	District Environment Management Officer
DED	District Executive Director
DRC	Democratic Republic of Congo
EMA	Environmental Management Act
EIA	Environment Impact Assessment
ESCP	Environmental and Social Commitment Plan
ESIA	Environment and Social Impact Assessment
ESS	Environment and Social Standards
ESDP	Education Sector Development Plan
ESF	Environment and Social Framework
EMP	Environmental Management Plan
EPFIs	Equator Principle Financial Institutions
ESMP	Environment and Social Management Plant
EBRD	European Bank for Reconstruction and Development
FI	Financial Intermediaries
FYDP	Five Year Development Plan
GDP	Gross Domestic Product
GBV	Gender Based Violence

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

PM	Particulate Matters
PO-RALG	President office, Regional Administration and Local Government
PPE	Personal Protective Equipment
PVC	Polyvinyl Chloride
RAP	Resettlement Action Plan
RAS	Region Administrative Secretary
RAO	Region Academic Officer
RC	Region Commissioner
REO	Region Education Officer
REMO	Region Management Officer
RUWASA	Rural Water and Sanitation Authority
SEP	Stakeholder Engagement Plan
SEQUIP	Secondary Education Quality Improvement Project
SO_2	Sulfur dioxide
TANESCO	Tanzania Electric Supply Company
TDV	Tanzania Development Vision
ToR	Terms of Reference
URT	United Republic of Tanzania
VEC	Valued Environmental Component
VOCs	Volatile Organic Compounds
WB	World Bank
WBMS	World Bureau of Metal Statistics
WEO	Ward Executive Officer
WHO	World Health Organization

ACKNOWLEDGEMENT

Tansheq Limited wishes to extend gratitude and appreciation to the SEQUIP implementing agencies from both ministries, the Ministry of Education, Science and Technology (MoEST) and the President's Office, Regional Administration and Local Government (PO-RALG) all permanent Secretaries and Deputy Permanent Secretaries for the two mentioned Ministries.

Other development partners and NGOs representatives for their sincere guidance and advice to follow for making the project to follow the ESS, and ESF as required by the financier,

The team is extending the same appreciation to the World Bank group for being positive and available in making a good environment for our young girls to pursue their education.

We thank and appreciate Katavi Region officials, Nsimbo District Council officials, ward executive officer for Songambele ward, Villager executive officer for Kapalala village, and all community members in the vicinity of the proposed site for their remarkable opinions and contribution during the preparation of this study,

Finally, this work may not be possible without sincere contribution and tiredness job from Tansheq Limited staff, we are surely appreciating them.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

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

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 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. 1 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 Program Objectives

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

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

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

1.3 Objectives of the ESIA

The objective of the ESIA study is to carry out an assessment of the proposed project to determine whether or not the proposed project and associated activities will have any adverse impacts on the environment, taking into account environmental, social, cultural, economic and legal considerations.

1.4 Regulatory Requirements

In terms of the Environmental Management Act (EMA) of 2004 and the Environmental Impact Assessment and Audit Regulations, 2005 (United Republic of Tanzania, 2005) amended in 2018, the project falls within the project type B1 which is the boundary list which may require Environmental Impact Assessment (EIA) as per screening as it is listed in Category B1 Projects ***13. Building & Civil Engineering Industry (c) schools, dispensaries, health-centres (Schools with boarding facilities for >360 students).*** **Additionally,** ***In the World Bank, the purpose of the Environmental Assessment is to improve decision making to ensure that the project options under considerations are sound and sustainable and that potentially affected persons have been properly consulted. In that regard, the proposed project is rated Category B for environmental purposes. The project entails the construction and rehabilitation of schools and will trigger World Bank Safeguard Policies OP/BP 4.01 on Environmental Assessment (EA) and OP/BP 4.11 on Physical Cultural Resources.***

Thus this Environmental and Social Impact Assessment is prepared to fulfil the requirement as per National Environmental Management Council decision and The World Bank Environmental and Social Framework (ESF) as stated in the ESS1 on Assessment and Management of Environmental and Social Risks and Impacts

1.5 Scope of the Study

The ESIA was conducted in accordance with the guidelines laid down by the Environment Management Act of 2004, and its regulations amended in 2018 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
- Identify and assess the anticipated environmental and social impacts of the proposed projects – both positive and negative;
- Identify and analyze alternatives to the proposed project;
- Propose mitigation measures for negative impacts and enhancement measures for positive impacts to be undertaken during and after the implementation of the proposed project;
- Verify compliance with national environmental regulations and policies, World Bank Safeguard Policies, and industry best practice and standards;
- Generate baseline data for monitoring and evaluation of how well the mitigation measures have been implemented during the project life cycle;
- Recommend cost effective measures to be used to mitigate against the anticipated negative impacts;
- Seek the views of affected persons in consultation with the Ministry of Education, Science and Technology and the President's Office Regional Administration and Local Government
- Prepare an Environmental & Social Impact Assessment Report compliant with the Environmental Impact Assessment and Audits Regulations (Amendment) 2018 and World Bank Environmental

and Social Standards which include ESS1, ESS2, ESS3, ESS4, ESS5, ESS5, ESS6, ESS7, ESS8 and ESS10; and Prepare an Environmental and Social Management Plan (ESMP)

1.6 Land requirement for the project and Ownership

The Village Council previously owned the proposed project site. As per construction directives from PO-RALG, the specific land size requirement is 5 acres in rural areas and 3 acres in urban areas. However, the proposed site has a total of 11.449Ha reserved for this project. Land is owned by Nsimbo District Council with Title Deed No. 2007 Land office No.581397.The land use is for Educational Buildings purposes only as Use Group 'K', use Class (C) as defined in the Urban Planning (Use Group and Use Classes) Regulations, 2018

1.7 Study Approach and Methodology

The approach to this exercise was structured to cover the requirements under the Environment Impact Assessment and Audit Regulations, 2005 amended 2018 and the requirements of WB ESF. It largely involved 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, the project ESMF, 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 amended in 2018 and WB ESF Requirements. The study adopted the approach of conducting Impact Assessment that is closely related to the flowchart in Figure 1-1.

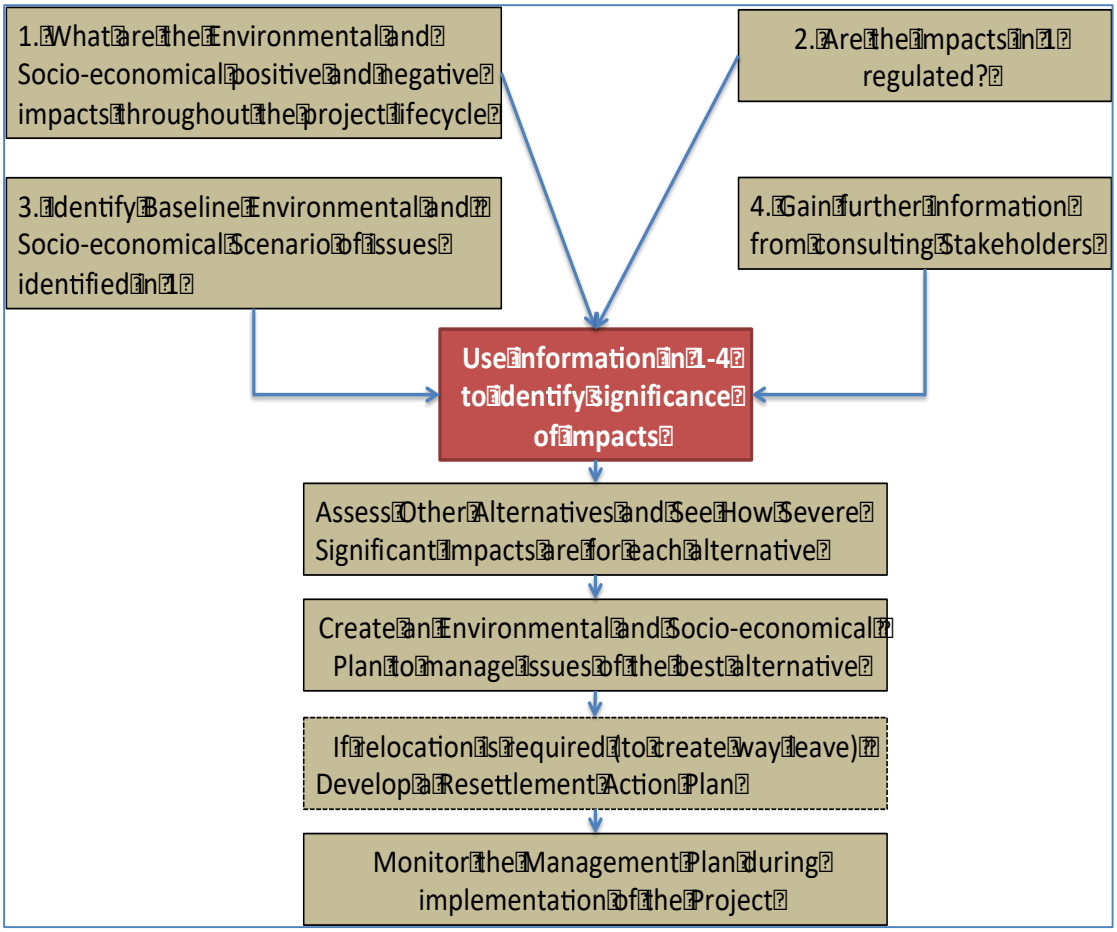


Figure 1-1: Impact Assessment Process

1.7.1 Issues Associated with the Proposed Project

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

1.7.2 Regulatory Framework with Associated Issues

Description of the relevant regulations, WB ESF and standards that are governing environmental quality, health and safety, protection of sensitive areas, sitting, land use control as detailed in Chapter 3.

1.7.3 How the Situation is Currently (Baseline Situation)

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 specialized study on flora and fauna, air, soil and water.

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

1.7.4 Issues from Key Stakeholders

This Environmental and Social Impact Assessment Report elaborates 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.

1.7.5 Assessment of Impacts (Both Good and Negative)

This critically reviews and analyses interaction between the proposed project and the existing environment. In this analysis, the consultant distinguished between significant positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts.

Impacts, which are unavoidable or irreversible, are also identified. Wherever possible, impacts are described quantitatively in terms of environmental costs and benefits.

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

1.7.7 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 is also covering the decommissioning phase of the project.

1.7.8 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.

1.8 Project Location

The proposed project location lies between 6°21'40.73''S and 31°11'21.45'' E in Kapalala Village, Songambele Ward within Nsimbo District of Katavi Region. The project is located within Mkumbi Hamlet located approximately 12km North-East of Mpanda as shown in Figure 1-3

1.9 Land Use and Project Boundary.

The project site is within rural setting surrounded by residential, farmland as well as community forest reserve. However Kapalala Village Council has isssue the proposed site for construction of Regional Girls Secondary School to be registered as Katavi Girls Secondary School. The proposed project area has Title No. 2007, Land office No.581397.

1.10 Project Covered area

The area covered by proposed project for establishing Girls Secondary School and its associated facilities is 11.449Ha.

1.11 Accessibility

The proposed site is accessible through the highway from Katavi-Mpanda to Kigoma at about 12km from Mpanda Town turn right at Nsimbo District Council Town and the site will be accessed through village access road about 3km as shown in Figure 1-2

Figure 1-2: Proposed site accessibility

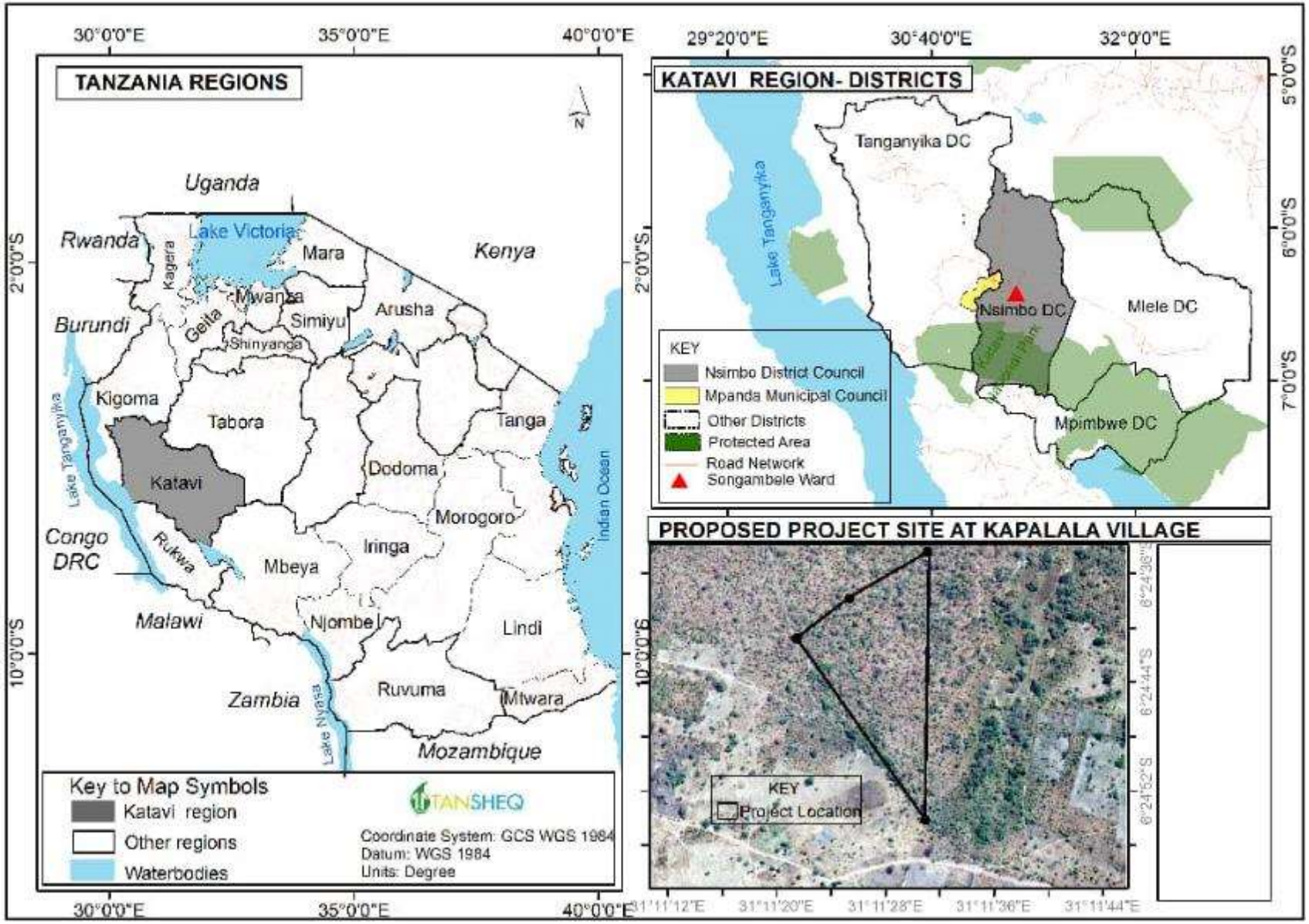


Figure 1-3: Proposed Project Location within Tanzania

1.12 Structure of the Report

This report is structured to follow the outline of Section 18 of the Environmental Impact Assessment and Audit Regulation of 2005 as amended 2018. Details of the content of the report are in Table 1-1

Table 1-1: Structure of EIA Report

Chapter	Description
Executive Summary	Provides a short summary of each chapter in the EIA report
Acknowledgement	Express the appreciations and gratitude of the proponent in completion of the study
Abbreviations and acronyms	Provides the list of word used in the EIA Report in short term
Chapter 1	**Introduction** Provides a background to the proposed project, summarizing the rationale of the project
Chapter 2	**Project Background and Description** Describes the proposed project and its nature, together with the planning, design and activities of the project
Chapter 3	**Policy, Administrative and legal framework;** Describes the legal and regulatory framework for the ESIA, including relevant international conventions and Vedanta's policies. Describes the authorized bodies that will be involved in the ESIA process
Chapter 4	**Baseline or Existing Conditions** Describes the existing biophysical and socio-economic environment that could be affected by the project.
Chapter 5	**Stakeholder involvement and Participation** This chapter describes how the people affected by the project either positively or negatively were involved in the project
Chapter 6	**Impact Identification and Assessment** This chapter describe on how impacts identified and how will be characterized to be compatible to the environment
Chapter 7	**Environmental Impact Mitigation Measures** In this chapter, the solutions for reducing severity of the negative impacts and enhancing the positive are being discussed.
Chapter 8	**Project Alternatives** This summarizes all alternatives considered by the project by assessing advantages and disadvantages.
Chapter 9	**Environmental and Social Management Plan;** This chapter describes the systematic plan on how to implement the measures provided in chapter six, responsible personnel and cost of implementation
Chapter 10	**Environmental and Social Monitoring Plan;** In this chapter describes on how to control the parameters of elements which seems to be more adverse to both environment and community
Chapter 11	**Resource Evaluation or Cost Benefit Analysis;** This chapter provides compilation of a comprehensive list of all direct and indirect costs, intangible costs, opportunity costs and the cost of potential risks and direct and indirect revenues and intangible benefits, such as increased production from improved employee safety and morale, or increased sales from customer goodwill associated with the project or decision
Chapter 12	**Decommissioning** Provides the formal process on how to remove or to stop the proposed project with environmentally friendly procedures
Chapter 13	**Conclusion and Recommendation** This provides the summary of the report and recommend on the measures to be taken in order to sustain the environment and the project itself

Chapter	Description
References	**References** Provides a list of the sources used to compile this report
Appendices	**Appendices** Provides a list of evidence about the ESIA process and the Proponent.

1.13 Limitations of the Study

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

a) Limitation of alternative selections

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

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

It has been evidenced from the site visit and call coordination from zonal coordinators emphasizing the Municipal/Regional Management Environment Experts have limited understanding on the preparation of ESIA reports. The despite the fact that training of the same was conducted to increase the understanding and knowledge of the Experts, the Experts knowledge on the preparation of the ESIA Reports is still limited in that regard Tansheq prepared the ESIA Report contrary to the contracts which was only supervision and guidance in preparation of the report.

c) Non consideration of associated facilities

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

d) Lack of cooperation from the Zonal and site coordinators

The lack of cooperation from zonal coordinators was attributed to their engagement in other activities that divert their attention and resources away from their responsibilities to SEQUIP. The reasons behind the lack of cooperation included; Zonal coordinators may have taken on too many tasks or responsibility, either within or outside their designated role, assigned to multiple projects or initiatives simultaneously, making it challenging for them to allocate sufficient time and effort to cooperation and face resource constraints, such as budgetary restrictions, or inadequate infrastructure as well as Ineffective communication channels or a lack of clear directives from higher authorities can lead to confusion and ambiguity regarding cooperation expectations.

e) Delay in response/request of information

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

2 PROJECT BACKGROUND DESCRIPTION

2.1 Overview

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 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 Description of the Project Area

The proposed project area is in rural setting mixed agricultural and sparsely populated settlement and the size of the area is 11.449Ha. The area is nearby forest reserve as it the proposed area was separated from by the Village Council

It is important to note that about 80% of the settlements within the project location are farmers. Therefore this project will expose them in different the technology of energy sources such as Liquefied Petroleum Gas (LPG) and briquettes as the result of reduction of cutting trees or destroying forest to get firewood.

2.2.1 Current Situation in vicinity proposed site.

2.2.1.1 Proposed site

The proposed site is within a mixed agricultural and sparsely populated settlement and it is the Greenfield site as it is not disturbed and no any development within the site as shown in Figure 2-1

Figure 2-1: Scenery of the project site

2.2.1.2 Surroundings

The proposed area for construction of the school is surrounded by residential houses at the distance of 500m along the access road to proposed site there is the ward secondary school which is constructed under SEQUIP as well at the District Council at the distance from 2km away, Generally, the proposed site is surrounded by farmland and Forest reserve as shown in Figure 2-2.

Figure 2-2: Farmland, Forest reserve and residential houses nearby the proposed site

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 a capacity of accommodating students between 1000 and 1100 students. The construction package will involve various facilities as detailed in subsequent sections while the drawings and layout for the proposed facilities can be accessed through: **https://drive.google.com/drive/folders/1q_UoxkqwCNS2GQFcpl4OBXXXba2_gT45**

2.3.2 Classrooms

The classrooms are designed following Education Bulletin number 1 of 2007 which directs capacity of each classroom level, 30 students for advance and 40 students for ordinary level. However, the schedule of materials indicating 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 which will involve the construction of six classrooms. 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. Figure 2-3 showing the proposed classroom design.

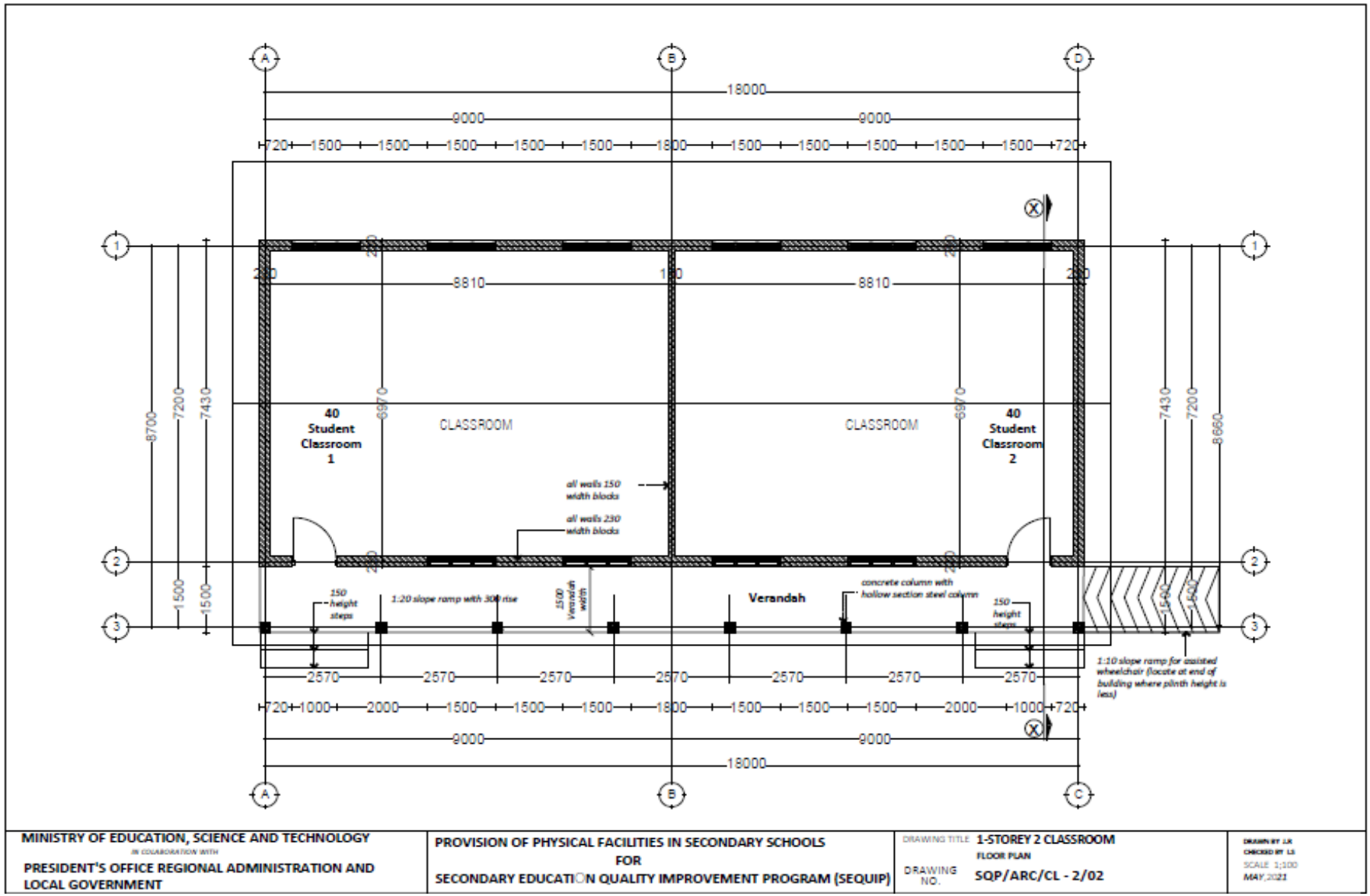


Figure 2-3: Classroom Design

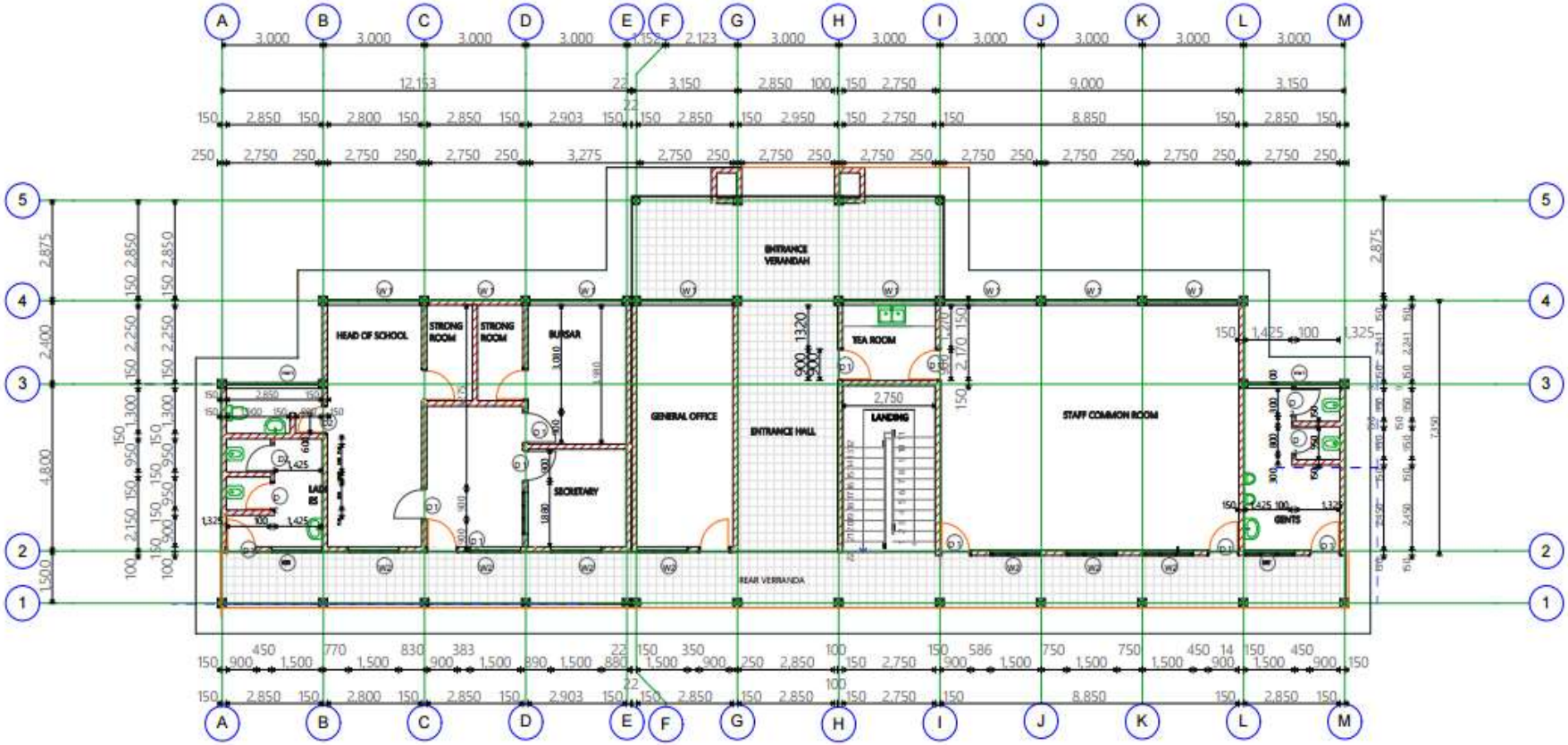


Figure 2-4: Proposed Design for Ground Floor of the School Administration Block

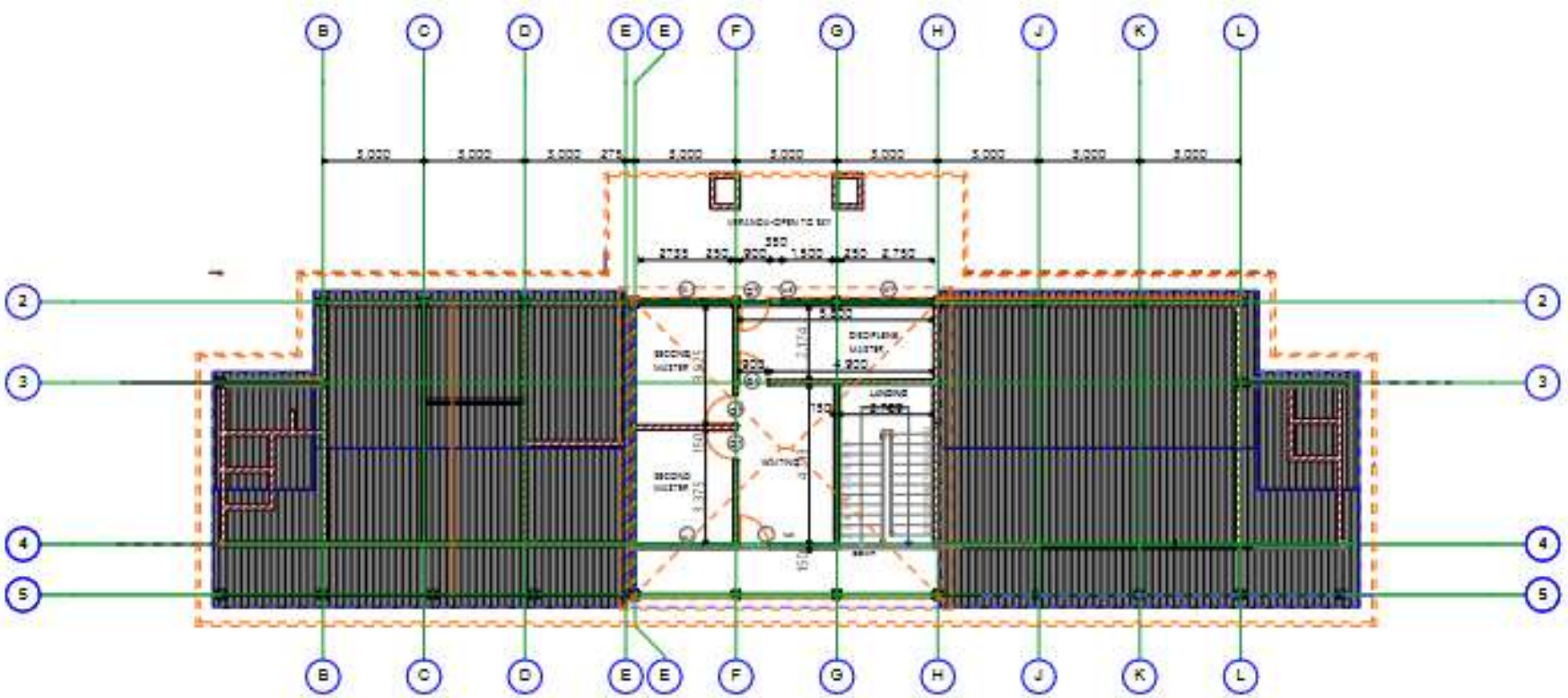


Figure 2-5: Proposed Design for First Floor of the School Administration Block

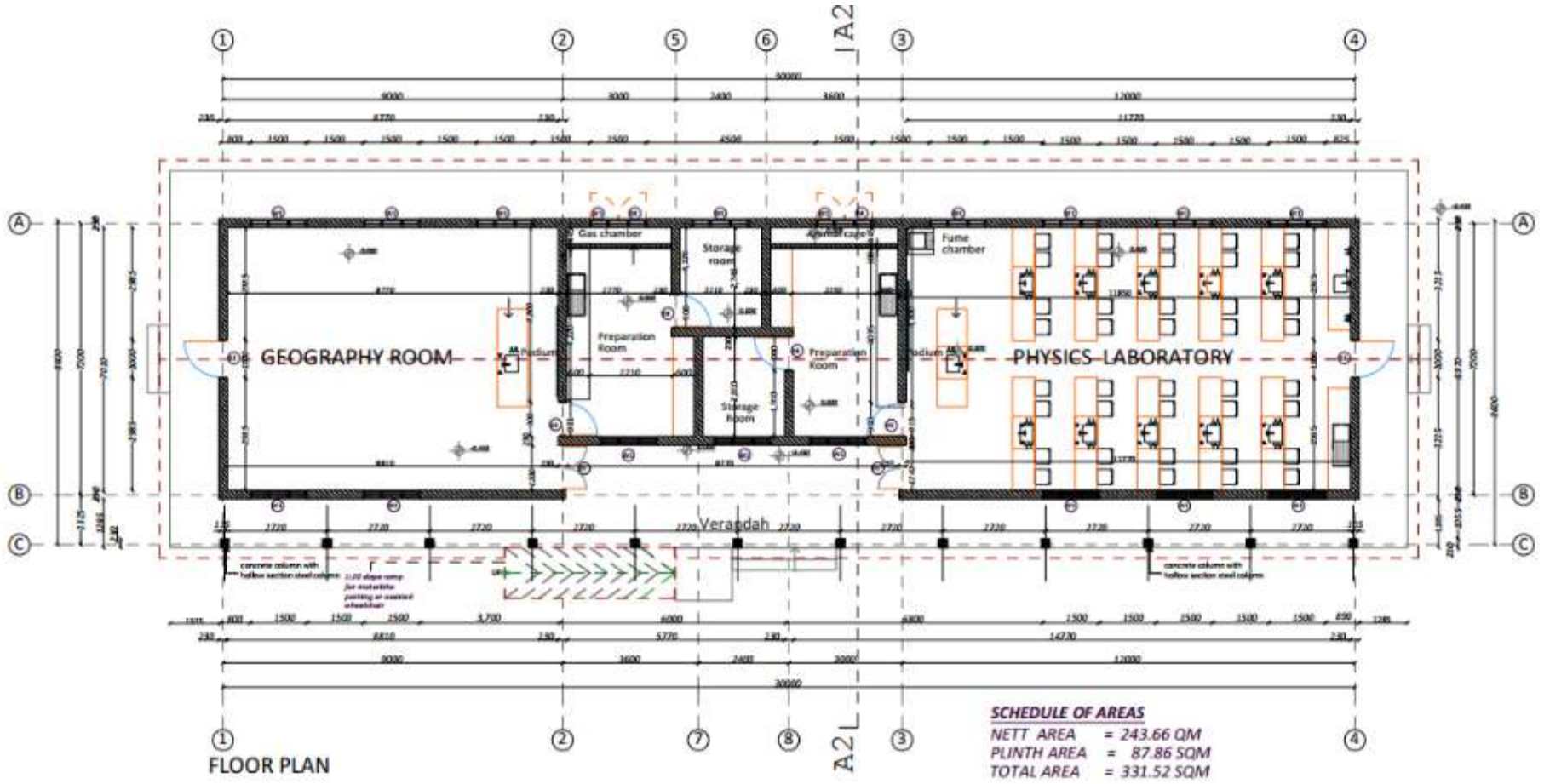


Figure 2-6: Proposed layout of the Laboratory room to be constructed

2.3.3 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 Katavi will adhere the bulletin as required the following laboratory rooms will be constructed

- Physics and geography lab
- Chemistry and biology lab,

Details on design of the laboratory can be accessed through https://www.tamisemi.go.tz/michoro-ya-ujenzi and the design layout is shown in Figure 2-6.

2.3.4 Administration blocks

The bulletin indicates for the school having capacity of 1000 student plus need to have not less than 40 teachers excluding other staff such as school bursar etc. Figure 2-4 indicate the administration layout

2.3.5 Toilets

The proposed toilets facility will comprise of one block with 16 holes Flush toilets which will be connected to the septic tanks system with the soak away pits. Also, some of classrooms will be having sanitary rooms as designed, dormitory, and dining hall will be having sanitary also.

2.3.6 Generator room

This room will be used for putting Generator. This generator will be an alternative source of power at school while the primary source will be from the National Grid (The Tanzania Electric Supply Company Limited) and the incorporated premises such as staff quarters. One generator room will be constructed.

2.3.7 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 dining space for all students since it is boarding school, meal will be served. According to the designs of the dining hall, it has the capacity of 2000 students.

2.3.8 Teachers' house

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

2.3.9 Dormitories

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

2.3.10 Library

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

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

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

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

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

2.3.11 Incinerators

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 as shown in Figure 2-7

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. The designs of the incinerators can be downloaded in the drive: https://drive.google.com/drive/folders/1q_UoxkqwCNS2GQFcpI4OBXXXba2_gT45.

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.

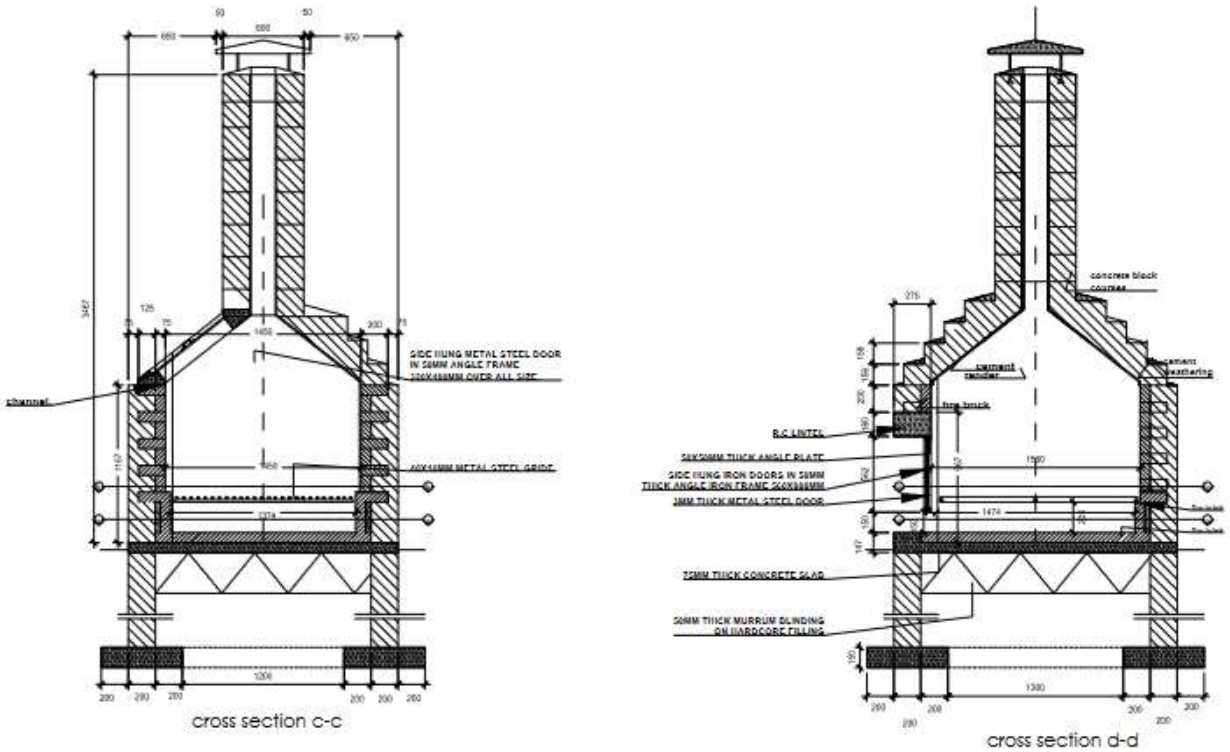


Figure 2-7: Cross section for incinerators to be constructed (Source: PO-RALG, 2019)

2.3.12 Water Storage Tanks

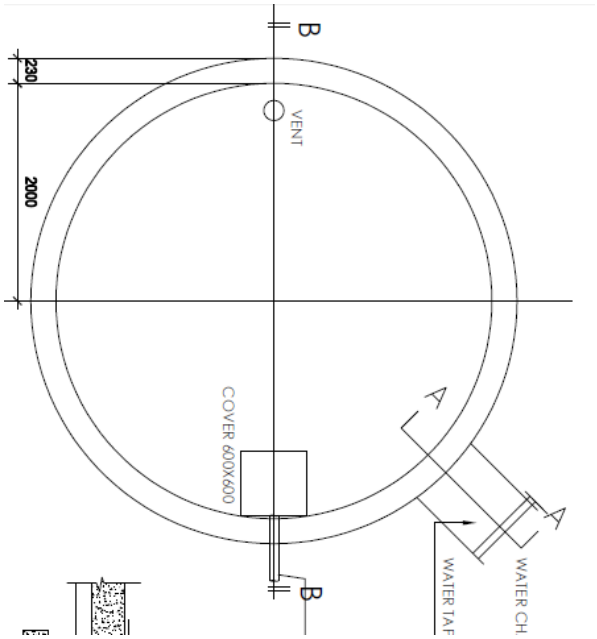
Additionally, the proposed project intend to construct the two water storage tanks as the separate structures which will ground tanks and elevated water tanks. For ground water tank, the project will use the reinforced concrete of grade 20 with fcu=20N/mm² at 28 days of age while reinforcements shall be high tensile steel with fy =460N/mm² and the nominal cover to the reinforcements.

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

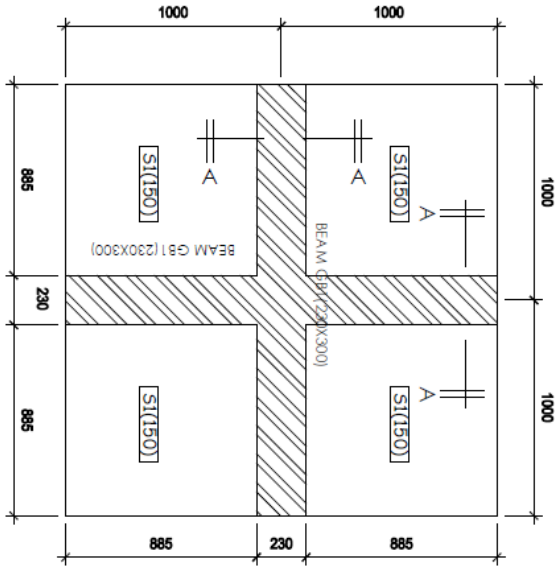
The proposed project opted for overhead (-elevated) tank to allow the natural flow of water by gravity within the entire area of the school. Not only flow but also will be used in fire protection. In designing this elevated tank, the following were observed:

- 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 2.8, shows the ground tank plan and the the structure for 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.



Concrete spherical water



Structural Layout Plan for elevated tank

Figure 2-8: Water storage tanks designed for the project (Source: Accessed through PO-RALG Website: https://drive.google.com/drive/folders/18ABxIFEq2tEoma2RamQ1npc9gyKKxK0f)

The various facilities designed for the school are in three (3) Dimensions in Figure 2-9

Figure 2-9: 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	• Bush clearing. • Site levelling • Site marking • Temporary camp/shed for office and workers • Identify water supply source • Construction and communication of solid waste management facilities and system • Development of wastewater and sewage management facilities and disposal • Identification of access roads
Construction phase	• 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 works • Painting • Electric wiring and switches setup • Compound wall/fence • Firefighting system installation • Water drainage system • Air cooling system installation • Toilets construction works • Septic tanks excavation and construction • Construction of the incinerators • Construction of ground and elevated water tanks
Operation phase	• 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	• 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 the 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
- Acquisition of building permit from Nsimbo District Council

2.4.1.1 Materials required

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.

2.4.1.2 Equipment Required During Mobilization Phase

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

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

2.4.1.3 Wastes Generated During Mobilization Phase

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

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

Aspect	Solid Waste	Liquid Waste	Gaseous Waste	Hazardous waste
Site clearing and excavation	Earth, green cutting	None	Generation of air pollutants (dust)	None
Construction of foundation(s): block/concrete works	Concrete, blocks, hessian cement bags	Water slurry, wash-down water	None	None
Construction of the main Storage room	Cement bags, mortar, steel reinforcements, nails, timber, iron sheet	Concrete slurry	Paint	None
Installation of electrical infrastructure	conduit pipes, cables	None	None	None
Installation of water infrastructure	PVC and GS pipes	None	None	None

Labour force	Plastic bottles/ bags, food wastes	Sanitary wastes	None	None
Servicing of construction equipment	Used batteries, used tyres, and used metals parts.	Waste oil	None	Used oil and fuel filters, empty oil drums

2.4.1.4 Treatment and Disposal of Wastes Generated

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

- During site clearing, topsoil and green cutting shall dispose of in old borrow pits or other areas approved by the Engineer and Nsimbo District Council as they will consulted for the same
- Concrete and cement blocks wastes shall be disposed of in borrow pits during their reinstatement as approved by the Engineer and Nsimbo District Council as they will consulted for the same
- 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. The metal scraps disposing companies shall be approved by the Engineer and Nsimbo District Council as they will consulted for the same.
- 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 by the Hazardous Waste Authorized and Registered Dealer by the National Environmental Management Council (NEMC) and Vice President's Office (VPO).
- Temporary pit latrines shall be constructed at active mobilization sites (camp sites) for the disposal of sanitary waste.

2.4.2 Construction Phase

Several physical activities will be involved in this phase. These include site clearing, fencing, excavation, leveling, and construction of the staff houses, classroom, administration blocks, and laboratories, toilets, dining hall, dormitory and other related facilities. During the construction, there will be regular inspections to ensure that the implementation of the project abides by the set regulations as well as conforming to the approved schemes.

The Project Architect and Engineer, the District Council officials of Nsimbo as well as PO-RALG will undertake the inspections. The development will thus undergo several certifications during the construction process. The construction activities of the proposed project will entail the following:

2.4.2.1 Site preparation

The site is to be secured by screening before starting construction activities; such hoardings will contain construction activities to minimize any spread of dust to the surrounding. Save for removal of vegetation, site clearance will not entail significant works as the exact site for construction does not feature any obstacles.

The site will then be laid out to identify the exact locations of the proposed units. The corner points and edges of the houses will be established accordingly. The marking out will use stakes and strings as well as chalk lines.

2.4.2.2 Excavation and earth works

The main method of excavation to be used is trenching in order to accommodate the buildings' foundations/footing. The excavated soil material will be disposed off-site at designated sites. No major rock obstruction is registered on site to warrant use of explosives.

Going by existing developments in the area, the load bearing capacity of the underlying soil is adequate and safe to support the building foundation without additional stabilization.

2.4.2.3 Construction of foundation

The proposed development has detached footing, reinforced concrete, designed to structural engineer's details. The depth of the foundation will be established to structural engineers specification based on the test pit results. The foundation walling is made of load bearing stone 200 mm wide. The footings will be molded using customer built timber formwork fabricated on site. The steel reinforcement for strip foundations will be cut and fabricated on site.

The concrete is also to be mixed on site. All the foundation works are to be constructed to structural engineers detail and approval. Minimal amount of ground water is expected to accumulate below the ground surface thus installation of sub-surface drainage system will not be required. However, damp proof canvass and dump proof membrane are recommended. The area enclosed by the foundation walls is to be backfilled with compacted hardcore. Termite treatment is also to be given to the foundation.

2.4.2.4 Construction of super structure

2.4.2.4.1 Ground Floor Slab

The ground floor reinforced concrete slab, 150mm thick, shall be cast overlying compacted hardcore and ground. The concrete is to be poured and finished as necessary through screening to level to top surface and remove excess concrete. A vibrator will also be used during the casting of the slab.

2.4.2.4.2 Walls

The buildings will utilize load bearing masonry walls. All external and other load bearing walls measure 200 mm thick. The masonry for the external walls is to be dressed to provide a pleasant view from the outside.

2.4.2.4.3 Roofing

A trussed conventional timber structure frame shall be used to erect the roof based on a combination of hip and gable roof structure. The roof cover shall be made of decra metal tiles, or its equivalent, laid on timber structure.

2.4.2.4.4 Internal Finishes

- Floors – The floor to the main spaces shall be finished in tiles and patches of granoin wet areas.
- Walls – All walls will be finished in plaster and paint.
- Ceilings –The ceiling will be finished in plaster and paint with timber molding in selected areas to design specifications.

2.4.2.4.5 External Finishes

External walls shall be of dressed masonry stone with any rendered surfaces painted or applied with brick facing. All exposed steel or timber shall be painted

2.4.2.5 Installation of internal / utility services

2.4.2.5.1 Plumbing System

- Water Supply

The proposed buildings will be supplied with water from RUWASA and any other reliable source. Cold water supply system will be installed in the project.

- Waste Water Drainage

The wastewater drainage system consists of drain pipes. These pipes also incorporate gully traps, inspection chambers, and other assorted fittings. Except for cooling fans, the development does not provide for air conditioning installations. The drain pipes will be directed to the septic tank, soak away pit and manholes

2.4.2.5.2 Electrical System

The installation of electrical wiring and fittings will mainly cater for lighting and appliances. The installation will cater the computerized system is the computers room. All installations shall be to TANESCO-Katavi Regional Office approval. There is need for consideration for solar energy.

2.4.2.6 Development of external works

2.4.2.6.1 Driveway, Walkway and Parking

Paved driveways and walkways will be constructed to give motor vehicle and pedestrian traffic proper surface on which to move. Any paving will be made of 50 mm thick standard paving blocks.

2.4.2.6.2 Water Connection

The development will be connected to the water supply networks by RUWASA. At the same time, during the occupation phase, it is recommended that roof catchments be installed to harvest rainwater to complement to the existent water supplies to deal with potential cases of water shortage, if they occur

2.4.2.6.3 Sewerage and Foul Water Drainage

The area has no sewer system. A properly reticulated sewer system (septic tank) will be laid down covering the entire development to the recommended capacity and standards as the designs can be accessed through the link: https://drive.google.com/drive/folders/1q_UoxkqwCNS2GQFcpI4OBXXXba2_gT45 and the periodic and routine inspection and maintenance of the tank and its environs will be maintained.

2.4.2.6.4 Surface Water Drainage

Most of the rain water will be absorbed into the soil during the construction phase. Appropriate drainage systems have been provided in the designs and will be put in place to handle the run-off/storm water from the site during the operation of the project. During occupation phase, run-off/storm water will be directed to the main drainage system

2.4.3 Solid Waste Disposal

The dormitories, office, classroom, dining hall, laboratories and resting areas will be supplied with dustbins, complete with waste separation option. The storage capacity will be one week and waste will then be collected for final disposal at District council designated site. A private company may be employed to deal with solid waste management

2.4.4 Landscaping

This will mainly entail small works in paving, flower beds, and lawns. The top soil will be treated with manure if necessary to encourage faster and improved plant growth. The perimeter gardens will be planted with continuous bed of grass lawn and provide aesthetically appealing scene.

2.4.4.1 Perimeter Fence

A concrete block perimeter fence will be built to surround the school and will be complemented with electric fence. The final wall will be finished in key dressing.

2.4.4.2 Clearing of Site

The site will be given a general cleaning, and any left-over material and debris will be carted away to designated District disposal sites. Similarly, any tools and equipment still on site will be removed.

2.4.5 Completion Phase and Final Inspection

During this stage, finalization activities of the project will be undertaken. These include; internal finishes of the school buildings, completion of the statutory inspections and certifications, installation of utility meters and issuance of completion /occupation certificates by the District Council.

Final inspection will be undertaken to ensure that the project has been done properly and according to the terms of the contract. The inspection team will include PO-RALG, the architect, the engineer and the contractor or their representatives. The inspection team shall prepare a punch list indicating any items that will need to be corrected including final verification for environmental and social issues as attached in annex 6; Checklist 4 of the Environmental and Social Management Framework.

The list will be given to the contractor for necessary action within a specified period. If no defects are noted, the job will officially be completed and a certificate of occupancy will subsequently be issued. In issuing the certificate of occupancy, the inspection will take into account health and safety considerations of intended occupants.

It is important to note that the Council shall issue the occupation certificate on completion of the civil works. The certificates are issued after PO-RALG building and health inspectors inspect and certify the buildings to ensure compliance with approved plans. This is done to certify the building fit for school operation and occupancy.

2.4.5.1 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	Usage	Possible Source
1.	Ordinary Portland Cement (OPC) and Pozzolana 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

No	Material	Usage	Possible Source
6.	Soft timber	Production of timber formworks and shutters	Locally
7.	Nails	Nails for fixing timber form	Dar es salaam
8	Water	Drinking, concrete works, dust suppression	Rivers, streams and RUWASA
9	Electrical (Single fluorescent fitting Complete, LED Philips, Main switch 4way, Double switch socket, Earth wires, conduit coupling and pipes, Elbow, Junction box etc.	Electrical wiring and installations.	Katavi, Mbeya, Dar es Salaam and Dodoma.

2.4.5.2 Wastes Generated During Construction Phase

The waste generated during construction phase of the project will result from operation of construction and equipment maintenance. The wastes that will be generated during construction phase of the project are shown in Table 2-5. Depending on the situation at the site and status more than 60 people will employed during construction.

The estimated amount of waste to be generated within a week is 856kg which includes all waste such as Paper, Litter, Paper litter, Plastic bottles/bags, Aluminum cans, Food wastes and Plastic and glass (containers), used tyre, metal (used parts), plastic and cable parts, used lead-acid batteries which will be disposed as per WB EHS Guideline and Tanzanian Regulations.

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	-	Biohazard wastes (medical wastes)
	Litter	-	-	-
	Toner, cartridges	-	-	-
	Paper litter	Sanitary waste	-	-
	Plastic bottles/bags	-	-	-
	Aluminum cans	-	-	-
	Food wastes	-		
Machinery and equipment Maintenance				
	Plastic and glass (containers), used tyre, metal (used parts), plastic and cable parts, used lead-acid batteries,		-	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, and Battery acid (dilute sulphuric acid)
	-	Lubricant, coolants (radiator fluid), hydraulic fluid, wastewater)	-	Lubricants, hydraulic fluid, concrete, paints, metal sheers chips and scraps, cuttings from pipes, etc.

2.4.5.3 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 will either be re-used, re-cycled, buried, or burnt.

Table 2-6: Type of waste and their final disposal

Type of waste	Disposal Method
Solid waste (Paper Litter and Food wastes and site clearance waste)	To the District Council designated disposal site
Hazardous waste (waste oil, scrap metals and all hazardous related wastes)	To be collected and disposed by hazardous waste registered and authorized company
Plastic bottles/bags, Aluminum cans, Toner cartridges, Used lead-acid batteries, plastic containers, and Battery acid (dilute sulphuric acid)	These types of waste will be recycled and re-used
Wastewater (sewage and grey water)	Septic tank and soak away pit

2.4.6 Operation phase

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

Once the construction is completed, the school buildings will be ready for occupation. Once occupied, periodic monitoring and maintenance will be necessary to ensure that, the facilities remain in good order. The developments are expected to remain in good condition for several decades during which monitoring, maintenance, and waste management activities will take place

2.4.6.1 Material required during operation phase

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

2.4.6.2 Labour requirement during operation phase

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

- Teachers
- Librarians
- Laboratory technician
- Security officer

2.4.6.3 Wastes generated during operation phase

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

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

2.4.7 Decommissioning Phase

With time, the development will age and depreciate; some components of the development will either partly or wholly need to be replaced or demolished. Such changes may also be triggered by land use

structural/functional shifts in the project area. This will depend on the changes in developmental priorities over time.

The environmental concerns of decommissioning include safe disassembling of structures, storage of derived materials and waste, and their safe removal from site. Where the site is not immediately put to another use, its rehabilitation will be necessary, awaiting redevelopment. Decommissioning strategies to be adopted include:

- Assess the prevailing planning and development policy in application in the area to determine the appropriate use of the land.
- Assessment of the condition of the building to determine appropriate use or disposal of materials.
- Preparation a demolition plan and application for approvals to the relevant agencies.
- Issuance of vacation notices to all the affected people.
- Screening and hoarding of the affected site.
- Disconnection and removal of utilities e.g. water pipes, electricity and computerized cables.
- Removal of all the underground facilities like water pipes, septic tanks, electricity and telephone cables.
- Mechanical demolition of the structures.
- Reuse or sell of the salvaged materials.
- Disposal of waste materials at designated Nsimbo District Council disposal sites.
- Leveling and landscaping, including re-vegetation.

The completion of the decommissioning should ensure that the site is restored to its original state as much as possible; this will thus open an opportunity for another development cycle.

2.4.7.1 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 and Social Management Plan, ESMP) 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.

2.4.7.2 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 nevertheless with reference to construction schedule and material life span such as steel bricks the project life time will be 50 years which will need only period maintenance.

2.5 Project Associated Facilities

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

- Water connection
- Energy (electricity, gas or charcoal)
- Rehabilitation of access roads

2.5.1 Water supply system

The project will require water for different activities for the project Water will be required for construction activities such as concrete works, earthworks, lying of some of the pavement layers, dust suppression, as well as domestic purposes at the camps. The amount of water required during the construction of the project estimated to be 18000 litres per day this use of water will be for both construction and dust suppresion .during

consruction. Domestic use at the construction site will depend on the number of people and the project expect to recruit about 50 local people and 10 personnel.The estimated amount of water to be consumed for 60 people is estimated to be 3600litres per day. Thus, the the amount of water required during constructed is 21,600 litres per day. The water will be taped from RUWASA since the proposed site is nearby the standy supply pipe.

During operation phase, Water will be used for domestic uses, cleaning and for sanitation which will depend on the number of the student to be admitted to school at the specific time.. Initially, for the first intake about 1060 students will be enrolled and 60 staff (teachers) will be employed. Thus, the estimated water usage for 1000 students is 63,600 liters per day. This means that each student will use approximately 60 liters per day, which includes drinking water, washing clothes, bathing, and flushing after using the restroom.

2.5.2 Power supply

The proposed project will source the electricity from the National grid (TANESCO) as the proposed area is nearby the Eletric Pole where electricity will be connected from to supply to the school. Also a standby diesel fueled generator will be installed. This will be used in case of main electricity interruption. Emission level of generation will be considered during installation to make sure the generator of low emission

2.6 Description of Sources and levels of project emission

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

2.7 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.

The building standards acceptable to the World Bank typically include internationally recognized codes and standards such as:

- International Building Code (IBC): A comprehensive set of building regulations that covers various aspects of construction, including structural safety, fire protection, accessibility, and energy efficiency.
- International Fire Code (IFC): Provides requirements for fire prevention, fire protection systems, and emergency planning to ensure the safety of occupants in buildings.
- International Plumbing Code (IPC): Sets standards for plumbing systems, including water supply, drainage, and sanitation, to ensure safe and efficient water management.
- International Energy Conservation Code (IECC): Establishes energy efficiency requirements for buildings, promoting sustainable construction practices and reducing energy consumption.
- Universal Design Standards: Guidelines that promote accessibility and inclusivity in buildings, ensuring that people of all abilities can access and use the facilities comfortably.

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.

2.7.1 Health and Safety

As the ESMF directives, the campaign has been conducted with the utmost regard 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 are 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

2.7.1.1 Fire

The project shall be designed, constructed, and operated according to standards for the prevention and control of fire hazards. In design phase of the project, the fire prevention and management (signage, fire extinguishers, evacuation paths, etc.) will be done according to national laws or GIIP.

The most effective way of preventing fires is to avoid any source of fires in inside the building and store reasonable weight of equipment should designed according to the construction standards and considering building materials fire detector alarms should be placed in all buildings

2.7.1.2 Collapse

The result analysis showed that the major factors responsible for building collapse are usage of substandard building materials, non-involvement of relevant and qualified professionals, defective design, and poor maintenance culture, poor Workmanship/Supervision and Natural Occurrences.

The remedies to mitigate the problems are but not limited to the professional bodies through their government regulatory bodies need to ensure effective monitoring to control quackery and ensure violators are punished, building and construction permit should be adhered, ensure the use of professional people during construction etc.

2.8 Project Cost

Total Project Cost is four billion Tanzanian shillings

3 POLICY, LEGAL, AND ADMINISTRATIVE FRAMEWORK

3.1 Introduction

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

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

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

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

Article 21 of the Constitution reads:

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

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

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

(i) strengthen environmental conservation and protection to mitigate adverse effects of climate change
(ii) social development, including health and education, human settlements, clean and safe water, and environment, paying attention to equitable access, gender and people with disabilities
(iii) strengthen sustainable use and management of oil and natural gas
(iv) develop renewable energy sources for cooking to mitigate climate change
(v) conserve marine and freshwater fisheries protected areas
(vi) develop and implement strategies to combat poaching, illegal trade and illegal harvesting of wildlife, forest, bee and antiquities resources in the country
(vii) Promote biodiversity conservation.
(viii) Develop climate change adaptation and affects mitigation measures and reduce land degradation.
(ix) Minimize environmental pollution and resultant adverse effects on the environment and human health.
(x) establish programs and mechanisms for management, monitoring and assessment of water and wastewater quality
(xi) Strengthen conservation and protection programs of water resources and water sources.

3.4 Relevant Policies

3.4.1 National Environmental Policy (2021)

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

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

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

3.4.2 Education and Training Policy 2014

This Education and Training Policy of 2014 is the result of the revitalization and finally the cancellation of the Education and Training Policy (1995), Policy on Vocational Education and Training (1996), Policy on National Higher Education (1999) and Information Technology Policy and Communication for Primary Education (2007). The vision of this policy is having an educated Tanzanian with knowledge, skills, competencies, abilities and positive attitudes to be able to contribute in bringing about the development of the Nation.

The specific objectives of the Policy are to have:

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

3.4.3 The National Research and Development Policy

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

3.4.4 ICT Policy for Basic Education 2007

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

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

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

social and cultural groups, to give appropriate education to children with disabilities, and to provide education facilities to disadvantaged areas.

3.4.5 National Biotechnology Policy

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

3.4.6 Cultural Policy, 1997

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

3.4.7 The Wildlife Policy of Tanzania, 2007

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

The vision for the wildlife sector is to:

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

3.4.8 Antiquities Policy of 2008

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

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

3.4.9 National Forest Policy, 1998

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

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

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

3.4.10 National Water Policy, 2002

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

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

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

3.4.11 Sustainable Industrial Development Policy, 1996 (SIDP)

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

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

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

3.4.12 National Energy Policy, 2003

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

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

3.4.13 National Transport Policy, 2003

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

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

3.4.14 Construction Industry Policy, 2003

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

The objectives of the Policy include:

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

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

3.4.15 National Health Policy, 2007fgh

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

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

3.4.16 Occupational Health and Safety Policy 2008

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

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

3.4.17 National Water Policy, 2002

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

The policy emphasizes that water related activities would have to be planned to enhance or to cause the least detrimental effects on the environment. To protect ecological systems and biodiversity which, together, are

important part of sustainable water resources system the policy provides a guide for determining water for the environment, in terms of quantity and quality, and levels, for both surface and groundwater resource.

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

3.4.18 National Land Policy, 1995

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

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

3.4.19 National Human Settlements Development Policy, 2000

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

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

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

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

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

3.5 Legal Framework

3.5.1 Environmental Management Act (2004)

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

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

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

3.5.2 The Education (Amendment) Act, 1995

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

3.5.3 Water Resource Management Act, 2009

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

It is stated under section 39 (2) that a Basin Water Board may direct any person who fails to take the measures required under subsection (1) to:

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

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

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

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

Section (3) gives that where more than one person is liable in terms of subsection (2), the Basin Water Board shall, at the request of any of those persons, and after giving the opportunity to be heard, apportion the liability, but such apportionment shall not relieve any of them of their joint and several liabilities for the full amount of the costs.

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

(a) Take all reasonable measures to contain and minimize the effects of the incident.

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

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

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

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

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

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

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

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

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

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

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

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

3.5.6 Forest Act, 2002

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

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

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

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

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

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

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

3.5.9 Occupational Health and Safety Act, 2003

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

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

3.5.10 Disaster Management Act No. 7 of 2015

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

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

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

3.5.11 Public Health Act No. 1 of 2009

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

3.5.12 Wildlife Conservation Act No 5 of 2009

The Act establishes:

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

The project footprint will include areas used by wildlife.

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

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

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

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

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

Provisions for management of industrial and consumer chemicals that include

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

3.5.15 The Employment and Labour Relation Act, No6 of 2004

The act mandates that employers:

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

The project will employ skilled and unskilled labour

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

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

3.5.17 The Contractors Registration Act, No. 17, 1999

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

3.5.18 Persons with Disability Act 2010

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

3.5.19 The Standard Act of 2009

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

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

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

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

- TZS 860: 2005 Municipal and Industrial Wastewaters – General Tolerance Limits for Municipal and Industrial Wastewaters: This standard provides permissible limits of important environmental parameters such as BOD, COD, pH, colour, temperature range, total suspended solids and turbidity. It also gives permissible limits of a range of inorganic and organic components. All effluents discharged from the project will need to comply with these specifications.

- TZS 845:2005 Air Quality – Specification: This standard gives permissible emission limits of sulphur oxides, carbon monoxide, hydrocarbons (as total organic carbon), dust, nitrogen oxides and lead. The emissions from earth moving equipment, power generation plant and other will include SO_2, CO, dust and NO_X; as such the project will have to observe these limits.

- TZS 983:2007 Air Quality - Vehicular Exhaust Emissions Limits: This standard is mainly derived from EU Directives 96/69/EC, 91/542/EEC, and 97/24/EC. This Tanzania Standard gives permissible limits of some common substances found in exhaust emissions of motor vehicles, namely carbon monoxides, suspended particulate matter (PM), oxides of nitrogen, and hydrocarbons. The standard covers all types of vehicles namely, passenger cars, light commercial vehicles, heavy-duty vehicles, and two and four strokes' motorcycles and scooters. To carry out quarrying activities and processing operations, the project will operate a fleet of heavy duty and light vehicles in addition to hiring other vehicular equipment. As such, the project will need to observe the provisions of these standards.

- TZS 932:2006: Acoustics - General Tolerance Limits for Environmental Noise: This standard focuses on urban environmental noise and does not cover occupation environment. In the absence of other standards, it may be used to give indication of permissible noise levels in factory/workshop environment.

- TZS 789:2003 - Drinking (potable) water – Specification: This standard prescribes the quality requirements for drinking water other than packaged drinking water. It does not cover the requirements for natural mineral water. It prescribes the quality requirements for drinking water distributed in the food industry, domestic and catering purposes. It applies to bacteriological, biological, virological, physical, chemical, and radiological quality criteria. It is intended also to community piped water supplies i.e., those water systems serving cities, municipalities and townships, community standpipes and wells and drinking water distributed by tankers.

3.6 National Regulations

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

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

The regulations provide the basis for undertaking EIAs and Environmental Audits for various activities, which require mandatory EIAs, but also activities that require registration and may or may not require EIA. Part three of the EIA and Audit Regulation deals with project registration and screening procedures, part four deals with the EIA and part five deals with the Environmental Impacts Statement. If the EIA is found to be satisfactory and

the residual environmental impacts of the proposed project acceptable according to part six of the EIA and Audit regulations, NEMC recommends the Minister for Environment to issue an Environmental Certificate for the Project as annotated in part 7 of the EIA and Audit regulations.

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

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

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

3.6.2 Environmental Management (Water Quality Standards) Regulations, 2007

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

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

3.6.3 Environmental Management (Soil Quality Standards) Regulations, 2007

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

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

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

3.6.5 The Land (Compensation Claims) Regulations 2001

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

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

3.6.6 Other Environmental Regulations

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

3.6.6.1 Environmental Management (Air Quality Standards) Regulation, 2007

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3.7 Strategies

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

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

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

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

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

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

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

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

3.7.3 The Tanzania Development Vision (2025)

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

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

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

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

The WSDP comprises of three main components: (i) water resources management; (ii) rural water supply and sanitation, and (iii) urban water supply and sewerage.

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

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

3.8 The World Bank Environmental and Social Framework (ESF)

The proposed project is financed by the World Bank through the Investment Project Financing (IPF). The financing requires the Government to implement material measures and actions so that the Project is implemented in accordance with the World Bank Environmental and Social Standards (ESSs). These measures are detailed in the Environmental and Social Commitment Plan (ESCP) and among other issues is the ESCP required the borrow to prepare Environmental and Social Impact Assessment prior to implementation of each component of the project.

The World Bank Environmental and Social Standards (ESS) are grouped into 10 Standards of the World Bank Environmental and Social Framework (ESF) which establish the responsibilities of the Borrower countries (in SEQUIP the Government of Tanzania) to plan, evaluate, screen, manage and monitor environmental and social risks and impacts during each stage of the Project implementation.

These Standards seek to avoid or mitigate adverse impact to people and the environment; conserve or rehabilitate natural habitat; promote efficient and equitable use of natural resources; promote workers and community health and safety; and to maximize stakeholders' engagement through enhanced consultation, participation, and accountability.

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

3.8.1.1 The main objectives of the ESF are:

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

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

S/N	Instrument for project implementation	The Environmental and Social Standards (ESS)	Purpose/Objectives	Reason for its Application in the Project
1.	**Environmental and Social Management Framework (ESMF)**	**ESS1**: Assessment and Management of Environmental and Social Risks and Impacts	Identification of adverse impacts and respective mitigation measures Enable screen and follow-up of remedies achieved through application of prevention, mitigation, and compensation measures Enable allocation of responsibilities and resources to implement required mitigation measures	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	Ensure the healthy and safe working environment during projects implementation. Ensure the provision of fair working conditions.	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	To promote the sustainable use of resources including energy, water and raw materials. To avoid or minimize generation of hazardous and non-hazardous wastes.	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	Management of Resources	**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		**ESS7**: 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	Stakeholder Engagement Plan	**ESS10**: Stakeholder Engagement and Information Disclosure	To develop a systematic approach to stakeholder engagement to develop good relationships and gather their views on issues that could affect them. To provide stakeholders with a mechanisms through which to raise grievances.	Recognizes the importance of open and transparent engagement between developer and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation.

3.9 Other World Bank Instruments Applicable for SEQUIP

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

- Environment and Social Management Framework (ESMF)
- Environmental and Social Commitment Plan (ESCP)
- Labour Management Procedure (LMP)
- Stakeholder Engagement Plan (SEP)
- Grievance Redress Mechanism (GRM)

3.10 International Agreements, Conventions and Treaties

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

3.10.1 The 1991 Bamako Convention

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

3.10.2 3.4.8 The 1989 Basel Convention

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

3.10.3 1996 Convention on Biological Diversity,

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

3.10.4 ILO Minimum Age Convention (C138), 1973.

The Convention is concerned with minimum age for admission to employment. The minimum age stated in Article 2 (3) of the Convention is not less than 15 years or 18 years' dependent on the nature of the work. The Convention prohibits child labor with a view to achieving the total abolition of child labour worldwide.

Members of the Convention are committed to pursuing national policies that have been designed to ensure effective abolition of child labour and to increase progressively the minimum age for admission to employment or work to a level consistent with the fullest physical and mental development of young persons. During construction and implementation of SEQUIP project the Contractor will abide by the provisions of this Convention.

3.10.5 Labour and Working Conditions

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

3.10.6 Resource Efficiency and Pollution Prevention

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

3.10.7 Community, Health, Safety and Security

- To anticipate and avoid adverse impacts on the health and safety of the affected community during the project life from both routine and no routine circumstances
- To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the affected communities

3.10.8 Land Acquisition and Involuntary Resettlement

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

3.10.9 Biodiversity Conservation and Sustainable Management of Living Natural Resources

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

3.10.10 Indigenous Peoples

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

3.10.11 Cultural Heritage

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

3.11 International Conventions

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

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

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

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

3.11.3 Universal Declaration of Human Rights, 1948

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

3.11.4 Convention on the Rights of the Child, 1989

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

3.11.5 Convention on the Rights of Persons with Disabilities, 2006

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

3.12 Sustainable Development Goals (SDGs)

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

Table 3-2: Sustainable Development Goals (MDGs

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

Goal	Target
Goal 5 : Achieve gender equality and empower all women and girls	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 15: Sustainable manage forest, combat, desertification, halt reserve land degradation, halt biodiversity loss	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 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

3.13 Institutional Framework

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

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

- Ministry of Education, Science and Technology
- President's Office Regional Administration and Local Government
- Minister Responsible for Environment; under the Ministry of Union Affairs and Environment
- Director of Environment (DOE); under Vice President Office
- National Environmental Management Council (NEMC);
- Sector Ministries;

- Regional Secretariats;
- Local Government Authorities, District, and Town Councils;
- Township, Village, Ward; Neighborhood (Kitongoji); and
- Street (Mtaa).

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

3.13.1 Ministry of Education, Science and Technology and President's Office –Regional Administration and Local Government

At National level, the MoEST and PO-RALG in coordination with the Environmental and Social Management experts in the SEQUIP Coordination Team (SCT) and the national consultants contracted by the project (Tansheq), when deemed necessary, will ensures that project designs conform to different ESS, this ESMF, all other Bank Documents, technical sector norms and standards.

MoEST/ PO-RALG will also be responsible for hiring national consultants (based on ToRs approved by the Bank) to review the environmental and social issues including grievances, assessment of cumulative impacts on periodic basis, audits, support for EIA evaluations, among others. These reports will be shared with World Bank and other stakeholders.

The responsibility of MoEST will continue to focus on policy development, quality assurance, setting national standards, and monitoring and evaluation of ESDP and related sub-sector programmes including SEQUIP. The responsibilities of PO-RALG in SEQUIP will focus on coordination of the implementation of the Programme in the LGAs.

The Ministry of Education, Science and Technology (MoEST) and the President's Office, Regional Administration and Local Government (PO-RALG) will be the main agencies responsible for overall implementation of the project and the application of the following ESF instruments: This ESMF framework describes responsible persons for the project implementation at all levels and the application of and all the ESS documents agreed for the SEQUIP project.

- Environmental and Social Management Plan (ESMP)
- ESMF (Environmental and Social Management Framework)
- Stakeholder Engagement Plan (SEP)
- Resettlement Framework (RF)
- Vulnerable Groups Planning Framework (VGPF)
- Environment and Social Commitment Plan (ESCP)

Figure 3.1 shows the **Project Institutional Arrangement for SEQUIP Implementation**

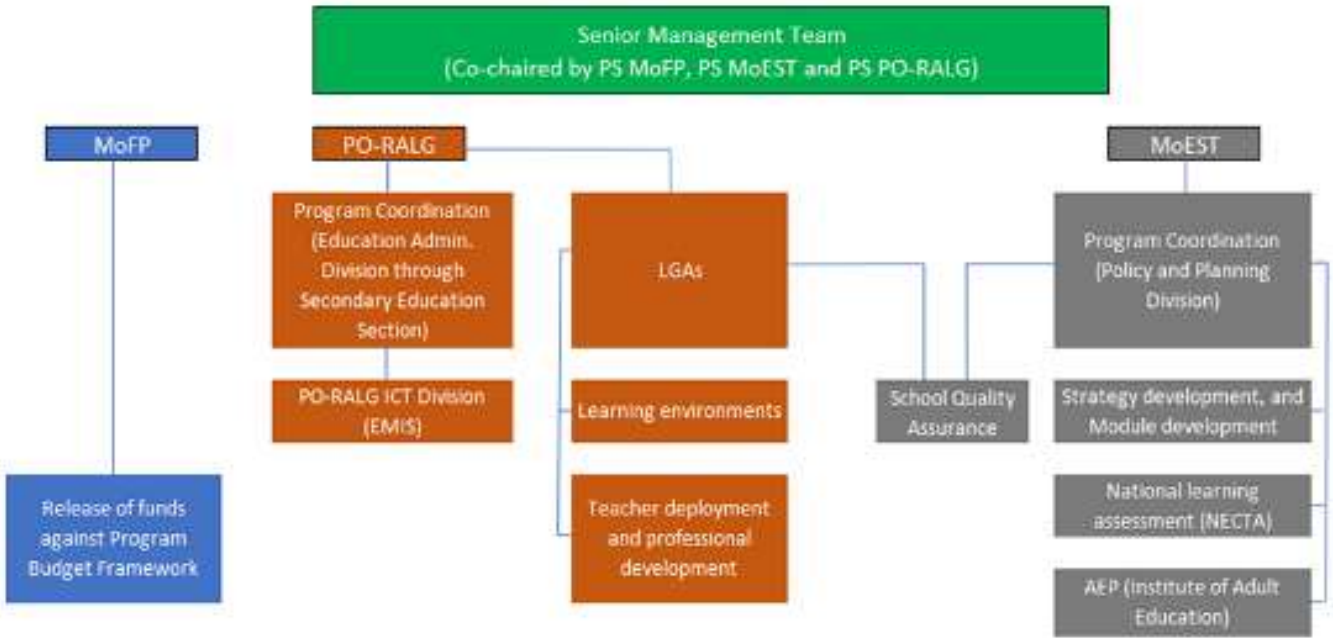


Figure 3-1: Project Institutional Arrangement for SEQUIP Implementation

3.13.2 Minister Responsible for Environment (Ministry of Union Affairs and Environment)

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

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

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

3.13.3 Director of Environment (DOE) (Vice President Office)

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

3.13.4 National Environment Management Council (NEMC)

The object and purpose for which the Council is established is to undertake enforcement, compliance, review and monitoring of environmental impact assessment and in that regard, shall facilitate public participation in

environmental decision making, exercise general supervision and coordination over all matters relating to the environment assigned to the Council, under the EMA or any other written law.

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

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

3.13.5 Sector Ministries

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

- Responsibility for ensuring compliance by the sector Ministry with the requirements of this Act;
- Responsibility for ensuring all environmental matters contained in other written law falling under sector ministry are implemented and report of their implementation is submitted to the Director of Environment; and
- Liaising with the Director of Environment and the Council on matters involving environment and all matters with respect to which cooperation or shared responsibility is desirable or required under this Act.

3.13.6 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. A Regional Environment Management Expert heads the Regional Secretariats. The expert is responsible for advising the local authorities on matters related to the implementation and enforcement of the EMA. Furthermore, the expert links the region with the Director of Environment and Director General of NEMC.

3.13.7 Local Government Authorities

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

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

The Township Environment Management Committees are responsible for:

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

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

3.13.8 Ward/Mtaa/Kitongoji Level

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

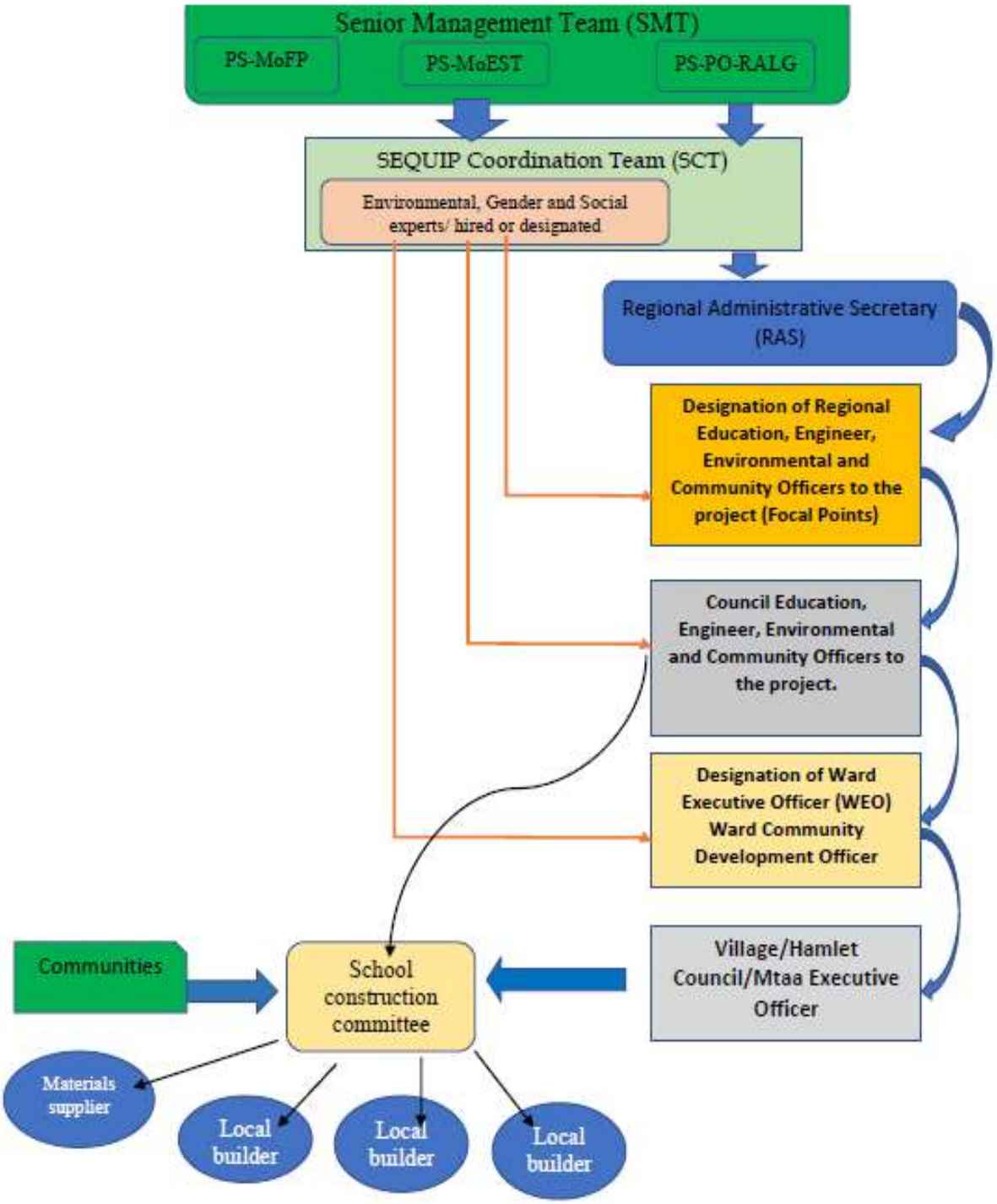


Figure 3-2: National Agencies Responsible for Environmental and Social Management Plan Implementation and Monitoring

4 ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

4.1 Introduction

A baseline study defines the 'pre-implementation exposure' condition for the set of indicators that will be used to assess impacts of construction activities in the area. When compared with the condition of the same indicators at some point during and post-implementation, the baseline study forms the basis for a 'before and after' or 'change over time' assessment. Without baseline, data to establish pre-operation conditions for outcome and impact indicators it is difficult to establish whether change at the outcome level has in fact occurred.

Therefore, environmental and social baseline conditions existing at the proposed project area and the surrounding community that will likely be affected by the project's activities are examined. Since the proposed project will be constructed in Nsimbo DC of Katavi Region, the data will be sourced from Katavi Region.

In data collection for the proposed project various methods were employed for data gathering which included Physical Observation, Key Informants Interviews, on site measurement (using equipment) and Documentary review (Nsimbo District Socio economic profile) accordingly.
Typical the project baseline study shall cover:

- Socio-economic status and demographic details of the area;
- Meteorological data (climate) of Nsimbo District
- Ambient Air Quality study at the Core and Buffer Zone;
- Noise levels monitoring at buffer zone/surrounding community
- Land use pattern; and
- Flora & Fauna status

4.2 Locality and general landscape

The proposed project is located within Nsimbo which is south-west located on the mainland. The council shares boarders with three other councils. To the north it is bordered by Kaliua District (Tabora Region), to the north west and south west it is bordered by Mpanda DC, to the west it is bordered by Mpanda TC, to the south it is bordered by Sumbawanga district (Rukwa region) and to the east and south east it is bordered by Mlele DC. It is accessible from Mpanda Municipal Council through main road (Katavi-Kigoma road)

4.3 Land Area and Land Use Pattern

Nsimbo DC has a total surface area of 14,410.66 sq. kms which is about 31.98 percent of the total surface area of Katavi region most of which is plain land with very few hills and valleys. Categorically, Nsimbo DC area can be categorised as follows: 2,778.32 km^2 which is equivalent to 19% of the whole area is arable land which is also being used for settlement while watersheds covers 292.46 km^2 equivalent to 2% of the whole area.

The remaining land which is 11,552.km^2 of the land is protected under different categories of protection; Tanzania Forest Services (TFS) protect 8,920 km^2 equivalent to 61% while Tanzania National Parks (TANAPA) and Tanzania Wildlife Authority (TAWA) protect 2,632.14 km^2, equivalent to 18% of the land area. The proposed project area covers only 0.14164 km^2 which is equivalent to 11.449Ha. Figure 4-1 shows land use pattern of the council.

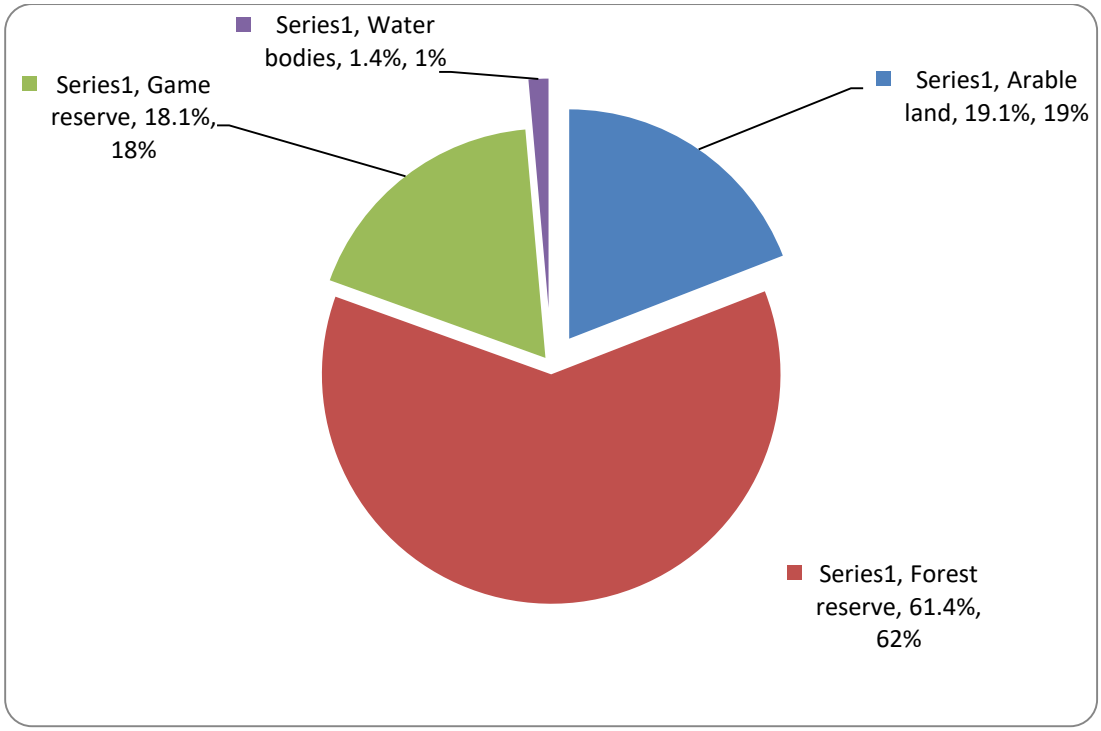


Figure 4-1: Percentage of Land Use Pattern (Hectares) in Nsimbo DC; 2018 (**Source:** DED Nsimbo–Land, Natural Resources and Environment Department, 2018)

Figure 4 1 | Location of proposed site within Katavi Region (Source: Tansheq 2023)

The proposed site area of the school is 11.449Ha in extent as per land acquired and includes cultivated farm lands and low density village areas and natural vegetated areas within the community reserve area by the Village Council for specific community activities such as school, burial site, hospital etc. in which various trees were observed.

The majority of area surrounding the proposed site is under subsistence cultivation, which historically would have comprised of bush, woodland and savannah but has been severely degraded due to anthropogenic influence including fuel wood collection, cultivation and over grazing.

4.4 Built environment

The AOI can be accessed via the B8 (trunk road that connects Katavi and Tabora to Kigoma) and numerous rough roads leading towards the east and west. The closest urban settlement to the AOI is Nsimbo, a small local sized town for Nsimbo District Council approximately along the highway to Kigoma.

The Songambele ward has three primary and one secondary schools which is under construction, two health care centre and places of worship. Importantly there are a few telecommunication masts in the area as well as broadcasting towers.

Figure 4-2: Secondary school constructed under SEQUIP (Source: Tansheq, 2023)

Figure 4-3: Kapalala Village centre (Source: Tansheq, 2023)

Figure 4-4: Rough road branches from B8 to project site (Source: Tansheq, 2023)

Figure 4-5: Highway to Kigoma (B8) which connect with project site (Source: Tansheq, 2023)

Electricity infrastructure in the area which include lines of 132kV, which are looped out at strategic points as 33kV lines towards residential areas. Electricity supply is always sufficient but the electricity supply to rural areas is limited. The proposed project is nearby the national grid and it will be easy to connect with the school

Figure 4-6: High voltage transmission lines in vicinity of the project site (Source: Tansheq, 2023)

Road infrastructure on the site is limited to unsurfaced gravel roads often subject to severe erosion. Each of the villages in the AOI have a central road from which smaller tracks and footpaths lead to homesteads or agricultural land.

The roads cross the watercourses on the site with bridges (often in dilapidated state built to accommodate vehicles in the rainy season. Many of the watercourse crossings however do not have bridges and are therefore inaccessible in times of flow. These roads are used by motor vehicles as well as cyclists and pedestrians.

The only heavy vehicles that are known to access the AOI are small trucks transporting people and goods as well as trucks used to transport crops from the farms

Figure 4-7: Road infrastructure within the AOI is often in poor condition (Source: Tansheq, 2023)

Water and waste infrastructure in the AOI is very limited as can be expected due to the rural setting. The villages in the AOI receive water from RUWASA. There is no formal sewage works or system in place with toilet facilities being in the form of hand dug pits often covered by small built structures.

There is also no formal waste collection system in place but the general area suggests the waste stream is small and materials are often reused. Unusable wastes are most likely burnt. It is noteworthy that at the time of undertaking this study no construction activity was being executed in the vicinity.

Figure 4-8: Water infrastructure on site which is distributed water taps (Source: Tansheq, 2023)

4.5 Socio-Economic Status and Demographic Details

4.5.1 Administrative Units

The District is divided into two divisions and 12 wards with a total of 54 villages and 261 hamlets distributed unevenly as shown in Table 4-1. Katumba ward covers about 20 percent of total land area of the council followed by Litapunga and Uruwila wards with about 15 and 12 percent of the total land area respectively. Itenka ward has the smallest land area in the council constituting only 3.7 percent of the total council land area.

Table 4-1: Land Area and Administrative Units by wards, Nsimbo DC; 2018

Ward	Land Area (sq kms).	Villages	Hamlets	Percent Area
Ugalla	1,798.22	3	20	12.5
Litapunga	2280.02	8	33	15.8
Mtapenda	977.77	4	26	6.8
Urwila	1843.12	3	15	12.8
Nsimbo	751.26	3	11	5.2
Sitalike	658.97	4	23	4.6
Machimboni	657.65	2	11	4.6
Kapalala	608.71	3	14	4.2
Itenka	538.76	5	25	3.7
Ibindi	590.1	3	14	4.1
Kanoge	710.01	3	20	4.9
Katumba	2996.07	13	49	20.8
Total	14,410.66	54	261	100.0

Source: *DED Nsimbo, Land, Natural Resources and Environment Department, 2018*

4.5.2 Population

4.5.2.1 Ethnic Group

The main ethnic group in Nsimbo DC is the Hutu. They constitute almost 50 percent of the entire population. Their major occupation is farming while livestock keeping is practiced on a small scale. Other ethnicity groups found in the District include the Konongo, Fipa, Sukuma, Rwila, Tongwe and Waha. The Nyamwezi and Pimbwe are also found in almost all the 12 wards of Nsimbo DC but in minority.

4.5.2.2 Population Size and Growth

The population of Nsimbo DC has experienced decreasing of growth rate as indicated in Table 1.2. According to the 2012 Population and Housing Census the district had 131,401 people in 2012 compared to 147,947 inhabitants counted in 2002 Population Census.

The decrease of the council's population, among other factors, was due to the closure of the Katumba refugees' camp, change in political boundaries as other wards and villages were brought in the boundary of Mpanda Municipal Council. As of 2018, the population of Nsimbo District Council was projected to be 158,737 of which 78,430 were male and 80,306 were female. Table 1.2 shows the projected population sizes and population percentage increases for Katavi region and its councils for the year 2012-2018 projections.

Table 4-2: Projected Population Size and Increase by Council, Katavi Region; 2012 -2018

Council	Land Area (sq. km)	Population		Population Increase: 2012 to 2018	
		2012	2018	Number	Percentage
MPANDA DC	16,911	176,730	206,875	30,145	17
NSIMBO DC	14,411	131,401	158,737	27,335	20
MLELE DC	6,290	34,698	40,617	5,919	17
MPIMBWE DC	7,705	103,625	121,301	17,676	17
MPANDA MC	527	118,150	138,303	20,153	17
Total	**45,844**	**564,604**	**660,910**	**96,306**	

Source: DED Nsimbo and Data from NBS 2018 Reports.

4.5.2.3 Population Density

Contrary to the trend population density of the Region, the average population density of Nsimbo DC stood at 9.1 persons per sq. km in 2012 though the 2018 population projection put the population density of Nsimbo DC at 10.7. According to the 2018 population projections, Nsimbo DC is the forth highest densely populated District Council in Katavi. The regional projected population projection for the same period is 14.4 persons per sq km.

Table 4-3: Population Density by Council, Katavi Region; 2012 and 2018

Council	Land Area (sq. kms).	2012 Population	2018 Population	Population Density (Persons per Sq. Km.)	
				2012	2018
MPANDA DC	16,911	176,730	206,875	10.5	12.2
NSIMBO DC	14,411	131,401	158,737	9.1	11
MLELE DC	6,290	34,698	40,617	5.5	6.5
MPIMBWE DC	7,705	103,625	121,301	13.4	15.7
MPANDA MC	527	118,150	138,303	224.2	262.4
Total	**45,844**	**564,604**	**660,910**		

Source: NBS Data from DED Nsimbo and 2012 and 2017 Population projections.

Table 4-4 gives the population density at ward level based on 2012 population census report and 2018 population projections. In 2012, Itenka ward with a population density of 26.6 persons per sq. km was the most densely populated ward in the council, followed by Kanoge ward with 24.1 persons per sq. km. Uruwila ward was the least densely populated ward as it had only 3.3 people per sq. km.

However during 2018 population projections as done by NBS, Itenka ward still emerged as the most densely populated ward with population density of 32.13, followed by Kanoge ward with 29.14, Urwila ward still came last as it was the least populated ward with 4.01 persons per sq. km. Many people from Shinyanga migrated to Itenka ward between 2012 and 2018 to do paddy farming, this inturn contributed to the increase of Itenka ward population.

Table 4-4: Population Density by ward, Nsimbo DC; 2012 - 2018

Ward	Land Area (Sq. km.)	Population		Population Density	
		2012	2018	2012	2018
Ugalla	1,798.22	8,559	10,340	4.8	5.75
Litapunga	2,280.02	19,277	23,287	8.5	10.21
Mtapenda	977.77	6,221	7,515	6.4	7.68
Urwila	1,843.12	6,124	7,398	3.3	4.01

Ward	Land Area (Sq. km.)	Population		Population Density	
		2012	2018	2012	2018
Nsimbo	751.26	5,382	6,502	7.2	8.65
Sitalike	658.97	9,638	11,643	14.6	17.67
Machimboni	657.65	2,655	3,207	4.0	4.87
Kapalala	608.71	4,743	5,730	7.8	9.41
Itenka	538.76	14,331	17,312	26.6	32.13
Ibindi	590.1	5,312	6,417	9.0	10.87
Kanoge	710.01	17,129	20,692	24.1	29.14
Katumba	2,996.07	32,030	38,693	10.7	12.91
Total	**14,410.66**	**131,401**	**158,737**	9.3	11.02

Source: NBS Computed Data from 2012 and 2018 Population Censuses Reports.

4.5.2.4 Population Trend

Table 4-5 shows that from 2012 to 2018 the district population increased by about 27,336 people from 131,401in 2012 to 158,737 in 2018. At ward level, populations' projection shows a less or more difference in the increase as the level stands between 20.79-20.81 percent.

Table 4-5: Population Trend by Ward, Nsimbo DC; 2012 and 2018

Ward	Land Area (Sq. km.)	Population		Population Increase/decrease	
		2012	2018	Number	Percent
Ugalla	1,798.22	8,559	10,340	1,781	20.8
Litapunga	2,280.02	19,277	23,287	4,010	20.8
Mtapenda	977.77	6,221	7,515	1,294	20.8
Urwila	1,843.12	6,124	7,398	1,274	20.8
Nsimbo	751.26	5,382	6,502	1,120	20.8
Sitalike	658.97	9,638	11,643	2,005	20.8
Machimboni	657.65	2,655	3,207	552	20.8
Kapalala	608.71	4,743	5,730	987	20.8
Itenka	538.76	14,331	17,312	2,981	20.8
Ibindi	590.1	5,312	6,417	1,105	20.8
Kanoge	710.01	17,129	20,692	3,563	20.8
Katumba	2,996.07	32,030	38,693	6,663	20.8
Total	**14,420.04**	**131,401**	**158,737**	27,336	20.8

Source: NBS Computed Data from 2012 and 2018 Population Censuses and population projections Reports.

4.5.3 Socio economic activities

The economy is primarily agriculture. Food crops grown are cassava, maize, paddy, sweet potatoes, round potatoes, bananas, yams, and other fruits and vegetables. Crops grown for money are tobacco, peanuts, sunflowers, sesame, and sugarcane.

There are no large or medium scale industries or mining operations in the district, but locals do small scale mining of gold, copper, silver, lead, tungsten, rose quarts, and nitre. These sectors include agriculture, livestock, natural resources, mining, industrial development and the land sector development.

4.5.3.1 Agriculture

Nsimbo is among many rural District Councils in Tanzania which most of its population depend on agriculture and livestock keeping for their livelihood. With arable land of 230,958 ha ideal for agriculture, it is anticipated that if modern crop production and improved animal husbandry is applied, the District Council could increase production of both food and cash crops tremendously.

4.5.3.1.1 Contribution of the District to the Regional Agricultural Production

Nsimbo DCs'contribution to the regional total production of both food and cash crops is shown in Table 3.2. In the reference period of 2013/14-2018/19, Nsimbo DC added a total of 489,730.2 tons to the region's total of 2,466,849.3 tons of both major food and cash crops. This makes the overall contribution of 19.98 percent.

By producing a cumulative total of 607,495.70 tons of major cereal crops (maize and paddy) Nsimbo DC contributed 26.94 percent to the regional total production of 2,254,646 tons. However, contribution of the District on the regional produced tonnage of maize was higher than that of paddy. In terms of cash crop (tobacco), from 2013/14 – 2018/19 the District contributed 6.94 percent to the region's total tonnage of tobacco produced

Table 4-6: Contribution of Nsimbo DC to the Regional Total production (Tons) of Major Food and Cash crops; 2013/14 -2018/19

Crop	**Nsimbo DC**	**Regional Total**	**Percent contribution**
Food crops			
Paddy	165,710.50	1,399,630.50	11.83
Maize	441,785.20	855,015.50	51.66
Sub-Total	**607,495.70**	**2,254,646**	26.94
Cash crops			
Tobacco	14,725.00	212,203.3	6.94
Grand Total	**489,730.20**	**2,466,849.30**	**19.98**

Source: Katavi Region compiled Data from Councils (Agriculture Departments), 2018

4.5.3.2 Irrigation

Nsimbo is among the district council in Katavi region with some reliable number of permanent rivers that are suitable for irrigation. Information sourced from agriculture department of Katavi regional office shows that there are two main potential irrigation schemes identified in Nsimbo namely; Ugalla (225 ha) and Urwila (350 ha). Paddy and maize are common irrigated crops.

4.5.3.2.1 Agricultural Inputs

There are multiple linkages between increase in agricultural productivity and poverty reduction. Increase in real income changes, employment generation, rural non-farm multiplier effects and food prices effects are the benefits of increasing agricultural productivity. However, barriers to agricultural inputs and market access inhibit the ability of agricultural rural households to increase productivity as well as reducing their ability of fighting against povety.Tables underneath highlight situation on the availability of agricultural inputs in the district.

4.5.3.2.2 Chemical/Inorganic Fertilizers

Table 3.6 presents that the use of chemical fertilizers in Nsimbo DC was high in 2017/18 season by 11.3 percent (782.5 tonnes) compared to 576.4 tones in 2018/19. Farmers in Litapunga ward use the largest quantity of fertilizers. In each of the two seasons the ward used 28.3 percent of the total kilograms of fertilizers used in the whole ten wards given in Table 3.6. Nsimbo ward ranked second in usage of chemical fertilizers (15.2 percent) whilst Sitalike and Machimbo were two wards with lowest use of the fertilizers. Moreover, NPK is the most important fertilizer in each season. This is because about fifty percent of the total quantity of chemical fertilizers distributed to farmers in 2017/18 was NPK. The same fertilizer, NPK, leads with 37.4 percent of the total kilograms of all types of fertilizers distributed to farmers in 2018/19.

Table 4-7: Quantity of Chemical Fertilizers (Kgs)Distributed to Farmers by Ward, Nsimbo DC;2017/18and 2018/19

2017/2018							2018/2019					
Ward	**DAP**	**UREA**	**CAN**	**NPK**	**Total**	**%**	**DAP**	**UREA**	**CAN**	**NPK**	**Total**	**%**
Kanoge	1.08	0	17.6	29	47.68	6.5	1.5	14	8	31.95	55.45	6.5
Itenka	2.88	46.55	12.8	3	65.23	10.6	2.9	3	2	3	10.9	10.6
Katumba	9.72	14.7	25.6	118	168.02	17	10	25	12	120	167	17
Mtapenda	2.16	26.95	16	24	69.11	6.9	2.8	8	3	28.4	42.2	6.9
Litapunga	2.88	17.15	11.2	42.6	73.83	9.9	3	11	4	42.6	60.6	9.9
Nsimbo	4.32	29.4	11.2	28.4	73.32	10.7	4.5	16	4	28.4	52.9	10.7
Urwira	3.24	36.75	14.4	31.95	86.34	3.6	3.6	3	14.4	31.95	52.95	3.6
Sitalike	1.08	19.6	6.4	7.1	34.18	5.6	1	1.5	6.4	7.1	16	5.6
Ugalla	2.16	29.4	16	28.4	75.96	4.2	2.6	2	16	28.4	49	4.2
Kapalala	3.24	9.8	12.8	21.3	47.14	5.3	3.4	3	12.8	21.3	40.5	5.3
Machimboni	0.36	0.5	3.2	0.2	3.76	11.7	0.2	0.2	3.2	0.2	3.8	11.7
Ibindi	2.88	14.7	12.8	7.1	37.48	8	2.2	3	12.8	7.1	25.1	8
Total	**36**	**245.5**	**160**	**341**	**782.05**	**100**	**37.7**	**89.7**	**98.6**	**350.4**	**576**	**100**

Source: District Executive Director's Office (Agriculture Department), Nsimbo DC, 2018

4.5.3.2.3 Improved seeds

Improved seeds are important for optimum crops harvest. Pannar and Seedco are maize improved seeds mostly used in Nsimbo DC. Basing on Table 4.8Seedco (1,427 tons, 64.6 percent) was the most used improved seeds over the season of 2017/18 and also 20118/19 (1267. tons, 65.7 percent). In both seasons, Urwila ward ranked first on usage of improved seeds while Machimbo and Kapalala wards used the least.

Table 4-8: Availability of Improved Seeds (Kgs) by Ward, Nsimbo DC; 2017/18 and 2018/19

2017/18					**2018/19**			
Ward	**Pannar**	**Seedco**	**Total**	**%**	**Pannar**	**Seedco**	**Total**	**%**
Kanoge	15	62.4	77.4	4.4	4.4	62.4	6.6	4.2
Itenka	6	187.3	193.3	13.2	13.1	177	19.9	12.5
Katumba	8	78.1	86.1	5.5	5.5	78.1	8.3	5

2017/18					2018/19			
Ward	**Pannar**	**Seedco**	**Total**	**%**	**Pannar**	**Seedco**	**Total**	**%**
Mtapenda	8	140.5	148.5	8.2	9.8	148	14.9	9.4
Litapunga	16	515.1	531.1	36.3	36	458	54.8	32
Nsimbo	34.2	62.4	96.6	4.4	9.8	62.4	14.9	9.4
Urwira	22	218.5	240.5	14	15.3	119	23.2	14.6
Sitalike	11	62.4	73.4	4.4	4.4	62.4	6.6	4.2
Ugalla	9	46.8	55.8	3.3	3.3	46.8	5	3.1
Kapalala	6	46.8	52.8	3.3	3.3	46.8	5	3.1
Machimboni	1.5	3	4.5	1.5	7	3	10	1.2
Ibindi	3	4	7	1.5	5.5	4	9.5	1.3
Total	**139.7**	**1427.3**	**1567**	**100**	**117.4**	**1267.9**	**178.7**	**100**

Source: *District Executive Director's Office (Agriculture Department), Nsimbo DC, 2018*

4.5.3.3 Agro-Mechanisation

Mechanized agriculture is the process of using agricultural machinery to mechanize the work of agriculture, greatly increasing farm worker productivity. Besides improving production efficiency, mechanization encourages large-scale production and improves the quality of farm produce.

With reference to Table 4.9, hand hoe is the common tilling tool for peasant farmers. Basing on the huge difference on the number of hand hoes as compared to the available number of modern implements, Nsimbo DC still has a long way to go transforming its traditional agriculture that depends on hand hoes to modern agriculture that make use of more softicated and mechanized tools.

Table 4-9: Availability (Number) of Agriculture Implements by Ward, Nsimbo DC; 2018/19

Ward	Tractors	Power tillers	Ox plough	Ox cart	Hand hoe	Knapsack sprayer
Kanoge	0	0	2	1	7,778.00	48
Itenka	8	3	152	14	6,508.00	104
Katumba	2	2	3	6	14,545.00	259
Mtapenda	0	0	22	6	2,825.00	58
Litapunga	0	2	38	8	8,754.00	74
Nsimbo	1	0	26	9	2,444.00	86
Urwira	0	3	48	18	2,781.00	39
Sitalike	0	1	189	4	4,377.00	28
Ugalla	0	1	44	14	3,887.00	36
Kapalala	0	1	12	6	2,154.00	55
Machimboni	0	3	6	1	1,206.00	11
Ibindi	0	0	18	6	2,412.00	38
Distr.Total	**11**	**16**	**560**	**93**	**59671**	**836**

4.5.3.4 Livestock

Livestock farming is one of the major agricultural activities in Nsimbo that is contributing significantly to livelihood of the people. Local or indigenous breeds, and cattle, goats, sheep, pig dominate livestock industry in Nsimbo District Council and poultry are the most common livestock. Mortality rates, low reproductive rates and poor quality of the livestock products are among the challenges facing livestock industry in the district.

4.5.3.4.1 Livestock Population

Like other District Councils of Katavi region, Livestock keeping is also a second economic activity in Nsimbo DC. According to Katavi Region Socio-Economic Profile, 2015, Nsimbo ranked third District Council on number of cattle, goats, sheep and pigs but came last in the population of chicken.

With reference to Table 3.9 and Figure 3.6, distribution of livestock population in Nsimbo District Council was cattle (83,827), goats (25,776), sheep (7,010), donkeys (78), pigs (4,092) and chicken (82,857). Concentration of livestock differs from ward to ward and for cattle, Ugalla ward had the highest concentration of 19,664 cattle (23.5 percent).

Itenka ward had the highest concentration of the majority of the livestock namely goats 6,232 (24.2 percent), sheep 1,312 (18.7 percent) and donkeys 16 (20.5 percent). Machimbo ward had the highest concentration of pigs that is 752 which was equivalent to 18.4 percent of all pigs counted in the District Council. Katumba ward had the highest concentration number of chicken 12,678 (15.3 percent). Figure 4-9 estimates the total number of major livestock population only in

Table 4-10: Estimated number of Livestock Population by Ward, Nsimbo DC; 2018

Wards	Cattle	%	Goats	%	Sheep	%	Donkeys	%	Pigs	%	Chickens	%
Nsimbo	4441	5	1,515	5.9	934	13.3	0	0	236	5.8	12,154	14.7
Kapalala	5105	6.1	1126	4.4	859	12.3	2	2.6	212	5.2	4254	5.1
Kanoge	1219	1.4	1170	4.5	39	0.6	0	0	366	8.9	2813	3.4
Mtapenda	2833	3.4	1521	5.9	163	2.3	2	2.6	107	2.6	4323	5.2
Katumba	2938	3.5	4018	15.6	82	1.2	0	0	1268	31	12678	15.3
Machimboni	588	0.7	1246	4.8	1215	17.3	9	11.5	752	18.4	8578	10.4
Itenka	17308	20.6	6232	24.2	1312	18.7	16	20.5	553	13.5	12445	15
Sitalike	8661	10.3	1782	6.9	183	2.6	0	0	95	2.3	8,964	10.8
Ugalla	19664	23.5	1859	7.2	376	5.4	12	15.4	35	0.9	4,578	5.5
Litapunga	5469	6.5	1,642	6.4	921	13.1	12	15.4	314	7.7	3,642	4.4
Uruwira	9117	10.9	1974	7.7	813	11.6	13	16,7	72	1.8	4456	5.4
Ibindi	6484	7.7	1691	6.6	113	1.6	12	15.4	82	2	3972	4.8
Total	**83827**	**100**	**25,776**	**100**	**7010**	**100**	**78**	**83.4**	**4092**	**100**	**82,857**	**100**

Source: District Executive Director's Office (Livestock Department), Nsimbo DC, 2018

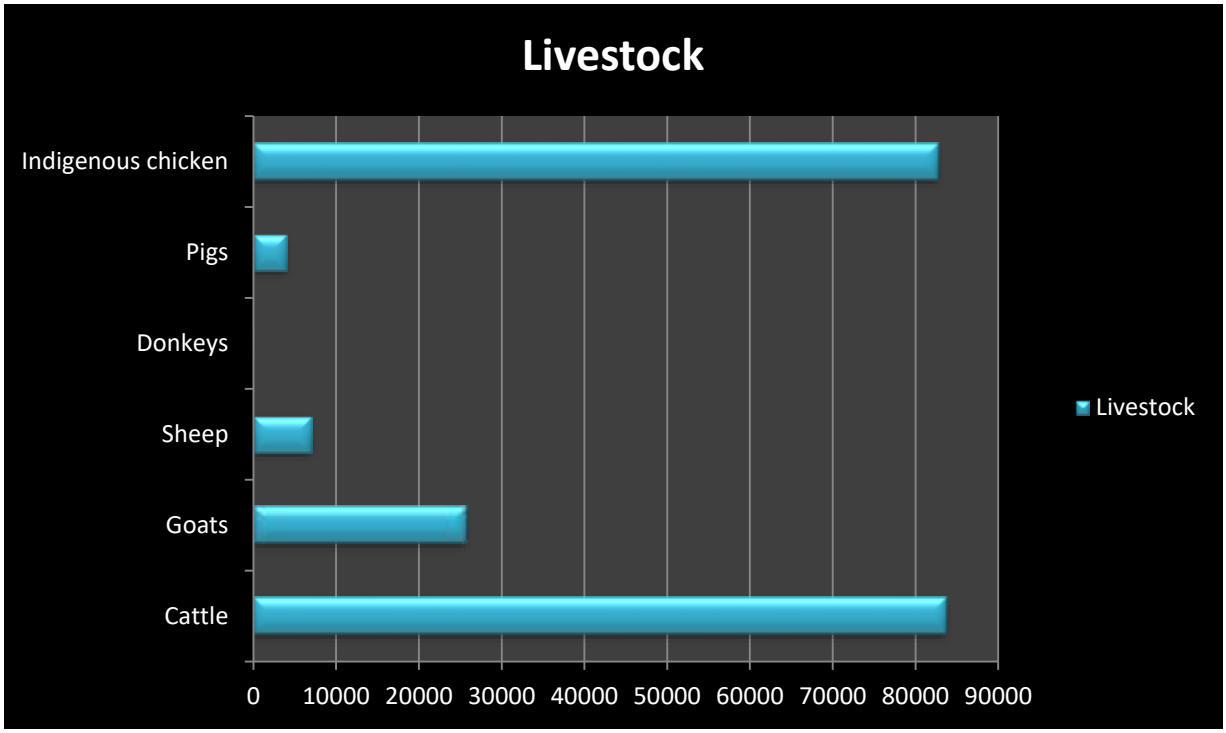


Figure 4-9: Estimated Total Number of Major Livestock Population (Source: District Executive Director's Office (Livestock Department), Nsimbo DC, 2018)

4.5.3.5 Natural Resources

Nsimbo District Council is endowed with numerous natural resources although most of them are yet to be exploited. This sector constitutes 79% of the whole land area of the District Council. Some of the natural resources include mineral deposits, forestry and wildlife. The Natural Resources sector consists of three sub sectors of wildlife, forestry and beekeeping.

This sector is very important in contributing to social and economic development such as employment and revenue gained. Apart from economic benefits, natural resources also plays an important role in maintenance of climate stability, conservation of water sources, soil fertility, controlling land erosion and provision of sources for fuel and industrial materials.

4.5.3.5.1 Forestry

Forestry sector constitutes of national forest reserves under Tanzania Forestry Services (TFS) and village land forest reserves under respectful village councils. The forest area covers 892,000 hectars equivalent to 61% of the whole land area. The rate of encroachment is very high as majority of villages in Nsimbo DC have been located inside the forest as shown in the Table 4-11.

However, the proposed project will not affected the forest reserves as it will be located in the reserve area for community activities which was being managed by the Village Council.

Table 4-11: Status of Forest Reserves Encroachment, Nsimbo District Council; 2018

S/N	VILLAGE NAME	AREA (HA)	AREA WITHIN THE FOREST	% OF AREA WITHIN THE FOREST
NORTH EAST MPANDA FOREST RESERVE				
1	URUIRA	9,594	295	3
2	IKONDAMOYO	2,382	56	2
3	Isanjandugu	3,091	181	6
4	MWENGE	2,374	413	17

S/N	VILLAGE NAME	AREA (HA)	AREA WITHIN THE FOREST	% OF AREA WITHIN THE FOREST
5	ISINDE	3,037	3,037	100
6	MTAPENDA	3,689	3,689	100
7	MNYAMASI	12,777	12,777	100
8	KASISI	6,494	6,494	100
9	KATAMBIKE	27,232	27,232	100
10	KAMBUZI HALT	9,648	9,648	100
11	KATUMBA SETTLEMENT	67,799	67,799	100
			131,621	**27**
MSAGINIA FOREST RESERVE				
1	MATANDALANI	1,513	653	43
2	IGONGWE	5,443	1,736	31
3	KAPALALA	2,123	2,123	100
4	MTAKUJA	1,052	1,052	100
5	SONGAMBELE	1,408	1,408	100
6	MWENGE	2,374	1,961	83
7	Isanjandugu	3,091	2,910	94
			11,843	**14**

Source: *District Executive Director's Office (Natural resource Department), Nsimbo DC, 2018*

4.5.3.6 Natural Resources Products

4.5.3.6.1 Forest Products

Nsimbo district council is economically benefited from selling of forest products. However, despite being located in the district surrounded by forests, statistics shows that revenue accrued from timber products are decreasing as years go by. This is due to forest destruction that the surrounding communities are responsible for it as well as the invasion of livestock keepers. As a result, the Government ban all logging activities in these natural forests, hence decline of forest earnings as shown in the Table 4-12:

Table 4-12: Statistics of Revenue Earned from Forest Products

YEAR	5% FROM TIMBER LICENCE	CHARCOAL
2018/2019	10,988,092.00	6,478,000.00
2017/2018	37,991,816.00	1,342,500.00
2016/2017	43,303,244.00	5,422,250.00

4.5.3.6.2 Beekeeping

Beekeeping is another important economic activity in Nsimbo DC.It is the only council in Katavi region which has lower annual average number of modern (5375) than higher traditional beehives (74413). Uruwila ward was leading on number of traditional beehives with annual average number of (15385) while Litapunga was leading on annual average number of modern beehives (2302). Stalike ward had the smallest annual average number of traditional beehives of (85) and Mtapenda had the smallest number of modern beehives of (17) whereby the ward of Itenka, Ibindi and Machimboni had no annual average number of modern and Tradition beehives.

Table 4-13: Number of Traditional and Modern Beehives, Nsimbo DC; 2013-2017

Ward	No. of Beehives											
	Traditional						Modern					
	2013	2014	2015	2016	2017	Annual average number of beehives	2013	2014	2015	2016	2017	Annual average number of beehives
Ugalla	3433	4423	4317	4212	4186	4114	75	87	140	288	336	185
Litapunga	1339	1499	1421	1201	1250	1342	1123	1424	2465	2945	3610	2302
Mtapenda	3890	3753	4321	4598	5958	4504	5	10	15	25	30	17
Uruwira	12342	16452	16234	16011	15888	15385	986	1098	1928	2112	2444	1714
Nsimbo	4322	5901	5712	5601	5148	5337	122	159	247	289	398	243
Katumba	5001	5211	4999	4896	4803	4982	125	445	678	893	1009	630
Kanoge	1523	1514	1483	1389	1377	1457	85	110	126	169	200	138
Sitalike	15	46	85	120	158	85	25	25	31	42	58	36
Kapalala	1998	1918	1920	2111	1300	1849	25	98	117	140	170	110
Itenka	0	0	0	0	0	0	0	0	0	0	0	0
Ibindi	0	0	0	0	0	0	0	0	0	0	0	0
Machimboni	0	0	0	0	0	0	0	0	0	0	0	0
Total	**33863**	**40717**	**40492**	**40139**	**40068**	**74413**	**2571**	**3456**	**5747**	**6903**	**8255**	**5375**

Source: *District Executive Director's Office (Beekeeping Department), Nsimbo DC, 2017*

4.5.3.6.3 Fisheries

Fishing is taken at a very small scale in Ugala River. In this regards, fishing is not a major economic activity in Nsimbo DC. However, most of fish consumed in Nsimbo come from Lake Tanganyika in Karema –Mpanda DC in Katavi region and also in Kigoma region.

4.5.3.6.4 Tourism

Tourism is termed as an instrument for employment generation, poverty alleviation and sustainable human development. With its distinct advantages, tourism is postulated as another important industry for poverty alleviation. The advantages include among others, creation of job opportunities; boosting up of sales of different goods and services such as agricultural products and handcrafts, as well as cultural entertainment performed by locals of whom majority are poor. The tourism industry is also an important in-let for the much needed foreign exchange. As such tourism as an industry can play very important roles on economic, improved livelihoods and socio-cultural development that are critical for poverty alleviation.

Presence of Katavi National Park which is in both Nsimbo and Mlele DC and also Msima and Mulele hunting blocks make Nsimbo DC a potential area for photographic and viewing tourism (in national park) and hunting in hunting blocks.

The Katavi national Park is the third largest national park in Tanzania with an area of 447,100 ha and has extensive wildlife species. Its uniqueness lies on animals moving together in large group. Elephant, giraffe, buffalo, lions and so many others are widely seen. June to January each year is the high season for tours in Katavi National Park. Moreover, tourist hunting done in Msima game controlled area also makes Nsimbo DC an important destination for wildlife both tourism and hunting. In estimating, Katavi National Parks pulls in between two and four hundred (2400) visitors annually.

4.5.3.7 Eco Tourism

To promote domestic and international tourism, availability of good infrastructure such as accommodation facilities, telecommunication services, roads, banks/bureau de change services and tour operators is an important tool for the development of competitive tourism industry.

Unfortunately, Nsimbo DC is lagging far behind compared with other three councils in Katavi region in terms those facilities necessary for growth and development of tourism sector. Investments in hotels or guesthouses requires huge capital and so huge investment in the hospitality sector has been properly done in the District by 2018. Lack of financial services especially banks is another obstacle for growth of tourism sector in Nsimbo DC.

4.5.3.8 Mineral Resources

Minerals are a principle source of income for many developing countries, including Tanzania. However, mineral deposits believed to exist in Nsimbo DC are highlighted in Table 4-14.

Table 4-14: Mineral deposits; Nsimbo DC; 2018

Type of Mineral deposits	Area
Iron	Most areas of Nsimbo District Council
Copper, lead and Zinc	Ibindi, Ugalla, Magamba and Singililwa
Gold	Ibindi, Ugalla, Singililwa, Msagiya and Nsimbo.
Silver	Ibindi, Sikitiko and Kapalala
Rocks, stones ararel, sand and Clay	Found in all area within Nsimbo District
Rose quarts	Ugalla

Source: *District Executive Director's Office, Nsimbo DC, 2018*

4.5.4 Economic Infrastructures

Describes the existing economic infrastructure in Nsimbo DC. It covers the road network in terms of road classification, type of road surface condition and passability. Others include telecommunication; which covers postal services, internets, mobile phones, radio stations and television facilities. In the energy sector developments, hydro-electricity services, biogas, solar panels, fuel wood and fossil fuels are examined.

4.5.4.1 Road Network by Type

Roads like blood arteries in the body are very instrumental in stimulating social and economic development of any District Council. Thus, for a successful Council economic management, the District Council Authority and the Government in particular, need to place more emphasis on roads improvement.

In Nsimbo DC, road transportation is the major type of transportation for people and goods within and outside the Council. It is one of the key sub-sectors that are responsible for Sustainable Development and Poverty Reduction initiatives in the Council. Nsimbo DC is served by trunk roads, regional roads, district roads and feeder roads. Table 4-15 shows the length of road network by ward and by type of which there was a total road network of 520.95 km in 2018.

The roads that are maintained by the central government are classified as trunk or regional roads, while those that are maintained by the District Council are called district or feeder roads; the rest of the roads are called peripheral roads or feeder roads and are mostly maintained by Village communities.

Table 4-15 shows that about 169 km (34.7 percent of total road network) were trunk/regional roads, district roads were 57.8 km (11.9 percent). Feeder roads which are the true arteries of the economy constituted 260.6 km or 53.5 percent of cumulative total length of all roads in the Council.

Table 4-15 further reveals that Katumba ward had the longest kilometers (137.5 km), equivalent to 26.4 percent of total road length in the Council followed by Itenka with 91.9 km or 17.6 percent while Kapalala ward had the shortest kilometers (9.1 km, or 1.74 percent) followed by Uruwilla (9.6 km or 1.84 percent).

Table 4-15: Length of Road Network by Ward and by Grade in Nsimbo DC, 2018

Wards	**Type (in km)**				
	Trunk	**Regional**	**District**	**Feeder**	**Total**
Ugalla	0	0	25.7	50.0	75.7
Litapunga	0	0	22.5	28.3	50.8
Mtapenda	0	0	15.9	19.8	35.7
Urwila	0	0	9.6	0	9.6
Nsimbo	0	0	22.8	2.03	25.49
Kanoge	0	0	48.7	5.1	53.8
Katumba	0	0	33.2	104.3	137.5
Sitalike	0	0	2.3	9.3	11.6
Machimboni	0	0	10.2	0	10.2
Kapalala	0	0	9.1	0	9.1
Itenka	0	0	21.0	70.9	91.9
Ibindi	0	0	7.0	3.2	10.2
Total	**0**	**0**	**228.00**	**292.95**	**521.59**

Source: Tanzania Rural and Urban Roads Agency (TARURA)-Nsimbo DC Council 2018

4.5.4.2 Road Surface Classification by Grade

The grade of road surface to a large extent examines the improvement of the road to guarantee the durability and passability in all seasons. Under this aspect, further analysis has been made on surface condition of the roads in terms of tarmac, gravel and earth. Figure 4-10 shows the length of road network by grade of road surface in Nsimbo DC. About 241.7 kilometers (49.6 percent) are gravel roads and 245.7 kilometers (50.4 percent) are earth roads.

Since about a half of the roads in Nsimbo DC road network are earth roads we can therefore say that many roads are passable throughout the year especially during the rainy seasons. The responsible authority is therefore alerted to take immediate measures to improve road condition of the remaining roads so as to enable reliable communication within the council and its neighbors.

Figure 4-10: Surface roads networks within the District

Table 4-16: Road Network Surface Condition by Ward, Nsimbo DC; 2018

Wards	Type of Surface (in Km)			
	Tarmac	Gravel	Earth	Total
Ugalla	0	7.0	68.7	75.7
Litapunga	0	0	50.8	50.8
Mtapenda	0	20.0	15.7	35.7
Urwila	0	0	9.6	9.6
Nsimbo	0.64	12.8	12.05	25.49
Kanoge	0	6.0	47.8	53.8
Katumba	0	21.0	116.5	137.5
Sitalike	0	0	11.6	11.6
Machimboni	0	0	10.2	10.2
Kapalala	0	7.0	2.1	9.1
Itenka	0	11.0	80.9	91.9
Ibindi	0	0	10.2	10.2
Total	**0.64**	**84.8**	**436.15**	**521.59**

Source: Tanzania Rural and Urban Roads Agency (TARURA)-Nsimbo DC Council 2018

4.5.4.3 Road Passability

Roadworthiness during the rainy season is the measure of the effectiveness of the road network. By having more than a half (426.6 km or 87.5 percent) of its road network passable throughout the year, Nsimbo DC has done well in achieving a near satisfactory improvement.

Based on the data in Table 4.3, all wards have more than sixty percent of their road network passable throughout the year and hence there are no obstacles on transporting passengers and goods throughout the year in the whole council.

Figure 4-11: Some of passable roads within Nsimbo DC

Table 4-17: Passability of Road Network in kilometers, Nsimbo DC; 2017

Wards	Condition of Network Throughout the Year in km				
	Passable Throughout the Year	Passable a Greater Part of the Year	Not Passable most of the year	Total Road Network	Percent passable (Columns 2 +3)
Ugalla	7.0	28.3	40.4	75.7	46.5
Litapunga	5.4	16.5	28.9	50.8	43.11
Mtapenda	20.7	11.7	3.3	35.7	90.76
Urwila	5.6	2.2	1.8	9.6	81.25
Nsimbo	8.00	7.05	9.8	25.49	60.56
kanoge	6.2	0	47.6	53.8	11.52
Sitalike	7.6	1.9	2.1	11.6	84.82
Machimboni	2.0	2.4	5.8	10.2	43.14
Kapalala	9.1	0	0	9.1	100
Katumba	20.8	6.0	110.7	137.5	19.49
Itenka	11.5	12.8	67.6	91.9	26.44
Ibindi	7.0	0	3.2	10.2	68.63
Total	**110.9**	**88.85**	**321.2**	**521.59**	**56.35**

Source: Tanzania Rural and Urban Roads Agency (TARURA)-Nsimbo DC Council 2017

The economy of Nsimbo DC is based mainly on agricultural production. The economic effectiveness of the road network is therefore best assessed against agricultural production. It is agricultural productivity of the network that justifies its existence.

Nsimbo DC's road network covered agricultural production at 199.75 tons of food/cash crops per kilometre of road. This means that during the crop season of 2017, on average, one kilometre of overall road networks in the district facilitated transportation of 16.64 tons.

Therefore, for improving the economy of rural population at significant level, construction of more roads is important to easy transportation of agricultural products and other goods/services within and outside the council.

4.5.4.3.1 Railway Services

Nsimbo DC is very lucky since the Tanzania Railway Limited (TRL) railway line passes through the district. There are two railway stations, Ugalla and Katumba that are in Nsimbo DC. Data on passengers and cargo using those stations for 2013 is provided below. However data as of 2018 had not yet been received from the relevant authorities

Table 4-18: Railway Services by Ward, Nsimbo District, 2013

Ward	Railway Services		
	No. Stations	Cargo Services (Tons)	No. of Passengers
Ugalla	1	7,068	10,839
Katumba	1	8,660	33,803
Total	**2**	**15,728**	**44,642**

Source: *District Executive Director's Office (Infrastructure Department)*

4.5.4.3.2 Air Services

Nsimbo DC has neither an airport nor an airstrip but since it is near Mpanda town it is served by the Mpanda airport in Mpanda town.

4.5.4.3.3 Telecommunications

The council does not enjoy internet services but telephone services (cellular phone services only) and there are no postal services. Peripheral areas access cellular phone services though with difficulties in network coverage. Generally almost all mobile networks are available. Unfortunately; there is no radio station as well as television station operating in the district council.

4.5.4.3.4 Energy Sector Development

Various sources of energy are being used in the district for domestic and commercial purposes. These include electricity, solar, firewood and charcoal. Electricity is available in very few wards that have semi-urban characteristics.

4.5.4.3.5 Electricity

Electricity as energy is very important and much needed for economic development and where it is lacking, it becomes very difficult to engage in meaningful industrial development. Currently five wards with some of their villages are now served with electricity energy from TANESCO, those wards are; Nsimbo, Kapalala, Mtapenda, Sitalike and Urwira; A plan is underway with the help of Rural Energy Agency (REA) to expand electric energy suppy in other wards of the district.

4.5.4.3.6 Fuel wood

Fuel wood is a dominant source of energy for domestic consumption. The main use of fuel wood has been for cooking and lighting and this makes wood consumption very high in the district council. The 2012 Population and Housing Census (Housing Condition Monograph TZ), report revealed that 67.4 per cent of households were using firewood as their main source of energy for cooking in Katavi region which also applies for Nsimbo DC.

Data given by the Nsimbo DC though not quite reliable, show that the consumption of firewood for cooking in the council is as high as 15,988 households which is equivalent to 58% of the total number

of households. This consumption level threatens the existence of forests since it seems to exceed the regenerative capacity of existing forests. Alternatives to fuel wood better be found soon if the council forests are to be saved from depletion on a progressive scale. Data as of 2018 had not been found by the time of this profile's update

4.5.4.3.7 Biogas and Solar Energy

There is no usage of biogas in the district council, but can be used as an alternative source of energy for cooking in order to reduce the excessive use of fuel wood. Likewise, solar energy is now used as alternative source of energy in some parts of Nsimbo DC.

To date there is no accurate data on the number of solar and generator users, however, it is estimated that there was at least a solar panel or a privately owned generator in a few households and businesses in the District Council in 2017. Nevertheless, the district council should continue encouraging people to use these sources of energy as alternatives to fuel wood and charcoal in order to reduce the pressure being exerted on forests by the local people.

4.5.4.3.8 Fossil Fuel

The 2012 Population and Housing Census (Housing Condition Monograph TZ) indicated that 0.8 percent of the households in Katavi region used kerosene/paraffin for cooking in the district council. The result is deemed not different for Nsimbo DC as well. Data as of 2018 had not been found by the time of this profile's update.

4.5.5 Social Services

This chapter discusses the status of social services available in Nsimbo district and covers health sector development in terms of morbidity, mortality, and reportable communicable diseases. It also covers HIV/AIDS prevalence, tuberculosis, and mother and child health as well as health facilities. Moreover, education sector, water and sanitation are also discussed.

4.5.5.1 Health Sector

The government of Tanzania has been pursuing deliberate strategy to improve the health status and lives of its people. Among the strategies is to increase the accessibility of health facilities within the communities through establishing a dispensary in each village/street and a health centre in each ward in the country. However, the government still has a long way to go in improving accessibility of health facilities in Nsimbo as the district still has inadequate number of health facilities as well as critical shortage of trained medical staff.

4.5.5.2 Health Facilities

Health facilities refer to dispensaries, health centres and hospitals. Dispensary is the first formal health facility in the District referral system. By national standards, a dispensary is supposed to serve 10,000 people. Health Centres (HC) is the first referral centres for cases that cannot be handed by dispensaries. Thus, it is the second level of referral at the District.

Health centre by national average standards, is supposed to serve 50,000 people. It is staffed by a Medical officer and several health trained personnel. Moreover, District Hospital forms the apex of the district referral system.

With the reference from Table 5.1, in 2018, Nsimbo District had a total of 4 health centres and 17 dispensaries with no hospital facility. However, number of health centres in the year 2018 remains the same as they were reported in 2014. This information proves deficit or shortage of referral services as

elaborated in the health policy of each ward should have at least a health centre and one hospital for the District.

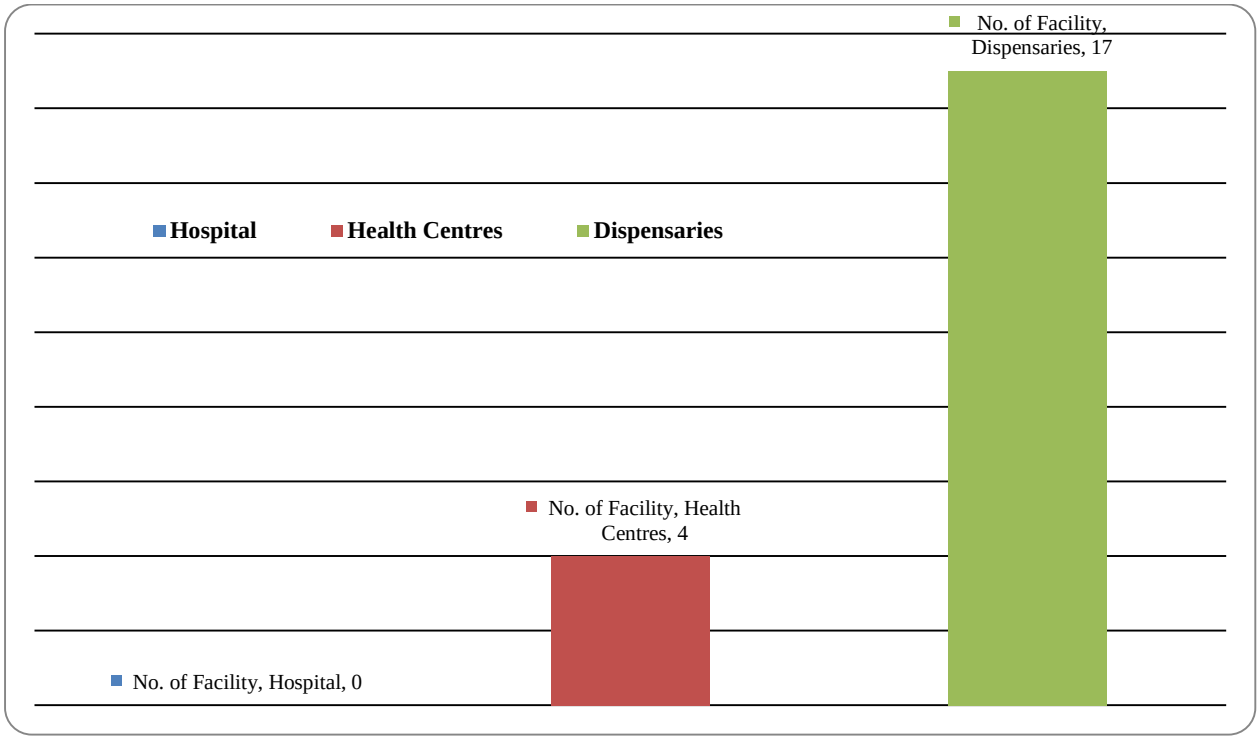


Figure 4-12: Availability of Health Facilities by Type, Nsimbo District, 2018 (**Source:** District Executive Director's Office (District Medical's Office), Nsimbo District, 2018)

Figure 4-12 shows variation of health facilities growth status among wards in Nsimbo District. There is no significant health facilities increase since 2014. At ward level, Katumba had the best access of health services as the ward had a total of 5 health facilities. Moreover, most wards have atleast one dispensaries/health centre, however some people living in these wards travel long distances to access the services delivery point.

Table 4-19: Growth Status and Distribution of Health Facilities by Ward, Nsimbo District, 2016, 2017 and 2018

Ward	**2016**			**2017**			**2018**		
	HCs	**Disp.**	**Total**	**HCs**	**Disp.**	**Total**	**HCs**	**Disp.**	**Total**
Katumba	1	4	5	1	4	5	1	4	5
Ugalla	0	2	2	0	2	2	0	2	2
Litapunga	0	2	2	0	2	2	0	2	2
Mtapenda	0	2	2	0	2	2	0	2	2
Uruwira	1	1	2	1	1	2	1	1	2
Nsimbo	0	1	1	0	1	1	0	1	1
Kanoge	1	0	1	1	0	1	1	0	1
Sitalike	1	1	2	1	1	2	1	1	2
Machimboni	0	1	1	0	1	1	0	1	1
Kapalala	0	1	1	0	1	1	0	1	1
Itenka	0	1	1	0	1	1	0	1	1
Ibindi	0	1	1	0	1	1	0	1	1
Total	**4**	**17**	**21**	**4**	**17**	**21**	**4**	**17**	**21**

Source: *District Executive Director's Office (District Medical's Office), Nsimbo District, 2018*

Shortage of health facility, according to health policy is presented in Table 4-19. Ndurumo division had minimum percentages shortages of health facilities with 40 percent health centers and 37.5 percent for dispensaries compare to 85.7 percent and 84 percent respectively for Nsimbo division.

This means that, people living in Ndurumo division had better access of health facility than Nsimbo division.

Table 4-20: Availability of Health Facilities by Type and Division, Nsimbo District, 2018

Division	No. of Wards	No. of Village/ Street	Available Health Facilities			Shortage of Health Facilities			
			Hospitals	Health Centres	Disp.	Required Health Centres	Percent Shortage	Required Disp.	Percent Shortage
Nsimbo	7	101	0	1	7	7	85.7	101	58.82
Ndurumo	5	71	0	3	10	5	40.0	71	41.17
Total	**12**	**172**	**0**	**4**	**17**	**12**	**66.7**	**172**	**99.90**

Source: *District Executive Director's Office (District Medical's Office), Nsimbo District, 2018*

4.5.6 Education System

Education sector covers pre-primary, primary, secondary and tertiary education, including vocational education, colleges and higher learning institutions. Therefore, the development of the sector in Nsimbo District involves improving in all the above mentioned areas. This understanding has been evidenced by steps so far taken by individuals and the local government authorities to increase the intake of children to pre-primary, primary, secondary and tertiary schools in recent years.

4.5.6.1 Pre-Primary Education

The condition set by the Ministry of Education and Vocational Training that enrolment in primary education should be for those who would have graduated from pre-primary education has influenced the expansion of nursery schools in Nsimbo District.

Table 4-21 shows that the number of pre-primary schools in Nsimbo district remains almost constant in the last three years. By 2018, the District had 47 pre-primary schools. All these schools annexed to government primary school compounds with no private pre-primary school in Nsimbo District Council.

The distribution of pre-primary schools was not even as it skewed towards Katumba ward (14 classes) followed by Litapunga (8), Mtapenda (5) Itenka, Kanoge, Kapalala and Sitalike (3 each), Ugalla and Uruwira (2 class each). Ibindi and Machimboni ward had lowest number of pre-primary schools.

Table 4-21: Number of Pre-Primary School Classrooms by Ownership and Ward, Nsimbo District; 2016, 2017 and 2018

Ward	2016		2017		2018	
	Public	Private	Public	Private	Public	Private
Katumba	14	0	14	0	14	0
Litapunga	8	0	8	0	8	0
Mtapenda	5	0	5	0	5	0
Kapalala	3	0	3	0	3	0
Kanoge	3	0	3	0	3	0
Itenka	3	0	3	0	3	0
Sitalike	3	0	3	0	3	0
Nsimbo	2	0	2	0	2	0
Uruwira	2	0	2	0	2	0
Ugalla	2	0	2	0	2	0

Ward	2016		2017		2018	
	Public	Private	Public	Private	Public	Private
Machimboni	1	0	1	0	1	0
Ibindi	1	0	1	0	1	0
Total	**47**	**0**	**47**	**0**	**47**	**0**

Source: *District Executive Director's Office (Primary Education Department), Nsimbo District; 2018*

Table 4-21 shows the performance so far reached by the District to establish pre-primary schools according to the Education Policy of having this facility in each government primary school. The District had an average of 4 pre-primary facilities per ward and at least a village per facility. However, distribution of pre-primary schools was skewed towards Ndurumo division though had few wards and villages compared to Nsimbo division. Ndurumo division had best ratio of per schools per ward.

4.5.6.2 Primary Education

Education is a basic right of every Tanzanian child of school going age (7-13). To render this possible the Government of Tanzania had put in place the policy of Universal Primary Education (UPE) in 1974 making such education compulsory and setting out to make it available to every child. To achieve this goal, the first task was to have reliable number of primary schools which would make enrolment increase possible.

According to Table 4-22, all primary schools in the district were owned by the government in 2018. The number of primary schools in the district is 47 but distributed unevenly within the district. Table 4-22 also shows that Katumba had the highest number of primary schools (14) followed by Litapunga (8) and Mtapenda (5) while Machimbo and Ibindi wards had a single school each.

Table 4-22: Number of Primary Schools by Ownership and by Ward, Nsimbo District; 2016, 2017 and 2018

Ward	2016			2017			2018		
	Public	Private	Total	Public	Private	Total	Public	Private	Total
Katumba	14	0	14	14	0	14	14	0	14
Litapunga	8	0	8	8	0	8	8	0	8
Mtapenda	5	0	5	5	0	5	5	0	5
Kapalala	3	0	3	3	0	3	3	0	3
Kanoge	3	0	3	3	0	3	3	0	3
Itenka	3	0	3	3	0	3	3	0	3
Sitalike	3	0	3	3	0	3	3	0	3
Nsimbo	2	0	2	2	0	2	2	0	2
Uruwira	2	0	2	2	0	2	2	0	2
Ugalla	2	0	2	2	0	2	2	0	2
Machimboni	1	0	1	1	0	1	1	0	1
Ibindi	1	0	1	1	0	1	1	0	1
Total	**47**	**0**	**47**	**47**	**0**	**47**	**47**	**0**	**47**

Source: *District Executive Director's Office (Primary Education Department), Nsimbo District; 2018*

4.5.6.2.1 Coverage of Primary School Education System

Nsimbo has a long way to go in implementing education policy of having a primary school at each village or street so as to give every child of school going age a chance of being enrolled into standard one. On average, not each village has a primary school as the district has 59 villages but with only 47

primary schools as of 2018. Looking at ward level, Table 4-23 shows that only three out of 12 wards had an average of a primary school per village.

These are Katumba (14 schools per village), Litapunga (8) Mtapenda (5) Itenka, Kanoge, Kapalala and Sitalike (3 each), Ugalla and Uruwira (2 schools each). Ibindi and Machimboni ward had lowest number of primary schools per village Table 4-23.

Table 4-23: Distribution of Primary Schools by Ward and Its Accessibility at Village Level, Nsimbo District; 2016 and 2018

Ward	Number of Village/ Street	2016		2018	
		No. of Schools	Schools Village Ratio	No. of Schools	Schools Village Ratio
Katumba	14	14	1	14	1
Litapunga	9	8	0.9	8	0.9
Mtapenda	5	5	1	5	1
Kapalala	3	3	1	3	1
Kanoge	5	3	0.6	3	0.6
Itenka	5	3	0.6	3	0.6
Sitalike	4	3	0.8	3	0.8
Nsimbo	3	2	0.6	2	0.6
Uruwira	3	2	0.6	2	0.6
Ugalla	3	2	0.6	2	0.6
Machimboni	2	1	0.5	1	0.5
Ibindi	3	1	0.3	1	0.3
Total	**59**	**47**	0.8	**47**	0.8

Source: *District Executive Director's Office (Primary Education Department), Nsimbo District; 2018*

4.5.6.3 Secondary Education

The development of secondary education in Nsimbo District improved very recent due to its historical context and the poor infrastructure. As a result, until 2009, the District had only eight public secondary schools and a private school. In 2018 the number of secondary schools stands at 7 public school and 1 private school although construction of other two new public secondary schools is underway and could possibly be opened for registration by the year 2020.

Lack of private secondary schools in the District influenced slow progress towards provision of secondary and tertiary education in Nsimbo District. Therefore, District authority should find ways of encouraging private sector, NGOs, religious group and community at large to invest in education sector in the District. There is a need also to raise community awareness on the need of having enough secondary facilities for their children for the rest of wards in the district.

Table 4-24: Number of Secondary Schools by Ownership and by Council, Nsimbo District; 2009 and 2018

Ward	2009			2018			Change Between 2009 and 2018	
	Public	Private	Total	Public	Private	Total	Number	Percent
Katumba	1	0	1	2	1	3	0	0.0
Ugalla	0	0	0	0	0	0	0	0.0
Litapunga	3	1	4	0	0	0	0	0.0
Mtapenda	0	0	0	2	0	1	1	100.0
Uruwira	0	0	0	0	0	0	0	0.0
Nsimbo	1	0	1	0	0	0	0	0.0
Kanoge	1	0	1	1	0	1	0	0.0

Sitalike	1	0	1	1	0	1	0	0.0
Machimboni	1	0	1	1	0	1	0	0.0
Kapalala	0	0	0	0	0	0	0	0.0
Itenka	0	0	0	0	0	0	0	0.0
Ibindi	0	0	0	0	0	0	0	0.0
Total	**8**	**1**	**9**	**7**	**1**	**8**	**1**	**10.0**
Percent	**88.9**	**11.1**	**100**	**90.0**	**10.0**	**100**		

Source: *District Executive Director's Office (Secondary Education Department), Nsimbo District; 2018*

4.5.6.4 Adult Education

Along with the expansion of primary and secondary education, the District is also supposed to expand adult education using primary schools as centres with head teachers being in charge of adult education campaigns through MUKEJA and MEMKWA programs.

Unfortunate, by 2018, according to the data given by Primary education department, the District had only 15 centres for MUKEJA programme with a total of 428 students in Litapunga, Kanoge and Katumba ward. Also the District has 11 centres of MEMKWA. Moreover, the district should have regular sensitization campaigns for sustainability of the two programs.

4.5.6.5 Special Education

Nsimbo District according to its current status is offering special education for different types of impairment where the main centre is at Mnyaki Primary School. In other schools there is inclusive Education. The estimated number of types of impairment available, including blinder (Albinism), deaf, physical disability, mental disability, otizm and other disability, to mention a few. Lack of sensitization campaigns to the parents is the main reason for the low number of pupils with disability who were enrolled in 2018. Moreover, the district should have regular sensitization campaigns for importance of taken their children with impairment to schools.

4.5.6.6 Adult Education

Along with the expansion of primary and secondary education, the District was also supposed to expand adult education using primary schools as centres with head teachers being in charge of adult education campaigns through MUKEJA and MEMKWA programs. Unfortunate, by 2018, according to the data given by education department, the District had only 16 centres for MUKEJA programme with a total of 26 students in Ugalla ward. Lack of sensitization campaigns to adults is the reason for the decrease in the number of adults who joined such programs in 2018. Moreover, the District should have regular sensitization campaigns for sustainability of the two programs.

4.5.6.7 Special Education

Nsimbo District according to its current status does not offer special education for different types of impairment. Only two boy pupils with special education requirement were enrolled at Litapunga ward in 2013. This is not realistic due to the estimated number of types of impairment available, including the blind, deaf, physical disability, mental disability, albino, autism and other disability, to mention a few.

Lack of sensitization campaigns to the parents is the main reason for the low number of pupils with disability who were enrolled in 2013. Moreover, the district should have regular sensitization campaigns for importance of taking their children with impairment to schools. However as of 2018, data on special education was not found.

4.5.6.7.1 Colleges and Vocation Training Schools

Nsimbo District is not well endowed with colleges and vocational training schools. Until 2017, the District had only one vocational college centre, namely Msanginya FDC offering Carpentry & Joinery, Tailoring, Electrical installion, Welding and Masonry & bricklaying, the college managed to enroll 150 students (90 males and 60 females).

The college in collaboration with the mother Ministry should mobilize the general community to join this college so as to acquire skills offered by this institution of Folk Development.

Table 4-25: List of Students at Msanganya Vocational Training Centers by Course and by Sex, Nsimbo District Council; 2018

Skills Taught	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
Carpentry and joinery	20	13.5	10	6.7	30	20
Tailoring	10	6.5	20	13.5	30	20
Electrical installation	20	13.5	10	6.7	30	20
Welding	20	13.5	10	6.7	30	20
Masonry and Bricklaying	20	13.5	10	6.7	30	20
Total	**90**	**60.5**	**60**	**40.3**	**150**	**100.0**

Source: *Msaginya Focal Development College, Nsimbo District; 2018*

4.6 Physical Environment

4.6.1 Topography

Nsimbo District Council is generally dominated by highlands, small mountain peaks, gentle plateau and plains. The council receives rainfall of between 920mm and 1,200mm annually, falling between the months of November or December and the rains then tail off in March or sometimes April.

4.6.2 Climate and Soils

Nsimbo District Council has scattered hills, gentle plains and plateaus with small mountain peaks with an altitude ranging from 1,000 to 1,500 meters above sea level forming two distinctive landscape zones namely the woodlands and the grasslands zones. Scattered hills and small mountain peaks dominates most of the Ibindi and Machimboni wards while the Katumba, Litapunga and Kanoge wards are characterized by gentle plains.

4.6.3 The Woodlands Zone

This is the continuation of the South western highlands that form the undulating topography with scattered hills and plateaus at an altitude of above 1,500 meters above sea level. This covers areas of Ugalla, Urwila wards and also includes most areas of Nsimbo DC.

The temperature in this zone is humid and lies below 25^0 C and the amount of rainfall in the zone lies between 900 and 1,000 mm per annum. The woodlands zones have natural forest trees, fruit trees, scattered shrubs and Miombo woodlands cover most of the area.

Most of the soils in this zone have high nutrient contents and are considered suitable for a wide range of food and cash crops and therefore have the potential for profitable cultivation. The zone is also suitable for livestock keeping including cattle, pigs and goats.

4.6.4 The Grasslands Zone

It is the area that is found in the valley of Ugalla ward and Ugalla river valley that covers mostly Ndurumo division. This division is covered by sandy loam soils with moderate good drainage and high rainfall. Also the area has good tropical wooded grasslands and contains many livestock.

Generally the whole council is between 1,000 and 1,500meters above sea level. The grasslands experience warm and fairly dry weather conditions with moderate rainfall. Thorny bushes mainly used for firewood and building materials cover the land.

The Zone which comprises of Ugalla, Litapunga, wards and parts of Urwila ward, lies between altitudes 1,000 meters and 1,500 meters above the sea level. It's mean rainfalls range from 920 mm – 1,000 mm and relatively cold with temperatures ranging between 26^{o}C – 30^{o}C, of which higher temperatures are experienced from September to November.

The zone has very rich soils suitable for agriculture and agricultural production level is good. Irrigation is also practiced in this zone. Crops grown in this zone include maize, beans, sweet potatoes, sunflower, groundnuts, cassava, tobacco, sugarcane and paddy and fruits such as water melon. Livestock keeping includes poultry, cattle, goats, sheep and pigs while minerals that are found in this area are gold, copper, and gallerna etc.

4.6.5 Agro – Ecological Zones (AEZ)

Like climate, there are 2 agro-ecological zones associated landscape zones. The main economic activities in these zones are determined by the topography, vegetation, climate, altitude and soils.

4.6.6 Drainage System

Nsimbo DC forms part of the vast central plateau of Katavi region, an area of flat and gently undulating plains broken in places by small hills. Most parts of the District lie between 1,000 meters and 2,500 meters above sea level and form the main watershed separating rivers flowing from north eastward into the Ugalla River to the south east.

There are however small rivers like Msaginya and Urwila that contributes the Ugalla River that flows to the Ugalla valley basin and finally to the Malagarasi River.

4.6.7 Water Supply and Sanitation

Water Supply and Sanitation Sector cover rural and urban water supply in terms of water sources, schemes and technology used to supply water. Besides that, staffing situation is also highlighted especially the work of the districts' water and sanitations engineers/technicians in providing of sustainable water and sanitation services.

4.6.7.1 Water Supply

Availability of adequate supply of clean potable water for the residents of Nsimbo district are the most important. The District relies on multiple sources of water including shallow wells, springs, boreholes, piped water and rain water harvest. In 2018 the sources of water supply both working and not working was 373.

Table 4-27 also shows that out of available 373 sources of water supply in Nsimbo district, only 78 percent were working up to the end of 2018. Boreholes were the most common water source in the District in 2018 followed by shallow wells and piped scheme.

Table 4-26: Number and Type of Rural water Supply by Status, Nsimbo District, 2018

Water Source	Working	Percent	Not Working	Percent	Total
Spring	2	1	0	0	1
Shallow Wells	35	12	11	13	55
Rain Water Harvesting	6	2	0	0	3
Bore Holes	241	83	72	87	205
Piped Scheme	6	2	0	0	4
Total	**290**	**100**	**83**	**100**	**373**

Source: *District Executive Director's Office (District Water Engineer's Office), Nsimbo District, 2018*

Looking at technology used to deliver water, Table 4-27 shows that Nsimbo district uses mostly hand pump (270) followed by diesel pump and gravity piped. Technology such as electricity pump and wind mills are not common in Nsimbo district since none of the scheme was using them.

Table 4-27: Number and Type of Water Delivery Technology Used by Status, Nsimbo District, 2018

Source	Working	Percent	Not Working	Percent	Total
Diesel Pump	2	1	0	0	3
Hand Pump	270	98	95	100	365
Gravity Piped	1	0	0	0	1
Solar Pump	2	1	0	0	3
Total	**275**	**100**	**95**	**100**	**372**

Source: *District Executive Director's Office (District Water Engineer Office), Nsimbo District, 2018*

The existing water supply infrastructure supplies water, district water engineer stated that at least 48 percent of estimated 158,737 residents of Nsimbo district were getting clean and safe water by 2018. Regarding to this, on the process of improving accessibility to clean and safe water to people the region should advise a council to priority to this sector.

The success of water supply in Nsimbo district to a large extent has been influenced by existing of water user groups, effective operational and maintenance account with a total of TZS 22,000,000.00 active village water committee as well as operational village water fund.

4.6.7.2 Sanitation

The sanitation coverage within Nsimbo DC has not been determined yet. However, the data from Nsimbo DC shows that on average of 66 percent of the households had latrines in 2018 and only 33 percent used toilets. It is neither only 0.1 percent of the household that had neither latrine nor neither toilets.

4.7 Biological Environment

4.7.1 Flora

Most of the vegetation in the project site has not been affected by anthropogenic activities because of village council restriction in accessing the area by local people. The proposed project area is richer by having varieties of natural vegetation which are found in it. This include Miombo woodlands, Acacia woodland and grasslands. Bush or thickets found in uplands are the types of vegetation found in the District and moderate grass cover in the slopes, Piptostachya inamoena as shown in Figure 4-13

No rare or endangered species are encountered in the area. During construction, various areas will be cleared to excavate the foundation of the buildings which will affect the vegetation of the area on one way or another.

Figure 4-13: Type vegetation within the proposed project site

4.7.2 Fauna

Field survey for terrestrial wildlife consisted of collection and/or observation of small mammals, reptiles and amphibians. The survey indicates that the proposed area for the project is not particularly sensitive from the point of view of big mammal, reptile or amphibians' populations. The animals identified in the area where rats, ants and lizards (Agama manzea), different species of birds were also observed.

In addition to that survey the project area is rural setting, existing animal species include terrestrial creatures which are domestic animals (livestock) such as pigs, cattle, chicken, and other types of birds. Major types of animals found were dairy cattle, Poultry, Sheep and Goats and Pigs and zero grazing is mainly done in urban areas and semi intensive to extensive method in peri-urban.

The presence of domestic animals in the project area signifies that there is dependence of natural water streams/wells as a source of drinking water for animals. Prevention of surface and underground waters from pollution is therefore very essential, and the provided mitigation measures have to be implemented.

4.8 Air Quality within the Project Area

Ambient air quality monitoring was carried out for assessing the existing status of background air quality in the project influence area. This will be useful for constantly monitoring and assessing the conformity of the ambient air quality to the given standards even after commencement of the proposed project.

Five (5) sampling locations were selected within the project area for air quality monitoring during December of 2022. Monitoring location details are provided in Table 4-28.

Table 4-28: Ambient Air Quality Monitoring Points

Monitoring Points	Latitude	Longitude
Point 1	6°24'54.13''S	31°11'30.95''E
Point 2	6°24'34.42''S	31°11'31.11''E
Point 3	6°24'37.86''S	31°11'25.38''E
Point 4	6°24'40.73''S	31°11'21.45''E
Point 5	6°24'46.14''S	31°11'31.23''E
Point 6	6°24'53.50''S	31°11'22.91''E

Monitoring Points	Latitude	Longitude
Point 7	6º24’57.80’’S	31º11’33.98’’E

The sampling locations have been selected considering the following points:

- Topography of the project influence area
- Major components of the proposed project
- Wind Direction
- Avoidance of construction activity or any other activity which may be temporary in nature

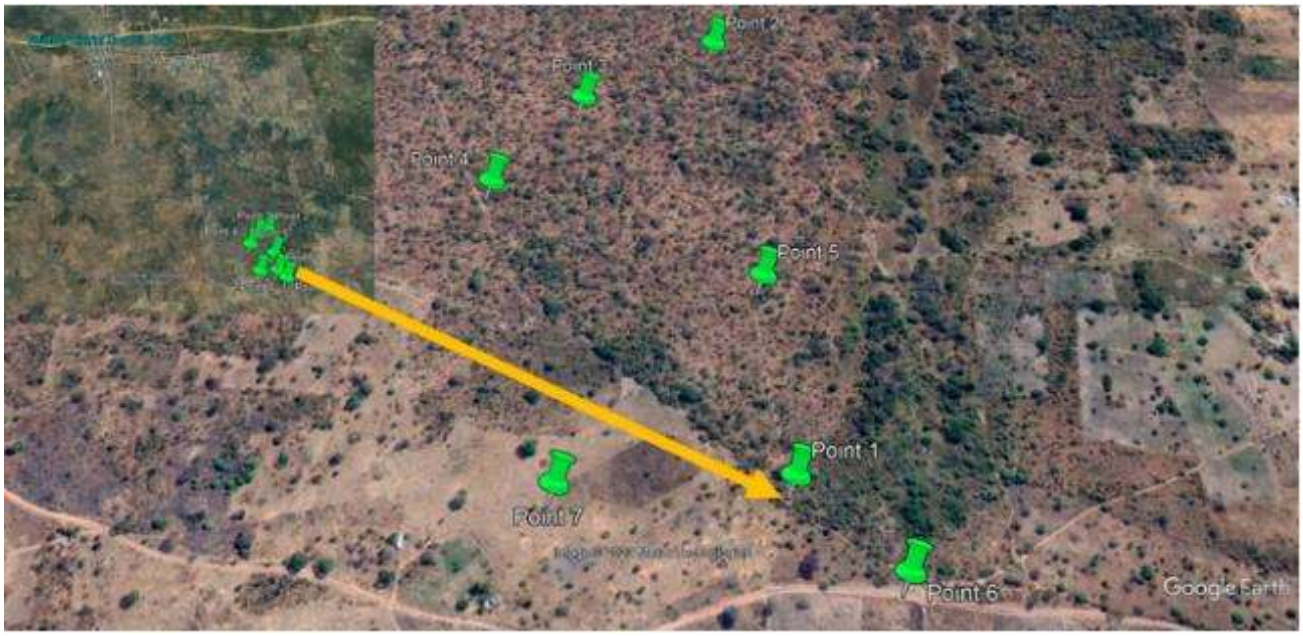


Figure 4-14: Sampling Points within the proposed site

4.8.1 Frequency and Parameters for Sampling

Ambient Air Quality Monitoring was carried out for five locations on 2nd December 2022 at 1300hrs within the project influence area for the parameters PM2.5, PM10, CO_2, CO, NO_2, SO_2, VOC, CH_4, H_2S and O_3. Samples were collected on a maximum 2-hour basis or as per the requirement of standard limit used.

The air quality with respect to PM10 & PM2.5, was assessed using Aeroqual series 500 portable fixed sensor with range 0.001 – 1.000 mg/m^3 and minimum detection limit of 0.001 mg/m^3.

The factory calibration for the instrument was done before the sampling. In the EPA 2014 Air Sensor Guidebook featuring low-cost air sensors, Aeroqual’s Series 500 was highlighted for our ozone, nitrogen dioxide, and carbon monoxide sensors.

Figure 4-15: Ambient Air Quality Monitoring equipment used at the project (2rd December, 2022)

For the gaseous pollutant, MultiRAE Lite wireless portable multi gas monitor was used for the parameters which include SO2 (range - 0 to 20 ppm), NOx (range - 0 to 20 ppm), CO (range - 0 to 500 ppm) and H2S (range - 0 to 100 ppm) with the resolution of 0.1 ppm, 0.1 ppm, 1 ppm and 0.1 ppm respectively.

A factory calibration was done for the instrument before the sampling. Whenever the gas detector is switched ON, it undergoes automatic calibration by pumping in fresh air into the sensors to allow toxic sensors to be set to zero and the Oxygen sensor to be set to 20.9 %.

Ambient Air Quality Results Ambient air quality monitoring was done at the above-mentioned locations and their results for the parameters PM2.5, PM10, CO_2, CO, NO_2, SO_2, VOC, CH_4, H_2S and O_3.are tabulated in Table 4-29, Table 4-30 and Table 4-31. The average values of PM2.5 and PM10 are represented in Figure 4-16 and Figure 4-17

4.8.2 Ambient Air Quality Results

Ambient air quality monitoring was done at the above-mentioned locations and their results for the parameters PM2.5, PM10, SO2, NOx, HC and CO are tabulated in Table 4-29 and Table 4-29. The maximum, minimum and average values of PM2.5 and PM10 are represented in Table 4-29 and Table 4-30.

Table 4-29 Monitored PM2.5 Values

Monitoring Point	$PM_{2.5}$ Levels [µg/m^3] Reading Value					
	Value 1	Value 2	Value 3	Value 4	Value 5	Average
Point 1	4	4	4	6	5	4.6
Point 2	3	4	3	6	5	4.2
Point 3	3	3	5	6	4	4.2
Point 4	4	3	3	5	5	4
Point 5	3	3	3	6	5	4
Point 6	3	3	6	7	5	4.8
Point 7	3	2	3	5	5	3.6
Air Quality- Specification (TBS) 2021						**25**
WHO Ambient Air Quality Guidelines						**25**

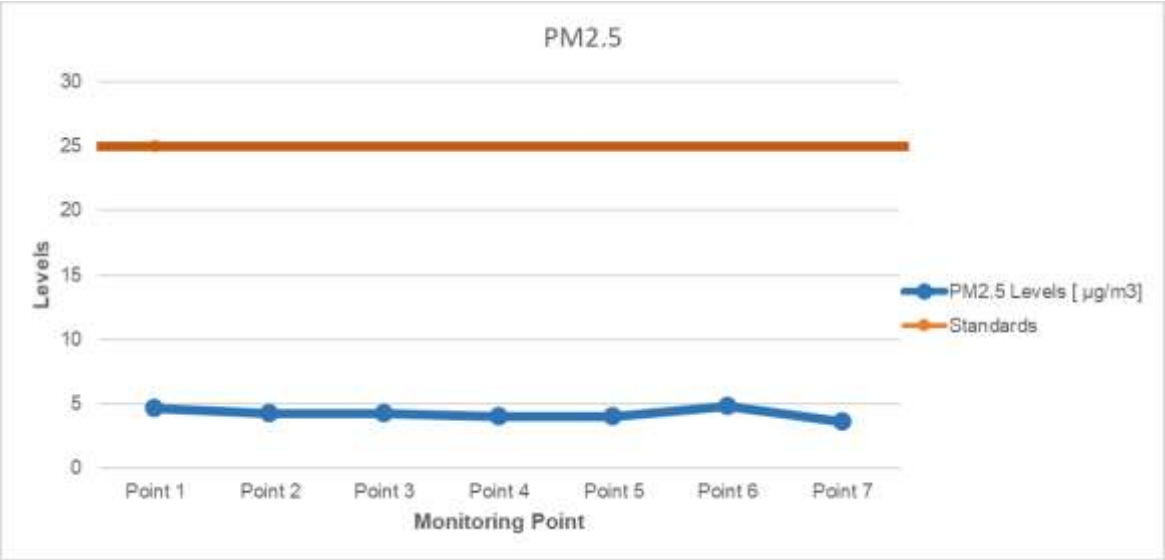


Figure 4-16: $PM_{2.5}$ Levels [µg/m^3] Average against Standard

Table 4-30: Monitored PM10 Values

Monitoring Point	PM_{10} Levels [µg/m^3] Reading Value					
	Value 1	Value 2	Value 3	Value 4	Value 5	Average
Point 1	11	12	8	7	9	9.4
Point 2	6	8	6	8	8	7.2
Point 3	6	8	8	9	6	7.4
Point 4	7	5	6	7	8	6.6
Point 5	6	6	7	9	6	6.8
Point 6	8	8	40	14	7	15.4
Point 7	6	3	14	11	40	14.8
Air Quality- Specification (TBS) 2021						**60**
WHO Ambient Air Quality Guidelines						**50**

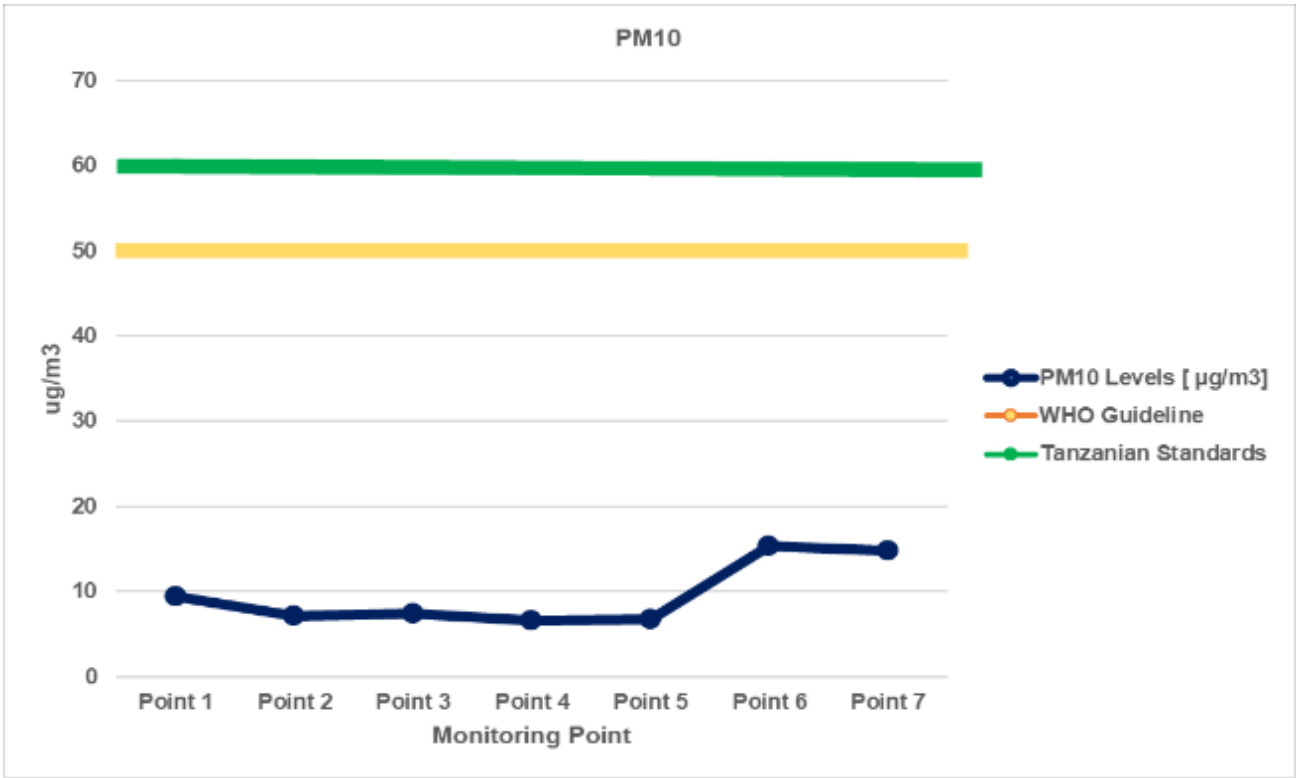


Figure 4-17: PM_{10} Levels [µg/m^3] (Average against WHO and Tanzanian Standards

Table 4-31: Results of Gaseous Pollutants (CO_2, CO, NO_2, SO_2, VOC, CH_4, H_2S and O_3)

Monitoring Point	CO_2 [ppm]	CO [ppm]	NO_2 [ppm]	SO_2 [ppm]	VOC [ppm]	CH_4 [ppm]	H_2S [ppm]	O_3 [ppm]
Point 1	12	4.1	0	0	0	10	0	1.1
Point 2	7.2	3.2	0	0	0	5	0	0.3
Point 3	6.7	2.1	0	1	0	2	0	0.5
Point 4	6.1	1.4	0	1	7	5	0	0.9
Point 5	4.5	1.9	0	2	5	7	0	1.1
Point 6	5.5	4.6	0	0	0	11	0	1.0
Point 7	6.7	5.1	0	1	0	9	0	1.3
Air Quality-Specification (TBS), 2021	**N.M**	**2000**	**190**	**500**	**6000**	**N.M**	**0.0**	**240**
WHO Ambient Air Quality Guidelines	**N.M**	**5000**	**200**	**125**	**100**	**N.M**	**N.M**	**100**

4.8.3 Discussion

During the study, the average value of $PM_{2.5}$ was observed between 3.6 and 4.8 ppm and for PM_{10}, the average concentration was observed between 6.6 and 15.4 ppm. $PM_{2.5}$ and PM_{10} concentration at point 6 has slightly higher but below the standard limit because of the point being nearby the access road used by the vehicles such as cars and motorcycles.

With respect to gaseous pollutants, all the parameters were within the limits with maximum value of CH_4-11 ppm. Some pollutants were in concentration less than the detectable limit of the equipment used for monitoring.

4.9 Noise Levels

Ambient noise monitoring was done to observe the ambient noise level within the vicinity of the area of influence. The aim of this noise monitoring was to record the noise level within the study area especially near the human settlement for future reference.

The monitoring was done at seven (7) locations in on a 24-hour basis. Results of the same are given in Table 4.4 and the monitoring locations are shown in Figure 4.16. The major sources of noise were observed mainly from vehicles and road traffic.

4.9.1 Noise Monitoring Methodology

Ambient noise level or sound pressure levels (SPL) were measured by a portable sound level meter having built -in facilities to read noise level directly in dB (A). A-weighted equivalent continuous sound pressure level (Leq) values were computed from the values of A-weighted SPL measured with the help of noise meter.

Ambient noise level monitoring was carried out in the month of December 2022. At each location, noise monitoring was conducted continuously over a period of 24 hours to obtain Leq values at regular time Intervals of 1 hour.

Figure 4-18: Noise Monitoring within project area

Daytime Leq has been computed from the hourly Leq values between 6.00 a.m. and 10.00 p.m. and night-time Leq from the hourly Leq values between 10.00 p.m. and 6.00 a.m. using the following formula:

$$L_{eq_{night}} = 10\log\frac{1}{9}\sum_{i=1}^{9}10^{\frac{L_i}{10}} \qquad L_{eq_{day}} = 10\log\frac{1}{15}\sum_{i=1}^{15}10^{\frac{L_i}{10}}$$

Where, Li = Leq value of the i^{th} hourly time interval
Area category:

A -- Any building used as hospital, convalescence home, home for the aged, sanatorium or institute of higher learning etc.
B -- Residential building
C -- Mixed Residential (with some commercial and used for entertainment purposes)
D -- Residential and industrial (small-scale production and commercial activities)

E -- Industrial area
Daytime: 6.00 a.m. to 10.00 p.m.; Night time: 10.00 p.m. to 6.00 a.m.

4.9.2 Noise Monitoring Results

Noise levels in the area during daytime were observed to be in the range of 40 dB (A) to 50.1 dB (A), which are within the limit as per Environmental Management (Standards for the Control of Noise and Vibration Pollution) Regulations, 2015. Noise levels at these locations are due to vehicular movements. Day noise levels with their respective locations, along with coordinates are given in Table 4-28 and are graphically represented

Table 4-32: Noise Monitoring Locations and Results

Monitoring Point	Noise Levels [dB (A)] Reading Value					
	Value 1	Value 2	Value 3	Value 4	Value 5	Average
Point 1	56.3	49.3	50.6	51.8	42.3	**50.1**
Point 2	38.9	38.5	50	49.5	41.8	**43.7**
Point 3	36.3	40.7	52.1	37.5	45.1	**42.3**
Point 4	46.4	38.3	51.3	35.7	43.4	**43.0**
Point 5	46.2	43.2	49.7	34.2	41.5	**43.0**
Point 6	42.7	38.8	49.7	34	40.3	**41.1**
Point 7	36.2	36.2	51.5	34.3	41.7	**40.0**
Air Quality- Specification (TBS) 2021						**60**
WHO Ambient Air Quality Guidelines						**70**

4.10 Vibration Levels

4.10.1 Specification

Vibration measurement was done by standard method for vibration levels determination using vibration meter known as LUTRON BVB-8207SD - 4-channel vibration meter datalogger. It is certified by the ISO-9001, CE, IEC1010 with measurement range of 0.1 to 199.9mm/s (0.02 to 7.87inch/s) and the frequency range is 10Hz to 1 kHz, sensitivity relative meet ISO 2954. The accuracy of the vibration meter is ± (5 % + 5 d) reading @ 160 Hz, 80 Hz, 23 ± 5 ℃. The meter is calibrated using electrical calibration with calibration point of 50mm/s (160Hz).

4.10.2 Methodology

On taking measurement the meter is set to millimeter per second (VEL mm/s) scale which enables to respond in velocity in the same manner as peak particle velocity (PPV).

On taking measurement, the meter was set on ground and its vibration transducing sensor with magnetic adapter was mounted on the ground as to respond to ground vibration waves (particle peak value in mm/s). Five runs were recorded for every point and their hourly average value was used as representative value and then compared with available local standards and international guidelines.

Figure 4-19: Vibration Meter used for the Study

4.10.3 Results

At site there are no source of vibration thus, referring to the findings summarized in the Table 4-33, the ground vibration level at all assessed points the vibration was detected below the recommended limit as it is ranges between 0.5mm/s to 0.8mm/s.

All locations was recorded with ground vibration levels which is below the limit value of 5.0 mm/s set by both local and international standards (TZS: 1471:2015) and [BS ISO [4866:2010]] respectively. Table 4-33 details on ground vibration levels of the locations.

Table 4-33 Vibration Results

Monitoring Point	**Vibration (mm/s)**					**Source of Vibration**
	CH1	**CH2**	**CH3**	**CH4**	**Avg.**	
Point 1	0.5	0.4	0.5	0.5	**0.5**	The vibration recorded is due to vehicle movement as vehicles were passing in the vicinity of the site
Point 2	0.3	0.5	0.4	0.6	**0.5**	
Point 3	0.3	0.3	0.4	0.8	**0.5**	
Point 4	0.5	1	0.8	0.7	**0.8**	
Point 5	0.5	0.4	0.5	0.6	**0.5**	
Point 6	0.4	0.6	0.6	0.6	**0.6**	
Point 7	0.4	0.6	0.6	0.8	**0.6**	
Local: TZS: [1471: 2015]	**5**	**5**	**5**	**5**	**5.00**	
International: BS ISO [4866:2010]	**5**	**5**	**5**	**5**	**5.00**	

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. The process of stakeholder engagement was conducted in the tenements of ESS10: Stakeholder Engagement and Information Disclosure pinpoint the involvement of stakeholder in the project sustainability as speculated in the ESF.

The details of the engagement process were elaborated in the project stakeholder engagement plan which was disclosed as an official document governing all stakeholder engagement issues with regards to the SEQUIP project.

Stakeholder engagement is an inclusive process conducted throughout the project life cycle. Where properly designed and implemented, it supports the development of strong, constructive, and responsive relationships that are important for successful management of a project's environmental and social risks. Stakeholder engagement is most effective when initiated at an early stage of the project development process, and is an integral part of early project decisions and the assessment, management, and monitoring of the project's environmental and social risks and impacts

Stakeholders are identified as "those people and institutions that have an interest in the successful design, implementation and sustainability of the project or will be negatively or positively impacted by the proposed development". 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 the 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 planning, implementation and evaluation process because the Environment Management Act (2004) demands it to be so.

Stakeholder engagement is the process of communicating and working with stakeholders to meet their needs and expectations, and to address issues as they occur. The engagement systematically fosters appropriate stakeholder engagement in project activities throughout the life of the project. The key benefit of this process is that it allows the Project Management to increase broad support and minimize resistance from stakeholders hence increasing the chances to achieve project success

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 partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.
Empower	Inclusion of the public in the decision-making processes.

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

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

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

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

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

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

It consists of the following information:

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

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

5.3 Stakeholder

Stakeholders are individuals or groups who are affected or likely to be affected by the project (project affected parties, PAPs) 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 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 December 2022. The below bullets capture the process undertaken to date:

- Introductory meeting with RC (Region Commissioner) RAS, (Region Administrative Secretary) Region Education Officer, (REO), REMO,(Region Environment Management Officer)
- District Executive Director (DED) in Kaliua DEO, DEMO
- Initial meeting with village government, Ward officials including WEO at village, 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 identified on the basis of their involvement in decisions that might affect the proposed development or the stakeholder. The Institutional stakeholders include:

- Vice Presidents Office, Division of Environment and National Environment Management Council (NEMC);
- Ministry of Labour and Employment (Occupational Safety and Health Authority, OSHA)
- Ministry of Home Affair [Fire and Rescue Force and Police Force (Traffic Unit)];
- Rural Water Supply and Sanitation Authority (RUWASA)
- Regional Government Regional Commissioner (RC) and District Commissioner (DC); and
- Local Government (Municipality/Ward/Street/Village
- Surrounding community

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: surrounding Communities/Residents/affected people and gas users

The stakeholders involved were identified and involved include the central and local government stakeholders directly responsible with the project activities are detailed in Table 5-2**:**

Table 5-2: Central and Local Government Stakeholders

Central and Local Government Stakeholders	
Central Government at National Level	
Ministry	**Department or Executive Agency**
President's Office	Regional Administration and Local Government (RALG)
Vice Presidents Office-Division of Environment	National Environment Management Council
Ministry of Education	Secondary Education Quality Improvement Program
Ministry of Labour and Employment	Occupational Safety and Health Authority, OSHA
Ministry of Water	Water Basin Board, RUWASA
Central Government Regional Level	
Office	**Executives**
Katavi Regional Commissioners Office	Regional Secretariats under RAS
Nsimbo District Commissioner Office	District Secretariat under DAS Assistant Administrative Secretaries for various functions within the District
Local Government - Municipal, Ward, and Village Levels	
Office	**Executives**
Nsimbo District Council	• District Council • Council Chairperson (elected among councilors within the District/Municipality), • District Executive Director • Member(s) of Parliament
Songambele Ward	Ward Development Committee (WDC). Consisting of • Ward Executive Committee (Secretary of the Committee) • Chairpersons of all Village Councils within the ward, • Member(s) of the Municipal Council who ordinarily reside in the Ward • Invitees including persons from NGOs and other civic groups involved in the promotion of development in the Ward
Kapalala Village	• Village Assembly • Village Councils under Chairperson

5.5 Information Dissemination and Disclosure

Participatory and consultative approach was employed for information dissemination and data collection. The team carried out consistent messaging on the key aspects of the project. Guiding notes on types of information to be shared with each category of stakeholders were used as a reference material to support engagement during various meetings.

5.6 Consultation and Participation

Stakeholder consultations involved notifications, community awareness meetings and technical meetings. The consultation approaches used different participatory methods:

(i) Small group interviews
(ii) Focus group discussions
(iii) Key informant interviews and
(iv) Community assembly.

5.6.1 Community Engagements

Engagement activities entailed scouting visit and meetings with village leaders and the whole community. The team conducted initial transect walks and observations accompanied by community leaders, District Environmental Management Officer and District Secondary Education Officer. Meetings were undertaken by ESIA team with support from Kapalala Village Leaders and Nsimbo DC officers.

5.6.1.1 Meeting Organization

Meetings with village leaders and representatives of community groups were conducted at the Ward office. In response to health and safety requirements against COVID-19, the meetings were small gatherings attended only by necessary people and completed within the shortest time possible – lasting a maximum of 2 hours.

Representatives of community groups were met in small gatherings of 25 people at a time, and all meeting attendees had to keep a desirable social/physical distance, wash their hands with soap and running water and / or sanitizer and wear masks.

A village assembly attended by all community members was organised by village leaders and conducted during afternoon hours. The time was arranged not to interfere with people's daily commitments. The village meeting was held at Village office.

5.6.1.2 Participation

Information regarding dates, locations, venue, time /duration and participants/audience at the various meetings was well spread through the various means including notifications, awareness meetings and technical meetings. This was reflected in the good turn up of targeted categories of people at the various consultative events. The presence of a diversity of meeting participants is reflected in the attendance records

The main issues of concern during consultation were the awareness of the project, the relationship between the project proprietors and different levels of the government structure and down to the community level. Another issue was on corporate social responsibility of the operation, most of the stakeholders were concerned with Nsimbo District Council participation/ contribution in social activities.

On the other hand, direct and indirect benefits of the project to the local communities were briefly discussed especially regarding to health, employment, safety and location. These views were obtained in meetings, individual consultations. A summary of views that were given and issued raised by these stakeholders reached for the purpose of this exercise is given in the Figure 5-1

Figure 5-1: Meeting at the project proposed site

5.7 Summary of Issues

The EIA study has identified main concerns and issues raised by the different stakeholders. A list of the stakeholders consulted is provided in appendix III. Based on the raised concerns, an analysis was carried out and issues ranked accordingly. The ranking was based on the frequency an issue was raised.

The stakeholders concerns, comments and views as well as the details of all issues, which were raised by the various stakeholders are summarized in the Appendix II

5.8 Perceived Positive Issues by Stakeholders

5.8.1 Employment opportunities

Due to the nature of the Project, it is expected to employ 50 local people as unskilled labors. PIT will also outsource some of the activities such as security and catering.

To avoid the possibility of unfair allocation of jobs to non-local staff, the project should commit to hiring local labour, particularly to meet semi-skilled or unskilled requirements. In that regards, they recommended to engage local leaders in the village level in recruitment process.

5.8.2 Knowledge transfer and competitiveness

The proposed project among the direct positive impacts that it will bring to the surrounding communities there will also be other impacts because of influx of people in the area. The exchange of culture and skills will automatically benefit the dwellers as they will get an opportunity to learn soft life skills.

5.8.3 Local Expectations from the Project

Stakeholders expect the proponent to implement its Corporate Social Responsibility (CSR) policy and collaborate with local government to optimize social benefits from the project and support on-going natural resources conservation efforts in the area.

Table 5-3: Issues Raised by Stakeholders

S/N	Issue	Frequency	Rank	Response
1	Employment opportunities, economic benefits and increased revenues locally (District Authorities and community) and nationally (positive impact)	10	1	Local people will be engaged accordingly as the project will use force account for Nsimbo DC
2	Damage or disturbance to natural habitats	7	2	This is illustrated in section 6.4.9 and ESMP
3	Cultural/ behavior change from interactions with community	7	4	Discussed in section 8.4.1
4	Dust generated during construction within the project site	7	4	Discussed in Environmental Management plan
5	Management of storm water and domestic waste water	6	5	Waste management is described in section 2.3

5.9 Perceived Negative Issues

5.9.1 Final Disposal Site of Chemicals from laboratory and Wastes

Stakeholders raised concerns on the lack of procedures for handling of chemicals from laboratories and wastes produced from school operations. Chemical waste and other hazardous waste shall be collected in special container ready for final disposal in a specified manner as detailed in the ESMP.

Domestic waste shall be collected by and disposed of as Nsimbo District Council solid waste management system as it will be communicated and the contractor will be contracted to do the same accordingly

5.9.2 Damage or disturbance to local natural habitats and biodiversity

The stakeholders were concerned about the potential loss of and disturbance to the natural environment from human presence and activities at the proposed site.

5.10 Acceptance of Proposed Project

The stakeholders met by the EIA consultants, commenced since September 2022, generally supported the proposed project in Katavi Region. The broad degree of acceptance by different stakeholders are presented in Table 5-4, yet within these different stakeholder groups there were variations in acceptance both locally and nationally.

Table 5-4. Summary of Project Acceptance by Different Stakeholders

Stakeholder Group	High	Indifferent	Low
Central Government ministries, departments & agencies	√		
LGAs: District (Nsimbo)	√		
Local stakeholders (Kapalala)	√		
Other stakeholders	√		

6 ASSESSMENT OF IMPACTS AND IDENTIFICATION OF ALTERNATIVES.

6.1 Introduction

This section includes expected environmental and social impact assessment during the entire lifecycle of the school construction project. Methods used for impact assessment, as well as quantitative and qualitative criteria were developed to unify and standardize the assessment system, which ensures the objectivity of the assessment. Impact assessment methodology preparation was based on the recommendations of the World Bank and other International Financial Institutions (EBRD, IFC, and ADB).
The following scheme will be used for environmental and social impact assessment of the planned activities:

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

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 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.

6.1.1 Impact Identification and assessment methodology

Based on the project components, the baseline environmental status and the defined influence areas, the potential impacts were identified in the following main steps:

Table 6-1: Criteria for Assessment of Nature, Extension, Duration and Magnitude of Impacts

Criterion	Description
Nature	***Nature of the environmental change***
Positive	Beneficial environmental change
Negative	Adverse environmental change
Extension	***The geographical area that may be affected by the impact***
DIA	Only the place where the activities directly related to school construction may occur, located within the boundaries project area
IIA	Effects in Kapalala Ward and the surrounding Districts of Nsimbo DC, where the project is located and at potential sources for construction materials in the neighbouring Districts and Region
National WIA	Effects may occur within Tanzania

Criterion	Description
Regional or International WIA	Tanzania and neighbouring countries
Duration	***Period along which the impact is expected to occur***
Short-term	Within the construction period or less than six months
Medium-term	Between six months and five years
Long-term	More than five years
Magnitude	***Effect on environmental and social processes***
High	Natural functions and processes/existing conditions are severely altered. Sensitive/protected species or habitats are severely affected
Medium	Natural functions and processes/existing conditions are notably altered. Sensitive/protected species or habitats affected
Low	Natural functions and processes/existing conditions are slightly altered. Sensitive/protected species or habitats not affected
Very low	Natural functions and processes/existing conditions are negligibly altered
Zero	Natural functions and processes remain unaltered

Table 6-2: Criteria for Assessment of Significance of Potential Impacts of the Project

Significance Category		Description
High negative Impact	High Positive Impact	High magnitude with a local extent and medium-term duration
		High magnitude with a regional extent and short-term period or a site-specific extent and long-term duration
		High magnitude with either a local extent and short-term period duration or a site-specific extent and medium-term duration
		Medium magnitude with any combination of extent and duration except site-specific and construction period or national/international and long-term
Medium negative impact	Medium positive impact	Low magnitude with regional extent and long-term duration
		High magnitude with a site-specific extent and short-term period duration
		Medium magnitude with a site-specific extent and short-term period duration
		Low magnitude with any combination of extent and duration except site-specific and short-term period or regional and long-term
		Very low magnitude with a regional extent and long-term duration
Low negative impact	Low Positive Impact	Low magnitude with any combination of extent and duration except site-specific and short-term period or regional and long-term
		Very low magnitude with a regional extent and long-term duration
No impact		Zero magnitude with any combination of extent and duration

6.2 Interactions of Project Activities with the Receptors

The potential impacts anticipated during the proposed project are identified through Interaction Matrix were interactions between project activities and environmental and social receptors are assessed.

It has been found that the project has both beneficial and adverse impacts, which are highlighted in the Matrix. The activities of the proposed project are classified into three phases, namely pre-construction, construction, and operation phase, already discussed in **chapter 2.**

Table 6-3: Interaction Matrix for Aspects and Impacts of the Katavi Girls Secondary School

ACTIVITIES		PARAMETERS																					
		Physical Environment							Biological Environment		Socio-economic Environment												
		Air quality/noxious smells	Noise and Vibration	Ground water	Surface Water	Land Use and land cover	Soil Quality & Erosion	Climate Change	Flora	Fauna	Project Affected People	Community Areas	Road Safety and Traffic Control	Public Utilities (Energy and Water)	Waste and hazardous material	Economy and Livelihood	Labour and Employment opportunity	Cultural, Religious or Archaeological Sites	Gender	Human rights	Occupational Health and safety	Landscape and Aesthetics	Community Health and safety
Mobilization/Pre construction																							
	Land Acquisition																						
	Bush Clearance																						
	Construction of materials and equipment storage areas																						
	Transportation of material and equipment																						
	Vehicle Movement.																						
	Recruitment of labour force																						
	Installation of water and waste water infrastructure																						
	Construction of sanitation facilities																						
	Waste management																						
	Installation of electrical infrastructure																						
Construction																							
	Site leveling and excavation																						
	Recruitment of labour force																						
	Vehicle Movement.																						

ACTIVITIES		PARAMETERS																					
		Physical Environment							Biological Environment		Socio-economic Environment												
		Air quality/noxious smells	Noise and Vibration	Ground water	Surface Water	Land Use and land cover	Soil Quality & Erosion	Climate Change	Flora	Fauna	Project Affected People	Community Areas	Road Safety and Traffic Control	Public Utilities (Energy and Water)	Waste and hazardous material	Economy and Livelihood	Labour and Employment opportunity	Cultural, Religious or Archaeological Sites	Gender	Human rights	Occupational Health and safety	Landscape and Aesthetics	Community Health and safety
	Transportation of Construction Materials																						
	Storage of Construction Materials																						
	Extraction of naturally occurring construction materials (sand, gravels)																						
	Building construction (classes, offices, laboratory and dormitories)																						
	Waste management																						
	Lay off workers																						
Operations																							
	Recruitment of workers																						
	Students enrollment																						
	Waste management																						
	Housekeeping																						
	Maintenance of school facilities																						
	Vehicle Movement.																						
Decommissioning																							
	Structure Dismantling																						

ACTIVITIES		PARAMETERS																					
		Physical Environment							Biological Environment		Socio-economic Environment												
		Air quality/noxious smells	Noise and Vibration	Ground water	Surface Water	Land Use and land cover	Soil Quality & Erosion	Climate Change	Flora	Fauna	Project Affected People	Community Areas	Road Safety and Traffic Control	Public Utilities (Energy and Water)	Waste and hazardous material	Economy and Livelihood	Labour and Employment opportunity	Cultural, Religious or Archaeological Sites	Gender	Human rights	Occupational Health and safety	Landscape and Aesthetics	Community Health and safety
	Equipment removal																						
	Waste management																						
	Loss of employment opportunities																						

6.3 Assessment of Anticipated Environmental and Social Impacts

The potential impacts that may be seen during the proposed project are identified through the project activities, where interactions between project activities and environmental and social receptors are assessed. The activities of the proposed project are classified into four phases:

- Mobilization and Preconstruction
- Construction
- Operation
- Decommissioning

The environmental and social impacts associated with the proposed project are likely to be both negative and positive. Based on the project activities. Impacts in different phases of the project i.e., mobilization/pre-construction and construction; operation and decommissioning are detailed in sections below. Mitigation measures shall be developed for negative impacts with high and moderate significance. Mitigation measures for impacts with low significance may be developed if they are within economic constraints.

6.3.1 Mobilization/Pre-construction phase

6.3.1.1 Global warming and effect on human health due to emission of exhaust and fugitive gases

There will be air pollution that will be resulted from emission of exhaust and fugitive gases from cranes and heavy duty and vehicles as well as light vehicles as they are moving from one point to another and therefore resulting to a risk of global warming and effect on human health.

Construction materials such as cement, steel, wood sand and aggregates will be brought from different sources. The trucks and earth moving equipment will emit dust, noise and exhaust fumes that are unwanted atmospheric pollutants.

Considering the size of the project is small, it is assuming that 10 trucks will be used to mobilize construction materials. The amount of emissions is estimated. In addition, dust will emanate from vehicles on loose surface roadways.

Atmospheric pollutants from engines of vehicles, which include SO_2, NO_x, CO_2 and articulate matter are expected to be emitted due to the movement of vehicles during the mobilization phases whereby construction materials and other required resources for construction mobilized. During this phase, the emission factors of vehicles for the above gaseous emissions are estimated to be:

CO_2 (grams)	NO_2 (grams)	SO_2 (grams)	PM (grams)
9,175,269.6	165,427.9	2,853,975.6	3,704

Mobilization of construction material, equipment and machinery will be a one – off event. Emissions from trucks will not give rise to significant reduction in the air quality except in the immediate vicinity of the road in circumstances where the wind is still. Vehicle emissions will therefore make negligible contribution to local and global air quality issues.

The extent of this impact is localized with a low intensity. It is likely that the impact may occur. The impact can be highly be improved/eliminated with mitigation.

Therefore, the impact is negative and of Low Significance.

6.3.1.2 Hearing impairment, increased blood pressure, stress, headaches, sleep disturbances and fatigue due to increased noise and vibration levels

There may be increase in noise level due to generation of noise from vehicles and other heavy vehicular movements and therefore resulting to a risk of hearing impairment, increased blood pressure, stress, headaches, sleep disturbances and fatigue. However, these movement and activities will be executed within one month and during the day only.

Thus, the impact is considered negative, short period of time and of low significance

6.3.1.3 Loss/disturbance of biodiversity and threatened species

Prior the school construction the site area will be cleared for opening up an area for the proposed activity and an extra land will be cleared to give way for construction of other associated infrastructures.

The proposed area is rich in diversity plant species, although none of these plants are rare or endangered, they are important species for medicinal purposes, beekeeping, building and for making domestic utensils, fodder, fuel, fencing and also for their environmental and aesthetic values.

The area is also very rich in grass important as fodder and for environmental protection and various shrubs and herbs.

The impact is considered to be negative, indirect, long term and of high significance

6.3.1.4 Accelerated erosion due to loss of ground cover

The likelihood of acceleration of soil erosion due to loss of ground cover is high due to the fragility of this type of soil, which can be easily eroded when exposed to torrential rains and wind. However, the proposed site is flat land that does not favor flow of water in case of rain. In addition, loss of most mature indigenous plants in the area could result because of soil erosion among other things.

There are no significant permanent rivers within the project area but surveys during rainy season may have appreciable impacts on the extensive seasonal streams.

This impact is considered to be negative, indirect long term and of low significance.

6.3.1.5 Community health and Safety issues

During mobilization and pre construction activities, emissions of toxic gases due to movement of vehicles along the rough road to the project site may occur and fugitive dust generated

However, the activities will be short time and the emissions are expected to be very low, intermittent, and of short duration.

Thus, the impacts are considered to be negative, indirect short term and of low significance.

6.3.2 Construction phase

6.3.2.1 Air Pollution

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

Construction materials will be transported to the proposed project site using trucks. Transportation of these materials has the potential to emit pollutants such as CO2, NOx, SOx, and particulate matters that 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 as well as surrounding community.

Depending on the fuel type and quality, other substances such as heavy metals, unburned hydrocarbons and other VOCs may be emitted in smaller quantities but may have a significant influence on the environment due to their toxicity and/or persistence. Considering that, the construction activities will be within short period, mixing of materials especially concrete to be executed during the day and in short period using the concrete mixer, emission of gases and dust generation will be minimal.

This impact is considered to be negative, indirect short-term and of moderate significance.

6.3.2.2 Hearing impairment, increased blood pressure, stress, headaches, sleep disturbances and fatigue due to noise and vibration from construction vehicles and machinery

During construction, noise emissions are expected to be primarily related to the operation of heavy equipment and related construction activities hence have a potential of causing a risk of hearing impairment, increased blood pressure, stress, headaches, sleep disturbance and fatigue. Construction work consists of excavation, site grading, structural steel erection, mechanical installation, electrical equipment installation, piping, tank and silo fabrication, overhead conveyor construction, concrete and masonry work, and varying other trades.

Noise and vibrations are expected from earth-moving equipment such as trucks and other construction machinery. This may disturb local setup especially the habitat Fauna of the site location and surroundings. However, the construction of the building will use small number of machines and the majority of construction works will be done manually and construction activities will be executed during the day as it will start from 0600hrs am to 1800hrs.

The extent of this impact is localized with a low intensity. It is likely that the impact may occur. The impact can be highly improved/eliminated with mitigation.

This impact is considered to be negative, indirect short term and of moderate significance.

6.3.2.3 Impacts from material sources

The extraction, processing, and transportation of construction materials can contribute to environmental degradation and climate change. For example, the extraction of raw materials like timber or mining of sand can lead to deforestation, habitat destruction, and soil erosion. Sourcing sustainable and eco-friendly materials, using recycled or locally available materials, and minimizing transportation distances can help reduce the environmental impact.

Additionally, Material sourcing can have social implications, particularly in terms of labor conditions and community welfare. In some cases, the extraction of raw materials may involve unethical labor practices or the exploitation of local communities. It is important to ensure that materials are sourced from suppliers that adhere to fair labor standards and support the welfare of workers. Supporting local suppliers and engaging with the local community can also have positive social impacts by stimulating the local economy and creating job opportunities.

Furthermore, the sourcing of materials can significantly affect the overall cost and budget of the construction project. Factors such as the availability, quality, and transportation costs of materials can influence the final project cost. Sourcing materials from distant locations or relying on rare or specialized materials may increase costs. Careful planning and evaluation of material options can help ensure that the project stays within budget without compromising quality.

This impact is considered to be negative, indirect short term and of moderate significance.

6.3.2.4 Resource Utilization (Energy and Water Utilities)

Project operations to be executed in the construction phase will heighten the demand for limited energy, water and material resources. Cleaning of vehicle and equipment, mixing of cement concrete, curing work, dust control and provision of onsite sanitary services will raise the level of water consumption during construction.

Operation of construction machinery, motor vehicles, pumping equipment and lighting systems will also elevate power usage and thereby necessitate an increased supply of fuels and electricity; this represents a potential contribution not only to the Region's current energy crisis but also to the ongoing global climate change.

Therefore, this increase in demand for construction activities and domestic demand is a negative, local, short-term impact of medium magnitude.

6.3.2.5 Generation of solid waste

Construction process of Regional school buildings will generate different type of wastes that include food waste, plastic bags and residual for construction materials such as broken blocks. This is estimated to 856kg per week that were estimated by using rural standard generation rate 0.4 kg/capita/day that depends on number of people at the site and activities taking place. The number of people during construction is estimated to be 60. Thus, the total number of waste to be generated is 168 kg/week.

The project management team based on the requirements and progress of the construction work will determine the actual number of workers. Thus, the indicated number can vary during this phase. However, blocked block will be re-used for refill and levelling of the foundation.

The impact is negative, but will be mitigated by proper handling of waste as per Nsimbo District Council by laws.

The impact of waste generation during the construction process of the Regional school buildings is expected to be local in nature. With proper waste handling practices in place, the impact can be reversible, meaning it can be mitigated and minimized through appropriate waste management measures.

Therefore, the impact is negative and of Low Significance.

6.3.2.6 Generation of wastewater

The amount of wastewater to be generated depends on the facilities to be used as well as number of people that is estimated to be 60 people, this gives the amount of water expected to be used per day (3600 L/day). 80% of water consumed will be come out as wastewater this estimated to be 2880 L/day.

6.3.2.7 Occupational Health and safety hazards associated with construction work

During construction, the project is expected to employ a significant number of skilled, semiskilled and unskilled laborers mainly from Nsimbo DC and Songambele ward. Construction work may contribute to the sustenance of other petty business such as food vendors etc. However, if food vendors are not done in hygienic condition, the service may turn out to be a health hazards to those that will be using them. There will also be generation of solid as well as liquid waste. These, if not disposed of safely they may result in health hazards and degrade environmental aesthetics.

In addition, health hazards and safety to construction workers may result from the dust that will be generated during excavation and noise and vibration that is expected from earth-moving equipment and other

construction machinery such as concrete mixer, trolley etc. Injuries also may occur due to lack of protection gears.

The extent of this impact is localized; however, its intensity is high. It is likely that the impact will occur. The impact can be highly improved/eliminated with mitigation.

Therefore, based on the criteria above, the impact is negative and of Medium Significance.

6.3.2.8 Public Health and Safety

During construction, emissions of air contaminants to the environment may occur primarily from the operation of construction equipment associated with the project and some limited amount of fugitive dust generated from earth moving activities on-site. However, community is far distance from the project and the area is enriched by trees that prevent these emissions expected to be very low, intermittent, and of short duration.

Although, during the improvement of the access roads and construction activities, there is the possibility that construction equipment can pose a danger to villagers as well as to the project staff themselves. The equipment can endanger the safety of workers if they are not equipped with appropriate Personnel Protective Equipment (PPE). In general, accidents may occur if safety measures re not put in place during construction.

Despite the fact that the project can affect the community as described, the project will deploy the mitigation measures in chapter 7 that will minimize the impact to the community.

The impacts are considered to be negative, indirect long term and of medium significance.

6.3.2.9 Labor influx/The rapid migration to and settlement of workers in the project area

During the construction phase, there might be a rapid migration of workers, which might lead to a lack of employment for the local people, Increase of crimes and other negative impacts.

The extent of this impact is not good, but to ensure the mitigation of this, all contractors insist on giving opportunities to local residents for all opportunities that require unskilled people and also strict bylaws to mitigate crimes.

6.3.2.10 Cultural Distraction

The total way of life of local people might be distracted during the construction phase; this is one of the social impacts of the project, but this will be mitigated through contracts that have conditions and require the contractor to ensure they preserve people's culture.

6.3.2.11 Gender Based Violence (GBV)

This could present issues during the construction phase because many women experience harassment on projects of this nature. This may be evidenced in the hiring process, as most contractors favor hiring men over women. Women may feel pressured to engage in sex in exchange for a work chance, which is another aspect of sexual exploitation and abuse (SEA).

6.3.2.12 Spread of Diseases

The major way that COVID-19 spreads is person to person. Droplets and airborne transmission are two of the many possible ways for this to occur. Airborne transmission happens when an infected person coughs, sneezes, or talks, and it can enter your lungs if you breathe that air in after being exposed to it.

One of the health issues that could arise during the construction phase is HIV/AIDS. Since many people engage in sexual activity while interacting from various locations, this could contribute to the spread of HIV/AIDS. However, this risk can be reduced if workers are made aware of it prior to construction and provided with protections at their places of employment. If every precaution is taken during construction, the impact can be eliminated.

Therefore, based on the criteria above, the impact is negative and of Medium Significance.

6.3.2.13 Change in Scenic Quality

Debris will be generated during site clearing and construction of the Building. In addition, substantial amount are expected during maintenance and repair and during demolition of structures when winding up the project. If not properly disposed, heaps of spoil material can remain a long – term aesthetic impact affecting the scenic quality of the area.

This will disturb additional natural areas and the sitting of these stockpiles will be critical to prevent their disturbance by vehicles or other site activities. The decommissioning and closure phase will include the demolition of infrastructure and rehabilitation of all disturbed areas. The remaining stockpiled soils, not used in progressive rehabilitation, will be spread over disturbed areas, ripped and vegetated further impacting negatively on scenic value of the site.

Furthermore, the presence of several trucks and vehicles at the site compounded by the solid waste collector in weekly basis at the building will negatively affect the in-view shed of the site as one approaches it from outside. In addition the dust and noise produced by vehicle will also have significant visual impact to the area. The erected structures to the site will alter the appearance of the area on a permanent basis until closure of the Building.

The extent of this impact is localized with a medium intensity. It is likely that the impact may occur. The impact can be highly improved/eliminated with mitigation.

Therefore, the impact is negative and of Medium Significance

6.3.3 Operation phase

Most of the environmental problems associated with this project activities and actions should under normal circumstances be addressed in the design stage of the project. Environmental and social impacts, which could arise during operations, may be due to inadequacies in the institutional, operational, maintenance, management and monitoring aspects of the project systems e.g. availability of resources such as water supply, energy etc.; management of solid waste, wastewater and storm water drainage etc., inadequacies in maintaining high standards of hygiene, safety and security; and maintenance of good neighborliness' and relations with different supervision of construction standards.

6.3.3.1 Oil spills from cars and during refilling and maintenance of the generator

During operation of the constructed Regional School Buildings will be using a generator in case of electricity interruption and also have a car parks which will be used for parking cars (capacity of carrying more than

20 cars) leakages for parked car can occur and also Generator will maintained after every three months by the qualified technician.

Spillage of oils may happen during such oil diesel exchanging in the generator as part of maintenance. Also spillage may occur during refilling of the generator.

This impact is considered negative, long term and of high significance

6.3.3.2 Noise Pollution

The location of the proposed project was titled for educational buildings purposes only. However, the area will expect to have some raised noise level compared to the normal existed due to the presence of students and for the surrounding community there will be movement of people that will increase noise level.

This impact is however significant negated in a way due to the presence of sensitive receptors in the area, such as institution i.e. nearby school and other surrounding building. It is therefore estimated that the noise levels will increase significantly though will not have any impact to the surrounding community

Also Potentially noisy items of equipment such as the generator should be located in separate unmanned areas. There may be some noise and vibration from moving cars however they are expected to be below the OHS Act noise zone limit (i.e. <85 dBA). Although noise and vibration levels are not expected to the significant, it is part of any occupation health assessment on a new installation to assess and possibly test noise levels once equipment is up and running.

The extent of this impact is localized with medium intensity. It is likely that the impact may occur. The impact can be highly improved/eliminated with mitigation.

Therefore, the impact is negative and of Medium significance.

6.3.3.3 Change in habitat and species diversity

The likelihood of losing vegetation and habitat for the existing vegetation cannot be neglected. The building will be constructed on the Greenfield area. However, clearance to be done during the construction of the school and rehabilitation of access road will cause permanent loss of vegetation (Native grasses and trees). Clearing the site result to loss of some plant species and changes to some wildlife habitat (lizards and rats).

The extent of this impact is localized; however its intensity is low. It is likely that the impact will occur. The impact can be highly improved/eliminated with mitigation.

Therefore, based on the criteria above, the impact is negative and of Low significance.

6.3.3.4 Change in surface and ground water quantity

Water supply during construction and operation phases of the proposed project will be pumped from RUWASA. Approximately about 60000 litters of water shall be needed per day for full capacity in order to meet the demand of the building during operation.

Reduced discharge of surface sources particularly in area which are very close to the building is expected to be severe prolonged drought years with far reaching impacts on ecological functioning and processes. The impact will be direct and long term.

The extent of this impact is localized; however, its intensity is medium It is likely that the impact will occur. The impact can be highly improved/eliminated with mitigation.

Therefore, based on the criteria above, the impact is negative and of medium significance.

6.3.3.5 Pollution of Land and Water resources

Oil spoilage, chemicals and detergents will be used and stored within the storage room and building premises. Pollution also could be created by poor planning, management and designing of waste water and sewage disposal system during the construction and operation phases.

Experience has shown that excessive rainfall can result into the overflow of sewerage system that causes devastative environmental impacts on the land and surface water. The following mitigation measures are recommended to be considered by the developer and the contractor:

The extent of this impact is localized; however its intensity is low. It is likely that the impact will occur. The impact can be highly improved/eliminated with mitigation.

Therefore, based on the criteria above, the impact is negative and of Low significance.

6.3.3.6 Solid Waste

The operation of the building will generate solid waste from food remains, glass, bottles, plastics, papers, and tins, which approximated to be 424 kg per day as delivered from the 0.4kg per capita per day the school will be having 1000 students and 60 staff (teachers). However, the number will increase depending on the number of students to be registers at the school and staff to be employed. The waste will be handled properly by advocating the best practices on environmental management, WB EHS Guidelines and Katavi by laws for waste management.

All type of solid waste generated will be collected by District Council to the dump site. The transferred solid waste could cause significant negative impact on the environment and the health of the people

The extent of this impact is localized; however, its intensity is medium. It is likely that the impact will occur. The impact can be highly improved/eliminated with mitigation.

Therefore, based on the criteria above, the impact is negative and of Medium significance.

6.3.3.7 Generation of wastewater

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 (63,600L/day). The estimated water usage for 1000 students and 60 staff is 63,600 liters per day. This means that each student will use approximately 60 liters per day, which includes drinking water, washing clothes, bathing, and flushing after using the restroom. The 80% of water consumed will be come out as wastewater this estimated to be 50,880L/day

All type of liquid generated will be directed to the septic tanks and soak away pit and when the tanks is full will dislodged to disposal the waste in the Authorized Waste Treatment Ponds/Lagoons. The generation of wastewater could cause significant negative impact on the environment and the health of the people

The extent of this impact is localized; however, its intensity is medium. It is likely that the impact will occur. The impact can be highly improved/eliminated with mitigation.

Therefore, based on the criteria above, the impact is negative and of Medium significance.

6.3.3.8 Change in quality of life and life style

The employed teachers at the Regional School shall be receiving wages that will enable them change their living standard and life style. This is expected to have multiplier effect to the families that the workers belong as they will be able to meet school fees for their dependents, as well as purchasing assets for home use

such as TVs, Music Systems, Satellite Dishes as well as other domestic appliances. These benefits can be ensured through implementation of the following enhancement measures:

- Encourage workers to initiate SACCOS while creating awareness to the workers on other available serving schemes within their vicinity.
- Provide on job training to workers while emphasizing on effective financial management mechanisms.
- Provide education and awareness to workers on initiating income-generating activities.

6.3.3.9 Spreading of HIV/AIDS, COVID-19 and other STIs

The Operation of the Regional School in the area may add a business activity in the area and may attract more people in the neighborhood thus facilitating interaction of people of different sex relationships and eventually spreading of HIV and other Sexually Transmitted Infections. However, the students will be within the school compound only.

In addition, the major way that COVID-19 spreads is person to person. Droplets and airborne transmission are two of the many possible ways for this to occur. Airborne transmission happens when an infected person coughs, sneezes, or talks, and it can enter your lungs if you breathe that air in after being exposed to it.

This is considered negative, long term and of low significance

6.3.3.10 Risk of fire

The possibility of an explosion is also there since the building uses electricity and standby generators in case of electricity interruption. There will be specific designed location for fire extinguishers and Hose Reels.

The extent of this impact is localized with high intensity. It is likely that the impact may occur. The impact can be highly improved/eliminated with mitigation.

Therefore, the impact is negative and of high significance.

6.3.3.11 Electronic waste (E-waste)

During this phase of the project electronic waste are expected in large quantity compared to all phases of the project, all useless computer related equipment and electronic kitchen related waste and Air conditioners found during demolition of the building.

However, health problems have been reported in the last few years, including diseases and problems related to the skin, stomach, respiratory tract and other organs. Workers suffer high incidences of birth defects, infant mortality, tuberculosis, blood diseases, anomalies in the immune system, malfunctioning of the kidneys and respiratory system, lung cancer, underdevelopment of the brain in children and damage to the nervous and blood systems due to mismanagement of e-waste.

The extent of this impact is localized; however, its intensity is low. It is likely that the impact will occur. The impact can be highly improved/eliminated with mitigation.

Therefore, based on the criteria above, the impact is negative and of Low significance.

6.3.3.12 Change in attitudes/ behaviour

The presence of plant would mean potential of employment opportunities and hasty generation of income. Employment opportunities will lead to immigration, main migrants will be mostly youth, who will come from the surrounding area and other different places of Tanzania with different social background.

This influx of people in the project area results into attitudes and behaviour change to indigenous villagers. In addition, the economic, cultural and technological changes may significantly contribute in attitudes / behaviour change. ***This impact is considered negative, direct long term and of low significance.***

6.3.3.13 Creation of Employment Opportunities

The proposed Regional Buildings are expected to provide temporary employments of more than 50 Tanzanians during Construction phase while about 60 people (Teachers) are expected to be employed during operation phase on permanent basis, with its multiplier due to opportunities for local economy to benefit from the sale of goods and services for the Building Development.

Most of the workers are expected to be recruited from Tanzania and their earnings in-term of wages shall have significant positive impact as this income will go back to the communities to support larger and bigger population. In order to ensure benefits are sustained, the following enhancement measures are recommended for the proposed development:

- Capacity building to workers for on job and out job trainings so as to acquire skills to be used during their employment period.
- Recruitment of employees should mainly be restricted to local communities unless the required skill is not available.
- There should be gender consideration on all employments however; equal opportunities for both genders should be encouraged.
- Government to strengthen the enforcement of labour laws and Circulars that compel investors to employ local staff with relevant qualifications.

6.3.4 Decommissioning Phase

Decommissioning of the entire building is expected as the area is titled, so can be changed from the current use by demolishing the developed building; then decommissioning of the facility shall be done. Then the project shall ensure minimal impact to the environment and the social setup as per prevailing laws and regulations.

6.3.4.1 Abandoned infrastructure

It is not envisaged that there will become a time when the site will be abandoned. Since construction is done by using materials which are easy to assemble and all roofing materials are iron sheets which can be sold.

The extent of this impact is localized with a low intensity. It is likely that the impact may occur. The impact can be highly improved/eliminated with mitigation.

Therefore, the impact is negative and of Medium significance.

6.3.4.2 Dust and noise pollution from demolition works

In the event of future rehabilitations and upgrading, the structure may need to be demolished. These activities will produce substantial amount of dust and noise and necessitating disposal of demolition waste.

The extent of this impact is localized with a medium intensity. It is likely that the impact may occur. The impact can be highly improved/eliminated with mitigation.

Therefore, the impact is negative and of Medium significance.

6.3.4.3 Electronic waste

During this phase of the project electronic waste are expected in large quantity compared to all phases of the project, all useless computer related equipment and electronic kitchen related waste and Air conditioners found during demolition of the building.

However health problems have been reported in the last few years, including diseases and problems related to the skin, stomach, respiratory tract and other organs. Workers suffer high incidences of birth defects, infant mortality, tuberculosis, blood diseases, anomalies in the immune system, malfunctioning of the kidneys and respiratory system, lung cancer, underdevelopment of the brain in children and damage to the nervous and blood systems due to mismanagement of e-waste.

The extent of this impact is localized; however its intensity is low. It is likely that the impact will occur. The impact can be highly improved/eliminated with mitigation.

Therefore, based on the criteria above, the impact is negative and of Low significance.

6.3.5 Enhancement of Positive Impacts

6.3.5.1 Employment Opportunities during Construction

To enhance this impact, Project Implementing Team (PIT) should ensure that majority of construction works will be done manually as a strategy to provide employment to the local community. Employment opportunities during construction work will increase the income, skills and knowledge to local labour force.

6.3.5.2 Benefit to Local Producers and Suppliers of Construction Materials

Another enhancement measure is to ensure that materials are available locally are not imported Supply of materials from local sources is a positive aspect of the project, as it will reduce the cost of the project and benefit local producer and suppliers.

Also the Contractor and crew will depend on other local supplies and services (food, accommodation, medicals) and employment of casual and semi-skilled labour

6.3.5.3 Improved Aesthetic of Project Site

According to the design it is proposed that all areas, which are not occupied by buildings and other project facilities, will be landscaped by Planting trees, grass and ornamental Plants. This will preserve the aesthetic integrity of the area.

6.3.6 Residual Impact

The impacts that remain once mitigation has been put in place will be described as residual impacts adversely affects 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 below presents the identified residual impacts.

Table 6-4 Identified Residual Impacts

N	Stage	Nature	
		Positive	**Negative**
1	Mobilization		• Biodiversity loss • Habitat loss and/or alteration • Habitat fragmentation
2	Construction		• Change in landscape and aesthetics
3	Operation	• Employment creation • Provision of education • Minimization of vulnerability to girls	
4	Decommissioning		• Loss of employment

6.3.7 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
- Loss of Biodiversity during clearance of area for purpose of other project
- Water availability
- Disruption of ground and surface water quality
- Waste generation

6.3.8 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 Activity Risk Assessment.

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

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

Table 6-5: Risk Assessment

S/N	Impact &Aspect Description Mobilization	Nature	Magnitude	Extension	Duration	Significance of Impact	Probability of Occurance	Risk
1	Loss of biodiversity due to bush clearing	Direct	High	DIA	Long-term	Major	Definite	Significant Risk
2	Air pollution due the emission of exhaust gases and dust from vehicles	Direct	Very low	IIA	Long-term	Moderate	Probable	Low Risk
4	Soil pollution due to bush clearance	Direct	Very low	RIIA	Short-term	Minor	Probable	Low Risk
	Soil erosion due to bush clearance and vegetation cover	Indirect	Low	DIA	Short-term	Minor	Probable	Low Risk
5	Climate change due to vehicle movement, bush clearance	Indirect	Very low	NIA	Long-term	Minor	Probable	Low Risk
6	Waste generation (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	Conflict due to landownership	Indirect	Very low	DIA	Short-term	Minor	Probable	Low Risk
9	Safety of the workers due to heavy duties	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	Noise and vibration pollution due to the transportation of material and equipment use	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

S/N	Impact &Aspect Description	Nature	Magnitude	Extension	Duration	Significance of Impact	Probability of Occurance	Risk
2	Air pollution due the emission of exhaust gases and dust from vehicles and earth work	Direct	High	DIA	Short-term	Major	Probable	Low Risk
3	Noise and vibration from vehicle movement, equipment and material use	Direct	Low	DIA	Short-term	Minor	Probable	Low Risk
4	Safety of the 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	Waste generation (solid and liquid waste) from construction materials, site clearance and sanitary facilities	Direct	High	DIA	Short-term	Major	Definite	Significant Risk
	Hazardous waste and e waste generation	Direct	High	IIA	Medium	Moderate	Probable	Low Risk
8	Unemployment due to decommissioning of construction activities	Indirect	Medium	NIA	Short-term	Moderate	Definite	Low Risk
	Operation Phase							
1	Employment Opportunities	Direct	High	NIA	Long-term	Major	Definite	Negligible Risk
2	Waste generation from sanitary facilities ,classrooms, offices, Dormitories and dining	Direct	High	IIA	Long-term	Major	Definite	Significant Risk
3	Health and safety (due to fire outbreak and housekeeping)	Direct	Medium	DIA	Long-term	Moderate	Probable	Significant Risk
5	Benefit to the government (economic and man power)	Indirect	High	NIA	Long-term	Major	Very low	Negligible Risk
	Decommissioning Phase							
1	Abandoned infrastructure due to decommissioning of construction activities	Indirect	Medium	DIA	Medium-term	Minor	Probable	Low Risk

S/N	Impact &Aspect Description	Nature	Magnitude	Extension	Duration	Significance of Impact	Probability of Occurance	Risk
2	Unemployment due to decommissioning of construction activities	Direct	High	NIA	Short-term	Minor	Definite	Negligible Risk
3	Solid waste due to dismasting of buildings	Direct	Low	DIA	Long-term	Minor	Very low	Low Risk

7 MITIGATION MEASURES

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.

For each impact identified in the Scoping phase and assessed during this study, mitigation measures will be proposed to reduce and/or avoid negative impacts and enhance positive impacts. Typical mitigation measures are detailed in Table 7-1.

Table 7-1: Impact Mitigation Measures

Approach	Example
Avoid	Change of site details, to avoid important ecological or archaeological features
Reduce	Filters, precipitators, noise proof, dust, enclosures, visual screening, wildlife corridors, and changed time of activities
Minimize	Minimize emissions and waste generation
Replace	Regenerate similar habitat of equivalent ecological value in different location
Restore	Site restoration after construction

These mitigation measures will be incorporated into an Environmental Management Plan (EMP) to facilitate implementation during the planning, construction, operational and decommissioning phases.

The EMP forms part of the ESIA report as in chapter 9, as such its forms part of the authorization and thus its implementation will become binding on the project applicant and any contractors, should this project be authorized.

Table 7-2: Impacts Management or Environmental Mitigation Measures

Issue or aspect of activity	**Impact** *The activity may.*	**Mitigation**
Mobilization and Construction phase		
Air Pollution from Mobilizing Vehicles	Dust generation, fumes from trucks and cars	• Minimize movements to and from the site by maximizing trucks utilization and having a truck movement register • Only trucks with allowable rate of emission will be allowed to site (this can be traced by limiting trucks which are more than 8 years old since their manufacture date not to enter the site) • Regarding vehicle maintenance, the following measures are in place. Regular servicing and maintenance of vehicles will be conducted to ensure proper functioning and efficiency. • Establish a vehicle cleaning procedure will be established to remove dirt and dust from vehicles after use. There is also a system in place to monitor and record all vehicle maintenance activities.
Occupational safety	Health hazards associated with construction work i.e. working at height, slippery, trips, pinching, hit, cuts, open pits and road accident	• All employees shall have appropriate personal protective equipment • PIT shall ensure the Contractor who shall work on site has registered the site to OSHA • Occupational health and Safety education shall be given to workers before commencing on daily activities schedules. • Control measures require wearing of personnel protective equipment such as the Ear plugs especially gate man and standby generator operator and at concrete mixing area.
Noise and Vibration from construction activities	Nuisance and impaired hearing to long term exposure	• Control measures require wearing of personnel protective equipment such as the Ear plugs. • Operating under the set standard of 85 dBA • Regular Maintenance of equipment and vehicle to keep them in good conditions thus reducing their noise levels
Energy Resources	Increase energy demand which can lead to cut of	• Install renewable energy systems, such as solar panels, to generate electricity on-site. Solar energy can help offset the electricity demand of the school and reduce reliance on the grid. • By utilizing renewable sources, the project can contribute to reducing greenhouse gas emissions and promote sustainable energy practices.
Spread of HIV/AIDS, COVID 19 and other STIs	Interaction and migration of people can lead to spread of HIV/AID, COVID 19 and other STI	• Make sure health education and awareness is provided to workers • Precaution to be taken • Providing free protection such as condoms etc.

Issue or aspect of activity	**Impact** *The activity may.*	**Mitigation**
Labour influx	It might lead to rapid migration of workers, which might lead to a lack of employment for the local people and increase of crimes	• Unskilled work should be prioritized to local people • Strict laws to mitigate crimes
Cultural distraction		• Contracts that have conditions and require the contractor to ensure they preserve people's culture.
GBV & SEA	Lead Women to experience harassment, especially in the hiring process	• Equal opportunity to both gender • To have contracts with terms requiring the contractor to make sure that their employees treat both genders equally and avoid any form of SEA
		•
		•
Operation Phase		
Occupation Health and Safety	Incomfortability of workers	• Make sure working environment provide Comfortability of workers • Reduce ergonomics in the working especially at working station • Operating under the set standard of 85 dBA • Regular Maintenance of equipment and vehicle to keep them in good conditions thus reducing their noise levels • Control measures require wearing of personnel protective equipment such as the Ear plugs especially gate man and standby generator operator
Risk of fire	Lead to loss of property and life. Increase the risk of damage to neighbors as well	• The operations will comply with best practice emergency plan requirements and safety standards typically implemented on offices. • First aid boxes are provided on each department and at the reception area for the admin building compulsory. • Portable fire extinguishers are provided at strategic locations. High pressure fire water hydrants will be available on the site. Use will also be made of the municipal medical facilities and firefighting service especially escaping routes and exits.

Issue or aspect of activity	**Impact** *The activity may.*	**Mitigation**
Change in Scenic Quality	Nuisance/ surface disturbance	• The structures should be designed so as to blend with the environment. • Institute proper waste management practices to comply with the requirement of the EMA of 2004. • Establish vegetation regeneration programme using native tree species during operation phase of the project • Schedule the construction activities to occur during low season • Strictly confine all construction work to impacted core area only.
Change in habitat and species diversity	Loss of vegetation and habitat	• Rehabilitate the site after construction and during decommissioning by planting the native plant species found within the proposed area • Develop and implement effective waste management plan • Adhere to waste management regulations/guideline and EMA (2004) requirements • All liquid waste generated should be appropriately treated to standards and disposed following standard procedures as per EMA (2004).
Change in surface and ground water quantity	Distortion of water source/ health impacts	• Introduce the use of efficient water conservation facilities. • Abide and comply with the environmental policies and Water use and management guidelines • The rainwater tank will be used to collect and store rainwater for use
Pollution of Land and Water resources	Distortion of land and water, health impacts and land unavailability	• All wastes materials produced must be properly managed and disposed in the authorized and designated infrastructure as per waste management guideline and EMA (2004). • All excavated materials have to be used to refill the foundation, otherwise have to be disposed to authorized areas. • All biodegradable waste generated will be collected by contracted contractors • Introduce proper use of septic tank and drainage systems
Solid Waste	Nuisance, pollution and land disturbance	• PIT should construct a small block known as temporary collection point for storage of solid waste while waiting for Eco Pro Co. Limited vehicle to come for disposal purposes in weekly basis • PIT should make sure that sorting of waste materials is done at the source before taking them to the temporary collection point • Routine monitoring of solid waste generation sources and records the data • Recruit an environmental officer to be charged with environmental management issues at the office during the whole life time of the building if possible. • All waste associated with electronic equipment will be segregated and handled over to the registered company for disposing or recycling.

Issue or aspect of activity	**Impact** *The activity may.*	**Mitigation**
Car parking and Maintenance of the stand by Generator	Oil spills from cars and during refilling and maintenance of the generator	To mitigate oil spills from cars and during refilling and maintenance of the generator, it is important to follow EHS (Environmental, Health, and Safety) guidelines and Good International Industry Practice (GIIP). Here are some mitigation measures that align with these standards: Spill Prevention and Control: • Conduct regular inspections of vehicles and equipment to ensure proper maintenance and identify potential leaks or issues. • Implement spill containment measures, such as installing secondary containment systems or drip pans, to capture oil spills and prevent them from spreading. • Train personnel on safe refilling procedures, including the use of appropriate funnels, spill kits, and absorbent materials to contain and clean up any accidental spills promptly. Spill Response and Cleanup: • Develop a spill response plan that outlines the steps to be taken in case of an oil spill, including notification procedures, containment measures, and appropriate cleanup methods. • Provide spill response training to personnel involved in refilling and maintenance activities to ensure they are prepared to respond quickly and effectively to spills. • Use environmentally friendly absorbents and sorbents to contain and clean up spills, minimizing the impact on soil, water bodies, and surrounding ecosystems. • Dispose of oil-contaminated materials properly, in accordance with local regulations and guidelines. Proper Waste Management: • Establish proper waste management practices for used oil, filters, and other oily waste generated during vehicle maintenance and generator operation. • Store used oil in designated containers and ensure authorized waste management companies for recycling or proper disposal collect it. • Implement procedures to prevent illegal dumping of oil or oily waste, promoting responsible waste management practices.

Issue or aspect of activity	**Impact** *The activity may.*	**Mitigation**
E-waste	Release toxic materials leaching into the environment, heavy metals to soil, water and human health, air pollution etc.	• Reuse and Repurposing: Consider reusing electronic devices or components that are still functional. Repurpose or relocate electronic systems within the school or other educational institutions to extend their useful life. • Responsible Disposal: Develop a proper disposal plan for e-waste generated during construction. Collaborate with certified e-waste recyclers who can handle the proper recycling or disposal of electronic devices and components. Ensure compliance with local regulations for e-waste management. • Green Procurement: Consider environmentally friendly practices during the procurement process by selecting electronic devices with longer lifecycles, energy efficiency, and potential for future upgradeability
Generation of wastewater from toilets, kitchen, laundry etc.	Pollution of soil and contamination of groundwater	• Liquid waste must be directed to be constructed septic tank with the soap away pit • The constructed septic tanks must be linked with inner liner to avoid percolation of water in the tanks into the ground • Routine and periodic inspection of the septic tanks and manholes • Emptying the septic tanks when they are full and disposal the waste to the authorized Waste Stabilization ponds.
Transmission of HIV/AIDS, COVID 19 and other STIs	Lead to the spread of diseases	• Make sure health education and awareness is provided to community around the project • Precaution to be taken
Decommissioning		
Hazardous abandoned structures	Buildings with collapsing roofs and walls, open latrines or septic systems, accumulation of rubble	• Remove or bury all abandoned construction materials and rubble • Fill in and close all sewerage system and septic systems
Air pollution from demolition of structures	Dust generation	• Water bowser shall be hired to spray water during demolition of some structure.
Solid waste and e-waste	Environmental and health problems	• All domestic solid waste will be handled over to contractor for disposal • All solid waste that need to be recycled will be sold for recognized recycling agent • All e-waste will be collected to the same specific place and handled over for registered agent by NEMC for disposing activities.

8 CONSIDERATION OF ALTERNATIVES

8.1 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.

8.2 The proposed Alternative

This alternative permits the proponent to carry on with the development at the proposed site. Recommendations which are based on the proposed site, design, materials and proposed technologies will helps in evaluating and examining the foreseeable effects of the project on the environment and therefore assisting in addressing how the proposed development has to ensure that all environmental measures are complied with during the premises preparation and during operational phase.

The alternative consists of the proponent's/applicants final proposal with the inclusion of the legal guidelines, regulations and procedures as stipulated in the EMA which aims at reducing environmental impacts. Appropriate Environmental Management Plans will be prepared as per the proposed project.

8.3 Alternative Location

Relocation option to a different site is not an option for the project implementation. At the moment, Nsimbo District Council has no alternative sites for relocation. Finding and acquiring land to accommodate the scale, type and size of the project and completing official transaction on it may take a long period.

Furthermore, Nsimbo District has acquired the titled deed for the site and designated for educational buildings purposes only as the only alternative to thick to propose location as approval for land use from the Ministry of Land is in appendix I.

8.4 Energy Alternative

The proposed project will use electricity from national grid supplied by TANESCO and generator (diesel) in case of electricity interruption as the sources of energy for lighting, warming/heating and running the office accessories. Since these sources are very reliable and all machines/equipment/accessories use the kind of these energy only.

The proposed project will cook by using firewood and charcoal due to the rural setting and the availability of them. However, natural gas is advised but not present in the vicinity. Also compressed gas will be used for cooking in teachers houses.

8.5 Water and waste Management Alternative

The proposed project has two alternatives to source water, however the project will draw water from RUWASA rather than drilling a borehole since it is very expensive to drill, to treat and it needs time to acquire permits.

Also wastewater will be managed by septic tank for temporary while making arrangement to connect its septic tank with sewerage system as using the sewerage system is the best option rather than using septic tank that consist of risks of collapse, leakages to the environment when it is full, increase disturbance by vehicles within the office surrounding and bad smell during disludging when the septic tank is full.

8.6 No-Go alternative

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

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

9 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

9.1 Introduction

This chapter layout the systematic plans packaged as the Environmental and Social Management Plan (ESMP). The goal of the ESMP is to address the key impacts identified in the preceding chapter as well as setting the relevant policies and actions plans needed to achieve an environmentally sound and sustainable project venture.

The ESMP proposes that the Project Implementation Team (PIT) develop and document policies to address Environment, Safety and Health; and Community concerns. Further, the ESMP proposes Environmental Action Plans to address, sewage, solid waste, noise, dust and occupational injuries.

Additionally, management needs to develop and put in place management plans to address sewage, solid waste, dust, noise, resource use and occupational injuries during construction/mobilization, and operation phases of the school. To achieve this management need to put in place and document policies that govern its operations, including safety, health and welfare of workers and local community as well as the students.

This ensure that management and project contractor avail necessary finances to ensure necessary systems are put in place to address safety, health and welfare of all workers during Construction, mobilization and management of noise, solid waste and sewage and from the operation of the school.
This ESMP for the project consists of the following:-

- Management policies;
- Management Plans; and
- Decommissioning plan

9.2 Management Policies

The PIT needs to develop and document management policies that guide operations of the Katavi Girls Secondary School. The policies are vital in that:

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

Among other policies developed, the PIT should considerer developing local community policy

9.2.1 Local Community Policy

The Local Community Policy are developed by PIT to ensure that the school management develops and maintains sound relations with the local community on mutual respect and active partnership. The policy should highlight the ways management should be explained in the Environmental and Social Commitment Plan, Environmental and Social Management Framework as well as Stakeholders Engagement Plan and the SS10 which include the following:

- Work with the local community and relevant government departments and agencies to achieve sustainable community development;

- Come up with ways of enhancing information flow from management to the community and other project beneficiaries, and vice visa;
- Community capacity building

9.2.2 Environmental Management Policy

The environmental policy developed should be one that enables project implementers, Project management, and sustainable utilization of environmental resources therein such as construction materials especially aggregates, timber, water and energy. 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.

9.2.3 Occupational Health and Safety Policy

The Occupational Health and Safety Policy developed for the Project 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, 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, 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.

9.3 Management Plans

The following management plans has to be fully operational and entrenched within the operations of Katavi Girls Secondary School:

- Solid waste management plan;
- Sewage management plan;
- Resources conservation plan;
- Air quality management plan;
- Occupational injuries management plan and,
- Management of chemical waste
- Complaints management plan

9.3.1 Solid Waste Management Plan

Solid wastes from the daily operations and other related activities will be mainly papers, glass, cans and food wastes. Quantity of the solid waste generated from the project is substantial. We recommend that management should put in place a sound waste collection and disposal system by:

- Training staff and students on sorting their waste at source.
- Ensure sorting is done by separation of various waste type making it easier for subsequent handling;
- Waste receptacle for the segregated waste types must be put in place close to points of solid waste generation to ensure that waste is properly managed;
- Ensuring that no burning of dry waste in the open.

This measures and recommendation should be put in place with the objective of ensuring that handling, management and disposal of solid waste does not result in environmental nuisance pollution. Final disposal should be at approved dump sites by the local government.

Continuous monitoring of waste disposal practice from the operations, implementation of recommendations and mitigation measures made in this report with respect to disposal of solid waste ensures that a condition subjected to environmental approval with respect to solid waste management and a disposal is adhered to.

9.3.2 Occupational Hazards Management Plan

Occupational health and safety hazards is similar to those of other facilities which involve the movement of people. In addition, occupational health and safety issues that may be specifically associated with operations include the following:

- Physical hazards
- Biological hazards
- Exposure to dust/particulate matters
- Exposure to sources of noise
- Chemical exposure due to presence of Laboratory

Physical hazards include exposure to same-level fall hazards due to slippery conditions, the use of machines and tools, principally for sampling purposes, and the potential for strains from the lifting heavy equipment.
Project activities may include a variety of situations in which workers can be exposed to lifting, carrying, and repetitive work and work posture injuries.

The objective of the Occupational Hazards Management Plan (OHMP) is to ensure that the workers do not get any occupational hazards. The OHMP covers possible occupational hazards such as falls, dust inhalation, high noise levels and collapse of structures under construction.

9.3.3 Resource Conservation Management Plan

Water resources are scarce within the Katavi in general. Available water sources at the project site are from RUWASA. Water use requirements are relatively low. Water is required for raw material cleaning as well as general cleanness and in the sanitary facilities.

The objective of the Resource Conservation Management Plan (RCMP) is to ensure that implementation and associated facilities do not result in shortage, completion and depletion of local water and energy resources. The RCMP covers available local sources of water and energy resources, their current usage and demand and requirements for the project.

The RCMP is achieved by continuous monitoring, management of local water and energy resources, implementation of recommendations and mitigation measures made in this report in respect to management of water and energy resources and ensuring the conditions subjected to license approval with respect to water, and energy resources management are adhered to.

9.3.3.1 Water Conservation Management

It is that the management must put in place the following measures to conserve local water resources.

- Monitoring water use regularly;
- Water saving devices such as push taps should be installed;
- Employees and students should be trained and sensitized on water conservation techniques;
- Leakages including loose taps be promptly fixed to avoid water loss.

9.3.3.2 Energy Conversation Management

Electrical energy supply within the project is from the national grid and diesel generator. The area just like the rest of the country has a huge potential for solar energy but this is unutilized. Electrical energy use for the project will include lighting, charging electronic devices and cooling as well as office equipment e.g. printers, water dispenser, scanners etc.

The ESMP for energy conservation should include the following:

- Regular maintenance of equipment;
- Installation of solar panels to harness solar energy for use;
- Use of energy serving devices;
- Employees should be trained and sensitized on energy conservation techniques; and
- Ensure security lighting is switched off during daytime

9.4 Coordination and Review of the ESMP

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 District Environmental Officer. Changes to the ESMP will only be allowed:

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

9.5 Reporting

In addition to all reporting requirements identified in the EMP, records shall be kept by the District Environmental Officer of all monitoring results, monitoring reports, incident records, audit reports and management reviews. Minutes of all environmental project meetings shall be submitted to the Environmental officer.

Table 9-1: Environmental and Social Management Plan

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target	Responsible Party	Costs [TZS]/year
Mobilization/pre-construction phase	Global warming and effect on human health due to release of harmful gases and dust in the atmosphere	• Regular maintenance of all equipment on site will be conducted as a way or reducing emissions of noxious grease; • Research will be conducted in order to identify and adopt usage of fuels that have minimum emissions of noxious grease • Use water bowsers to suppress dust along the access roads which across the community	WB EHS Guidelines TZS 845:2005 Air Quality – Specification	DEMO, Contractor	12,000,000
	Hearing impairment, increased blood pressure, stress, headaches, sleep disturbances and fatigue due to noise and vibration	• Project activities related to machinery and vehicle need to be restricted during the night. • Proper maintenance of mobilization vehicles • Provide protective gear and ensure that they are used	Noise and Vibration Control Regulations, 2015	DEMO, Contractor	1,500,000
	Loss/disturbance of biodiversity and threatened species	• Employees and subcontractors shall not be permitted to remove vegetation or fauna from site, unless it is part of an approved sustainable development project supervised by Environmental Officer, and does not include rare or endemic species. • Minimize disturbance of native flora during construction through the following hints; ✓ Locate buildings and hardscape surfaces on previously impacted areas of the site such as clearings, existing building footprints, or on areas that were going to be cleared anyway ✓ Minimize the amount of excavation and earthworks needed by fitting the building or landscape design to the site topography rather than flatten the site to fit the building or landscape.	As minimum disturbance as possible	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	100,000,000

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target	Responsible Party	Costs [TZS]/year
		✓ During construction, protect vegetation and native soil areas from disturbance ✓ Designate specific staging areas for materials (gravel, lumber, etc.) in previously disturbed areas. ✓ Remove, without destroying, large Plants and ground cover where possible ✓ Replant recovered Plants and other flora from local ecosystem after construction			
	Accelerated erosion due to loss of ground cover	• Design facility and apply construction practices that minimize risk, e.g., use hay bales to control erosion during construction. Pay particular attention to potential erosion and redirection of water flows during design and construction • Revegetate as soon as possible • Maintain design features	As minimum disturbance as possible	REME, DEMO and Contractor	6,000,000
	Public health hazards and safety from vehicles movement	• Installation of speed limits zone warning signs • Training and warning of drivers need to be crucial • Conduct awareness campaign on road safety and inform the surrounding community on the on going project.	Safe working environment	RAS, REO, RAO, DED, DEO, DEMO, CDO, SEQUIP zonal Coordinators	5,000,000
Construction phase	Air Pollution from mobilization and Construction Vehicles	Ensuring that its vehicles undergo routine maintenance	Absence of black smoke (Limit 0.15g/m)	DEMO, SEQUIP zonal Coordinators, hired local contractor/ fundi	5,000,000
		Ensuring outsourced vehicles be checked for compliance with applicable regulator.	Clean bill of safety from Vehicle Inspector of the Police Force	DEMO, Contractor	500,000
	Noise pollution and vibration	Noise generation activities to be relegated during daytime	Noise limit below 60dBA during night	DEMO, Contractor	750,000
		Notifying the neighbor in case there would be some noisy events	Zero complaints from Neighbours	DEMO, Contractor	50,000

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target	Responsible Party	Costs [TZS]/year
		• Regular maintenance and inspection of equipment can help identify and address any potential sources of excessive vibration. • Careful consideration should be given to the placement of equipment to minimize vibration transmission to sensitive areas or neighbouring structures. • The use of vibration isolation measures such as rubber pads or mounts can help absorb and reduce vibrations generated by equipment.	The limit standard for vibration is not exceed 5mm/s,	DEMO, Contractor	750,000
	Soil and Water Pollution from Construction Waste	Minimizing solid waste by procuring standard construction materials which shall not be required to be cut to fit.	Zero amount of waste caused by cutting to fit	DEMO, Contractor	Incorporated in design and material purchase
		Sorting solid waste by categories at the source	Sorted Waste	DEMO, Contractor	300,000
		Send the recyclable solid waste such as plastic bottles and ferrous materials to recycling agents	Absence of recyclable material	DEMO, Contractor	400,000
		Other solid waste shall be disposed to dumpsite through a private collector	Absence of Solid waste	DEMO, Contractor	500,000
		Special wastes, such as hazardous waste, industrial solvents/paints and other chemical wastes, grease trap pumping, and used oil shall be collected and recycled or disposed accordingly	Zero release of hydrocarbons	DEMO, Contractor	500,000
	Degradation of natural beauty, greenhouse emissions and outbreak of diseases and injuries due to improper management of surrounding waste materials (Solid and Liquid Waste)	• Sensitize workers on the process of solid waste collection, segregation and proper disposal • Procure the services of a licensed waste handler to dispose solid wastes from the industry. • The Environmental Management Environment Management Act (EMA) 2004 of Tanzania as amended in 2018 and the World Bank's requirements • Uses of dustbin/ temporary storage along the workstation Apply good environmental practices.	Environmental Management (Solid Waste Management) Regulations, 2009 as amended in 2016	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	5,000,000

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target	Responsible Party	Costs [TZS]/year
	Global warming and effect on human health due to fugitive gases	• Douse the surface with water to suppress excessive emissions of dust and whenever possible, water sprinklers should be used.	Environmental Management (Air quality Standards) Regulations, 2007	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	6,000,000
	Employment Opportunity	Employ locals for most unspecialized labour/workers	Local procurement and Local employment	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	3,500,000
	Occupational health and safety issues	• At work place there shall be provided and maintained first-aid kits, so as to be easily accessible during working hours • Hygienic conditions at work place, e.g., washrooms, change-rooms, dining and cooking areas, etc., will be provided and enforced. • Drawing up and establishing health and safety regulations, and formulating preventive measures for accidents and other human health and safety hazards • Appropriate safety measures will be developed based on a risk assessment, and may include adequate ventilation, guidance on safe working in confined spaces	WB EHS Guidelines and OSHA Act 2003	RAS, REO, RAO, DED, DEO, DEMO, CDO SEQUIP zonal Coordinators	4,500,000
	Community/public health and Safety	• Safety measures for traffic and accident prevention, educational campaigns shall be organized involving project employees and traffic especially residents of the nearby communities, • Installation of road signs. • Establish a liaison committee between the project implement company, client, communities and Beach Management Units, • Develop and implement a Grievance Redress Mechanism • Prior to the beginning of the construction activities local people should be informed about the construction activities, their tentative schedule etc. through media or other means.	WB EHS Guidelines and OSHA Act 2003	RAS, REO, RAO, DED, DEO, DEMO, CDO SEQUIP zonal Coordinators	5,5000,000

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target	Responsible Party	Costs [TZS]/year
	Generation of Hazardous Waste, including Oil and Fuel Wastes as well as paints	• Proper storage and handling of fuels, oil, and other potentially hazardous materials as well as a plan for containment and clean-up of accidental spills into the c environment. • No solid waste, fuels or oils should be discharged on land surface, into drains or streams • Spent or waste oil from vehicles and equipment should be collected and temporarily stored in drums or containers at site. • Waste oil should be disposed of by approved agents by the environmental or local authority	Environmental Management (Hazardous Waste Control and Management) Regulations (2021).and WB ESS3	REME, DEMO, School Heads	5,000,000
	Negative social issues	• Ensuring capacity building to local communities around the project area	Educating the community and creatin awaress	PIT, SEQUIP zonal Coordinators, IST, Contractor	2,000,000
		• Ensuring the preservation of culture	Avoid complaints from the community		
		• Ensuring the avoidance of any form of GBV & SEA	Absence of GBV issues		
		• Ensuring the COVID 19, HIV/AIDS education is provided to the community and workers	Avoiding the spread of diseases		
		• Ensuring enough security and strict laws to criminals	Avoiding crimes		
Operation Phase	Environmental Pollution due to mismanagement of solid wastes	• Placing the well covered and suitable waste bins at site. • Sorting and separation of solid waste at source. • Ensure the contracted company for waste collection collects regularly all solid waste as intended. • Increase waste bins at places to accommodate excess solid wastes	Environmental Management (Solid Waste Management) Regulations, 2009	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	3,000,000

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target	Responsible Party	Costs [TZS]/year
	Impacts due to fire break out	• Design emergency assembly area • Safety gears especially fire rescue coats, protective jumpsuits and boots should be in place • Training and creating awareness to students and teachers as well as residents on fire rescue and fighting	The Fire and Rescue Force (Safety Inspections and Certificates) Amendment Regulations, 2012	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	1,500,000
	Sewage disposal/system	• Quality of sewage effluent discharge will be monitored to comply with relevant standard • Routine Inspection of manholes and septic tanks in regularly basis to avoid overflow	Water Supply and Sanitation Act, 2009	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	1,500,000
	Storm water channel	• Assessment of storm water drainage situation in the building area will be done. • Regular cleaning of storm water channel should be done to avoid overflow and ultimately cause environmental problem	Water Supply and Sanitation Act, 2009	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	800,000
	Impacts due to oil spillage during refilling and maintenance of generators and at the car parks	• Recruit technician with requisite training • Institute proper supervision protocol. • Prepare and implement emergency preparedness plan in case of Emergency • Wastewater used to clean at car park will be directed to collection	No oil passes on the oil trap chamber	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	1,000,000
	Spreading of HIV/AIDS,COVID-19 and other STIs	• Raising awareness of the dangers of the HIV/AIDS to students and teachers by using notes board warnings notes. • Promote voluntary HIV counselling and testing. • Raising awareness on Covid 19 and precaution required to be taken	Zero spread of HIV/AIDS	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	1,000,000
	Fire and Explosions	Train students and workers including teachers on Fire emergency plan and Rehearsing the fire emergency plan	Compliance to Training Schedule	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	500,000
		Maintenance of fire extinguishers	Compliance to Maintenance Schedule		5,000,000

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target	Responsible Party	Costs [TZS]/year
		Conduct induction training on safety requirements	Compliance to Training Schedule		500,000
	Occupational Health and Safety	Conduct risk assessment to identify significant risks	Identification of all Risks	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	5,000,000
		Ensuring availability of First Aid Boxes with proper stock	Presence of first aid boxes		500,000
		Provisioning of appropriate PPEs in case of workers	Presence of PPEs which match number of employees		7,500,000
		Absence of ergonomics during office works	Comfortability		Part of Project Cost of Design
		Conduct routine medical checkups for employees	Compliance to the schedule		5,000,000
		Reporting of accidents and near misses to a regulatory body	Whenever they happen within 24 hours		Part of Operation Cost
	Production of Electronic Waste (e-waste)	• Procure Electronic devices from credible manufactures to avoid purchasing second hand, refurbished or obsolete devices with a short shelf life or already categorized as E-Waste • Recycle all E-waste by establish E-Waste Collection Centre in all schools; including collection in specially designated rooms.; • Have third parties to collect and transport all E-wastes to approved Recycling Company or the recycling companies themselves • Conduct awareness and sensitization targeting the users of the electronic devices to ensure that they engage in best practice for E-waste management.	Environmental Management (Control and Management of Electrical and Electronic Equipment Waste) Regulations, 2021.and WB ESS3	REME, DEMO, School Heads	5,000,000
Decommissioning Phase	Contamination and Impairment of Environment due to debris and other demolition waste	The proper decommissioning plan to be followed	As minimum as possible	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators, community	5,000,000

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target	Responsible Party	Costs [TZS]/year
	Removal of underground tanks/chambers	Filling and compaction trenches/pits	Original state of the land attained	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP Zonal Coordinators	3,000,000
	Loss of employment	• Prepare the workers for forced retirement by providing skills for self-employment, and wise investment of the retirement benefits • Ensure that all employees are members of the Social Security Schemes in the country.	retrenchment to go as smoothly as possible	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators	10,000,000
	Occupational health and safety impacts of noise and dust	• Use of protective gears i.e. ear muffs • Use of water sprinkles to suppress dust	None or as minimum as possible	RAS, REO, RAO, DED, DEO, DEMO, SEQUIP zonal Coordinators, community	1,000,000

10 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

10.1 overview

Environmental and Social Monitoring Plan 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
- to comply with the Word Bank Environmental and Social Commitment Plan (ESCP) for SQUIP and Environmental and Social Framework (ESF)
- Benchmark its project with other similar construction projects for improved management.

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

- water consumption, and quality
- energy consumption; and
- solid and liquid waste handling;
- Soil contamination
- Loss of biodiversity and natural habitat
- Air pollution
- Noise and Vibration generation

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

- Health and safety status of workers;
- Employment opportunities for the local community; and
- Corporate Social responsibility programs.
- Traffic accidents

With these factors in mind, there is a need to put in place elaborate and sound environmental and social management system and mechanisms of monitoring on a continuous basis the environmental and social 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.

10.2 Parameters to be 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: Recommended Environmental and Social Monitoring Plan

Monitoring Parameter	Target Level	**Parameter to be monitored**	**Monitoring Frequency**	**Monitoring Area**	Target Level/ Performance indicator
Air Quality	EMA Regulation on Air Quality (United Republic of Tanzania, 2007) PM 10 of 90 Ug/Nm^3	SO2, NOx, CO2, CO, Particulate matter (TSP, PM10, PM2.5	Monthly	Established Monitoring stations	Standard limit
Noise and Vibration Levels	Noise and Vibration Levels Regulations (United Republic of Tanzania, 2011) 45 dBA (Leq) Day and 35 dBA (Leq) Night and baseline of 50dBA (Leq)	Noise level	Monthly	Established Monitoring stations	<85, (>85=PPE)
Visual Impacts	As minimum visual/aesthetic impacts as possible	Numbers	Monthly	Project area	Zero incident
Soil Quality	Soil Quality Standards Regulations (United Republic of Tanzania, 2007) Hydrocarbons	Eroded area	Monthly	Established Monitoring stations	No eroded area / the disturbed areas reinstated
Water Quality.	Water Quality Regulations (United Republic of Tanzania, 2007) and baseline Turbidity of 5NTU, pH of 7)	Redox potential Conductivity pH	Quarterly	nearby water body/groundwater	Accepted standard
Terrestrial Ecology	No disturbance on ecology	Biodiversity	Monthly	Cleared area	No cleared areas other than defined area. All affected areas are replanted.
Waste management	No hazardous waste and No haphazard disposal of waste. Regulation on Waste Management (United Republic of Tanzania, 2009) and Regulation on Hazardous Waste Management (United Republic of Tanzania, 2009)	Solid wastes/litter	Weekly inspection	Project area & in vicinity	Zero litter/No observed wastes
Socioeconomic Impacts (Health and Safety)	Zero incidents and accidents Zero new cases of HIV and Zero discrimination	Incidents	Monthly	Project area	Zero incidents and accidents Zero new cases of HIV and Zero discrimination

Monitoring Parameter	Target Level	**Parameter to be monitored**	**Monitoring Frequency**	**Monitoring Area**	Target Level/ Performance indicator
Socioeconomic Impacts (Infrastructure)	• Infrastructure in same or better condition as before the project • No accidents or incidents from vehicles	Incidence	Weekly inspection	Project area	Infrastructure in same or better condition as before the project No accidents or incidents from vehicles
Socioeconomic Impacts (Employment)	Local procurement and Local employment	Numbers	Regularly	Project area	Local procurement and Local employment
Ground water pollution	Zero oil spilled area and chemical as well as wastewater contamination	Hydrocarbons/ Oil & Grease / chemical and wastewater area affected	Quarterly	Project area / nearby water body/groundwater	No pollution/zero contamination
Ergonomic impacts	Zero incidence	Numbers	Frequency	Project area	Zero incidence
Creating community awareness on project's activities	Representatives of PAPs or entities involved within first month.	Numbers	Monthly	construction site/Working area	Zero accident

10.3 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 amended in 2018.

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, noise and water pollution
- Waste generation, management and disposal;
- Resources utilization
- Occupational Health and Safety
- Community health and Safety
- Labour influx
- Monitoring

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

10.4 Awareness and Education and Capacity Support

The Government, with support of third-party resources as needed (independent experts, NGOs, etc.) to be identified before implementation of capacity. Support initiatives, will design and implement training for targeted groups involved in the Project to improve their awareness of risks and mitigate the impacts of SEQUIP. The Environmental and Social Commitment Plan (ESCP) has proposed the plan for capacity support and the respective topics to be covered. The plan is adapted to meet needs during Project implementation and operation and the schedule is in

Table 10-2. However, in addition to the training topic provided, the following will be considered as well.

- Provide copies of the ESMP 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

Table 10-2: The targeted audience for each of the training topics along with its completion date

Specify Training to be provided	Targeted Groups and Timeframe for	Delivery Training Completed
• ESS 1 Environmental and Social Assessment • ESS2: labor and working conditions • ESS3: Resource efficiency and pollution prevention and management • ESS4 Community Health and Safety • ESS 5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement and National Regulations • ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources • ESS 7 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities • ESS8 Cultural Heritage • ESS10 Stakeholder Engagement and Information Disclosure • Contents of the Environmental and Social Commitment Plan (ESCP) • Contents of the Stakeholder Engagement Plan (SEP)	SCT – Environmental and Social Experts, LGAs, Environmental Officers, LGA, Community Development Officers	Intense training at national level for the first group of selected districts to be beneficiary of the project – this is likely to be at least a week training All staff involved in the project construction will be required to present a certificate of training participation. **After 1st quarter of the 1st year** Where there is a need, conduct a refresher for subprojects planned for that year
Environmental and Social Module, design and production of a training module addressing the following aspects: • Environmental and social selection and classification process for sub-projects. • Strengthening understanding of the procedures for organizing and conducting ESIAs, • Environmental policies, procedures and legislation • Knowledge of the implementation monitoring process for ESIAS, RAPs and VGPs • Greening schools for restoration and biodiversity • Environmental education for solid waste management, water protection, hygiene and biodiversity • Taking care of trees and the soil • How to manage pests affecting the school	LGAs, Environmental Officers, Community Development Officers	1st quarter of the 1st year. Annually for sub-projects planned for that year
Occupational Health and Safety Module: • Personal protection equipment • Workplace risk management and first aid procedures • Prevention of work accidents • Health and safety rules, how the school can be safe for all • Solid and liquid waste management	LGA Technical Staff, PCT, School, Construction Committees	From the 1st year to the 5th year

Specify Training to be provided	Targeted Groups and Timeframe for	Delivery Training Completed
• Preparedness and response to emergency situations • How to maintain records books of accidents and responses • How to manage burns, fire or explosion in a lab **Labour and Working Conditions** • Terms of conditions of employment according to national working laws and regulations • Contractor and sub-contractor codes of conduct • Worker's organizations • Child labor and minimum age employment rules		
Grievance Mechanism Module, design and production of a training module addressing the following aspects: • Registration and processing procedure • Grievance redress procedure • Documenting and processing grievances • Use of the procedure by different stakeholders	LGA Technical Staff, SCT, School Grievance Committees	From the 1st year to the 5th year
Special VG Module **Grievance Management** • Types of Grievance Mechanisms • Registration and processing procedure • Level of treatment, types of authorities and membership **Violence Against VGs** • Laws and regulations on GBV • Care for survivors • Grievance management	VG Association, VG, Women's Associations, SCT/ESS, Social Expert, Local Governments, Civil Society, Local VG NGOs	From the 1st year to the 3rd year

Source: The World Bank Environmental and Social Commitment Plan (ESCP) for SEQUIP, 2020

11 RESOURCE EVALUATION/COST BENEFIT ANALYSIS

11.1 Introduction

Chapter 6 and 7 of this EIS report have documented the cost/impacts of the project to Katavi Region and the degree to which they can be substantially mitigated. Cost-benefit analysis is normally done in the framework of feasibility study of an activity.

The aim of cost-benefit analysis is to inform the project developer to make a decision on: whether it makes economic sense to continue with the project; whether the chosen option is a cost-effective alternative; and the estimate of the size of a project. For this project, the costs will include: capital expenditures; operating and maintenance costs; staff costs; materials; research and development; and environment, health and other social costs.

Benefits may include: build on the achievements of previous projects in the education sector which have supported quality improvements. It will support the expansion of the secondary school network in order to substantially reduce travel distances by bringing secondary schools closer to children's homes through an expansion of the secondary school network.

Construction will be guided by a minimum infrastructure package based on the School Construction and Maintenance Strategy and minimum construction standards aligned with the Projects Environmental and Social Framework.

11.2 Environmental Cost and Benefit Analysis

Environmental cost benefit analysis is assessed in terms of the negative and positive impacts. Furthermore, the analysis is considering whether the impacts are mitigatable and the costs of mitigating the impacts are reasonable. As it has been mentioned in Chapters 6 and 7, the potential benefits of the project, in terms of economic advancement and social benefit are substantial.

Total project investment cost is TZS 4 billion in this regards monitoring costs which are less are more less than project costs, therefore this project is resourceful viable.

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

11.3 Effect on the Local Community

The benefits from project development can be judged in terms of employment, social welfare, education development, and the local economy (wages, goods and services).

Thus, there will be a substantial spread of the benefit within the community through the provision of food, accommodation and other regular services to the employees and students.

11.4 Infrastructure Development

The upgrading, development and maintenance of local infrastructure are benefits that will extend far beyond the project's scope and lifetime. Also, during operation of the project there will be storage rooms and temporally office that will be constructed with engineering standards at the site especially at Village nearby or within project area

11.5 Advantages for the Broader Community and Country

The earnings of the project will in the final analysis it will contribute the following:

- Creating a gender sensitive, learner-friendly school environment through investing in supportive structures in the school and community including trained school guidance counselors, stronger links with the community through Parent Teacher Associations and life skills training.
- Supporting female students to avoid getting pregnant and dropping out of secondary school through measures that include
    - Encouraging community awareness of risks for girls; and
    - Supporting safe passage and reducing the distance to schools to reduce the risks of gender-based violence on the way to school.
    - Supporting girls who become pregnant to access recognized, quality Alternative Education Pathways (AEPs)
- To obtain lower secondary certification and continue with upper secondary education or post-secondary education.
- Improving the quality of secondary school teaching and learning environments through the hiring of additional qualified teachers in core subjects and providing textbooks in core subjects.
- Increasing the number of secondary school spaces through the construction of new classrooms that meet minimum infrastructure standards and supporting the expansion of the school network to bring schools closer to communities.
- Using innovative digital technology to facilitate mathematics and science teaching and improve learning

12 DECOMMISSIONING PLAN

12.1 Introduction

Decommissioning is the last phase of project life. It involves terminating project activities and operations and rehabilitating site to or close to its original state.

It is anticipated that the project shall continue as long as there is a demand for a project, however, individual components of the project shall be decommissioned as need be.

12.2 Components

This decommissioning plan presents a conceptual framework on how the Project can be demolished if need. The plan takes into consideration on how materials and equipment, support infrastructure and land on which the buildings are standing on can be handled.

12.3 Disposal/Demolition of Project Storage Buildings

Decommissioning of project shall only involve dismantling of the temporary office and store room that will be constructed during construction phase.

12.4 Considerations

- All employees involved in the decommissioning and demobilization exercises must have proper protective gear throughout;
- Decommissioning and demobilization activities should be done during day time only unless it's an emergency;
- Waste resulting must be disposed at designated waste disposal sites;
- All relevant lead agencies must be involved in the exercise; and
- Emergency services such as first aid and ambulance services must be on standby in case of any eventualities.

13 CONCLUSION AND RECOMMENDATIONS

13.1 Conclusion

This ESIA report together with ESMP provides description of the proposed project, presents a concept project description and has acknowledged a number of issues pertaining to the operation of Project.

The issues/ impacts have been assessed and described in some detail to gain an adequate understanding of possible environmental effects of the project in order to formulate mitigation measures in response to negative aspects, which have emerged.

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 and the Environmental and Social Management Plan (ESMP) as well as Monitoring Plan.

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 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 herein whithin is properly adhered to and improved upon whenever shortcommings are identified.

REFERENCES

Nsimbo District Council social economic profile – 2018

Hoyo, J. d., Elliott, A., & Sargatal, J. (1996). *Handbook of the Birds of the World.* Barcelona, Spain: Hoatzin to Auks. Lynx Edicions.

International Finance Cooperation (IFC). (2017). *Environmental Health and Safety Guidelines for Thermal Power Plants.* Zurich: World Bank Group.

Landon, J. R. (1991). Booker Tropical Soil Manual. A handbook for soil survey and agricultural land evaluation in the tropics and subtropics. Longman Scientific & Technical Publishers, Essex. 474pp.

SADCC. (1987). Tanzania Erosion Hazard Map, Map produced by SADCC Soil and Water Conservation and land Utilization Co-ordination Unit, Lesotho.

United Nations University. (2006, July 27). *Environmental Impact Assessment a Course Model*. Retrieved August 3, 2016, from United Nations University Web site:

White, F. (1983). The vegetation of Africa, a descriptive memoir to accompany the UNESCO/AETFAT/UNSO Vegetation Map of Africa (3 Plates, Northwestern Africa, Northeastern Africa, and Southern Africa). 1:5,000,000. UNESCO. Paris.

United Republic of Tanzania. (2007). *Environmental Management (Air Quality Standards) Regulations.* Dar es Salaam: Government Printers.

United Republic of Tanzania. (2007). *Environmental Management (Soil Quality Standards) Regulations.* Dar es Salaam: Government Printers.

United Republic of Tanzania. (2007). *Environmental Management (Water Quality Standards).* Dar es Salaam: Government Printers.

United Republic of Tanzania, The National Environmental Policy (1997)

United Republic of Tanzania, The National Land Policy (URT, 1995)

United Republic of Tanzania, The National Water Policy (2002)

United Republic of Tanzania, The National Energy Policy (2003)

United Republic of Tanzania, The National Investment Policy (1996)

United Republic of Tanzania, The National Employment Policy

United Republic of Tanzania, Tanzania Development Vision 2025

United Republic of Tanzania, The National Poverty Eradication Strategy (2000)

United Republic of Tanzania, The Environmental Management Act No. 20 of 2004

United Republic of Tanzania, The Environment Impact Assessment and Audit Regulations,2005

United Republic of Tanzania, The National Land Act, No. 4 of 1999

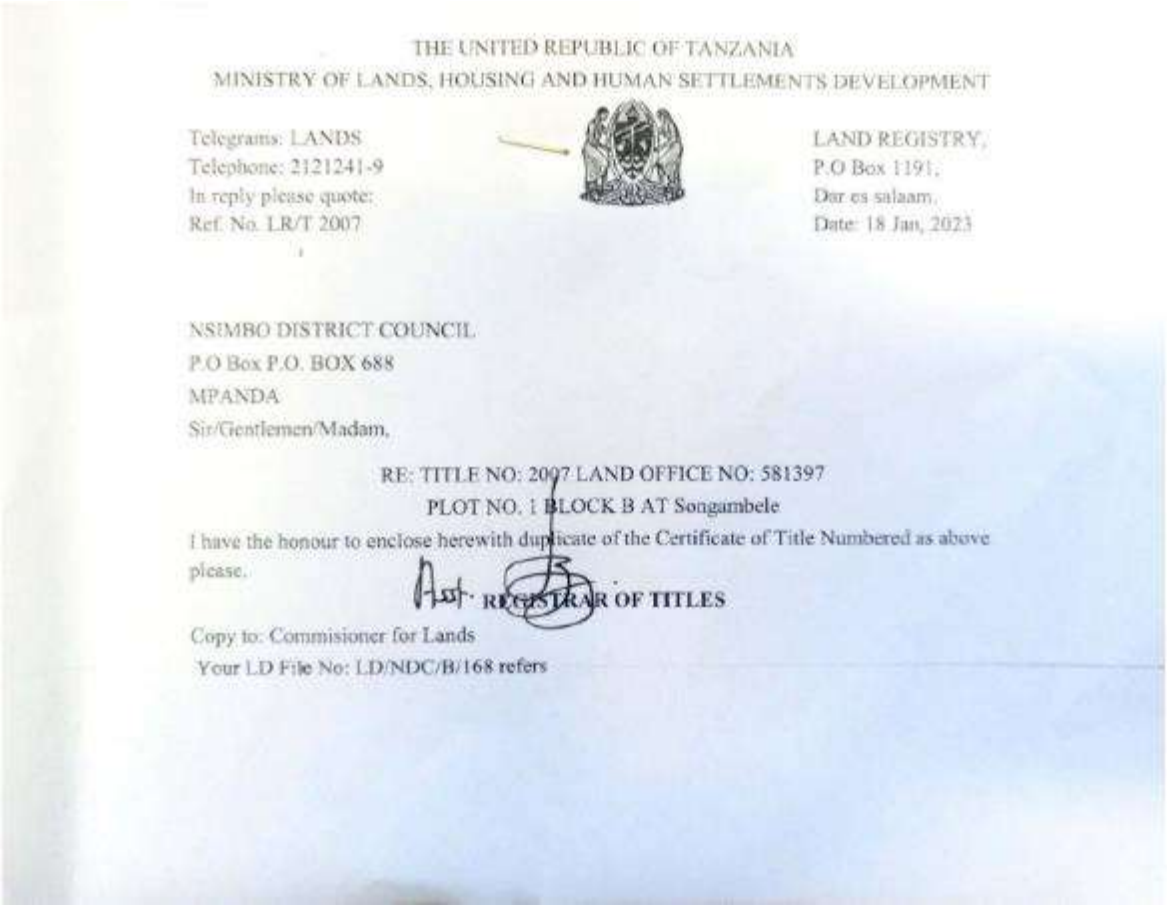
United Republic of Tanzania, The National Water Policy, 2002

United Republic of Tanzania, The Local Government (District Authorities) Act No. 7 of 1982

United Republic of Tanzania, Occupation Health and Safety Act (2003)

United Republic of Tanzania, Public Health Ordinance 1955

APPENDIX I: RELEVANT PERMITS



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 2007

LAND REGISTRY,
P.O Box 1191,
Dar es salaam.
Date: 18 Jan, 2023

NSIMBO DISTRICT COUNCIL
P.O Box P.O. BOX 688
MPANDA

Sir/Gentlemen/Madam,

RE: TITLE NO: 2007 LAND OFFICE NO: 581397
PLOT NO. 1 BLOCK B AT Songambele

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

Ag. REGISTRAR OF TITLES

Copy to: Commisioner for Lands
Your LD File No: LD/NDC/B/168 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: 2007KTV

Land Office Number: [illegible]

Land: PLOT NO 1 BLOCK B [illegible] DISTRICT COUNCIL

Term: NINETY NINE (99) YEARS

TITLE No. 2007 KTV
REGISTERED ON: 23-12-2022
AT: 01:00 P.M.
Senior Asst. Registrar of Titles

Land Form No. 22

TANGANYIKA STAMP DUTY ACT
Stamp Duty Shs 690= Paid
On Original Receipt Shs 92234714576019 9
of 13-12-2022
Stamp Duty Officer

TANGANYIKA STAMP DUTY ACT
Stamp Duty Shs 100= Paid
Receipt No. 92234714576019 9
of 13-12-2022
Stamp Duty Officer

THE UNITED REPUBLIC OF TANZANIA

THE LAND ACT, 1999
(NO. 4 OF 1999)

CERTIFICATE OF OCCUPANCY

(Under Section 29)

Title No. 2007 KTV
L.O. No. 581397
LD No. LD/NDC/B/168

The 23rd day of December, 2022

THIS IS TO CERTIFY that **NSIMBO DISTRICT COUNCIL, established under The Local Government (District Authorities) Act No.7 of 1982** of P.O. Box 688, **Mpanda, Phone no. 025 295 5164** (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 (99)** years from the first day of **October, two thousand and twenty two** according to the true intent and meaning of the Land Act and subject to the provisions thereof and to any regulations made there-under and to any enactment in substitution thereof or amendment thereof and to the following special conditions:-

1. The Occupier having paid rent up to the thirtieth day of June, **2023;** shall thereafter pay rent of **five thousand Tanzania shillings (Tzs 5,000.00) only** a year in advance on the first day of July in every year of the term without deduction PROVIDED that the rent may be revised by the Commissioner for Lands.

2. The Occupier shall: -

   (i) Be responsible for the protection of all beacons on the land throughout 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 Surveys and Mapping.

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

(iii) Maintain on the land buildings (hereinafter called "the buildings") in permanent materials designed for use in accordance with the conditions of the Right and which conform to the building line (if any) decided by the **Nsimbo District Council** (hereinafter called "**the Authority**").

(iv) At all times during the term of the Right have on the land buildings as approved by the Authority and maintain them in good order and repair to the satisfaction of the Commissioner for Lands (hereinafter called "**The Commissioner**").

(v) Not erect or commence to erect on the land buildings except in accordance with building plans and specifications which shall have been first approved by the Authority.

(vi) Approval of plans of any building by the Authority shall not imply that the constructions of such a building will satisfy the occupier's obligations under the conditions of the right and shall not imply waives of modification of any condition in the right.

3. USER: The land shall be used for **Educational Buildings** purposes only. Use Group "**K**" use Class (c) as defined in the Urban Planning (Use Groups and Use Classes) Regulations, 2018.

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

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

6. The President may revoke the right for good cause and in public interest.

NSIMBO DISTRICT COUNCIL

INSET SHOWING DETAIL OF A PLOT

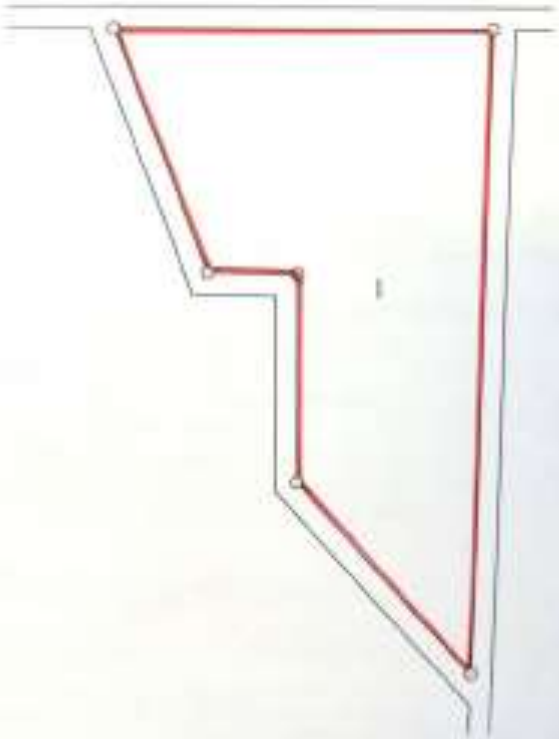
Locality SONGAMBELE

Block 'B'

Plot no 1

L.O. No 581397

Area 11.449 Ha



This plan, prepared in accordance with Registered plan No. 169988 is approved for the purpose of Land Registration Ordinance

Director of Survey and Mapping
Ministry of Lands, Housing and Human Settlement Development

Date 22/12/2022

The issue of the plan implies no guarantee admission of the title by the Government.

SCHEDULE

ALL that Land known as Plot No. **1** Block "**B**" situated at **Songambele** in **Nsimbo District Council,** containing **eleven point four, four nine hectares (11.449ha)** shown for identification only edged **red** on the plan attached to this Certificate and defined on the registered Survey Plan Numbered **169988** deposited at the Office of the Director for Surveys and Mapping at Dar es Salaam.

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

ASSISTANT COMMISSIONER FOR LANDS

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

SEALED with the **COMMON SEAL** of the said
NSIMBO DISTRICT COUNCIL
and DELIVERED in the presence of us

this 21st **day of** DECEMBER **2022**

Witnesses
Name MOHAMED RAMADHANI
Signature
Postal Address 668 NAMANGA
Qualification DIRECTOR

Witnesses
Name HALIMA C. MALYAMKOP
Signature
Postal Address 668 NAMANGA
Qualification CHAIRPERSON

APPENDIX II: SUMMARY OF STAKEHOLDERS CONCERNS

STAKEHOLDER	RAISED ISSUES, CONCERNS AND OR COMMENTS
Katavi Region Hassan A Rugwa **Regional Administrative Secretary (RAS)**	• We are well informed on the proposed construction of Regional Girls School, despite being new here in Katavi • The proposed school will be constructed in Nsimbo DC and we are working closely with Nsimbo DC • During site selection, all district councils were invited to proposed the site within their locality, and Nsimbo DC meets the all requirements issued by PO-RALG • The final decision was the site was done by the Regional Consultative Committee (RCC) • The proposed area was issued by Village executive committee, and the area has 11.449Ha • The area has the title deed.
Katavi Region Florence Ngia **Ag. Region Education Officer** Beatrice Gati **Regional Academic Officer**	• We are informed and we are ready for construction of the proposed school • This will bring opportunity to the area and Katavi as whole • Since the school is for the Regional, it will be named as Katavi Girls Secondary School. • We are just waiting for the fund to initiate construction activities • The surrounded community is positive towards the projects
Nsimbo District Council Mohammed Ramadhani **District Exective Director**	• We are ready to start the project and the proposed area has 11.449Ha. • All Government Institutions will be involved during construction as it will be important
Nsimbo District Council Yohana Dondi **District Environmental Management Officer (DEMO)**	The District Environmental Management Officer had the following opinions: • The project is very important as it is needed but measures to protect the environment must be taken • Protective the local forest which surround the project area • Construction of wall to surround the project area is recommended so as people should not observe inside activities taking place but also animals should not enter the site • Plant trees surrounding the project area as this will help to reduce erosion and protecting some plumes from escaping. • The employment opportunities should consider local people first for unskilled labors if needed. • Improvement on community' social services
TANESCO Godfrey Josephat **Ag. Regional Manager, Katavi**	• We will cooperate with project Implementing Team • The electric poles are within the project area, thus it will be easy for us to connect the project.
TARURA Eng. Kahoza Joseph **District Manager-Mpanda**	• We are not aware of the proposed construction of the school, however, the access roads in the vicinity of the area is recommendable • The alternative road from Nsimbo DC about 2km is in plan to soft asphalt level
RUWASA	• We are aware of the project and the proposed site

STAKEHOLDER	RAISED ISSUES, CONCERNS AND OR COMMENTS
Cleophace Pauline **Water Technician** Ibrahim K Peter **HGD/Technician** **Katavi Region**	• The proposed project site has no any water networks extended, however the extension will be executed before the initiation of the project • We have planned and set aside the budget for extension of water networks to Mukaso and other areas through which the project area is within. • We will cooperate as required by PIT as appropriate as needed.
Fire and Rescue Force Unit-Katavi Region Wilfred J Ruhega **Regional Fire Manager**	• Fire hydrant should be in place • Sprinklers system should be installed • Nsimbo DC should submit the map/drawing as well as layout for the school prior to construction activities • The contractor should be ready for registration of the site at Fire and Rescue Force Unit office during construction • During construction, installation of audible alarm for smoke and heat as well as respective detectors is mandatory
Occupational Health and Safety Authority (OSHA)-Mbeya	• Register your workplace through wims.www.osha.go.tz • Ensure all workers health are examined by doctors from OSHA • It's the duties of the employer to provide safe and clean drinking water to your workers • Ensure all toilets are clean all the time, labelled and separated for both sex • Provide worker changing rooms with lockers, and of separate sex • Ensure first aid kit is available all the time at workplace with adequate contents • Conduct risk assessment to identify hazards presents in your workplace and submit report to OSHA • Ensure provision of appropriate personal protective equipment • Appoint and facilitate statutory training for IFAT (Industrial First Aid Training) and SHE-REPs (Safety and Heath Representatives) conducted by OSHA • Prepare and display occupational safety and health policy at conspicuous area • Ensure there is active safety committee at the workplace and all safety meeting records must be kept • Establish OSHA file to keep all OSHA documents and must be available at the site all the time • You are supposed to report at OSHA any incident, accident or any occupational diseases that will raised at your workplace • Allocate and mark all safety signs and emergency and emergency assembly point at the workplace
Songambele Ward Enely J Bukuku **Ward Executive Officer (WEO)**	• The office supports and need the project to start as soon as possible • This project will increase opportunities within the ward through employment to local people for unskilled, revenue and social corporate responsibility • We have much expectation on this project as School management will be cooperative with the Ward Executive Council and surrounding community at large. • There is a need to carry out many awareness programs to ensure that the public understand the project together with associated activities, impacts and benefits.

STAKEHOLDER	RAISED ISSUES, CONCERNS AND OR COMMENTS
	• During project implementation, the project should make sure that the environment is well taken care as much as possible.
Kapalala Village Council Community	• The community receives this project with high expectation of supporting the village social development issues • The community requested the project to be initiated as soon as possible to bring development within the village • Opportunities especially employment should consider local unskilled labors if needed • The PIT should consider and cooperate village leaders in supporting Village elders.

APPENDIX III: LIST OF THE STAKEHOLDERS CONSULTED

APPENDIX IV: SOME OF DRAWINGS FOR THE FACILITIES TO BE CONSTRUCTED IN THE SCHOOL