# ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR THE CONSTRUCTION OF LECTURE THEATRES AT MALAWI UNIVERSITY OF SCIENCE AND TECHNOLOGY (MUST) IN THYOLO DISTRICT

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## EXECUTIVE SUMMARY

### 1. Introduction

Government of Malawi through Ministry of Education and Ministry of Labour, with funding from World Bank are implementing "Skills for a Vibrant Economy (SAVE) Project. The project's aim is to improve access to market-relevant skills programs in priority areas of the economy, ensuring equity in skills training and empowerment of women, girls and vulnerable youth through targeted skills in priority areas of the economy. Additionally, the project seeks to create a conducive policy environment, strengthening systems and institutional capacity for skills development, which will center on: Technical, Entrepreneurial, and Vocational Education and Training (TEVET) and higher education reforms, student loans, industrial links, digital technology and safeguards, capacity building, and technical assistance among other systemic issues. Under this project, different sub-projects have been planned in the country's five public universities and various TEVET institutions. Malawi University of Science and Technology (MUST) is one of the public universities targeted and a beneficiary of SAVE project. MUST proposes construction and operation of Lecture theatres building and its amenities within MUST campus located in Ndata farm, Sub Traditional Authority Mangazi, in Thyolo district. The project will be implemented from April,2024 to December 2026, at a total project cost of MK1.5 billion and will employ about 150 workers, with not less than 40% being females. Prior to implementation of thi project, an Environmental and Social Management Plan (ESMP) has been prepared for the construction and operation works sought at MUST. The ESMP implementation cost is estimated at MMK66,700,000 (with MMK45,400,000 being for implementing enhancement and mitigation measures and MMK21,300,000 for implementing monitoring measures). The ESMP when fully implemented, will ensure that environmental and social risks and impacts that are identified, are minimised and managed.

### 2. Rationale and objectives of the project

In Malawi, access and enrolment to higher education is low, attributed to limited space and that existing ODL centers are limited in reach. This has resulted in vulnerable groups not adequately participating in higher education and hence, underrepresented in meaningful employment areas. "Skills for a Vibrant Economy (SAVE) Project was initiated to address such issues. SAVE Project Development Objective (PDO) is to increase access, particularly for females, to labour market relevant skills targeting priority areas of the economy. The proposed construction of lecture theatres building at MUST, is a sub-project under SAVE project. This subproject perfectly fits into the PDO of SAVE project which is to increase access to higher education and skills development that may lead to job creation and poverty alleviation.

## 3. Justification of the project

Since establishment of Malawi University of Science and Technology (MUST) in 2012 and enrolling its first cohort in 2014, the University student population has grown from 120 students to over 2,500 in 2024. However, despite this growth, MUST has still a tag of being the youngest and smallest public university in Malawi. Moreover, the gender rates of enrolment has always been estimated between 15%- 31% females. The University however can enrol up to 5000 students if amongst other factors like limited classroom space can be addressed. This project seeks to increase classroom space and creating an optimum learning experience in a comfortable and spacious atmosphere to students at MUST. This has direct effect on increasing number of students enrolled at the University.

## 4. Rationale and Justification of the ESMP

The purpose of this ESMP was to facilitate implementation of a project that;

- Has potential environmental and social impacts identified, assessed, and control measures put in place to minimize negative impacts on the environment, communities, and stakeholders.
- Comply with relevant environmental and social frameworks, policies and laws at local and international levels,
- Has stakeholder engagement prioritised, and their concerns held and incorporated in the project design and implementation to foster positive relationships.
- Has monitoring and evaluation mechanisms in place to track environmental and social performance, measure progress against objectives, and make informed decisions for continuous improvement in the project.

## 5. Objectives of the ESMP

The objectives of this ESMP were to

- Identify and assess key potential environmental and social impacts including those on gender, which may be caused by the proposed project
- Propose measures that would enhance the positive effects of the proposed constructions and operation activities on both the environment and social components including gender issues;
- Propose measures that will mitigate the anticipated negative impacts of the proposed constructions and operation activities on both the environment and social components, including gender concerns;
- Conduct stakeholder consultative meetings which inform project key environment, social risks, and mitigation measures; and (5) Develop a costed ESMP monitoring plan with clear lines of responsibilities for key stakeholders.

## 6. Nature and Scope of the Project

The proposed Lecture theatres building project will be constructed on a total floor area of 1650m$^2$ within MUST campus in Thyolo district. The project will involve construction of a building with three (3) single storey lecture theatres, one (1) being 250-seater capacity and two (2) being 125 seater capacities); nine (9) offices, two (2) boardrooms; three (3) meeting rooms, two (2) storerooms, a tuck shop, nine (9) toilets for females (including 2 that are accessible by persons with disabilities), five (5) male toilets (including 1 accessible by persons with disabilities) , six (6) urinals and a parking lot of 22 car slots. Construction of this lecture theatres building will be adjacent to the current construction site of laboratory building at MUST and in close vicinity to the University's main library and student's dormitories.

## 7. Key Environmental and Social Impacts of the Project

In line with the objectives of the project, both potential positive and negative impacts will be generated by the implementation of the project and at each stage of the project cycle. The key positive and negative environmental and social impacts have been identified and/or predicted of which their enhancement or mitigation measures have been suggested for implementation by this ESMP. The key impacts are presented in this ESMP as follows;

### 7.1. Positive Impacts

7.1.1. Creation of temporary jobs to local communities
7.1.2. Increased skills transfer to local people.
7.1.3. Increased business opportunities
7.1.4. Increased enrolment and skills transfer to students.
7.1.5. Increased tax revenues
7.1.6. Reduced constraints in classroom space and equipment
7.1.7. Improved outlook of the institution

### 7.2. Negative Impacts

7.2.1. Loss of existing vegetation/ flora
7.2.2. Increased risk of soil erosion
7.2.3. Increased risk of blockage of some footpaths
7.2.4. Increased risk of disruption of classes and library activities
7.2.5. Population influx
7.2.6. Increased risks of hazards, occupational health and safety
7.2.7. Increased public safety risks
7.2.8. Increased risk of exposure to hazardous materials
7.2.9. Increased risk of spread of HIVand AIDS, STI's and COVID-19
7.2.10. Increased risk of the spread of Cholera
7.2.11. Increased risk of discrimination of women and other vulnerable groups

7.2.12. Increased risk of Gender-Based Violence.
7.2.13. Increased risk of sexual exploitation of students.
7.2.14. Increased pressure on utilities
7.2.15. Increased risk of child labour
7.2.16. Increased generation of solid wastes,
7.2.17. Increased generation of wastewater
7.2.18. Increased dust emissions
7.2.19. Increased incidences of theft cases in the area

## 8. Conclusion and recommendations

This ESMP has presented the major guidelines that have to be followed for safeguards execution during planning, construction and operation of Lecture theatres building project, at MUST. Though the proposed project will likely generate significant socio-economic benefits to the staff and students as well as local people around MUST and the country at large; negative environmental and social impacts that the project activities are likely to bring, have also been identified by this ESMP. Mitigation measures for the identified potential negative environmental and social impacts have been suggested and must be well followed during implementation of the project. Furthermore, this ESMP recommends that; (1) The developer should give environmental protection and social considerations the necessary attention during implementation of the project; (2) The developer should adopt and implement all the recommendations and mitigation measures advanced in this ESMP and respective Monitoring Plan. (3) Ensure adequate provision of capacity building to all key stakeholders who will be directly involved in the implementation of the project's ESMP, as it is an integral part to ensuring quality safeguards implementation in the project. With these conditions met, the recommendation is for this project to be allowed to proceed.

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| | |
|---|---|
| ADC | Area Development Committee |
| AEC | Area Executive Committee |
| AIDS | Acquired Immuno Deficiency Syndrome |
| CBO | Community Based Organisation |
| CESMP | Contractor Environmental and Social Management Plan |
| CHAM | Christian Health Association of Malawi |
| COVID-19 | Corona Virus Disease of 2019 |
| DACC | District AIDS Coordinating Committee |
| DC | District Commissioner |
| DEC | District Executive Committee |
| DESC | District Environmental Sub-Committee |
| DGO | District Gender Officer |
| DSWO | District Social Welfare Officer |
| EC | Electric Conductivity |
| EDO | Environmental District Officer |
| EIA | Environmental Impact Assessment |
| EMA | Environment Management Act |
| EPA | Extension Planning Areas |
| ESIA | Environmental and Social Impact Assessment |
| ESMF | Environmental and Social Management Framework |
| ESMP | Environmental and Social Management/Monitoring Plan |
| ESCOM | Electricity Supply Corporation of Malawi |
| ESH | Environmental Safety and Health |
| GBV | Gender Based Violence |
| GoM | Government of Malawi |
| GRM | Grievance Redress Mechanism |
| GRC | Grievance Redress Committee |
| Ha | Hectares |
| HIV | Human Immune Deficiency Virus |
| IGA | Income Generating Activities |
| LIMP | Labour influx Management Plan |
| MEPA | Malawi Environment Protection Authority |
| MoE | Ministry of Education |
| MoL | Ministry of Labour and Vocational Training |
| MUST | Malawi University of Science and Technology |
| NCIC | National Construction Industry Council |
| NEAP | National Environmental Action Plan |
| NEP | National Environmental Policy |
| NESP | National Education Sector Plan |
| OHS | Occupational Health and Safety |
| PAP | Project Affected Persons |
| PDO | Project Development Objective |
| PM | Particulate Matter |
| PPE | Personal Protective Equipment |
| RE | Resident Engineer |

| | |
|---|---|
| SAVE | Skills for a Vibrant Economy |
| SDGs | Sustainable Development Goals |
| SEA | Sexual Exploitation and Abuse |
| SEP | Socio-Economic Profile |
| SMEs | Small and Medium Enterprises |
| STI | Sexually Transmitted Infections |
| T/A | Traditional Authority |
| TEVET | Technical, Entrepreneurial, and Vocational Education and Training |
| ToR's | Terms of Reference |
| VCT | Voluntary Counselling and Testing |
| VDC | Village Development Committee |
| VOC | Volatile Organic Matter |
| WHO | World Health Organization |

# Chapter 1 : INTRODUCTION

## 1.1. Background

Government of Malawi through Ministry of Education (MoE) and Ministry of Labour (MoL), with funding from World Bank are implementing a five year Skills for a Vibrant Economy Project (SAVE), from 2021-2026. The project's aim is to improve access to market-relevant skills programs in priority areas of the economy, ensuring equity in skills training with empowerment of women and girls and vulnerable youth through targeted skills in priority areas of the economy. Additionally, the project seeks to create a conducive policy environment, strengthening systems and institutional capacity for skills development, which will center on: Technical, Entrepreneurial, and Vocational Education and Training (TEVET) and higher education reforms, student loans, industrial links, digital technology and safeguards, capacity building, and technical assistance among other systemic issues. Under this project, different sub-projects have been planned in the countries' five public universities and various TEVET institutions. Malawi University of Science and Technology (MUST) is one of the public universities beneficiary of SAVE project. MUST proposes construction and operation of Lecture theatres building and its associated amenities at its campus, located in Ndata farm, Sub Traditional Authority (Sub-T/A) Mangazi, in Thyolo district. The project will be implemented from April,2024 to December 2026.

Following the initial environmental and social screening for the project (see screening form in appendix 7) and in consideration of the potential risks and impacts of the project on the environment and society around the project area; an Environmental and Social Management Plan (ESMP) was prepared. The ESMP in question, is essential for the successful management of environmental and social risks and impacts of the proposed project. Further to that, the ESMP also establishes an action plan for tracking, evaluating and communicating environmental and social performance and ensures that environmental and social risks and impacts of the project, are identified, minimised and managed.

## 1.2. Justification of the project

In Malawi, access and enrolment to higher education is low, attributed to limited space and that existing ODL centers are limited in reach. This has resulted in vulnerable groups not adequately participating in higher education and hence, underrepresented in meaningful employment areas. "Skills for a Vibrant Economy Project (SAVE) was initiated to address such issues. SAVE is a five-year project (2021-2026) which is being implemented by MoE and MoL, with funding from World Bank. Its Project Development Objective (PDO) is to increase access, particularly for females, to labour market

relevant skills targeting priority areas of the economy. This is being done by means of the four components which include (1) supporting increased access to skills development programs in higher education, (2) supporting increase in access to TEVET skills development, (3) tertiary education system strengthening, project management, M&E and communications and (4) contingency emergency response.

Since establishment of Malawi University of Science and Technology (MUST) in 2012 and enrolling its first cohort in 2014, the University student population has grown from 120 students to over 2,500 in 2024. However, despite this growth, MUST has still a tag of being the youngest and smallest public university in Malawi. Moreover, the gender rates of enrolment have always been estimated between 15%- 31% females. The University however can enrol up to 5000 students if amongst other factors like limited classroom space can be addressed.

This project seeks to increase classroom space and creating an optimum learning experience in a comfortable and spacious atmosphere to students at MUST. This has direct effect on increasing number of students enrolled at the University and increased acquisition of market relevant skills to the larger student population including the vulnerable and women. This project contributes to the component of "supporting increased access to skills development programs in higher education" through construction of adequate and comfortable classroom space at MUST, which then has a direct implication on student enrolment.

## 1.3. Objectives of the project

The objective of implementing the proposed MUST lecture theatres building project is to construct teaching and learning facilities to be used by staff (academic and non-academic staff) and students for academic excellence. Specifically, the project will assist to:

- Increase access to university education through increased student enrolment with emphasis on female students.
- Improve the quality of teaching and learning activities through enhanced infrastructure, facilities and technology.
- Train high level human resource that can meet development needs of the country and the international labour market.

## 1.4. Nature and scope of proposed project

The proposed lecture theatres building will be constructed within MUST campus, located in Ndata farm, Sub-T/A Mangazi in Thyolo district. The sub-project will involve construction of a building with three (3) single storey lecture theatres (one (1) being 250-seater capacity and two (2) being 125-seater capacity); nine (9) offices, two (2) boardrooms; three (3) meeting rooms, two (2) storerooms, a tuck shop, nine (9) toilets for females (including 2 that are accessible by persons with disabilities), five (5) male toilets (including 1 accessible by persons with disabilities), six (6) urinals and a parking

lot of 22 car slots, aimed to provide convenient parking of vehicles for people patronising the proposed lecture theatres building . Construction of this building will be carried out on an already existing public land and will cover the total floor area of 1650m$^2$ within the campus's plot area of 215,000m$^2$ which currently has total building area of 46,000m$^{2.}$.

## 1.5. Project Location

The proposed project is located in Ndata farm in Thyolo District. Specifically, the location of the proposed site is within MUST and is surrounded by villages such as Mmina in its immediate vicinity and other villages like Mangazi to the west, Mitabali to the northwest and Gomani to the far north. The proposed site is approximately 27 km from Limbe township in Blantyre and is located along Nansadi- Goliati-Thyolo road, 10 km off Robert Mugabe Road. Notable facilities and/or features in the proximity of the proposed site are an ongoing construction project of laboratories (to the north and immediate vicinity- about 20 meters), student dormitories (to the south and about 100 metres), library, and an administration block. The plot faces the quadrangle to its western side and is accessible by paths from the main carpark of the institution.

Since the proposed site for the project is within existing university campus and located in Ndata farm which is an agricultural land, vegetation around the site are few trees and common grasses. The majority of the trees are small and less than five metres high. The site has also group of indigenous trees lumped together (with diameter about 3 meters) and that "lumped tree structure" is used by students as a site for studying or praying and constitute an important biodiversity feature of the site. The project design has therefore incorporated measures to save those groups of trees and and the contractor should make sure that those trees are kept intact during construction of the proposed lecture theatres building and that any other trees that will be cut down are replaced. Figure 1-1 shows the characteristics of the proposed project site while Figure 1-2 shows topographic map of MUST, showing the project site.


**Figure 1-1:**Proposed site for the construction of lecture theatres building at MUST

## Topographic Map of MUST

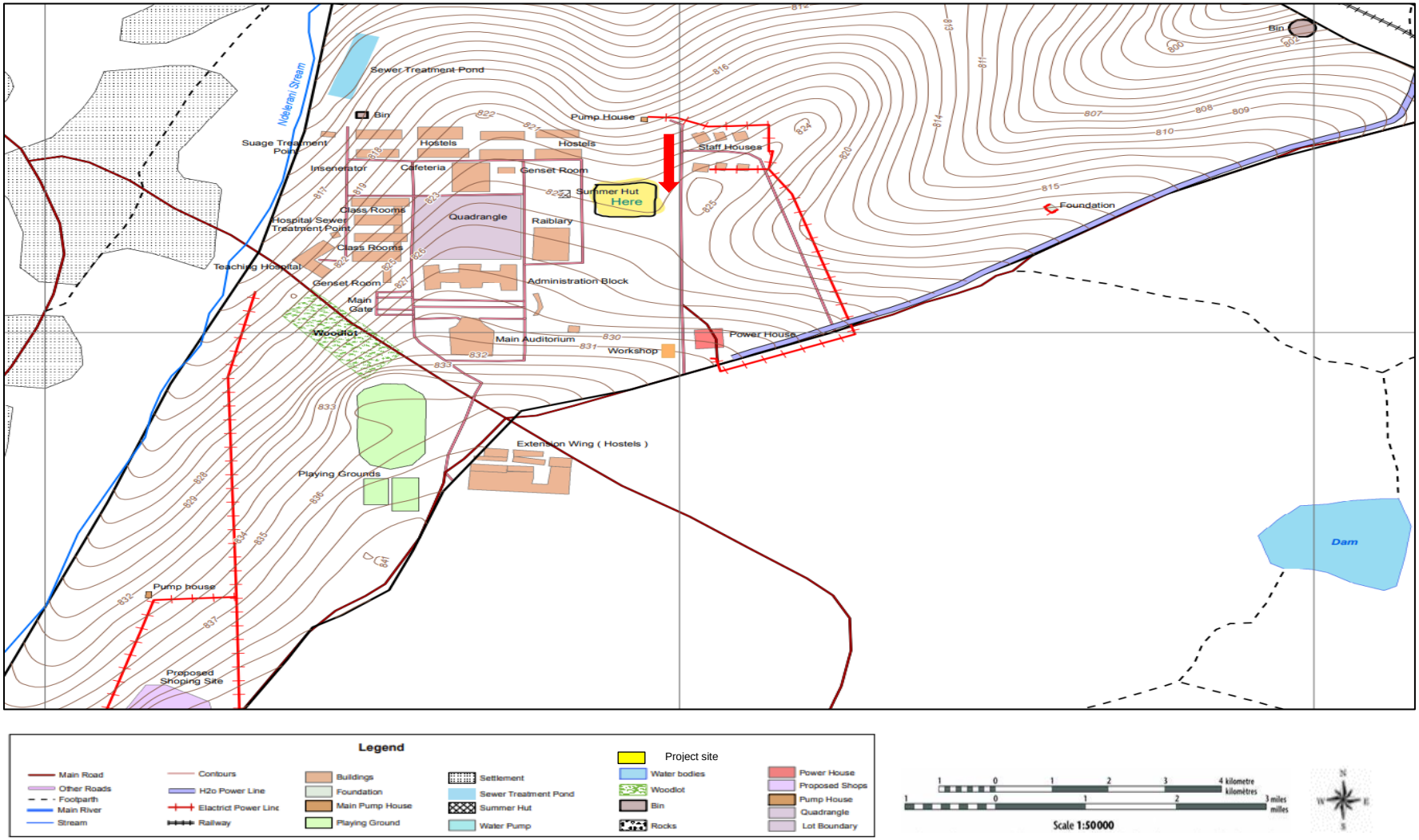


**Figure 1-2:** Topographic map of MUST showing location of the proposed project site

## 1.6. Project Proponent

The proponent for the proposed project is Malawi University of Science and Technology (MUST)

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**Address:** P.O. Box 5196, Limbe, Malawi

**Phone number:** +265995209848

**Email:** save-project@must.ac.mw

## 1.7. Estimated project costs and number of workers.

This ESMP is for lecture theatres building construction project which is being proposed by MUST, for implementation from April 2024 to end of year 2026 at its campus in Thyolo district at a total project cost of MK1.5 billion. This sum includes the Environmental and Social Management Plan (ESMP) implementation cost estimated at MMK66,700,000 (with MMK44,200,000 being for implementing enhancement and mitigation measures and MMK20,800,000 for monitoring implementation of the measures). The construction project will lead to 150 workers being employed, with not less than 40% of them being females.

## 1.8. Justification of the ESMP

Implementation of the proposed project will have an impact on both the Environment and Social aspect as such a number of potential environmental and social impacts that may arise during implementation of the proposed project were identified through the screening process (see screening form in appendix 7). The purpose of this ESMP is therefore to ensure:

- Compliance with relevant environmental and social frameworks, policies and laws at local, and international levels,
- Identification and assessment potential environmental and social impacts, and put in place control measures to minimize negative impacts on the environment, communities, and stakeholders.
- Prioritisation of stakeholder engagement and incorporation of their concerns in the project design and implementation to foster positive relationships.
- Monitoring and evaluation mechanisms are put in place to track environmental and social performance, measure progress against objectives, and make informed decisions for continuous improvement in the project.

## 1.9. Objectives of the ESMP

The main objectives of this ESMP is to provide a consolidated summary of all the impacts relevant for the implementation of the project and the mitigation and enhancement measures aimed at addressing potential identified risks. This ESMP also aimed to give an overview of the environmental and social monitoring system that will be adopted to ensure systematic and effective execution of these mitigation/ enhancement measures.

The specific Objectives of this ESMP were to;

- Identify and assess key potential environmental and social impacts including those on gender, which may be caused by the proposed construction works
- Propose measures that would enhance the positive effects of the proposed constructions and operation activities on both the environment and social components including gender issues in specific sites;
- Propose measures that will mitigate the anticipated negative impacts of the proposed constructions and operation activities on both the environment and social components, including gender concerns in specific sites;
- Conduct stakeholder consultative meetings which inform project key environment, social risks, and mitigation measures; and
- Develop a costed ESMP monitoring plan with clear lines of responsibilities for key stakeholders.

## 1.10. Approach and Methodology

This ESMP has been prepared based on recommendations from World Bank ESF, that any project under the Bank's financing, should undergo environmental and social assessment. Additionally, the proposed project is classified under environmental assessment category "category B" as having low or minimal adverse environmental and social impacts by MEPA, and Environmental and Social Assessment is required (EIA guidelines, 1997). This ESMP was therefore essential as it identifies environmental and social impacts and suggest respective mitigation measures to be implemented throughout the project implementation period. The ESMP has been prepared through adopting the following methodologies.

### 1.10.1. Literature review

Review of World Bank and national policies, laws, regulations, and guidelines related to environmental and social management. Project related documents, including project design documents, project's Environmental and Social Management Framework (ESMF), SEP, LMP and screening report were among the documents that were also reviewed.

### 1.10.2. **Stakeholder consultations and Interviews**

Public and stakeholder consultations with relevant institutions and affected communities are important and critical for designing and implementation of environmental and social safeguards associated with development project like lecture theatres building construction project at MUST. The most important step is to carryout stakeholder consultations with relevant institutions, local communities, and all other interested/affected parties during planning and over the project implementation period.

Adequate participation of the stakeholders and surrounding communities help in identifying potential positive and negative impacts associated with the project and suggesting suitable enhancement and mitigation measures. Moreover, in the course of project implementation, stakeholder consultation may help identify emerging environmental and social risks which were overlooked in impact assessment and lead to determination on how these concerns can be addressed. As a principle, the guidelines for public consultation include, among others, a requirement of major elements of the consultation program should be timed to coincide with significant planning and decision-making activities in the project cycle.

During the preparation of this ESMP public consultations were conducted with various stakeholders. Thus, public and stakeholder consultations were held with MUST-SAVE project management team, District Environmental Sub-Committee (DESC), students and staff at MUST, local leaders (Chiefs and VDC leadership) and the surrounding community and aimed to:

- Inform about and discuss the nature and scale of adverse impacts of the project on their livelihoods and community in a more transparent and direct manner and seek their participation in the project cycle.

- Give stakeholders and communities a chance to have a say and express their views and concerns in the planning and implementation of the project that affect them directly or indirectly.
- Inform local authorities of the project, solicit their views and discuss their share of the responsibility for the sound implementation and functioning of the overall project construction and operations activities.

- Get stakeholders' views and contributions on the identification of potential impacts of the project and identification of appropriate mitigation and enhancement measures for negative and positive impacts respectively.

Physical consultative meetings with project management team and students leadership from MUST was conducted on 28 September 2023, while discussions and interviews with Thyolo District Environmental Sub-committee (DESC) and surrounding traditional

leaders as well as surrounding local communities (Figure 1-3) was conducted on 29th September 2023. Virtual consultative meetings via Microsoft Teams were also convened with staff members representatives from MUST on 4th October 2023. The consultations helped in getting views from the concerned stakeholders on the potential impacts expected from the project. Lessons from other projects implemented at the university were also drawn from the consultations.

Specifically, Stakeholder consultations were conducted using public meetings (where general information about the project was delivered, Q & A conducted), Focus Group Discussions with only those who will be potentially affected by the project' and Key Informant Interviews (KII) covered traditional leaders and other key figures. Participatory Rural Appraisal (PRA) methods were mainly applied during the consultations as they allow wider participation of stakeholders within a short period of time. The approach ensured that there was an open and interactive communication between the consultant and stakeholders. The consultations helped in getting views from the concerned stakeholders on the potential impacts expected from the project and suggesting suitable enhancement and mitigation measures for identified potential environmental and social impacts and summary of the main issues that came out of the consultations are provided in Table 1-1.

**Figure 1-3:** Surrounding community consultations happening at MUST

**Table 1-1: Summary of issues discussed and comments raised by stakeholders and how was addressed.**

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| MUST Students Representatives | MUST meeting room | 28th September, 2023<br><br>From 1:30pm-3:00 pm | To brief the student representatives about the project and to solicit their inputs on the different impacts and how the impacts can be managed | Nature/ components of the project and its location | Project site especially the lower part of the plot was proposed for hostels, so if the lecture theatres building is constructed there, the hostel project may not materialize in future. | The area was never meant to have hostels, the students provided incorrect information. MUST has a master plan and the area was proposed for lecture theatres. |
| | | | | Socio-economic benefits the project will bring at MUST. | Shortages of classroom space will be resolved. | This has been included as a positive impact and enhancement measures has been provided |
| | | | | | Lecture theatres will reduce disturbances that happens in the library when other students are learning from there instead of leaving it for studies only | Has been consolidated within the impact of Increased and improved classroom spaces and its amenities. |
| | | | | | Meeting rooms and boardrooms to be constructed as part of lecture theatre building will improve meeting activities at the campus. | |
| | | | | What project developers can do to enhance positive social-economic impacts of the project. | Sensitization and engagement on issues of the project | This has been included as one of the mitigation measures |
| | | | | | Give chance of employment to students over 18 years (as security personnel and sensitization agents) | Students will not be allowed to work at the construction site as security personnel as it is very dangerous, |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | | | however they can be involved in sensitisations |
| | | | | Potential negative social effects that may arise from implementation of the project. | Proposed site is used for studies and prayers by other students. Studying and praying space will therefore be removed. | Site for studies and prayers will not be affected by the proposed project. It will be left intact.<br>-Project design includes saving the site and has been incorporated in the design |
| | | | | | HIV and AIDS and COVID-19 spread risks may increase with introduction of new workers during construction and students during operation | Proposal on increasing sensitization to students on issues of HIV and AIDS, COVID-19 and about the project was made. It was indicated that social weekend event can be used as a platform for the sensitizations |
| | | | | | Sexual exploitation among students may increase if immigrant workers may not be minding their business and not operating in a fence to minimize interaction. | - Mitigation measure to Sensitize MUST staff and students on GBV/SEA and harassment.<br>as well as strengthening GRM including reporting mechanisms for SEA was made and this was included as mitigation measure. measure. |
| | | | | | Theft cases may increase | Mitigation measures on Sensitize workers on dangers and consequences of theft. and empowering and utilizing community policing has been included |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | | Blockage of some footpaths/ study areas | The areas with trees and stones are where students uses for study. This area has been reserved in the design and will still be available to them as study area<br>Sensitize students on newly designated footpaths S |
| | | | | Natural resources/ environmental components present at the proposed site and can be affected by this project. | The site has group of indigenous trees lumped together and is a site used by students for studying or praying and constitute an important biodiversity feature of the site. | The project design has therefore incorporated measures to save those groups of trees and so the contractor should make sure those trees are kept intact during construction and that any other trees that have been cut down should be replaced. |
| | | | | Other potential negative Environmental impacts that may result from project development | Increased noise pollution during construction especially in the Library | Mitigation measures have been provided i.e. Restrict construction activities to during daytime (regular work hours) and not at night and Limit very noisy activities to times when the university is in holiday timerescribed |
| | | | | Potential conflicts project implementation may bring | Demand for water may increase and constrain availability | Proposal on contractor to have own water source was made and borehole drilling has been included in the bid documents |
| | | | | | Toilets may not be adequate for both workers and students | Mitigation measure have been prescribed such as construct temporary toilets for the workers on the |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | | | construction site and segregated by gender |
| | | | | Potential positive environmental impacts that the project may bring | Project will Improve aesthesia of the institution | Included as positive impact |
| DESC: Thyolo District Council | Thyolo District council meeting room | 29th September, 2023 from 9:00am-11:00 am | To brief the DESC members about the project and to solicit their inputs on the different impacts and how the impacts can be managed | Nature/ components of the project and its location | The project is being implemented right in MUST campus, so issues of land conflicts may not arise. | |
| | | | | Socio-economic benefits the project will bring . | Teaching and learning space will increase as so is enrolment/ reduced classroom congestion | Has been consolidated within the impact of Increased and improved classroom spaces and its amenities. |
| | | | | | Project will create jobs for locals/ migrant workers. | Measures of increasing number of people from surrounding communities benefiting from jobs was suggested (all non- skilled workers should be from the surrounding community) |
| | | | | | Construction and facility with its associated increased numbers of people will create small business opportunities/ market for local produce | Measures to ensure creation of small businesses by designating an area near the proposed project area has been included. |
| | | | | | Performance of students may increase due to adequate learning and studying space. | Comment was consolidated within the impact of Increased and improved classroom spaces and its amenities. |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | | Migrant workers may transfer construction skills to locals employed. | Skilled workers will comprise both local people and migrant workers to enable transfer of skills to the community members and this has been included as enhancement measure |
| | | | | | Lecture theatres may be used for other functions and meetings organized by the council. | |
| | | | | What project developers can do to enhance positive social-economic impacts of the project. | During recruitment of contractor, council should be involved. | Developer has to engage District Council throughout the project cycle. |
| | | | | | The Council should be made aware of the Consulting supervisor and the designs should be made available to them for follow up on construction. | Developer has to engage District Council throughout the project cycle including in signing certificate of contractor; to ensure compliance. |
| | | | | Potential negative social effects that may arise from implementation of the project. | Project may Increase risk of HIV and AIDS for both workers and communities. | This was consolidated as a negative impact of the project |
| | | | | | Project migrant workers may bring Interference of marriages in surrounding communities | Mitigation measure to address this issue has been suggested that, all unskilled workers will be from the communities with some skilled workers also being from the communities. Inaddition sensitisations has been included in the document |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | | Students may engage into affairs with workers or contractor. | Measures of fencing the construction site have been suggested so that the workers should not have direct access to the students including sensitisations |
| | | | | | Crime rate may increase. | Has been included as a negative impact during construction and measures to address it have been suggested including employment of security personnel and use of community policing |
| | | | | | Child labour cases may emerge | Measures of employing those who are 18 years and above have been suggested as a mitigation measure |
| | | | | | Noise and vibrations | Has been included as one of the negative environmental impacts during construction and mitigation measures have been prescribed |
| | | | | | Occupational safety and health issues may emerge during construction | Has been included as a negative social impact and mitigation measures have been prescribed |
| | | | | Natural resources/ environmental components present at the proposed site and can be affected by this project. | The site has patches of vegetation and can be affected | Design has included measures to save the indigenous vegetation on the site |
| | | | | Other potential negative Environmental | Destruction of vegetation during construction | This was consolidated as impact of 'Loss of existing vegetation/ flora' and |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | impacts that may result from project development | | mitigation measures has been proposed |
| | | | | | Construction may result into disturbance of original condition of the site due to excavations and borrow pits. | This issue was consolidated and included under impact of Increased risk of soil erosion and its mitigation measures |
| | | | | | Solid Waste and wastewater generation may increase including associated pollution | These have been included as impacts of the project and measures have been prescribed to address these. |
| | | | | | Cement blocks should be used during construction and not Burnt bricks | This was included as measure to reduce impact of 'Loss of existing vegetation/ flora' in the area |
| | | | | | Construction works may increase noise and vibrations | These have been included as project impact |
| | | | | | Construction works may increase water use and affecting current demand | Bid document include and requirements on water to be used by workers and construction works are that will be satisfied by underground sources through drilling a borehole. |
| | | | | Potential conflicts project implementation may bring | Workers may congest toilets for students. | Suggestion has been made that contractor should construct temporary toilets for the workers on the site |
| | | | | | Tree planting should be subcontracted to a competent contractor than using construction contractor. | Included as a mitigation measure under impact of 'Loss of existing vegetation/ flora' |
| | | | | | To prioritize monitoring of ESMP implementation, the | Consultants indicated to the officers that ESMP monitoring is another task |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | | developer should consider engaging ESMP developers. | different from ESMP development. As such, appointing those to ensure implementation is being followed, rest in hands of the developer. |
| | | | | | Contractor may not be following standards of the project | This could be resolved by frequent monitoring of works by the developer and other relevant stakeholders |
| | | | | Potential positive environmental impacts that the project may bring | Project Will add beauty to the institution. | This was included as a positive impact of the project during operation |
| Traditional Leaders: Chiefs, ADC and VDC Chairpersons | MUST Playground premises | 29th September, 2023 From 1:30pm-2:30 pm | To brief the Community leaders about the project and to solicit their inputs on the different impacts and how the impacts can be managed | Nature/ components of the project and its location | The project is within MUST campus as such it will not have any impact on community land | |
| | | | | Socio-economic benefits the project will bring | Jobs: more people from the community will be employed | All non-skilled workers will be from the community. |
| | | | | | The construction facility will create a market for their produce/ business opportunities may increase. | Measures of increasing space in the already existing market to accommodate new entrants have been proposed |
| | | | | | Employment will reduce poverty and many households employed will be able to construct iron sheets thatched houses. | All non-skilled workers will be from the community. |
| | | | | | Community members will learn new skills from the migrant skilled workers. | Skilled Community workers will also be engaged and work with migrant workers |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | What project developers can do to enhance positive social-economic impacts of the project. | Ensure there is no corruption in the recruitment of workers. | Contractor to be sensitized by developer to refrain from any forms corruption and this to be in the contractor code of conduct |
| | | | | | Local leaders involvement in identification of workers for shared benefits of surrounding communities | Continuous engagement of local leaders by the developer |
| | | | | Potential negative social effects that may arise from implementation of the project. | Many local people may not be employed as expected. | cooperation between contractor and local leaders including on issues of employment |
| | | | | | Child labour issues may emerge | Only those above 18 years should be recruited as workers |
| | | | | | Payment for workers may be too little | Measures for decent payment commensurate with laws have been proposed. |
| | | | | | HIV and AIDS may spread to the communities and workers. | This was considered misinformation as there is two-way relationship that can lead to spread on HIV and AIDS (both workers and community members) |
| | | | | | Marriages may be affected by migrant workers interference | All non-skilled workers will be from the surrounding communities to avoid influx of people |
| | | | | | Sexual interactions may increase leading to early marriages and pregnancies. | Sensitization meetings should be carried out through involvement of local leaders. |
| | | | | | Increased incidences of stealing | Use of community policing services have been proposed |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | Natural resources/ environmental components present at the proposed site and can be affected by this project. | None | |
| | | | | Other potential negative Environmental impacts that may result from project development | Loss of vegetation | Contractor should follow mitigation hierarchy of avoidance and minimization. also replace all trees that have been cut |
| | | | | Potential positive environmental impacts that the project may bring | If more trees can be planted, the project may increase vegetation of the area | Contractor should replace all trees that have been cut |
| Community Members- Surrounding Villages | MUST Playground premises | 29th September, 2023 2:30pm-4:00pm | To brief the community members from surrounding villages about the project and to solicit their inputs on the different impacts and how the impacts can be managed | Nature/ components of the project and its location | No comment | |
| | | | | Socio-economic benefits the project will bring | Jobs: more people from the community will be employed when construction commences and even during operations | All non-skilled workers will be from the surrounding communities |
| | | | | | The construction will create a market for their produce or merchandise. | Measures of increasing space in the already existing market to accommodate new entrants have been proposed |
| | | | | | Number of students will increase and that will translate to economic benefits. | Measures of increasing space in the already existing market to accommodate new entrants have been proposed |
| | | | | What project developers can do to enhance positive | Check corruption practices by contractor | Contractor to be sensitized by developer to refrain from any forms corruption and |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | social-economic impacts of the project. | during workers recruitment | this to be in the contractor code of conduct |
| | | | | Potential negative social effects that may arise from implementation of the project. | Community members may be told to pay bribes or offer some sexual favours to be employed | Contractor to be sensitized by developer to refrain from any forms corruption and this to be in the contractor code of conduct |
| | | | | | Marriages may breakdown as immigrant workers come into the area and start taking other people's wives or husbands. | All non-skilled workers will be from the surrounding communities to avoid influx of migrant workers. In addition sensitisation will be conducted |
| | | | | | Many people may not be employed as expected. | cooperation between contractor and local leaders including on issues of employment |
| | | | | | Underage people (below 18 years old) may be employed, | Contractor to Employ only those that are 18 years and above |
| | | | | | Sexual harassment due to employment issues may emerge. | Sensitization on SEA and strengthening GRM and reporting structures have been proposed. In addition sensitisation will be conducted |
| | | | | | Early marriages and pregnancies may emerge due to influx of migrant workers. | All non-skilled workers will be from the surrounding communities to avoid influx of migrant workers |
| | | | | | Workers not being paid in good time may increase theft cases. | Timely and good pay commensurate with regulations have been proposed |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | Natural resources/ environmental components present at the proposed site and can be affected by this project. | Project will be implemented on already existing campus, so there is not much environmental components to be affected | |
| | | | | Other potential negative Environmental impacts that may result from project development | No answer | |
| | | | | Potential conflicts project implementation may bring | No answer | |
| | | | | Potential positive environmental impacts that the project may bring | After completion, the place will be beautiful | Project to be implemented as designed |
| MUST Staff Representatives | Virtual | 4th October, 2023 from 2:00pm-3:30pm | To brief MUST staff representatives about the project and to solicit their inputs on the different impacts and how the impacts can be managed | Nature/ components of the project and its location | It is located at ideal place which is close to main office building and accessible area to students for learning | |
| | | | | Socio-economic benefits the project will bring at MUST. | The proposed new development will bring employment to local people at both construction and operation. | All non-skilled workers will be from the surrounding communities |
| | | | | | Skills will be transferred to local people as they work together with experts. | Skilled Community workers will also be engaged and work with migrant workers |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | | Project may bring economic opportunities to surrounding communities especially with increased numbers of people | Licensed suppliers of construction materials from the surrounding communities should be prioritized by contractor before going out of the area |
| | | | | | Upon completion of project- economic gains on people to work on the site | All non-skilled workers will be from the surrounding communities |
| | | | | | Increased classroom space | Implement the project as planned |
| | | | | What project developers can do to enhance positive social-economic impacts of the project. | People around MUST should be engaged and consulted fully through proper consultations and sensitization meetings about the project. | Engagement of relevant stakeholders throughout the project cycle was proposed |
| | | | | | Grievance redress committees to be in place with representation from community, campus and workers and should be empowered. | GRM structure for the project has been proposed |
| | | | | Potential negative social effects that may arise from implementation of the project. | STIs and HIV and AIDS may increase to spread. | Sensitization of communities, students, MUST staff and project workers on HIV and AIDS has been proposed |
| | | | | | Sexual harassment and GBV issues may increase. | Raising awareness on dangers and consequences of sexual harassment and perpetrators reported through GRM structures has been proposed |
| | | | | | | Toll free line to be introduced for reporting |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | | | GBV, sexual harassment, corruption etc. has been proposed |
| | | | | Natural resources/ environmental components present at the proposed site and can be affected by this project. | Indigenous trees on the site | -Minimum cutting down of trees and include available vegetation as part of project design and contractor to follow the design<br>- Replant tress for each tree cut. |
| | | | | Other potential negative Environmental impacts that may result from project development | Pollution from dust and noise may emerge and affect the campus | -Routine water works on construction site to reduce dust emissions has been proposed.<br><br>-Very noisy activities to be carried during daytime or holiday has been proposed |
| | | | | | Generation of solid waste may increase. | Contractor engagement in waste management practices e.g. make bins available have been proposed |
| | | | | | There may be competing uses for water at the campus. | Sourcing ground water through borehole drilling for use by workers and in construction works has been proposed |
| | | | | | Trees may be cut on the project site | Proposal on Contractor to follow mitigation hierarchy of avoidance and minimization. also replace all trees that have been cut was made |
| | | | | | The ongoing project is near library, and this may disturb students due to noise. | Use modern equipment with silencers has been proposed |

| Stakeholder | Meeting Place | Date of Meeting | Objective of the meeting | Issues discussed | Inputs/ Comments made | How the issue was/has been addressed |
|---|---|---|---|---|---|---|
| | | | | Potential conflicts project implementation may bring | Water demand may increase and bring water scarcity problems | Proposal on Contractor to have own water was made |
| | | | | Potential positive environmental impacts that the project may bring | Aesthesia of the area will improve at operation stage | Proposal on implementing the project as per the design was made |

### 1.10.3. Field surveys in the project Area

Field survey guided by MUST-SAVE project management team members was also conducted on 28 September 2023. The objective of the site survey was to observe the environmental setting and collect samples of soils, water including measuring ambient noise levels for assessment of the site conditions and predict the potential positive and negative impacts that the project would bring.

## 1.11. Potential users of the ESMP

This ESMP contains useful information on the potential environmental and social impacts; measures for addressing the negative impacts and recommendations on enhancing the positive impacts by contractors and developer. Such information will be useful in planning and implementation of the proposed project activities. In this regard, the report will be useful to the following stakeholders: World Bank (SAVE project financing body), SAVE project management team at national level and MUST, project consultants, project manager, project architects, landscape architects, project engineers, project contractors, MEPA, Thyolo DESC, local traditional authorities and community members, the surrounding communities including all students and staff at MUST, workers at the project site, relevant government agencies e.g., MoE and MoL, interested NGOs and other interested parties.

## 1.12. Study constraints and limitations.

The main constraint(s) and/or limitation(s) for the studies to develop this ESMP was that despite our best efforts to develop a comprehensive survey, there remained some gaps in finding localised data to support assessment of the baseline environment and social settings of the proposed project site. The study mostly relied on the district wide data, sourced from Thyolo district socio-economic profile to establish the environment and socio-economic settings of the proposed project site. This could have potentially impacted the reliability of the assessment of the actual baseline conditions of the proposed site.

## 1.13. Organisation of this ESMP

This ESMP was prepared based on the World Bank Environmental and Social Framework (ESF) and national laws and regulations, specifically the Environment Management Act (2017) and The EIA guidelines (1997). The plan proposes mitigation measures that if implemented, may help avoid or minimize the adverse impacts during the construction and operation phases of the proposed project. Additionally, responsible parties for the implementation of the mitigation measures, the timing of implementation and monitoring requirements have also been specified in this ESMP.

This ESMP has been organised in such a way that chapter 1 is the introduction, chapter 2 is description of the project and chapter 3 describes the policies, legal and institutional frameworks applicable to the proposed project. Chapter 4 presents the Environmental and social settings of the proposed project site, chapter 5 presents the Public and stakeholder consultations followed by chapter 6 that presents the environmental and social impact identification and analysis. Chapter 7 presents Environmental and Social Management and Monitoring Plans (ESMP) and (ESMMP) and Chapter 8 presents Capacity Development training and reporting. Grievance redress mechanisms (GRM) issues are presented in chapter 9, while Chapter 10 presents conclusions and recommendations for this ESMP study.

## Chapter 2 : DESCRIPTION OF THE PROJECT

### 2.1. Introduction

This chapter documents the detailed scope of the proposed lecture theatres building construction project at MUST, in Thyolo district. The chapter describes the nature of the project components, outlines the project activities including main inputs and outputs of the project activities, final products, by-products, sources of raw materials at different phases of the project, land acquisition and ownership issues etc. In addition, the chapter describes energy, water supply, sanitation and waste management issues of the project including estimating the quantity of wastes (both solid and liquid) that will be generated, circularity to waste management and preliminary environmental planning measures considered in reducing waste to a minimum by reusing and recycling of waste and facilities for appropriate waste disposal that cannot be recycled or reused.

### 2.2. Scope of the Project/ Project activities

The construction of the proposed lecture theatres building at MUST will cover a total floor area of 1650m$^2$ within the campus's plot area of 215,000m$^2$ which currently has total building area of 46,000m$^2$. The infrastructure and/or components for this project are listed in Table 2-1 and shown in Figure 2-1.

**Table 2-1**: Infrastructure components for the proposed lecture theatres building at MUST

| No. | Development Component | No. of Units |
|---|---|---|
| 1 | Single storey 250 capacity Lecture theatre | 1 |
| 2 | Single storey 128 capacity Lecture theatre | 2 |
| 3 | Staff Offices | 8 |
| 4 | Boardrooms | 2 |
| 5 | Meeting rooms | 2 |
| 6 | Tuck shop | 1 |
| 7 | Storerooms | 4 |
| 8 | Reception/ Waiting area | 1 |
| 9 | Female toilets including staff | 9 |
| 10 | Male toilets + Urinals including staff | 5 + 6 urinals |
| 11 | Kitchenette | 1 |
| 12 | Parking space | 22 car slots |

## 2.3. Project description

Description of the project activities follows the stages/phases that are followed in the construction projects. In this case, the project activities have been grouped into four phases. Phase one involves the preliminary site project activities or project planning stage where assessments and designs are undertaken. Phase two will involve the actual construction of the lecture theatres building and its amenities. Phase three is the demobilisation stage upon completion of construction activities and finally phase four is the operations and maintenance phase.

### 2.3.1. Planning/ Pre-construction Phase

Preliminary project activities commenced in July, 2023, and this stage mainly involved developing the designs of the proposed lecture theatres building as well as preparing Environmental and Social management plans for the project. Upon acceptance of the prepared designs and ESMPs by relevant Authorities, this phase will also have the project acquiring all the necessary licences and approvals required for construction projects of such magnitude. The planned activities have mostly been recruitment of consultants for the tasks outlined.

### 2.3.2. Construction Phase

#### a) Description of main Construction Works

1. *Construction of three lecture theatres*

During construction phase, the project proposes to construct three single storey lecture theatres with one being 250-seater and two being 128-seater capacities each, designed to be within one building called "lecture theatres building". Main construction materials will be cement blocks, steel bars and wire, cement mortar, steel windows and door frames, IBR sheets etc. Implementation period shall be immediately after the approval of ESMP (from April,2024).

2. *The Construction of offices*

The proposed Lecture theatre building is also designed to contain offices for staff. The project proposes to construct eight (8) offices within the building. Similarly, the main construction materials will be cementing blocks, steel bars and wire, cement mortar, steel windows and door frames, iron sheets, planks/ steel for roof trusses etc.

3. *Construction of boardrooms*

Two (2) boardrooms will also be constructed as part of the project at MUST and will as well be constructed within the Lecture theatres building as facilities.

4. *Construction of meeting rooms*

The proposed Lecture theatres building is also designed to have two (2) meeting rooms constructed inside the building. This is meant to create space for meetings by staff and students as well as other stakeholders.

5. *Construction of storerooms*

Four (4) storerooms have also been proposed for construction as part of the Lecture theatres building amenities, proposed at MUST.

6. *Construction of Tuck shop*

A tuck shop will be constructed as part of the amenities of the proposed lecture theatres building at MUST.

7. *Construction of Toilets*

Toilets for both male and females will be constructed to cater for staff and students patronising the lecture theatres building and to facilitate hygiene. Nine (9) toilets of females (including 2 that are disability friendly), five (5) male toilets (including 1 accessible by persons with disabilities) as well as six (6) urinals . Thus, consideration has also been made on people with physical disabilities by constructing purposely built disability friendly toilet unit for each gender.

8. *Construction of Kitchenette*

A Kitchenette will also be constructed as part of the amenities of the lecture theatres building at MUST.

9. *Construction of parking space*

Parking space will also be constructed as part of the amenities of the lecture theatres building at MUST. The carpark will have 22 car slots, aimed to provide convenient parking of vehicles for people patronising the proposed lecture theatres building.

The Floor plan for the proposed Lecture theatre building with irrespective amenities which will be constructed at MUST, Thyolo District is shown in Figure 2-3. On the other hand, other inputs and outputs for

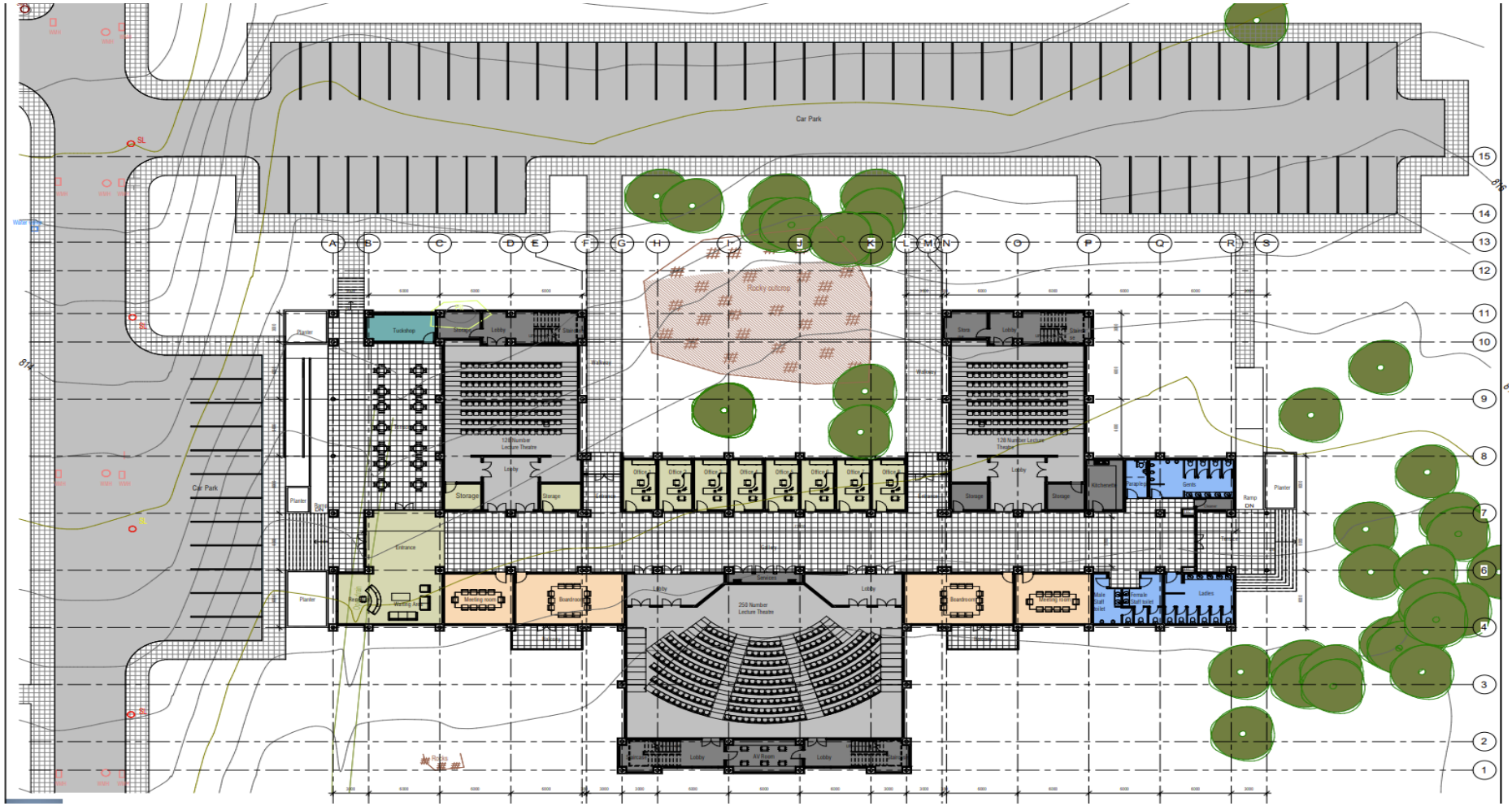


**Figure 2-1: Floor plan for the proposed Lecture theatre building with irrespective amenities which will be constructed at MUST**

**Legend**

Lecture Theatres

Offices/ Waiting area

Rock area

Tree areas

Toilets

Tuckshop

Board rooms

Lobby/ storage rooms

Parking spaces.

0 metres 500mm

Scale 1:10000

### b) Consideration for constructing different structures

Different considerations will be given when constructing the lecture theatres building. The considerations will aim to provide stability and durability of the building to make it climate resilient.

Some of the considerations are discussed in the sections that follow:

1. *Foundation conditions*

The lecture theatres building will require foundation on a good and uniform soil to avoid deferential settlement. A full geotechnical investigation shall be conducted to ascertain the exact foundation conditions of the structures for the building. A soil raft of min 300 mm thick G 5 material will be used as pioneer layer.

2. *Durability of the concrete*

Durability of any concrete is dependent on the cement being used, aggregates, admixtures, concrete mix design and curing. Locally produced Portland cement shall be used to construct the different infrastructures. Rapid hardening cements will be avoided due to greater evolution of heat, which can lead to increased shrinkage cracking.

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

3. *Drainage system*

Construction of the drainage system will consider occurrence and form of water that will be drained, slope shape, slope gradient, slope length, stream drainage characteristics, depth to bedrock, bedrock characteristics and soil texture and permeability. A drainage system taking into consideration all the factors mentioned above will be constructed to connect with the already existing one on the campus. This will aim to maintain the grey water from the building overflowing to roads and lawns, and/or divert storm water from its already existing the natural watercourses. Also, closed drainage channels system will be ensured from the building so as to maintain safety within the university campus and to prevent students and staff from injury by falling into drains.

### c) Construction workers

It is anticipated that about 150 people will be employed during construction phase. The

project will therefore employ all unskilled workers from the surrounding community and among all the employees, a minimum of 40% will be women. For the semiskilled and skilled workers, the Contractor will as well employ from the communities and only if those skills are not locally available, immigrant workers will be considered. This is a way of making sure that the project benefits the community members in the project area.

### d) Construction equipment

Different machinery will be used to construct the project facilities as provided in Table 2.2.

**Table 2-2: Different Machinery likely to be used in the project**

| Construction vehicles and equipment | Functions that the materials will perform |
|---|---|
| Bull Dozers for clearing the site | Removal of top soil and vegetation, and pushing out stumps and rocks |
| Graders | Grading and levelling land for buildings and access road formation |
| Excavator | Excavation |
| Compactor | Compacting the soils |
| Tippers/lorries | Transporting construction materials and workers |
| Light and heavy rollers | Compaction |
| Front end loader | Loading materials onto tippers and lorries |
| Wheel burrows, shovels, picks | Different construction activities |
| Earth mover | Removing earth materials |
| Concrete mixers | Mixing concrete |

### e) Construction materials

Different raw materials will be required during construction phase. Materials such as sand, gravel and quarry stone will be sourced from the licenced/approved surrounding area suppliers. Quarry stone will as well be obtained from surrounding licenced/ approved suppliers only if not locally available, will be sourced from the licensed suppliers outside the area.

Water for construction activities including dust suppression on the other hand, will be obtained from underground sources through borehole drilling and only, if need be, will be sourced from nearby Chimvu (annual river) or Lichenza (perennial river) located at about 1Km and 2KM from the proposed site respectively. This is aimed at not affecting

demand for water and/or exerting more pressure on the existing water supply sources at the University. The Contractor will give serious consideration when abstracting water for construction purposes to the requirements for local potable water supplies and take into consideration the riparian rights of the people downstream. The Contractor will not use piped water for construction activities and dust suppression.
Use of concrete blocks for construction of different infrastructure will be more environmentally friendly than use of burnt bricks, which contribute to deforestation and green gashouse emission. The concrete blocks are stronger and long lasting, do not lead to deforestation as burnt bricks do. Also the use of steel bars/metal (as opposed to wood planks) in scaffolding and construction of roof structures for the planned building. In addition, steel metal will be used as door and window frames for the offices and rooms. The choice of steel will reduce pressure on use of wood.

Other materials such as cement, paints, timber, roofing materials, windows, doors and other joinery, tilt and roller doors, wallboard and plasterboard, light fittings, fuel and oil, electricity, water, ceramic tiles, polythene, steel, steel pipes, PVC pipes, adhesives, copper wires, gas (acetlylene and oxygen), cardboard will also be sourced for the project.

Construction materials will be sourced depending on the construction stage. Construction will be done by a contractor and a design and supervision firm will be hired to supervise the construction phase of the project to ensure that the contractor complies with the design standards. The developer together with the Ministry of Transport and Public Works Officials (Buildings Department) will work hand in hand in supervising works and monitoring progress.

### f) Construction activities

The construction activities will span from April, 2024 to December 2026. Construction activities will be done by a contractor and the University will hire an architect to supervise the construction works to ensure that the contractor complies with the design standards. Activities under construction will involve land clearing; landscaping; grading; excavation; compacting; trenching; backfilling with compaction consolidation; levelling and earth marking; and transportation of construction materials, excavation of foundation footing, laying down a brick base; pouring a concrete slab, installation of framework, installation of plumbing workers, putting a wall frame, roofing and finishing.

Construction will generally be of plain concrete strip footing, load bearing cement blocks walls in foundations, load bearing cement block walls, reinforced concrete ground slab, steel frame structure, steel roof structure, steel door frames and windows, timber doors, ceramic tiles to some floors and glazed tiles to walls in toilets, lime putty plaster and paint to the rest of the walls internally, fair face pointed externally, painted ceiling, joinery fittings, sanitary, plumbing and electrical services.

Construction of external works infrastructure will consist of paved access and parking areas, lined storm water drains, foul and waste drainage system and landscaping. Sidewalks will be provided for pedestrians and signage will appropriately be in place.

Storm water drains will assist to control water movement with the project site into natural drains.

Once construction activities are finalized and before the facility is handed over to the MUST, Thyolo District Council and Ministry of Education, NCIC will test the integrity of the structure in order to ascertain its safety for use for the intended purpose.

### 2.3.3. Project demobilization

The main activities to be undertaken during demobilization phase shall include demolition of temporary structures such as storage rooms, resting area and pit latrines etc. . The phase will also involve re-vegetating areas that were cleared by the contractor at the project site. This will take place once construction of all the planned infrastructure is completed. Rubble from construction activities and demolished temporary structures will be used to level off excavated sites and act as fillers. Any leftover solid materials likely to be composed of bricks and crumbles of cement will be disposed by levelling off earth roads nearby the site.

### 2.3.4. Operation and maintenance

By the end of construction phase, the lecture theatres building and its amenities will have been constructed and ready for commissioning and/or operations.

The inputs and outputs at this stage will both be general for the entire infrastructure in operation/service. Employment or labour, adequate classroom space, additional office space etc. will be the outputs; while other inputs/outputs will be more specific or unique to the type of infrastructure in operation / service being provided.

## 2.4. Main Inputs and Outputs at different phases of the project

### 2.4.1. Construction phase inputs and outputs

The knowledge of inputs and materials and how they are used in the project cycle may help to understand environmental and social impacts emanating from the project activities. The main inputs and outputs during construction phase refer to those that will be associated with the construction of the infrastructure on the proposed site. For instance, before all the land-based construction activities begin, there shall be land clearing, excavations, and levelling activities using manual labour and/or machines such as bull dozers, excavators and graders. In this case, the inputs will be labour or machinery and the land resources at which the activities are taking place while the outputs will be economic gains by the locals that will be employed as well as loss of vegetative cover etc. The generalised inputs and outputs of the construction related activities of this project are summarised in Table 2-3.

**Table 2-3**: Inputs and outputs for main construction activities at MUST

| | **Construction related activity** | **Inputs** | | **Outputs** |
|---|---|---|---|---|
| | | | **Sources** | |
| 1 | Land clearing, excavations, levelling activities and construction of access roads | -Labour (human)<br>-Machinery (Bull dozers, excavators, graders, compactors; (mainly used for land clearing, excavations and compaction of soils).<br>- Financial resources<br>-land resources at which the activities are taking place | -Community and Migrant workers<br>-Contractor<br>-Project financing<br>-Implementing institution | -Employment of locals and migrant workers<br>-Loss of vegetative cover and potential erosion<br>-Rubble<br>-Noise<br>-Dust emissions |
| 2 | Construction of walls and roofs of the structures | -Water<br>-Cement<br>-Cement blocks/ bricks, boulders,<br>-Gravel and Quarry stone and sand<br>- Steel bars and Iron sheets<br>-Glass<br>-Labour<br>-Construction vehicles for transportation of construction materials | -Ground/ rivers<br>-Contractor through registered Merchants<br>-Community and Migrant workers<br>-Contractor | -Employment of locals and migrant workers<br>-Noise<br>-Construction wastes<br>-Dust emissions<br>-Solid and liquid waste generation and disposal problems<br>-Increased Business opportunities by locals |

| | | | | |
|---|---|---|---|---|
| 3 | Construction and installation of pipelines and other finishing's to the buildings | -Galvanized and PVC pipes and fittings<br>-Paints<br>-Gravel and Quarry stone and sand<br>-Cement, bricks, boulders,<br>-Construction vehicles for transportation of construction materials | -Contractor through registered Merchants<br>-Contractor | -Employment of locals and migrant workers<br>-Construction wastes<br>-Dust emissions |

### 2.4.2. Operational phase inputs and outputs

The inputs and outputs at this stage will both be general for the use of the infrastructure by students, staff and other stakeholders. The summary of main inputs and outputs at operation phase are shown in Table 2-4

**Table 2-4:** Inputs and outputs for operation phase of MUST lecture theatre building

| **No** | **Structure(s) being Proposed** | **Operational Inputs** | | **Operational Outputs** |
|---|---|---|---|---|
| | | | **Sources** | |
| 1 | Lecture theatres and Staff Office | -Labour<br>-Water<br>-Electricity | -Community and Migrant workers<br>-Southern Region Water Board<br>-ESCOM | -Increased Employment<br>-Increased demand for water<br>-Increased water and sanitation problems<br>-Increased generation of solid and liquid wastes |
| 2 | Meeting rooms, Board rooms, storerooms<br>Tuck shop<br>Toilets | -Labour<br>-Water | -Community and Migrant workers | - Increased generation of solid and liquid wastes<br>-Increased water and sanitation problems<br>-Increased traffic in the area |

| | | | | |
|---|---|---|---|---|
| | Parking space | -Electricity | -Southern Region Water Board<br>-ESCOM | |

## 2.5. Environmental planning and design

Environmental planning and design will look at environmental issues that will be considered during detailed design stage of the project. The inclusion of these issues in the detailed designs will ensure that identified negative impacts are mitigated and positive ones are enhanced. There is a need for environmental planning and design on issues relating to energy, water supply, sanitation and waste management at the project site.

### 2.5.1. Energy issues planning and design

The construction and operation of the lecture theatres building at MUST will have an implication on energy supply. During construction, increased energy demand may arise due to activities such as assemblage of truces and steel bars which often times require welding activities that uses electricity. At operation phase, the newly constructed building will also be connected to the electricity supplied at the university and this may increase demand. Measures such as installation of alternative energy sources such as solar energy and use of backup generators to support the construction activities that may require electricity, and support operations after construction is completed, may be amongst the planned management measures to address the increased energy demand problem.

### 2.5.2. Water supply planning and design

The construction and operation of the lecture theatres building at MUST will have an implication on water supply. Water supply issues will likely emerge during the construction phase of the project as the institution is currently serviced by a water reticulation system operated by Southern Region Water Board (SRWB). The water supply system not only service the institution but also the surrounding communities. This being the case, if the construction project resort to use water from SRWB, demand for water may increase and hence affecting the overall water supply. Additionally, it should be noted that the institution has had a history of water supply problems in the past 5 years prior to SRWB extending their water reticulation facility. This justifies the need to not increasing pressure on the current and existing facility through water demand for construction activity, to avoid water supply problems recurrence. This will be addressed by utilising underground water through drilling a borehole and pumping the water for construction and other water works to be undertaken. Only if need be, additional water can be sourced from the nearby Chimvu (annual river) and Lichenza (perennial river), and in all circumstances, water abstraction licence has to be acquired by the contractor from the Water Resources Authority before commencement of construction activities.

### 2.5.3. Sanitation and waste management planning and design

Sanitation and waste management issues may also arise at both construction and operation phases of the project. The project will be implemented within university campus where the population of staff and students is estimated at 4,500. The implementation of the lecture theatres building construction project will bring additional people in the project site. This addition will mean the need for additional toilets but also potential increases in generation of waste. To address the pressure on existing toilets during construction, the developer will need to construct separate toilets for the construction workers to improve the sanitation of the project site.

With regards to waste, the nature and estimated quantity of wastes to be generated due to the project is also considered. Thus, this ESMP development process considers the types of wastes that are likely to be generated due to construction and operation of lecture theatres building project. For solid waste, this include food waste, construction wastes, demolition waste, paper and plastic etc. on liquid waste category, sewage and wastewater will be produced. Basing on the diversity of wastes that are likely to be produced due to the proposed project, generic mitigation measures have been suggested for this impact.

Regarding management measures for solid wastes, the considerable and variable solid wastes will be produced from the site during construction/operation and maintenance of the lecture theatres building, all surroundings of the construction site and/or lecture theatres building will have refuse bins placed. These will be used for collection of refuse within the premises and disposal at designated sites. Moreover, recognising the circularity to waste management, the project management team will advocate for means of reducing waste to a minimum by reusing and recycling and providing and/or developing facilities for appropriate waste disposal, especially that which cannot be recycled or reused.

There is however the need to identify the nature and know estimated quantities of the anticipated waste impact especially at operation stages for proper solid and liquid waste planning and management. The nature and estimated quantity of wastes (both solid and liquid) that will be generated, at the institution was estimated.

#### a) Estimation of quantities of wastewater at operation

During operations, the various uses of water which will result in production of wastewater on a regular basis during operation includes;

i. Toilets
ii. Other sanitary appliances e.g. hand washing basins etc
iii. Kitchenette

According to Henze et al., (2002), using person equivalents (p.e.), which is a quantification of environmental impact caused by daily activities of an average person, one can estimate the amounts of wastewater produced and extent of pollution can be determined. The following are simplified personal equivalent formulae as derived by Henze et al., (2002).

**Table 2-5:** Simplified p.e. formula (adapted from Henze et al., 2002)

| **Type of wastewater** | **Person equivalent (p.e)** |
|---|---|
| Residential buildings | 1 p.e. per person |
| Temporary campings/ temporary stays in a building | 1 p.e. every 2 people |
| Conference rooms | 1 p.e. every 10 sits |
| Offices, shops | 1 p.e. every 3 workers |

For practical calculations, we assume the maximum student numbers in the lecture theatres building of 500, 9 staff members in the offices and tuck shop, and 60 people in the boardrooms and meeting rooms on a day and time where the building is operating to full capacity.

Regarding the amount of wastewater produced person per day, Ecoseptic worldwide reports that the amount of wastewater/ person/ day in Developing countries is in the range of 57-76liters. Assuming an average for these figures (66.5 litres) is wastewater generated per person per day in the Lecture theatres building at MUST, the estimated wastewater is calculated (using Henze et al, p.e formula) as follows;

- 500 students in the building which is considered temporary stay= 250 person equivalents
- 60 people in the conference rooms/ board rooms =6-person equivalents.
- 9 staff members in office/tuckshop=3 person equivalents.
- Total person equivalents=259
- Wastewater generated per day= 259persons equivalent per day*66.5litres= **17,224 litres per day**
- It should be noted that this estimated amount is for full capacity and according to the assumed number of people in the building.

### b) Estimation of quantities of solid waste at operation

According to National Waste management strategy (2019-2023) for Malawi, an individual is responsible for generating 0.5kg/capita/day. With the same estimated total person equivalents of 259 people as those likely to be available in the proposed lecture theatres building per day,

- The amount of solid waste likely to be generated per day is estimated at 259*0.5=**129.5kgs per day**

# Chapter 3 : POLICIES, LEGAL AND INSTITUTIONAL FRAMEWORK

This Chapter provides an overview of the Malawi national policies, legislations and regulation relevant for the preparation of the ESMP and implementation of proposed project activities. In addition, the Chapter outlines World Bank Environmental and Social Standards that are related to this project, including the relevant actions that the project should consider as per the provisions.

## 3.1. Policies and Legal Framework

The contractor will ensure to follow the provisions of the policies and laws governing the implementation of this project in Malawi. The contractor will adhere to these regulatory instruments in form of national policies and legislations and the World Bank's Environmental and Social Standards.

The Table 3-1 summarizes the relevance of the policies and legislations to the proposed project and how the project will ensure compliance.

Table 3-1: Summary of relevant national and World Bank policies and standards

| Regulatory Frameworks | Relevance to the Project |
|---|---|
| National Policies | |
| Environmental Policies | |
| The National Environmental Policy, 2004 | Promotes adherence to sound management of the environment and natural resources through promotion of sustainable social economic development against sound management of the environment and natural resources such as water, soil, flora and fauna. The policy seeks to meet the following goals: 1. Secure for all persons resident in Malawi now and in the future, an environment suitable for their health and well-being; 2. Promote efficient utilization and management of the country's natural resources and 3. Encourage, where appropriate, long-term self-sufficiency in food, fuel wood and other energy requirements; 4. Facilitate the restoration, maintenance and enhancement of the ecosystems and ecological processes essential for the functioning of the biosphere and prudent use of renewable resources.<br><br>This has implications on the proposed lecture theatres building construction project at MUST. Thus, the project may be associated with potential negative environmental impacts which will need proper management and/or mitigation according to the policy. As a requirement under the environmental policy, the project will require to prescribe adequate measures for protection of the environmental and its social components from risks and impacts. It is therefore the essence of preparing this ESMP as a tool for use and |

| Regulatory Frameworks | Relevance to the Project |
|---|---|
| | consideration during project implementation in order to mitigate negative impacts. Furthermore, the policy highlights on the need for involvement of other sectors and communities to achieve sustainable environmental planning and management. In line with this, stakeholder engagement at all levels should be prioritized as part of the project implementation process, according to this policy. |
| National Water Policy, 2004 | The policy as per Section 1.3, provides an enabling framework for integrated water resources management in Malawi. The Policy covers areas of water resource management and development, water quality and pollution control, and water utilization. The overall goal of the policy is to provide an enabling framework for sustainable management and utilization of water resources, in order to provide water of acceptable quality and in sufficient quantities; and ensure availability of efficient and effective water and sanitation services that satisfy the basic requirements of every Malawian; and for the enhancement of the country's natural ecosystems. In line with this policy, the project developers and implementers must:<br>• Advocate for effective and efficient utilization and management of water resources;<br>• Participate or support efforts towards water resources conservation, harvesting and protection;<br>• Ensure and promote proper management and disposal of wastes;<br>• Properly disposing materials that can pollute water resources;<br>• Promote public awareness on guidelines and standards for water quality, public health and hygiene; and pollution control.<br>Water is one of the highest required materials in this project and therefore prior arrangements before commencement of construction should be in place and made by developer and contractor to support efficient utilization and management of water resources. This includes obtaining water abstraction permit before any water abstraction activities. Also the project can consider putting in place water conservation, harvesting and protection measures while also adhering to measures that promote proper management and disposal of wastes to avoid water pollution, as specified by this policy. |
| National Forestry Policy (2016) | Promotes sustainable contribution of national forests, woodlands and trees towards improvement of quality of life in |

| Regulatory Frameworks | Relevance to the Project |
|---|---|
| | the country by conserving the resources for nation and peoples benefit. The policy prevents among others unnecessary cutting down of trees as these have cultural, biodiversity or water catchment values.<br><br>The construction activities may trigger the policy if limited trees disturbance is not implemented as per the project design. The developer and the contractor should therefore ensure that the project should be implemented as per the design (with limited trees disturbance) and that for every tree cut, replacement should be initiated. |
| National Construction Industry Policy, 2015 | Section 3.7 part (a) of the policy recognizes that the Construction Industry greatly contributes to deforestation, noise, dust and chemical pollution, soil erosion and physical disruption. The policy further recognises that while the Environmental Impact Assessment is mandatory for certain projects, however, there are no mechanisms for effective reinforcement. Construction of the proposed lecture theatre will trigger the Construction Industry Policy if the project developer may not ensure that the contractor protects the environment in line with this ESMP. Thus, the developer should among others ensure that acceptable construction material such as cement blocks instead of burnt bricks are used and implement the measures proposed in the ESMP on mitigating the noise pollution, dust emissions, chemical pollution, soil erosion and physical disruption. |
| National Sanitation Policy, 2006 | Provides a vehicle to transform the hygiene and sanitation situation in Malawi. Section 1.2 of the policy provides both guidelines and an action plan where all the people of Malawi by year 2020 will have access to improved sanitation, safe hygienic behaviour will be the norm and recycling of solid and liquid waste will be widely practiced leading to healthier living conditions, a better environment, and a new way for sustainable wealth creation.<br><br>One of the policy objectives as highlighted in section 3.1.1 is the improvement of hygiene, sanitation, and recycling of waste in the country. Improved sanitation and safe hygiene is a must at the proposed project, and this can be achieved by putting in place measures that ensures adequate and clean toilets and water supply. Moreover, the proposed project will ensure that liquid and solid waste management encourages the reduction, recycling and reuse of waste before final disposal hence complying with the provisions of the policy. In addition to that waste receptacles will be placed at strategic area and will be emptied at a designated waste disposal site once they are full. |

| Regulatory Frameworks | Relevance to the Project |
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| Malawi National Youth Policy, 2013 | Empowers youth and encourage their participation in development processes, as well as to reach their potential. Section 2.6.1 recognizes that Youth have right to quality education. Moreover, the policy recognizes that youth are a rich array of skills, experiences capacities, lifestyles and indeed problems. In this regard, youth represent a vast human resource potential which, if properly prepared and tapped, can contribute positively to their personal and national development while if neglected, will be a missed opportunity. Recognises high illiteracy rate, unemployment, under-employment, high population growth rate, exploitation by adults, poverty and HIV and AIDS pandemic as some issues affecting the youth.<br><br>The project seeks to contribute to reduced high illiteracy rate, unemployment, and under-employment among the youth through expanding access to education in market-relevant skills and qualifications which in turn may increase the chances of the youth contributing to national development. Completion of the project as planned and in time should therefore be prioritised, to realise such youth's opportunity. |
| Girls Education Strategy, 2014 | Provides strategic interventions that address barriers to equitable girls' access to education. The strategy ensures that all girls in Malawi access, participate in, complete and excel at all levels of education that empowers them to effectively contribute to the country's sustainable social, economic development. This construction project under SAVE aim to increase access to tertiary education, to support interventions aimed to expand tertiary education opportunities especially for the female and poor disadvantaged students. The project should therefore be implemented with all its objectives and attributes met as per design, so as to contribute to addressing barriers to equitable girls' access to education as sought by this strategy |
| The National Gender Policy, 2015 | The policy strengthens gender mainstreaming and women empowerment at all levels in order to facilitate attainment of gender equality and equity in Malawi. As stipulated in section 1.3, the National Gender policy provides guidelines for mainstreaming gender in various sectors of the economy to reduce gender inequalities and enhance participation of women, men and youth for sustainable and equitable development, as well as poverty eradication in the country. According to Section 3.6 of the policy, persistent gender inequalities and under-representation of women in decision making positions at all levels, necessitated development and implementation of the gender policy in order to address such gender imbalances and other related issues. Section 3.7 of the policy recognizes that Gender Based Violence (GBV), especially |

| Regulatory Frameworks | Relevance to the Project |
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| | violence against women, girls and the vulnerable groups, is a severe impediment to social well-being and poverty reduction.<br><br>The proposed project will integrate consideration of the needs of women, men, boys and girls in all project activities. The proposed project seeks to employ over 150 personnel in its construction and operation activities. In response to gender policy, the contractor should ensure recruitment of both males and females so as to ensure equal opportunities for both genders. Deliberate effort will be made to ensure that among the employees, at least 40% should be women |
| Malawi National HIV and AIDS Policy ,2012 | Guides implementation of HIV and AIDS related issues and response, including guiding national response to prevent the spread of HIV infection; and mitigate the impact of HIV and AIDS on the socioeconomic status of the individuals, families, communities and the nation. Policy recognizes that HIV and AIDS has social, cultural, economic, development, political and biomedical dimensions.<br><br>The Policy also facilitates:<br><br>• Improvement in the provision and delivery of the prevention, treatment, care and support services for persons living with HIV<br>• Creation of an enabling environment that would reduce the individual and societal vulnerability to HIV and AIDS; and<br>• Strengthening of the multi-sectoral and multidisciplinary institutional framework for the coordination and implementation of the HIV and AIDS programmes in the country<br>This project may trigger the National HIV and AIDS Policy due to the presence of new people (as workers) at the project site during implementation. Also, the increased number of students and workers during operation and their associated physical interaction may trigger social interactions among them and hence contributing to the spread of HIV and AIDS. It is therefore important to put HIV and AIDS preventive measures at workplace and create an enabling environment that would reduce the individual and societal vulnerability to HIV and AIDS at MUST and its surrounding areas. |
| National Legislation | |
| Environmental Legislation | |

| Regulatory Frameworks | Relevance to the Project |
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| Constitution of the Republic of Malawi,1995 | The Constitution of the Republic of Malawi (1995) in section 13, establishes a framework for sustainable environmental and social management, promoting welfare and development through responsible policies and legislation. In section 13(d) it also integrates environmental and social considerations into development programs, requiring the government, partners, and private sector to ensure environmentally and socially responsible projects. Therefore, this ESMP has been developed in compliance to this constitution. In addition, project management team will ensure that this ESMP is implemented by the contractor during constructor by including relevant environmental and social issues in the biding document. Furthermore, during operation phase MUST management will ensure appropriate budget on implementation of this ESMP and will be included in the annual university budget. |
| The Environment Management Act, 2017 | Part II of the Act defines environmental obligations and the right to a clean and healthy environment for all persons. Part II indicates that (1) Every person shall take all necessary and appropriate measures to protect and manage the environment, to conserve natural resources and to promote sustainable utilization of natural resources. (2) Every person has the right to a clean and healthy environment and has the duty to safeguard and enhance the environment. Such that it provides entitlement to anyone to bring an action against any person whose activities or omissions have are likely to have significant impact on the environment.<br><br>Part III establishes the Malawi Environment Protection Authority and defines its functions and powers that It shall be the principal agency for the protection and management of the environment and sustainable utilization of natural resources through coordinating, monitoring, supervising, and consulting with all relevant stakeholders on all activities relating to the utilization and management of the environment and natural resources.<br><br>Additionally, Part V of the Act, sets out the need for carrying out ESIAs on certain projects as well as Audits and Monitoring of some projects as part of the environmental obligations.<br><br>Among the precepts of the Act, those very relevant to this project includes; “Reviewing and approving ESMP prepared. MUST under SAVE project prepared an ESMP as part of the ESIA process and in conformity with the Act. |

| Regulatory Frameworks | Relevance to the Project |
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| Water Resources Act, 2013 | The current principal statute which regulates water resource use, protection and conservation in Malawi. This Act seeks to make provision for the management, conservation, use and control of water resources for the acquisition and regulation of rights to use water and matters connected to these. The administration of these responsibilities' rests with the National Water Resources Authority in the Ministry of Water and Sanitation. The Water Resources Act is the legal framework for the establishment of powers and duties of the National Water Resources Authority, a policy making body and advisor to the government on all matters regarding water resource protection, abstraction and conservation, its role includes overseeing the processing of applications for water rights and monitoring water abstraction.<br><br>Section 16 (1) outlines measures and restrictions to access to water, to abstractions and interferences in water flows, to pollution of water in public water resources by people or companies. It is a requirement by people or companies who want to use water other than domestic uses by local people to apply for permission from the National Water Resources Authority before abstraction.<br><br>Apart from water abstraction and use issues, the Act and the Authority also takes care of issues of control and protection of ground and surface water, protected areas and prevention and control of water pollution. These issues are of relevance to the proposed project implementation.<br><br>Management for Lecture theatres building construction project will have to apply for water abstraction rights or for permission from the National Water Resources Authority before abstraction for use on the site.<br><br>ESMP was to be undertaken to ensure proper and environmentally friendly planning, implementation and operations measures are fully integrated within the project; for purposes of prevention and controlling water pollution. |
| Environment Management (Waste Management & Sanitation) Regulations, 2008 | The regulations apply to the management of general and municipal waste in Malawi. Part III of the regulations has provisions on management of general or municipal solid waste with Section 7(1) regulating that any person who generates solid waste shall sort out the waste by separating hazardous waste from the general or municipal solid waste. Section 8(1) regulates that every generator of waste shall be responsible for the safe and sanitary storage of all general or municipal solid |

| Regulatory Frameworks | Relevance to the Project |
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| | waste accumulated on his or her property so as not to promote the propagation, harborage or attraction of vectors or the creation of nuisances. Part V provides on management of municipal liquid waste that no person shall discharge effluent into the environment unless it meets prescribed environment standards.<br><br>These Regulations have a major implication on this project on construction of lecture theatres at MUST that the construction activities, the introduction of workers to the institution and the resultant increased number of students, may entail increased generation of wastes. The project and the institution should therefore put in place appropriate waste collection measures, suitable waste storage and treatment facilities. The Institutions should also ensure wastewater is managed appropriately. Management and Contractor should therefore adhere to this ESMP for it provides mitigation measures that can ensure appropriate management of solid and liquid waste |
| Social legislation | |
| The Education Act of 2013 | The Education act of 2013 Part II, Section 5 talks about promotion of education and goals of education in Malawi. Among the goals is to promote equality of education opportunities for all Malawians by identifying and removing barriers to access education. Furthermore, the Act advocates for development of students' knowledge, understanding and skills needed for Malawians to compete successfully in the modern and ever changing world. It also recognizes and summarizes that knowledge, skills and competences young people acquire, may lead to productive, fulfilling and successful lives; and this can be obtained through continuing with education. Indicates that all students in Malawi have the right to an education which at least meets minimum standards, and which enables them to achieve the outcomes they need to build on their skills and provide for their families.<br><br>Construction and operation of lecture theatres at MUST will assist in reducing challenges of access to higher education due to classroom space inadequacies, and hence increasing equal access opportunities to tertiary education among qualifying students. |
| Local Government (Amendment) Act, 2017 | Mandates all local authorities to regulate planning and development within their jurisdiction (Part II, section 6(1)). It devolves decision-making authority from central government to local authorities, through the process of decentralization, and |

| Regulatory Frameworks | Relevance to the Project |
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| | provides for participation of communities in development planning, implementation, and monitoring.<br><br>The proposed project started engaging the district council and communities in the ESMP development process and will have to adhere to the requirements of the Act by fully involving Thyolo District Council in monitoring implementation of the ESMP and communities through employment and business activities benefits as well as their participation in the GRM of the project throughout the project cycle. |
| Occupational Safety Health and Welfare Act, 1997 | Regulates the requirements for adequate environmental health and safety measures within workplaces. Under section 6 and 7 of this act, all work places (be it construction sites) require "work place registration certificate" from the Director of Occupational Safety, Health and Welfare in the Ministry of Labor and Vocational Training. General safety facilities stipulated for most workplaces include: adequate ventilation, cleaning materials and cleanliness of workplaces, lighting, washing facilities, change rooms for some workers, sanitary conveniences and first aid kits. Both employers and employees sensitized on basic procedures for proper use and operations of the welfare and safety facilities within workplaces. Non – compliance or negligence on use of work safety facilities is an offence under sections 82 and 83 of the Act.<br><br>This Act applies to this project because it will engage a contractor who will employ people and the act stipulates that it is the duty of every employer to ensure safety, health and welfare of all employees at workplace. The project management and contractor should therefore ensure that the guidelines within this act are followed and working environment is free of health and safety risks and hazards. |
| Gender Equality Act, 2013 | Seeks to promote gender equality, equal integration, influence, empowerment, dignity and opportunities for men and women in all functions of society; to prohibit and provide redress for sex discrimination, harmful practices and sexual harassment; to provide public awareness on promotion of gender equality. Section 14 (1) & (2) indicates that every person has the right to access education and training including vocational guidance at all levels. Section 7 of this Act sets a provision for workplace policy to address issues of sexual harassment. Furthermore, this Act prohibits any form of discrimination and promotes equal opportunities at workplace. It also encourages the formation of grievance redress mechanism where sexual harassment cases are to be reported and through which all perpetrators are disciplined accordingly. |

| Regulatory Frameworks | Relevance to the Project |
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| | Under this Act, any form of discrimination against women in employment shall not be tolerated in the development of this project. Equal opportunities shall be given between men and women in employment of construction workers. Additionally, Grievance Redress Mechanisms (GRM) shall be put in place to deal with and enable reporting of any form of Sexual Harassment and GBV at workplace. |
| Public Health Act, 1948 | The Act provides legal framework on planning and management of a wide range of health-related issues including environmental health, occupational health and solid wastes management. Section 79 parts (a) and (b) provide legal powers for the local authority to enforce the provision of sewage works for large scale development projects. Section 80 stipulates the requirements for preparation of detailed plans for planned sewage works for implementation. Section 82 outlines some activities which can limit the free flow of wastes into sewage works and which must be avoided as much as possible. These activities include disposal of solid wastes in oxidation ponds, disposal of chemical refuse, waste stream, and petroleum spirit or carbon calcium. Section 87 of the Public Health Act stipulates the need for proper drainage works for new buildings. Section 88 stipulates the requirements for separate toilets for both female and male persons in public buildings which would be used by both male and female employees.<br><br>The implication of the Act on the proposed project is that the developer should ensure that there are appropriate and adequate waste disposal facilities, provision of sanitary toilets and proper storm water drains. The toilets will be demarcated according to gender |
| HIV and AIDS (Prevention and Management) Act (2017) | The HIV and AIDS (Prevention and Management) Act makes provision for the prevention and management of HIV and AIDS; provisions for the rights and obligations of persons living with HIV or affected by HIV and AIDS; provisions for the establishment of the National AIDS Commission; and provisions for matters incidental thereto or connected therewith. Part 4, Section 6 (1) states that discrimination on a basis related to HIV and AIDS is prohibited. Part 5, Section 9. (1) states that a person living with HIV has the right to privacy and confidentiality with regard to information concerning their status. Part 8 of this Act gives provisions to employers by stipulating requirements in several sections quoted as follows:<br>a) Section 26 states that an employer shall not require any person to undergo HIV testing as a pre-condition for recruitment;<br>b) Section 27 (1) states that an employer shall not terminate the employment of an employee solely on the |

| Regulatory Frameworks | Relevance to the Project |
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| | ground that the employee is living with HIV or is perceived to be living with HIV;<br>c) Section 28 (1) states that an employee shall not be discriminated against or be subjected to unfair treatment solely on the ground that he is perceived to be or is living with HIV; and<br>d) Section 32 (1) states that the State shall ensure that employers adopt and implement an HIV and AIDS policy at the workplace.<br><br>The implication to the project is that the project will implement interventions to manage HIV and AIDS that respond to the requirements of the Act. The project will need to have an HIV and AIDS workplace policy as a guide to implementing the interventions. |
| Employment Act, 2000 | The Act prohibits forced labour and child labour as well as discrimination against any employee or prospective employee on the grounds of race, colour, sex, language, religion, political or other opinion, nationality, ethnic or social origin, disability, property, birth, marital or other status or family responsibilities in respect of recruitment, training, promotion, terms and conditions of employment, termination of employment or other matters arising out of the employment relationship. It also encourages equal pay to employees. A worker is entitled to wages and remuneration due on the termination or completion of his employment contract within 7 days of such termination or completion. In line with the provisions of this Act, the project implementers will make sure that all the relevant provisions mentioned above will be adhered to by ensuring equal opportunities and pay to both male and females. In addition, the project management team will ensure that the contractor signs work contracts with all workers and honour their agreed payments on time. |
| Childcare, Protection and Justice Act | In addition to the duties and responsibilities imposed by section 23 of the Constitution, a parent or guardian) shall not a) deprive a child of his or her welfare; and b) has responsibilities whether imposed by law or otherwise towards the child which include the responsibility to i) protect the child from neglect, discrimination, violence, abuse, exploitation, oppression and exposure to physical, mental, social and moral hazards; ii) provide proper guidance, care, assistance and maintenance for the child to ensure his or her survival and development, including in particular adequate diet, clothing, shelter and medical attention; iii) ensure that during the temporary absence of the parent or guardian, the child shall be cared for by a competent person; and iv) exercise joint primary responsibility for raising their children, except where the parent or guardian has forfeited or surrendered his or her rights and responsibilities in accordance with the law. In line with the |

| Regulatory Frameworks | Relevance to the Project |
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| | provisions of this Act, the project implementers will ensure that child protection will be greatly respected at all levels by ensuring that children are not employed and also not sent on errands by project workers. |
| **World Bank's Environmental and Social Standards that apply for the construction of Lecture Theatres project** | |
| ESS1: Assessment and Management of Environmental and Social Risks and Impacts | ESS1 sets out for the assessment, management 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. ESMP has been prepared in adherence to this standard and the Contractor will need to adhere to principles of the ESMP including developing Contractor's ESMP. |
| ESS 2: Labour and Working Conditions | Provides the World Bank's requirements on occupational safety and health for all programs/projects. ESS2 introduces labour management procedures (LMP); emphasizes non-discrimination and equal opportunity; provides for the treatment of direct, contracted, community, primary supply workers and civil servants. It also provides for protection of vulnerable workers such as women, persons living with physical disabilities and children from labour. Additionally, the standard spells out the need for a grievance mechanism for all workers as an accessible means to raise workplace concerns and its respective ways of redressing the grievances.<br><br>This ESMP recognises the LMP prepared for SAVE project and has suggested mitigation measures in relation to labour issues that are in line with this ESS. The contractor should adhere to mitigation measures suggested in this ESMP and commit to prepare a separate OHS Management plan in line with WBG ESS2. |
| ESS 3: Resource Efficiency and Pollution Prevention and Management | Recognizes that development 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. Under this standard, MUST lecture theatres building construction project which has this ESMP prepared to make sure pollution is prevented during construction and operation and resource efficiency in water and energy is achieved by using energy saver bulbs, ensure that the buildings have adequate natural lighting and instal water saving fixtures and turn of the faucets when not in use. |
| ESS 4: Community Health and Safety; | Recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and |

| Regulatory Frameworks | Relevance to the Project |
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| | impacts. ESS4 also addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of implementers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable. This ESMP has been prepared and among other impacts, it recognises impacts on community health and safety and suggesting measures to address and/or avoid such. The contractor will have to adhere to measures specifies in the ESMP |
| ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources; | Recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. ESS6 recognizes the importance of maintaining core ecological functions of habitats including forests, and the biodiversity they support. All habitats support complexities of living organisms and vary in terms of species diversity, abundance and importance. Through preparation of this ESMP, biodiversity areas on the proposed project site has been identified and measures to protect those areas have been incorporated in the design of the building. The contractor will therefore have to follow the designs and the measures specified by the ESMP during construction of the lecture theatres building. |
| ESS 8 - Cultural Heritage | The proposed construction project is within existing campus of MUST, a public higher education institution and hence the potential for risks to and impacts on cultural heritage are less expected. However, by the nature of physical works, some excavation and movement of earth can be expected. These types of activities pose the possibility of encountering unknown physical and cultural resources. Though the possibility is not considered significant given the expected setting that are already disturbed, Chance find procedures have however been prepared and presented as appendix 6 to guide the processes and progress in case of encountering chance finds during construction activities at MUST. |
| ESS 10: Stakeholder Engagement & Information Disclosure | Recognizes the importance of open and transparent engagement between the developers and project stakeholders as an essential element of good international practice. Recognises that 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. Additionally, 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 has also been recognised in the development of MUST lecture theatres building construction project with both |

| Regulatory Frameworks | Relevance to the Project |
|---|---|
| | institutional, community members and their leadership as well as district authorities being consulted.<br>The ESMP has also suggested involvement of other stakeholders at all levels during the monitoring of the implementation of the suggested enhancement and mitigation measures for various impacts, so as to address the project's environmental and social risks and/or impacts. The project has also the GRM in place and through this mechanism, communities as relevant stakeholders will also be engaged by being part of the GRM structure for the project. |

# Chapter 4 ENVIRONMENTAL AND SOCIAL SETTINGS

This chapter describes the existing conditions regarding the physical, biological and socio-economic environment of the proposed area for the construction and operation of MUST lecture theatres building project.

## 4.1. The Physical Environment of the Project Area

### 4.1.1. Geology

The proposed project site is at the Malawi University of Science and Technology (MUST) which is within Ndata farm, in the area of Sub T/A Mangazi in Thyolo district; some 27km from Limbe, a town in the country's commercial city of Blantyre. The area lies in the Shire highlands and its geology consists of two principal types of rocks of an ancient Basement Complex; a result of a process that took place during the late Pre-Cambrian period about 500 million years ago. The most extensive rock formation consists of pyroxene granulite gneiss, in form of scattered small intrusions into the pyroxene granulite gneiss (Thyolo district SEP, 2022). In their partly weathered state, the rock types are partly impervious, and provide a valuable resource for building construction as one of magnitude sought at MUST.

### 4.1.2. Topography

With respect to topography, Ndata farm to where MUST is located, is in the Eastern parts of Thyolo district which is the plain and as such is relatively flat and/or gentle, with elevations between 900- 1000m above sea level.

### 4.1.3. Water Resources

MUST is near Lichenza river, one of the 7 main and perennial rivers in Thyolo district (Ruo, Thuchila, Lichenza, Nsuwadzi, Nkhathe, Maperela and Mkwakwazi). The project site is within 2 kilometer radius of Lichenza river. Other nearby streams to MUST are Chimvu and Ndelerani which are all annual but can also be utilised as sources of construction water (especially during rainy season) together with water from Lichenza river if need be.

During the assessment it was noted that the rivers/ streams within the vicinity of MUST (Chimvu Ndelerani and Lichenza) , are within a distance of a kilometre or more and with their location, they are not likely to be the recipients of pollution from the construction works at MUST. However, other hydrological features i.e. dambo land existing in the immediate vicinity, was also identified around the project site and is considered sensitive feature and recipients of polluted waste water from the construction activities, if not properly channelled and managed.

Developments and site alteration with respect to construction works within these sensitive features, should therefore be monitored including undertaking measures on;

- Construction of primary storm water drains around the proposed project site and especially the southern side. The drains should channel the surface water to safe places to avoid contaminating the dambo land.
- Tree planting on the bare surfaces and dambo land around the project site is necessary to check the flow and speed of surface runoff.

### 4.1.4. Soils and soil quality

MUST is located around Nansadi- Matapwata areas which their dominant soil type is cambisols (Thyolo SEP, 2022). These cambisols are characterized by medium texture, good structural stability, high porosity and a good water holding capacity. These soils make good agricultural land. However, construction activities as being sought at MUST, also is compartible with the cambisol soil types.

Regarding soil texture, MUST area has loamy sand soil textural class dominated by loamy particles and easily drain excess water and nutrients but contains enough clay to provide structure befitting a construction project as that sought at MUST.

In terms of soil quality, soil samples were collected within the project site and analysed for various physicochemical parameters. The results are summarised in Table 4-1. The pH was determined to be slightly acidic. Soil pH plays a crucial role in influencing the mobility of trace elements within the soil, making it more susceptible to element leaching. Therefore, it is essential to exercise caution in monitoring and managing activities that could potentially introduce metal pollutants into the soil to prevent groundwater contamination. The average conductivity was measured at 94.44 µS/cm, indicating a low concentration of dissolved salts. In all soil samples, no oils and grease were detected. Oil and grease (OG) contamination typically arises from lubricants and waste from vehicle and machinery maintenance activities. Elevated levels of OG can have adverse effects on soil quality, as well as soil flora and fauna. Hence, it is imperative for the project to carefully manage waste that may increase OG levels in the soil, ensuring they remain at low values. The composition of organic matter, organic carbon, and nutrient levels (NPK) all fell within the normal range for most soils in Malawi.

**Table 4-1:**Chemical and Physical properties of soils from the proposed site

| **Parameter** | **pH** | **Conductivity (µS/cm)** | **Oil and Grease (%)** | **Organic Carbon (%)** | **Organic Matter (%)** | **Nitrogen (%)** | **Potassium (mg/kg)** | **Phosphorus (mg/kg)** |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Minimum | 5.2 | 70.30 | ND | 0.6 | 1.56 | 0.04 | 96.8 | 10.4 |
| Maximum | 6.3 | 105.45 | ND | 1.7 | 2.65 | 0.08 | 164.0 | 55.3 |
| Mean | 5.6 | 94.44 | N/A | 1.3 | 2.3 | 0.06 | 130.4 | 42.3 |

ND=Not Detected; N/A= Not Applicable; Data source: Own analysis

In terms of pH, the site's soil PH values range from 5.2 to 6.3. (moderately acidic) which is within the recommended acidity levels for crop production and feasible for construction.

### 4.1.5. Air Quality

Assessment of air quality involved measurements of particulate matter, volatile organic compounds (VOCs) and levels of noise (Table 4-2). Particulate matter, often abbreviated as particulate matter (PM), refers to tiny solid particles or liquid droplets in the air that can be inhaled into the respiratory system. Construction activities are a significant source of PM emissions due to activities such as excavation, demolition, decorative and material handling. These particles can pose serious health risks to workers, students and the surrounding community. They can also contribute to air pollution, impair visibility, and settle on vegetation and water bodies. Average levels of PM2.5 and PM10 were 6 and 15.5 respectively. The developers should therefore implement effective management and reduction measures to maintain these levels at minimum. This is vital to mitigate health and environmental impacts and to ensure that construction activities are conducted in a sustainable and responsible manner. VOCs are important air pollutants associated with construction activities. High levels of VOCs can cause various health implications including, irritation of the eyes, nose and throat, nausea, damage to the central nervous system and some can cause cancer. The levels observed in this study had an average of 0.06mg/m3. Noise levels were relatively low with an average of 49.6dB, typical of natural outdoor spaces. High levels of noise is detrimental to health, as such levels which are beyond the dose limit of 85dB should be avoided and where they occur, ear muffs and other mitigation measures should be employed immediately.

**Table 4-2:**Quality assessment of air at project location and surrounding areas

| Parameter | Estimated values | | | MS Standard |
|---|---|---|---|---|
| | Minimum | Maximum | Mean | |
| Particulate matter (PM10) µg/m3 | 13 | 18 | 15.5 | 25 |
| Particulate matter (PM2.5) µg/m3 | 5 | 7 | 6 | 8 |
| Volatile Organic Compounds (VOCs) mg/m3 | ND | 0.117 | 0.06 | |
| Noise (dB) | 41.4 | 57.8 | 49.6 | 45 to 55 dB for communal environments. |

ND=Not Detected; Data source: Own analysis

### 4.1.6. Weather and Climatic Conditions

The proposed project site is in Thyolo district and at the following geographical coordinates: 35.2127143; -15.9007982. The Meteorological Department provides area specific weather and climate information. In general, weather information is critical because it guides proper planning and timing of project works; not only for the purposes of avoiding or minimizing negative impacts of the project on the environment but also to guide strategic and optimal timing of enhancement measures for the various project activities and operations. The project area has alternating dry and wet seasons. The climatic conditions are generally a tropical savanna climate. The area experiences three annual seasons, namely the hot - dry season, the hot - wet season and the cool - dry season. The hot - dry weather is experienced from August to November, the hot – wet season is experienced from December to May, whereas the cool - dry season falls between June and August.

### 4.1.7. Temperature

Regarding temperatures in the project area, the highest temperatures of 27.5 ºC were experienced in 2005 and 2015; though the overall average temperatures and trend has been around 24 ºC . The hottest month however is October while the lowest average annual temperatures occur during the months of May to July with a minimum temperature of 9.2 ºC. While November is the hottest month with average temperature of 24 ºC, August and November are driest months. Figure 4-1 depicts the annual mean temperature for MUST from 1991 to 2020.

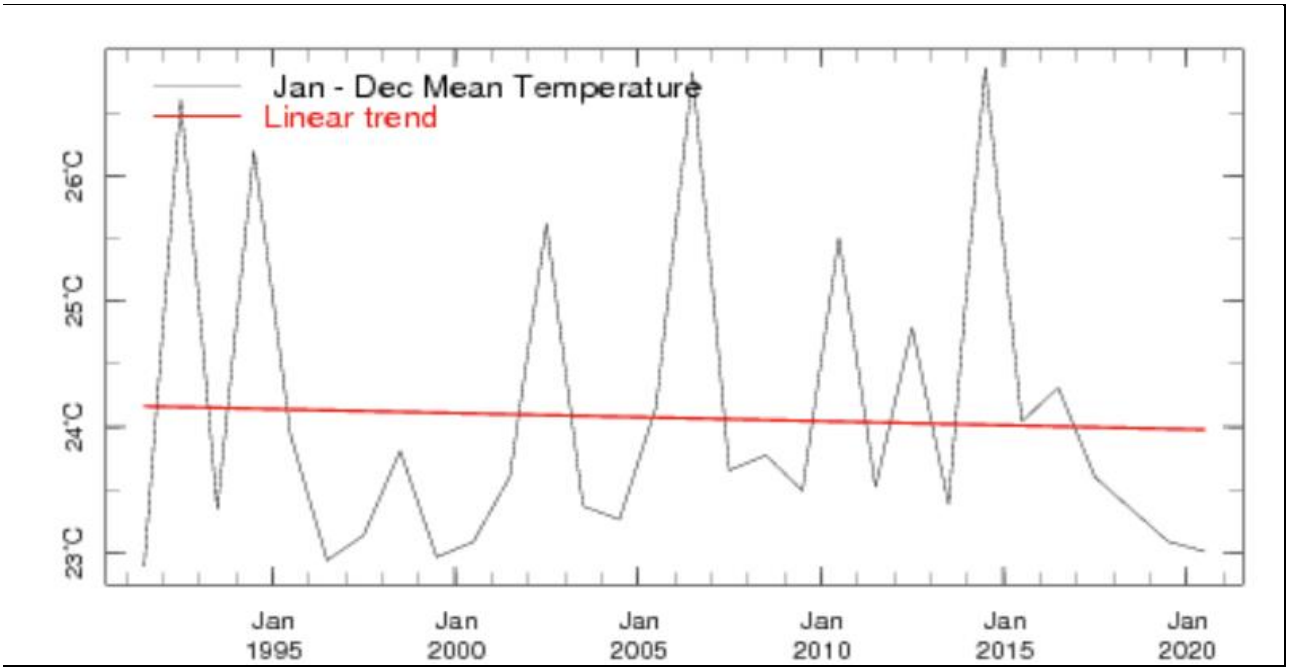


**Figure 4-1:** Temperature in Degrees Celsius by month

Source: Department of Climate Change and Meteorological Services Map rooms.

### 4.1.8. Rainfall

The surrounding areas in Thyolo to which MUST lies receive average annual rainfall of 1200mm.The highest rainfall amounts registered however from 1991 to 2020 are 3000mm in 2010. According to seasonal variations, the wettest months are December and January as shown in figure 4-2 (with data collected Meteorological Department Map rooms). In general figure 4-2 indicates that seasonal rainfall fluctuates and are unpredictable over the years.

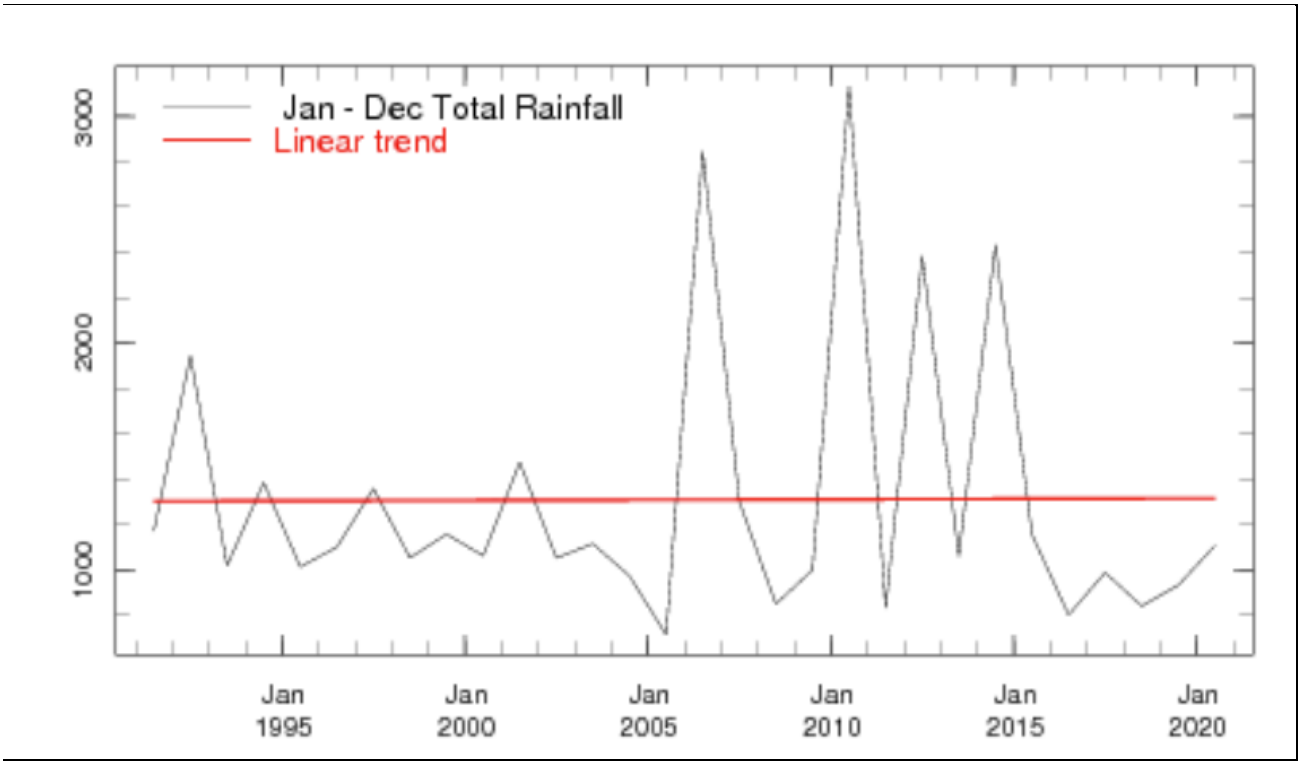


Figure 4-2: Seasonal Rainfall Variations at MUST

Source: Department of Climate Change and Meteorological Services Maprooms

### 4.1.9. Climate Change

According to United Nations framework convention on climate change (UNFCCC), climate change is attributed to human induced emissions such as carbon dioxide from fossil fuel use, which alter the composition of the global atmosphere (Boko et al 2006). Climate change implies long term or perennial shifts in weather pattern covering a wide region. Despite the lack of comprehensive scientific research on the question of climate change in Thyolo district, various studies and anecdotal evidence indicate that the climate is changing over time in the district. Over the years, effects of climate change and variability have severely affected the productivity of various socio-economic sectors in the district. According to National Adaptation Programmes of Action (NAPA) the following are some of the impacts of climate change: Increased drought cases which affect water availability and drying of water bodies in all EPAs have been experienced over the years. Other major climate related hazards that have affected the whole district in recent years are; stormy rains and their associated impacts. Thus, Thyolo including the surrounding areas of the site where the proposed project is located has been affected by both as recent as 2022 cyclone Freddy, Cyclones Anna and Gombe, cyclones Kenneth, the 2015 (floods) and 2016 (drought). These resulted in poor crop yield and in some cases total crop failure

that led to serious food shortages, hunger and malnutrition. Creation of employment to the surrounding communities through this project can therefore bring economic gains that can improve the situation of the surrounding communities which was affected by climate change impacts.

## 4.2. Biological Environment of the Project Area

### 4.2.1. Flora.

The proposed site for the project is a land with existing University infrastructure and located in Ndata farm, which is an agricultural land. Therefore, the Vegetation around the site are few random trees and common grasses. The trees identified on the site include *Bauhinia thonningii (Chitimbe), Acacia albida* (*Msangu), Brachystegia longifolia (Bovi) Acacia nilotica (Namalenga)*, *Acacia polyacantha (Mtheth)*, Ziziplus *mucronata* (*Kankhande),* and *Faidherbia albida (Msangu) etc.*. The majority of the trees are small and less than five metres high. This imply that the project will not have significant negative impacts on threatened vegetation or forests. However, within the site for the construction of the Lecture theatres there is a place with group of indigenous trees lumped together within radius of up to 3 meters. This place is used by students for studying and constitute an important biodiversity feature of the site. The project design has therefore incorporated measures to save those groups of trees and so should the contractor make sure those trees are kept intact during construction of the proposed lecture theatres and that any other cut down trees should be replaced. Figure 4-3 shows the groups of trees of concern and have to be saved.

**Figure 4-3:** Significant area of biological importance on the proposed construction site and proposed to be saved.

### 4.2.2. Fauna - Wild animals and Livestock

The project site is an existing University area, and its area of influence is not rich in fauna diversity due to the current land use and past land use which was a farm for agriculture purposes. Its area of influence has also human settlements. During the transect walk, no wild animals were spotted at the site and the place was very dry. This implies that the project will not have significant negative impacts or disturbance of threatened wildlife.

## 4.3. Social-Economic Environment of the Project Area.

**Population?**

### 4.3.1. Local governance within the project area.

The proposed site for construction of Lecture theatres is located within MUST in Sub-T/A Mangazi, and T/A Chimaliro in Thyolo District.

The overall local government institution is Thyolo District Council. A district council in Malawi is a political structure and is composed of elected councillors from wards of the districts, traditional authorities from the districts and some appointed persons representing some special interests within the districts. Thyolo District Council secretariat is headed by the District Commissioner who supervises a number of departments. These include Planning and Development, Administration, Education,

Environmental, Health, Forestry, Community Development, Agricultural Development and others. The District Commissioner and district Heads of departments form a District Executive Committee (DEC) within the district. The DC also coordinates strategic planning for all government departments in the districts.

The Council performs a number of functions and those related to the project and to environmental concerns are as follows:

- Preservation of the environment through protection of forests, rivers construction of storm water drains and road maintenance etc.
- Promotion of afforestation programmes
- To train all development committees (VDCs, ADCs, and AECs) in leadership and management skills

Local implementation of projects is carried out through extension workers such as Community Development Assistants, Agriculture Extension Development Officer, Senior Forest Assistants, and Primary Education Officers. These extension workers work within their demarcated zones such as Extension Planning Areas (EPA).

Thyolo District Council caters for the entire district except Luchenza Municipality which extends to Chonde trading Centre in Mulanje district. The Council is a statutory body established under Local Government Act of 1998, and Section 146 of the Constitution of the Republic of Malawi. Other than the district being divided into wards, it is also divided into Traditional and Sub-traditional Authorities. Thyolo District is divided into 22 Traditional and Sub-Traditional authorities including one Paramount Chief. These are Ngolongoliwa (Paramount Chief), Kapichi, Mphuka, Chimaliro as Senior Chiefs, Nsabwe, Bvumbwe, Nchilamwera, Thomasi, Changata, Khwethemule, Mbawela, Nanseta, Boyidi as Traditional Authorities while Thukuta, Ndalama, Mangazi, Kamoto, Chidothi, January, Mulenga, Mpenda and Ngomano as Sub Traditional Authorities.

The Traditional authority/sub-traditional authority leads local development initiatives through an Area Development Committee (ADC). The traditional authority supervises group village headmen and village headman/ headwoman, who in turn oversee local people. In terms of areas around project site, Group Village Headmen supervises villages around the site. The responsibilities of both the village headman and traditional authorities include administration of customary land among the subjects, spearheading development activities and mobilizing community participation in development programmes, keeping law and order among their subjects. Both villages and traditional authorities have structures within which they perform their functions. The structure at village level is the village development committee while the structure at traditional authority level is an Area Development Committee.

Regarding political and administrative structures, the proposed area for the project is within Thyolo East Constituency. The Member of Parliament and Ward Councillor work with the District Council management in spearheading, managing and implementation of development activities in various areas under Local Government Act. Traditional Authorities also work with the Councils, Members of Parliament and Ward councillors mainly by providing the main link between the Local Government and the rural communities. The T/As are involved in development administration through the District Council, Area Development Committee (ADC) and Village Development Committee (VDC) structures spread over a network of villages.

The project team therefore consulted all the relevant Authorities within the district council, from the design of the project and will continue to do so even during implementation, so that the authorities can provide their input into the project. Apart from Consulting Administrative Authorities, other national stakeholders and communities have also been consulted and the process will continue even during implementation.

### 4.3.2. Land Use and Tenure systems

Land tenure of MUST is public land. The construction of the proposed building will be carried out on an already existing public land and will cover the total floor area of 1650m$^2$ within the campus's plot area of 215,000m$^2$. Public land is held by Government on behalf of the population. It covers such areas where there are government buildings, roads, the railway line, district council facilities and national monuments.

Since the proposed Lecture theatre building project is being proposed on public land and within MUST, issues of land conflicts due to development of the project are not expected.

### 4.3.3. Commerce and Industry in the project area

The commerce and industry sector is limited in the project area such that the area is dominated by agriculture, service and trade. The trading activities in the area include hawking, vegetable selling, second-hand clothes selling, groceries whole selling, retailing, hardware, bars and bottle stores, butchery, food vending, brick making and selling etc. Such activities are carried out mainly at the major markets of the area i.e. Goliati and Nansadi. The service activities available in the area include tailoring, battery charging, shoe repairing, and building. The agro-based activities include cattle, goats, poultry production, vegetable production, and cereals production.

The proposed construction activities at MUST will increase the scope of trade sector of this area by introducing more cashflows and customers of the goods and services sold in the area. The project's contribution towards job creation, will contribute to the Government agenda of job creation in the district and the area.

### 4.3.4. Water supply within the project area.

Access to water at the proposed project site and surrounding areas is through various means. Main source of water at MUST is piped operated by Southern Region Water Board. The piped water system is also extending to the surrounding communities but mostly, the communities are largely serviced by hand pumped boreholes followed by protected shallow wells. Additionally, the proposed site is within 2-kilometers radius of Lichenza river, one of the major and perennial rivers of the district, and near other water resources such as Chimvu and Ndelerani river and stream respectively which can be utilised as sources of construction water if need be.

During consultations, it was learnt that though Southern Region Water Board provides access to safe gravity fed piped drinking water to MUST, the water supply is reportedly intermittent such that further increasing the demand through construction activities, can aggravate the intermittent water supply situation already faced by the institution. There is therefore need for the contractor to source own water for construction purposes including water for drinking and cooking by construction workers. The ideal situation in this case is the use of groundwater through drilling a borehole with pump installation. This will require acquisition of water abstraction rights from the Water Resources Authority before commencement of drilling operations. Thus, water from the nearby rivers/ streams can only be used when need arise and should only be for construction works, with consideration made that only Lichenza river is perennial.

### 4.3.5. Sanitation facilities and wastewater

With respect to sanitation situation, the institution has water borne toilets connected to the institutional sewer system while a significant number of households in the surrounding communities have pit latrines and toilets. It is estimated that basic latrine coverage in the district is 71%, but only 44.2% of households have access to improved sanitation facilities while open defecation in was estimated at 18%. Sanitation coverage is not increasing rapidly because the type of pit latrines that are constructed are temporary and as such most pit latrines collapse during the rains.

Regarding wastewater, though the institution has availability of sanitary facilities which are connected to the institutional sewer system, during consultations however, an indication was made that the sewer system is smaller in capacity to handle the increased quantities of wastewater that can be generated if the institution is to grow with presence of more people. The design should therefore include construction of septic tank to support the new infrastructure. Additionally, contractor should build their own temporary sanitary facilities to avoid increasing open defecation rates of the area including ways of reducing, reusing and recycling wastewater at the construction site, to promote sanitation and wastewater management respectively.

### 4.3.6. Solid waste management

At MUST, solid waste produced range from domestic wastes and chemical wastes. The domestic wastes commonly known as refuse range from food waste, glass, tins, paper and old electrical appliances etc. There are also clinical wastes that are generated by the campus clinic. Markets and trading centres around the project site also generate solid wastes which is comprised (but not limited to) of plastics, metals and food residues.

Regarding waste handling, the most common waste handling and disposal methods at the institution is through collection bins and then followed by dumping at the institution's designated garbage pits which is within the university's plot but outside the fence of the campus. These pits are later on buried and most of the components decompose since they are biodegradable. Incinerator is also available at the institution and handle mostly hospital and chemical waste generated at the institution.

Though the institution has garbage pits and incinerator within its premises, the area is not serviced by designated community waste management facility or landfill to take care of solid wastes, including at the nearest Goliati and Nansadi markets. The solid waste collection services are also not available in the area. This calls for making sure there is minimum wastes as possible generated and disposed off due to activities of the project.

### 4.3.7. Health Situation and HIV and AIDS prevalence.

MUST has got a health facility within the campus and is also close to Chingazi health center located about 1 kilometre away from the campus. This is a CHAM rural hospital with a smaller bed capacity in the area. Furthermore, health services in the district are provided at three levels: primary, secondary and tertiary. At primary level, services are delivered through rural hospitals, health centres, outreach clinics. District and CHAM hospitals provide secondary level health care services to back up the activities of the primary level while tertiary hospitals provide services similar to those at secondary level, along with a range of specialist surgical and medical interventions.

The institutional health facility and Chingazi health center may be used to serve the workers at the proposed construction site including engaging in interventions that can help to address Covid-19 and HIVand AIDS issues related to the proposed construction project.

With regards to HIV and AIDS prevalence, Thyolo district is one of the districts with highest HIV and AIDS prevalence rate in Malawi. According to a study by Nutor etal, (2020), the districts in the high HIV prevalent zone of Malawi were named as Thyolo, Zomba, Mulanje, Phalombe, Blantyre (in the southern region), Lilongwe in the central region and Karonga in the northern region. This high rate of prevalence in Thyolo

indicates higher risk of spread or contraction of HIV and AIDS in the district within first attempt of sexual intercourse.

MUST having located in the district with such high prevalence rates, efforts to reduce the spread of HIV and AIDS have to be integrated in the project implementation. Similar to the district's key priorities for HIV and AIDS, the project implementation management at MUST should also seek "to reduce new infections, HIV and AIDS-related deaths and stigma and discrimination".

It should also be noted that HIV and AIDS coordination structures in the district comprises District AIDS Coordinating Committee (DACC), a sub-committee of DEC and CBO Networks at Community level. The project can therefore work with DACC at the district level and CBOs around MUST to assist with HIV and AIDS sensitization interventions as recommended in the projects ESMP.

### 4.3.8. Gender roles in the project area

Gender continues to play an important role in the social and economic activities in Malawi and this includes MUST area. Observations within local villages around the area indicate that both men and women are involved in business enterprises and community developmental committees and activities such as school committees etc. Thus, local authorities have embraced gender issue in their community. It is as well important for the developer, contractor and staff at the proposed facility to mainstream gender in their activities and enable equal opportunities of both genders in employment and other activities that the proposed project will bring.

There is need for deliberate efforts to mainstream gender in the project implementation due to that in almost all other cultural settings in Malawi, roles and responsibilities are clearly defined according to gender lines. These definitions are rooted in people's history and culture, that women are responsible for the reproductive activities of the household, namely agriculture, child rearing and domestic tasks e.g. collecting water, collecting wood cooking among others; while men's activities involve among others like piece work or employment and selling. As a result, it is usually the men who have access to employment and cash, as such, they control the resources. However, to achieve economic empowerment and growth at household level, women are also key drivers. Therefore, though the proposed project is construction in nature, its labour requirements from the communities and beyond, should deliberately involve giving equal opportunities to both men and women so as to boost economic status of both gender categories through wages.

### 4.3.9. Culture and Religion.

MUST being a public institution of higher learning, its community comprises staff and students from different tribes, cultural beliefs and religions. However, the surrounding communities have their own attributes as well.

There are two major tribes within communities surrounding MUST. These are Lomwes and the Yao. With respect to language, though the area is dominated by Lomwes and Yaos, the most common spoken language is Chichewa and Chilomwe out of the four languages spoken in the district (i.e. Chichewa, Chilomwe, Chinyanja and Yao). Despite this, in all schools however, learners are taught in English and Chichewa hence Chichewa become is the widely spoken language in the area.

As for religion, NSO 2018 report indicated that, the major religion in the District is Christianity constituting 95% of the population while 2% is Moslem another 2% other religions and 1% of the population has no religion. This is also applicable to communities surrounding MUST.

As for Culture/ Beliefs, people in Thyolo follow matrilineal type of marriages and so is the project area. Chikamwini marriage practice is prevalent and denotes a practice where a man after marrying a woman goes to stay at the woman's home and the family subsists from the land that the woman or her relatives own. By virtue of this arrangement, the married women in this situation tend to wield more power.

### 4.3.10.Agriculture development in the area.

Agriculture is an important economic activity within project area. The major crops grown around MUST include food crops such as maize, sweet potatoes, cassava, pigeon peas, peas, velvet beans, fruits and vegetables. Agriculture practices around the project site follow traditional farming methods where hoes feature as main farming implement. Farm mechanization is non-existent among smallholder farmers in the area except in the estates of the area. It is estimated that over 90% of people in the area rely on agricultural production for food and income (Thyolo SEP).

With respect to animal production and livestock, main livestock in the area are cattle, goats, sheep, pigs, chicken and other avian species including ducks. The proposed project will have a boost in the agriculture production activities of the area through acting as a market for the agricultural produce of the area i.e. livestock and food various crops. Therefore, the project should create conducive environment where communities with surplus produce can sell at the institution to improve their economic status and livelihoods.

### 4.3.11. Livelihoods, Employment, and business activities

Economic activities and livelihoods in project impact area include agriculture, small scale business and casual employment. The largest numbers of households, estimated at over 93 %, are engaged in agriculture. Casual labour is mostly in gardens during the growing season. Retail commerce is undeveloped, being confined to small shops and kiosks. According to information obtained from chiefs in the area, most households are in dire economic constraints despite being involved in various economic activities. Most households earn their income from sales of their agricultural produce to local vendors in the area and directly at Goliati or Nansadi trading centers during market days. The proposed project will therefore be an opportunity of employment and boosting economic activities in the community. The developer should therefore employ more workers as possible from the surrounding community.

### 4.3.12. Education

The proposed project area is serviced by primary, secondary and tertiary institutions offering education in that respect. The nearest primary schools to MUST are Chimvu, Nantheleza and Goliati primary schools while nearby secondary schools and Goliati and Matapwata. The area has also MUST as an institution offering tertiary education.

The 2018 Population and Housing Census report indicated that the population aged 5 and above that has never attended school in Thyolo district was 21.1% with only 0.2% had attended University. With the highest percentage of people who have never attended school, the statistics do not provide an impressive picture of the district including surrounding communities of MUST on the basis of literacy levels. However, the Government and Thyolo district council is committed to the improvement of education quality and relevant education and skills for all throughout the district, at all levels, by carrying out various activities that are aligned to national education development tools. Such tools are the Malawi 2063, Sustainable Development Goals (SDGs) and National Education Sector Plan (NESP) II. It is important also to note that the sector is faced with a lot of challenges in its quest to provide education services. There is severe shortage of qualified teachers and Teaching and Learning Materials and physical facilities are very inadequate. The construction of proposed lecture theatres building at MUST is amongst the initiatives put in place by the Ministry of Education to increase teaching and learning environment and physical facilities at MUST. This will contribute to addressing challenges in the sector and MUST, by creating adequate classroom space and improve access to higher education. Additionally, the improved access due to the project will motivate students in the area and elsewhere to remain in school rather than dropout in favour of working as housemaids, guards as there is highest probability of attaining higher qualifications through improved access and increased university space.

### 4.3.13. Transport

The proposed project site is 27km from Limbe township and along tarmac road of Malowa-Goliati-Thyolo road, 10km off Robert Mugabe Road from Limbe. Road is main transport system used (through vehicles). The proposed site is also located closed to disused Nansadi railway railway station which is located along Limbe-Malaka railway line. The railway line is currently disused due to damages along the line, however, has the potential to be used in future if undergoes rehabilitation. It is therefore anticipated that transportation of all construction materials for the proposed project will be by road.

### 4.3.14. Security

With respect to security, the proposed site's nearest police units are Nansadi and Goliati. However, the villages around the proposed project site also have community policing arrangements which assist curbing criminal activities around the areas and villages. The developer should consider engaging and working with the community policing structures apart from Goliati and Nansadi police units to ensure safety and security of the proposed project premises and resources.

### 4.3.15. Housing

Housing in the villages surrounding the proposed project site comprises of houses having brick walls with mostly iron sheets thatched and some few grass thatched roofs. Smaller segment of the community has access to electricity, but most community members have no electricity and use alternative sources including open fires, torches, solar lighters, and candles.

### 4.3.16. Energy

The project site, and all buildings at MUST are serviced with electricity provided by ESCOM. In addition to that MUST have two backup generators and is planning to install solar power as supplementary source of energy. Also, resource efficiency measures for use of energy have to be considered and implemented to enhance environmental performance of the project. Resource efficiency measures such as use of LED bulbs, among others are presented in Appendix 5.

# Chapter 5 ENVIRONMENTAL AND SOCIAL IMPACT IDENTIFICATION AND ANALYSIS

## 5.1. Overview

The proposed lecture theatres building project at MUST will have both positive and negative environmental and social impacts that can lead to a variety of changes in the nearby biophysical and socio-economic environment. The identified environmental and social impacts were derived from the field investigations, consultation with MUST students and staff, surrounding community members and district council officers (through focus group discussions and participatory rapid assessment within the project area) and professional judgment, with respect to the expected activities.

Description of the potential beneficial as well as adverse impacts that may emerge due to implementation of the proposed project and the respective mitigation and enhancement measures are discussed under this section. However, the list of impacts is by no means exhaustive. This section further analyses the environmental and social impacts with respect to their magnitude and significance.

## 5.2. Description of Potential impacts and their mitigation/ enhancement measures

In line with the objectives of the project, the potential positive impacts derived from the project will be generated. Similarly, negative impacts will also be generated and are also identified and predicted including identifying and recommending mitigation measures for negative impacts. Some of the impacts and their respective mitigation/ enhancement measures include but not limited to

### 5.2.1. Positive Impacts

#### 5.2.1.1. Planning / pre-construction stage

1. **Impact:** Creation of temporary jobs

**Cause and comment**: During the planning and designing phase, the project is recruiting several professionals such as ESIA consultants, Architects and Designers and Land surveyors etc. These are benefitting from providing their consultancy services to the project.

**Enhancement measure(s)**:

- Give priority to local Malawians, when recruiting people for the various project activities. Only when required skills are not locally available, can the project consider importing human labour.
- Give equal opportunities for employment to both males and females.

2. **Impact:** Increased tax revenues to Government

**Cause and Comment:** During planning and design stage, the professionals and consultants recruited by the project will be paying taxes to government on their fees. This will increase the number of people paying taxes and the actual taxes received by government.

**Enhancement measure(s):**

- Pay appropriate or above minimum wage remuneration for more tax collection.
- Pay tax remittances timely to government.

5.2.1.2. Construction Stage

1. **Impact:** Creation of temporary jobs

**Cause and comment:** The proposed project will recruit both skilled and unskilled men and women during the construction stage. The impact is positive and highly beneficial considering the high levels of unemployment in the country. The impact will definitely occur throughout the construction period.

**Enhancement measures**

- Give priority to local communities for both skilled and unskilled workers' employment. Recruit imported labour only when the needed skills are not locally available,
- Pay good wages/ salaries commensurate with the economic status of the country and Government rules and regulations.
- Give equal opportunities for employment to both males and females.

2. **Impact:** Increased business opportunities

**Cause and Comment:** The potential impact is positive and socio- economic in nature. The impact is likely to be caused by increased economic activities e.g. small and medium enterprises around the project area in response to the demand for various goods such as food items, clothes etc. created by people working on the project during construction. People from local communities are likely to engage in small-scale businesses selling the demanded items and commodities.

**Enhancement measure:**

- Increase space on the existing market to accommodate new traders

3. **Impact:** Increased skills transfer to local people

**Cause and Comment:** The potential impact is positive and socio- economic in nature. The impact is likely to be caused by the fact that some skilled workers to be engaged during construction may be migrant workers. As both the local and migrant workers are doing their job, there will likely be transfer of skills and expertise amongst them. Local workers will likely benefit from skills from migrant workers.

**Enhancement measure:**

- Employ other skilled workers from the local communities.

4. **Impact:** Increased tax revenues to Government

**Cause and Comment:** During the Construction stage, the project will recruit both skilled and unskilled workers. Some of the workers' revenues will be within the band they should be paying taxes. Additionally, the increased development of SMEs in the area will increase the number of people paying taxes and the actual taxes remitted to government.

**Enhancement measure(s):**

- Pay fair remuneration and according to law for more workers to be in the tax paying category.
- Support the SMEs to do their businesses at the designated places around the university for easy tax collection by relevant authorities.
- Pay tax remittances timely to government.

5.2.1.3. Demobilization phase

1. **Impact:** Reduced noise levels

**Cause and comment:** The completion of construction activities will lead to the heavy machinery and the 150 construction workers leaving the site thereby reducing the amount of noise generated at the project site.

**Enhancement measure(s):**

2. **Impact:** Reduced dust emissions

**Cause and comment:** The completion of construction activities will lead to reduced dust emissions.

**Enhancement measure(s):**

- The Contractor to carry out soft and hard landscaping after construction works to reduce risks of further dust emissions.

5.2.1.4. Operations and maintenance Phase

1. **Impact:** Creation of Job Opportunities

**Cause and Comment:** It is anticipated that during operation and maintenance stage, more workers such as cleaners, caretakers, maintenance personnel etc. will be recruited. These jobs will be taken by both skilled and unskilled workers, hence, employment and economic gains.

**Enhancement measures:**

- Give priority to local communities and Malawians, when recruiting people for the various jobs at operation and maintenance stage
- Pay good wages/ salaries commensurate with the economic status of the country and Government rules and regulations.
- Give equal opportunities for employment to both males and females.

2. **Impact:** Increased business opportunities in the project impact area

**Cause and comment:** During operations, it is anticipated that more students will be enrolled at MUST, following increased classroom space. Increased numbers of students and new workers to be recruited are likely to increase demand for goods and services and hence result in improved cash flows in the area. This is likely to spur small and medium scale businesses particularly food and housing related businesses in the area.

**Enhancement measures:**

- Increase space on the existing market to accommodate new entrants

3. **Impact:** Increased tax revenues for the Government

**Cause and Comment**: Employment of new staff and growth of small and medium enterprises in the project impact area during operations, will increase the number of people and enterprises that are eligible to remit taxes to government including numbers paying the taxes during the purchase of the products.

**Enhancement measure(s):**

- Pay fair remuneration and according to law for more workers to be in the tax paying category.

- Support the SMEs to do their businesses at the designated places around the university for easy tax collection by relevant authorities.
- Pay tax remittances timely to government.

4. **Impact:** Increased and improved classroom spaces and its amenities

**Cause and Comment:** After commissioning the lecture theatre building, it is anticipated that classroom space constraints will be resolved, and new spaces will be created. Moreover, due to increased space, the institution will be able to host large numbers of students at the same time and hence improving operational efficiency of the institution.

**Enhancement measures:**

- Provide the necessary equipment to facilitate teaching and learning;
- Recruit well qualified academic and non-academic members of staff; and
- Maintain all the equipment and infrastructure regularly to support long time teaching and learning.

5. **Impact:** Increased enrolment and skills transfer to students

**Cause and Comment**: At the end of the project, lecture theatres hosting 500 students are expected to be developed at MUST. This will enable the University to afford higher enrolment of qualifying students including women and the vulnerable than the current numbers. This will increase the number of students who are able to access higher education and acquire market relevant skills that can give them higher chances for employment and a better future.

**Enhancement measures:**

- Increase enrolment of students including women and vulnerable groups as planned.
- Maintain all the infrastructure, facilities and equipment regularly to sustain long term production of the intended products.

6. **Impact:** Improved aesthesia of the institution

**Cause and Comment:** It is anticipated that after construction of the lecture theatres building, which has been designed by experts and with input from all concerned stakeholders and well monitored throughout construction period, the final structure will be beautiful. This anticipated beautiful infrastructure will complement or improve outlook of the institution.

**Enhancement measures:**

- Implement planned activities with stakeholder engagement throughout project implementation.
- Maintain all the infrastructure, facilities and equipment regularly to sustain long term production of the intended products.

### 5.2.2. Negative impacts

#### 5.2.2.1. Planning/ Pre-Construction phase

1. **Impact:** Increased risk of blockage of some footpaths

**Cause and comment**: Prior to commencing construction activities, the perimeter of the construction site will be fenced to avoid access. In fencing the perimeter of the construction site, other footpaths might be blocked.

**Mitigation measure(s):**

- Relocate all affected footpaths before project commencement.
- Sensitize students on newly designated footpaths.
- Sensitize students on the proposed project during social weekend event.

#### 5.2.2.2. Construction phase

1. **Impact:** Loss of existing vegetation/ flora

**Cause and Comment**: Loss of existing vegetation/ flora is likely to occur particularly during site clearing and excavations. Further loss of vegetation can also emerge due to surrounding local communities cutting down trees from the surrounding areas to burn bricks which they can sell/ supply to the construction project.

**Mitigation measure(s):**

- Limit clearance of treess and vegetation to the proposed construction
- Implement the project as per the design with natural flora protected and retained.
- Use cement blocks and from licenced sources during construction and not locally sourced burnt bricks.
- Compensate trees cut by replanting and greening open spaces within the site

2. **Impact:** Increased risk of soil erosion

**Cause and Comment:** The impact is likely to occur as a result of land clearing and excavations on proposed site for the construction of lecture theatre building. This problem can be worsened if the cleared area is large and has been left for a long period of time to be affected by raindrop impact.

**Mitigation measures:**

- Restrict land clearing and excavations only to spaces affected by construction activities and construct drainage where necessary.
- Avoid excavations and soil disturbance during rainy season.
- Back fill all excavations immediately
- Landscape/ re-plant vegetation of indigenous species as soon as constructions phase is completed.

**3. Impact:** Increased noise pollution

**Cause and Comment**: Noise is likely to emerge as a result of site clearing and construction activities including running vehicles. The potential for loud noise during this phase can result from the use of heavy equipment and general construction activities. This could potentially become a nuisance to students and staff at the University and more especially, in the nearby library and dormitories. The seriousness of the impact would be high at night.

**Mitigation measures**:

- Restrict construction activities to during daytime (regular work hours) and not at night.
- Fence the project area as a barrier to noise.
- Limit very noisy activities to times when the university is in holiday time.
- Provide workers with noise muffs as PPE where necessary.
- Ensure employees operate in less than eight-hour shifts during noisy activities (of over 85dB noise levels) to reduce their exposure to noise.
- Service vehicles and machinery regularly to avoid excessive noise.
- Use modern equipment with silencers.

**4. Impact:** Increased risk of vibrations

**Cause and Comment**: The potential for vibrations during construction phase can result from the use of heavy equipment and vehicles.

**Mitigation measure(s):**

- Use of heavy machinery only when works require such during construction phase of the project
- Limit exposure time of vibrators to operators by introducing shifts and/or breaks

5. **Impact:** Increased disruption of classes and library activities

**Cause and Comment:** Noise and vibrations from excavations, machinery and construction activities may disrupt ongoing classes and activities in the nearby library. This impact may worsen with the cumulative noise and vibrations from activities from another Laboratory construction project happening adjacent to the proposed site.

**Mitigation measures:**

- Avoid concurrent noisy activities from the proposed lecture theatres construction and existing laboratory construction projects happening together.
- Restrict noisy activities to when classes are not in session.
- Fence project site / put noise barriers.
- Identify alternative routes to the construction sites.
- Contractors should adhere to code of conduct for their workers.

6. **Impact:** Increased dust emissions

**Cause and Comment**: Carrying out excavation activities of the project during dry season or when the soils are dry, may provoke dust emissions during construction. Also, delivery and offloading of construction materials e.g. bricks and cement may provoke dust emissions.

**Mitigation Measures:**

- Implement excavation and burrowing activities before the peak of dry season.
- Suppress dust through regular sprinkling of water around the project area and surroundings.
- Provide PPE to workers.
- Use closed/covered trucks for transportation of construction materials.

7. **Impact: Inncreased** generation of rubble/ heaps of excavated soils

**Cause and Comment:** The impact is likely to occur as a result of the planned construction and installation of the various infrastructure facilities at the proposed site. Before main construction activities, excavation of soils etc. will likely occur on proposed site thereby leaving heaps of soils on the surface. During main construction stage, rubble and heaps of accumulations of construction wastes are expected to be generated and evident.

**Mitigation measures:**

- Dispose construction generated wastes such as rubble in identified borrow pits of the site and/or an area by district authorities.

8. **Impact:** Increased generation of non-hazardous solid waste

**Cause and Comment:** The construction phase activities will generate considerable amount of non-hazardous solid waste which may include construction materials packaging wastes, food related wastes, plastic cut-offs, empty cement sacks, , scrap metals etc. These would need to be appropriately disposed of.

**Mitigation Measures:**

- Provide adequate bins for waste collection with separation at source concept,
- Store non-hazardous waste at designated locations before final disposal at appropriate sites agreed with local authorities.
- Raise awareness on 4 Rs (Refuse, Reduce, Reuse and Recycle)

9. **Impact:** Increased generation of hazardous wastes.

**Cause and Comment:** The construction phase will utilise materials such paints, oils, fuel, pesticides etc. and these can result in generation of hazardous wastes creating hazardous environment. These need to be appropriately handled and disposed of.

**Mitigation measures:**

- Segregate hazardous waste from other waste streams and ensure safe handling.
- Secure storage and label all storage areas for hazardous wastes to minimise the risk of accidents, spills, or contamination.
- Dispose hazardous wastes at designated places and by a competent authority, according to regulations.

10. **Impact:** Increased disruption of water supplies at the campus and nearby residents

**Cause and Comment:** Construction of the Lecture theatre building will increase demand for water, which can then lead to reduction of water supplies at the campus. This can be worsened if the water to be used for construction will be sourced from the reticulation system at the compass and operated by Southern Region Water Board .

**Mitigation Measures:**

- Identify and use ground water resources by workers and construction activities..
- Engage in water management conservation measures during construction to conserve water resources.

11. **Impact:** Increased risk of water pollution

**Cause and Comment:** The potential impact may occur due to erosion and washaways due to land clearing and upon soils being exposed to stormwater. Also poor waste

management practices on the site and its associated washaways can also result in increased water pollution.

**Mitigation measures**:

- Compact all excavated areas to reduce run-off and stormwater impact.
- Involve waste management authorities for safe disposal of wastes.

**12. Impact:** Increased risk of oils spillages.

**Cause and Comment:** The potential impact may occur due to use of faulty and leaking equipment, poor maintenance practices can lead to accidental spills of oil, accidental spills during refuelling and incorrect storage of oil and fuel in containers that are not secure or are damaged at the construction site. This can have an implication on soil pollution and subsequent washaways to nearby water bodies if those soils are exposed to storm water.

**Mitigation measures:**

- Implement a regular maintenance schedule for all equipment and machinery to prevent leaks and hydraulic failures.
- Conduct frequent inspections of equipment, storage tanks, and pipelines to identify and repair any potential leaks.
- Use spill containment trays during refueling and upon identification of leaks

**13. Impact:** Increased risk of occupational hazards, occupation health and safety

**Cause and comment:** Occupational hazards, occupation health and safety as risks and dangers present at the workplace have the potential to cause harm to employees. These hazards can arise from various sources, including physical, chemical, biological factors etc. Mitigation measures aim to minimize or eliminate these risks therefore have to be put in place to ensure the safety and well-being of workers.

**Mitigation Measures:**

- Conduct regular risk assessments.
- Inspect and maintain all equipment and vehicles regularly.
- Install safety barriers, signage, and emergency exit.
- Where applicable use permits for specialised or high risk tasks
- Provision of adequate and appropriate PPE
- Maintain First Aid Box, first aiders and provide first aid trainings
- Ensure provision of appropriate and adequate safety equipment for working on height tasks.
- Conduct regular safety inspections to ensure maximum safety of workers.

- Enforcing strict safety protocols and reporting mechanisms.
- Train all workers on proper use and handling of equipment.
- Install signage in all critical areas and indicating “Danger equipment” “Pedestrian walking”, “No parking”, slow down “Stop” etc.
- Provide safe scaffolding equipment.

**14. Impact:** Increased risk of spread of HIV and AIDS and STIs

**Cause and Comment:** HIV and AIDS and STIs will likely increase due to increased numbers of migrant workers to the project site, living away from their families for extended periods. This mobility can disrupt stable relationships and increase the likelihood of engaging in risky sexual behaviors upon increased social interaction with other workers, MUST staff and students as well as surrounding local people.

**Mitigation measures**: As mitigation measures, The Project Developer shall:

- Conduct regular educational sessions to inform workers about HIV and AIDS and STIs, including how it is transmitted, prevention methods, and the importance of getting tested.
- Collaborate with local clinic to facilitate testing, counselling, and treatment services.
- Provide and train on condom use.

**15. Impact:** Increased Risk of Spread of COVID- 19

**Cause and Comment:** Increased number of people at the project site as workers’ groups, including contact of those with the infected if not using protective measures. The spread can be increased by limited application of hygiene measures and not adhering to social distancing.

**Mitigation Measures:**

- Conduct sensitizations of COVID-19 symptoms and prevention to workers.
- Provide equipment to enhance hygiene i.e. water for washing hands, soap and sanitizers will be made available at all time in the work premises
- Adhere to COVID-19 measures as specified by Government at that particular time.
- Make protective face masks available at the workplace for those potentially ill to prevent the spread of COVID-19.

**16. Impact:** Increased risk of the spread of Cholera

**Cause and Comment**: increased risk of cholera at the construction site may increase if access to clean drinking water and improved sanitation is not available at the construction site. Public health interventions and specific measures to reduce the risk have to be in place.

**Mitigation Measures:**

- Provide access to safe and clean drinking water through improved water supply and other treatment methods e.g. chlorination.
- Ensure access to adequate sanitation facilities, including adequate and clean toilets for workers to avoid cholera outbreaks.
- Promote proper hygiene practices, such as handwashing with soap and water, particularly before eating and after using the toilet.
- Implement community-wide sanitation programs, including waste management and proper disposal of faecal matter.

**17. Impact:** Public Safety Risks

**Cause and Comment:** Excavations, pits and heaps of unconsolidated material may be left overnight at the end of a working day at the construction site. These would make the construction site dangerous to students who might walk across the site at night.

**Mitigation Measures:**

- Fence the construction site to limit access.
- Put safety tape around all potentially dangerous spaces and excavations.
- Install signage to limit access.

**18. Impact:** Increased risk of Gender-Based Violence

**Cause and Comment:** Contractor and workers on site may indulge in crimes such as raping, physical assault, sexual harassment, discrimination and use of provocative language etc. amongst themselves and staff and students from MUST.

**Mitigation Measures:**

- Sensitize workers, MUST staff, students and surrounding communities on GBV.
- Promote women's employment.

**19. Impact:** Increased risk of child labour

**Cause and Comment:** Contractors working on site may employ under aged workers (less than 18 years).

**Mitigation Measures:**

- Check workers ID before employing them
- Employ only those aged 18 years and above as workers.
- Sensitize workers, students and surrounding communities on child labour

**20. Impact:** Increased risk of sexual harassment and exploitation of students

**Cause and Comment:** The increase in number of workers mingling with students of both genders, may result in increased social interactions which then can result into sexual exploitation and harassment.

**Mitigation Measures**

- Sensitize workers and students on the dangers of sexual harassment and exploitation.
- Fence the project site and have own entrance gate to minimize interaction with students.
- Put in place robust Grievance Redress Mechanisms and make it known to workers, students and local communities.
- Put in place signage with contacts on where to report grievances.

**21. Impact:** Increased theft cases

**Cause and Comment:** There can be an increase of theft cases of building materials especially where wage payments are delayed by contractors.

**Mitigation Measures**:

- Sensitize workers on dangers and consequences of theft.
- Empower and utilize community policing.
- Extend existing community security service to cover project site.

**22. Impact:** Increased generation of liquid waste

**Cause and Comment**: The construction phase activities will generate considerable amount of liquid waste and /or wastewater mainly due to spillage and disposal of construction related wastewater.

**Mitigation Measures**

- Channel all construction wastewater to designated places where it can be safely disposed or treated.
- Dispose all the waste in designated dumpsite in liaison with Thyolo District Council.
- Raise awareness on 4Rs (Reduce, Reuse and Recycle)

**23. Impact:** Increased congestion of campus toilets by construction workers.

**Cause and Comment**: Workers may congest toilets for students.

**Mitigation measure:**

- Construct temporary toilets for the workers on the construction site and segregated by gender.

5.2.2.3. Demobilization phase

**1. Impact:** Loss of jobs, other economic activities

**Cause and Comment**: The completion of construction activities will lead to termination of jobs for temporary workers including reduction of economic activities in the area. This will certainly reduce incomes for mostly persons who used to be working at the project site.

**Mitigation measures**:

- Give adequate notice of termination of employment.
- Provide appropriate terminal benefits to workers at demobilisation stage.
- Workers should sign contracts that have clear duration.

**2. Impact:** Increased risks of demolition waste and landscape changes

**Cause and Comment**: The demolition of temporary infrastructure after construction works completion may change the outlook and landscape of the project site followed by potential accumulation of demotion wastes if proper measures are not put in place.

**Mitigation Measure**:

- Clear all areas of demolition waste followed by restoration and vegetative landscaping of all demolished areas.

5.2.2.4. Operation and maintenance phase stage.

**1. Impact:** Increased vulnerabilities amongst the persons living with physical disabilities in accessing the facilities

**Cause and comment:** Access into the building may be challenging to persons living with physical disabilities if the structure is constructed with non-disability friendly features.

**Mitigation measure(s)**

- Design, Construct and operate disability friendly infrastructure and facilities for easy access of all

**2. Impact:** Increased generation of solid waste

**Cause and Comment**: Operation activities will generate considerable amount of solid which may be packaging of foodstuffs and products from the tuckshop. These will need to be appropriately disposed of.

**Mitigation Measures**:

- Provide adequate bins in the Lecture theatre building for waste collection and thereafter disposal to designated location.
- Raise awareness on 4Rs (Refuse, Reduce, Reuse and Recycle wastes)

**3. Impact:** Increased pressure on energy/electricity

**Cause and Comment:** Due to the increase in number of students and staff at the facility coupled with installation of lights and equipment that require energy there is likely going to be an increased pressure energy/electricity

**Mitigation measures**

- Install energy saver bulbs and equipment
- Ensure that the building designed to allow natural lighting
- Switch off lights and equipment when not in use
- Use back-up generators to reduce pressure on energy
- Install solar energy at the site to ease pressure on energy

**4. Impact:** Increased pressure on water

**Cause and Comment:** Due to the increase in number of students and staff at the facility coupled with installation of water closet toilets, water faucets among others there is likely going to be an increased pressure water.

**Mitigation measures**

- Install water-saving technologies such as low-flow faucets, toilets, and showerheads
- Turn of the faucets when not in use
- Supplement water from Southern Region Water Board with water from the borehole
- Use harvested water to water the flowers and lawns

**5. Impact:** Increased risk of spread of HIV and AIDS and STIs

**Cause and Comment:** The increased number of staff and students recruited and enrolled respectively due to increased number of programs offered and adequate classroom space may also mean increased social interaction and sexual relations between students and/or staff. This may increase the spread of HIV and AIDS and STIs.

**Mitigation measures**:

- Sensitize all staff and students on HIV and AIDS and STIs, including how to prevent these.
- Provide VCT services at the Campus.
- Provide condoms at the site or stock at nearby clinic for easy access.

**6. Impact:** Increased Risk of Spread of COVID- 19

**Cause and Comment:** Increased number of students and staff at the University including contact of those with the infected if not using protective measures may increase spread of COVID-19. The spread can be perpetuated by limited application of hygiene measures.

**Mitigation Measures:**

- Conduct sensitizations of COVID-19 symptoms and prevention to staff and students
- Provide equipment to enhance hygiene i.e. water for washing hands, soap and sanitizers will be made available at all time at the Campus.
- Adhere to COVID-19 measures as specified by Government at that particular time.

7**. Impact:** Increased generation of liquid waste

The operation phase generation of liquid waste and /or wastewater, will mainly be due to use of latrines/ flushing of toilets which may increase sewage effluents. This could be worsened by the increased number of people at the University.

**Mitigation Measures**

- Channel all wastewater to designated places where it can be safely disposed or treated.
- Connect sanitary facilitiesto the newly constructed septic tanks.
- Raise awareness on 4 Rs (Refuse, Reduce, Reuse and Recycle)

**8. Impact:** Increased risk of Gender Based Violence, Sexual Exploitation, Abuse and Harassment

**Cause and commen**t: The increased access and hence number of students and staff at the University will result from the increased learning space created by MUST lecture theatres building construction project. The increased population at the campus, may also increase indulgence of crimes such as raping, physical assault, sexual harassment, discrimination and use of provocative language etc. amongst staff and students.

**Mitigation Measures:**

- Sensitize MUST staff and students on GBV/SEA and Harassment.

- Strengthen Grievance Redress Mechanisms including reporting mechanisms for GBV/SEA and harassment.
- Put in place signage with contacts on where to report grievances.

## 5.3. Environment and Social Impacts Analysis

The potential environmental and social impacts were also analysed for the basic significance ratings for identification of impacts which are key due to its likelihood, duration, extent and magnitude. The impact significance ratings were ranked using the criteria indicated in Table 6-1.

Table 5-1: Criteria for ranking factors for consequences and probability of the impact

| Criteria | Description | Measure |
|---|---|---|
| **Impact Type** | Refers to how an impact has been brought about in relation to project activities. | Direct, Indirect, or Induced. |
| **Impact Duration** | This is the period of time over which an impact may occur; it considers the time that is estimated for an affected population or resource to recover. Duration is calculated from the time an impact begins to when it ceases. | Temporary, Short Term, Long Term or Permanent |
| **Impact Extent** | Refers to the size of the impact area | Local – Within Area of Impact<br>Regional – Beyond Area of Impact to other districts or Nation<br>International – Beyond the country |
| **Impact Magnitude** | Measures the general degree, extensiveness or scale of impact in terms of the observable impact on a resource in the project AoI and wider ecosystem or social domain. | Low, Medium, or High |
| **Sensitivity** | Considers the sensitivity of the receptor upon which the impact is occurring. | Low, Moderate, or High |
| **Reversibility** | Refers to the ability of the site or the impact receptor to recover after an impact has occurred. | Low, Moderate, or High |
| **Likelihood** | The probability of the impact occurring | Unlikely, Possible or Certain |
| **Impact Significance** | This indicates the implication or consequence that an impact may have on a resource/receptor | Negligible, Minor, Moderate or High |

The summary of assessment of impacts and their ratings is presented in Table 5-2.

Table 5-2:Summary of assessment of impacts and their ratings

| SN | Category | Impact | Impact Nature | Likelihood | Impact Type | Impact Duration | Impact Extent | Impact Magnitude | Impact Significance |
|---|---|---|---|---|---|---|---|---|---|
| **1** | **Planning/ Pre-construction Phase** | | | | | | | | |
| ***1.1*** | ***Economy and Livelihoods*** | Creation of temporary jobs | Positive | Certain | Direct | Short-Term | Local | High | High |
| | | Increased tax revenues to government | Positive | Certain | Direct | Short-Term | Regional | High | High |
| ***1.2*** | ***Landscape and visual amenities*** | Loss of existing vegetation/ flora | Negative | Possible | Direct | Long term | Local | Low | Moderate |
| | | Increased risk of soil erosion | Negative | Possible | Direct | Long term | Local | Medium | Moderate |
| | | Increased risk of blockage of some footpaths | Negative | Certain | Direct | Medium term | Local | Medium | Moderate |
| ***2*** | **Construction Phase** | | | | | | | | |
| ***2.1*** | ***Economy and Livelihoods*** | Creation of temporary jobs | Positive | Certain | Direct | Medium-term | Local | High | High |
| | | Increased business opportunities | Positive | Certain | Direct | Medium-term | Local | High | High |
| | | Increased skills transfer to local people | Positive | Certain | Direct | Long Term | Regional | High | High |
| | | Increased tax revenues to government | Positive | Certain | Direct | Short-Term | Regional | High | High |
| ***2.2*** | ***Landscape and visual amenities*** | Loss of existing vegetation/ flora | Negative | Possible | Direct | Short-Term | Local | Medium | Minor |

| SN | Category | Impact | Impact Nature | Likelihood | Impact Type | Impact Duration | Impact Extent | Impact Magnitude | Impact Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | Increased risk of soil erosion | Negative | Possible | Direct | Short-Term | Local | Low | Minor |
| ***2.3*** | ***Noise and Vibration*** | Increased noise pollution | Negative | Certain | Direct | Temporally | Local | High | High |
| | | Increased risk of vibrations | Negative | Unlikely | Direct | Temporally | Local | Negligible | Negligible |
| | | Increased disruption of classes and library activities | Negative | Possible | Direct | Temporally | Local | High | High |
| ***2.4*** | ***Air quality and fugitive emissions*** | Increased dust emissions | Negative | Certain | Direct | Short-Term | Local | Medium | Moderate |
| ***2.5*** | ***Solid and liquid wastes*** | Increased generation of rubble/ heaps of excavated soils | Negative | Certain | Direct | Short-Term | Local | Medium | Moderate |
| | | Increased generation of solid waste | Negative | Possible | Direct | Medium-Term | Local | Medium | Moderate |
| | | Increased generation of liquid waste. | Negative | Possible | Direct | Medium-Term | Local | Medium | Moderate |
| ***2.6*** | ***Existing resources constraints*** | Increased disruption of water supplies at the campus and nearby residents | Negative | Possible | Direct | Medium-Term | Local | Medium | Moderate |
| | | Increased congestion on campus toilets | Negative | Possible | Direct | Short Term | Local | Medium | Moderate |

| SN | Category | Impact | Impact Nature | Likelihood | Impact Type | Impact Duration | Impact Extent | Impact Magnitude | Impact Significance |
|---|---|---|---|---|---|---|---|---|---|
| ***2.7*** | ***Occupational Health and Safety*** | Increased Hazards, Occupational health and safety risks | Negative | Certain | Direct | Long-Term | Local | High | High |
| | | Increased risk of spread of HIV and AIDS and STIs | Negative | Certain | Direct | Long-Term | Local | High | High |
| | | Increased risk of spread of cholera | Negative | Possible | Direct | Long-Term | Local | High | High |
| | | Increased Risk of Spread of COVID- 19 | Negative | Possible | Direct | Long-Term | Local | High | High |
| ***2.8*** | ***Community Health and safety*** | Increased public safety risks | Negative | Possible | Direct | Long-Term | Local | High | High |
| ***2.9*** | ***Gender issues and Exploitation*** | Increased Gender Based Violence | Negative | Possible | Direct | Medium-Term | Local | Low | Minor |
| | | Increased risk of child labour | Negative | Possible | Direct | Long-Term | Local | High | High |
| | | Increased risk of sexual harassment and exploitation of students | Negative | Possible | Direct | Long-Term | Local | High | High |
| ***2.10*** | ***Theft and Security*** | Increase in theft cases | Negative | Possible | Direct | Long-Term | Local | Medium | Moderate |
| ***3*** | **Demobilisation phase** | | | | | | | | |
| ***3.1*** | ***Noise*** | Reduced noise levels | Positive | Certain | Direct | Medium-term | Local | High | High |

| SN | Category | Impact | Impact Nature | Likelihood | Impact Type | Impact Duration | Impact Extent | Impact Magnitude | Impact Significance |
|---|---|---|---|---|---|---|---|---|---|
| ***3.2*** | ***Dust*** | Reduced dust emissions | Positive | Certain | Direct | Medium-term | Local | Medium | Moderate |
| ***3.3*** | ***Economy and Livelihood*** | Loss of jobs and livelihood | Negative | Certain | Direct | Long-Term | Regional | High | High |
| ***3.4*** | ***Waste*** | Increased generation of demolition waste | Negative | Possible | Direct | Long-Term | Local | Medium | Moderate |
| ***4.*** | **Operation and Maintenance Phase** | | | | | | | | |
| ***4.1*** | ***Economy and Livelihoods*** | Creation of Jobs | Positive | Certain | Direct | Long-Term | Regional | High | High |
| | | Increased business opportunities | Positive | Certain | Direct | Long-Term | Local | High | Moderate |
| | | Increased Tax revenues for the Government | Positive | Certain | Direct | Long-Term | Regional | High | Moderate |
| ***4.2*** | ***Access to Education*** | Increased and improved classroom space and its amenities | Positive | Certain | Direct | Long-Term | Regional | High | High |
| | | Increased enrolment and skills transfer to students. | Positive | Certain | Direct | Long-Term | Regional | High | High |
| ***4.3*** | ***Landscape and visual amenities*** | Improved aesthesia of the Institution | Positive | Certain | Direct | Long-Term | Local | High | High |
| ***4.4*** | ***Equitable Access*** | Increased vulnerabilities amongst the persons living with physical | Negative | Certain | Direct | Long-Term | Local | High | High |

| SN | Category | Impact | Impact Nature | Likelihood | Impact Type | Impact Duration | Impact Extent | Impact Magnitude | Impact Significance |
|---|---|---|---|---|---|---|---|---|---|
| | | disabilities in accessing the building | | | | | | | |
| ***4.5*** | ***Solid and liquid Waste*** | Increased generation of solid waste | Negative | Certain | Direct | Long-Term | Local | High | High |
| | | Increased generation of liquid waste | Negative | Certain | Direct | Long-Term | Local | High | High |
| ***5.6*** | ***Existing resources constraints*** | Increased pressure on water supply | Negative | Certain | Direct | Long-Term | Local | High | High |
| ***5.7*** | ***Community Health and safety*** | Increased risk of spread of HIV and AIDS and STIs | Negative | Certain | Direct | Long-Term | Regional | High | High |
| | | Increased Risk of Spread of COVID- 19 | Negative | Possible | Direct | Long-Term | Regional | High | High |

## 5.4. Other Preliminary Environmental and Social management and planning measures within the Project

Following the identified impacts, some environmental planning measures have already been suggested by the developer and have been incorporated in the designs of the proposed project. The aim is to improve the environmental performance of the project by reducing negative impacts from project activities and to engineer an attractive environmental landscape.

### 5.3.1. Retention of vegetation in the design

Amongst main environmental management measures in place are that at design stage, plans have been made to achieve minimum removal of indigenous trees at the proposed site. This has been done by sparing the majority of indigenous trees at design stage so that they can be part of the Lecture theatres building design (see Figure 2-3).

### 5.3.2. Equitable employment of males and females in the project

The project will consider employing about 150 workers with all unskilled workers being from the surrounding communities. Among these workers, not less than 40% will be females. Qualifying females will be considered for both skilled and unskilled labour.

### 5.3.3. Management measures for avoiding dust pollution.

Dust Emissions are named as one of the significant impacts mainly at construction phase of the project. The project has put in place measures to contain dust emissions from the industry as a corrective action as follows;

(a) Use of water bowsers to dampen dust to avoid dust emissions from the premises and temporary roads.

# Chapter 6 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLANS

## 6.1. Overview

While the project will generate positive and negative impacts at all project cycle phases, this chapter presents the Environmental and social management plan and its associated monitoring plan for the identified impacts, and therein recommends the enhancement measures for the positive impacts and mitigation measures for the negative impacts as corrective actions.

## 6.2. Environmental and Social Management Plan (ESMP)

An Environmental and Social Management Plan (ESMP) (Table 6-1) stipulates actions that should be undertaken by relevant stakeholders including proponent, contractor, communities and government. The plan also guides the process of mitigating negative impacts that have been identified at all stages of the project cycle and enhances realization of the positive impacts of the project. This section presents an ESMP for the MUST lecture theatres building project which has been developed and includes the following:

- Identified and anticipated environmental and social impacts during project implementation. For each environmental and social impact, the corresponding mitigation/ enhancement measures are identified.
- Institutional arrangements for implementation of the ESMP.
- Estimated cost attached to the mitigation/ enhancement measures.

Further, an ESMP as presented in Table 6-1, recommend the contractor to prepare the below list of management strategies and implementation plan (sub management plan) together with the Contractor Environmental and Social Management Plan (CESMP) to achieve environmental safety and health (ESH) objectives for the construction and operation phases. Additionally, Environmental and social rules as specified in Appendix 3 will be strictly followed by the contractors during the construction period.

## 6.3. Environmental and Social Management and Monitoring Plan (ESMMP)

The Environmental and Social Management and Monitoring Plan (ESMMP) is vital tool in ensuring that the environmental and social management plan is implemented as planned. The monitoring plan comprises verifiable indicators, frequency of monitoring, responsible organisations for carrying out the monitoring and those for receiving the reports. The ESMMP provides for monitoring to checking implementation of the enhancement and mitigation measures proposed in the ESMMP. The monitoring plan for

the construction of MUST lecture theatres building will be undertaken to meet the following objectives:

- To monitor the changes in the environmental conditions by the construction and operation of MUST lecture theatres building construction project.
- To check on whether mitigation and enhancement measures have actually been adopted and are proving effective in practice.
- To provide a means whereby any impacts which were subject to uncertainty at the time of preparation of the ESMP, or which were unforeseen, can be identified, and to provide a basis for formulating appropriate additional impact control measures.
- To provide information on the actual nature and extent of key impacts and the effectiveness of mitigation and enhancement measures, through a feedback mechanism.

Environmental monitoring during the construction phase will comprise two principal groups of activities:

1) Review of the contractor's plans, method statements, works designs, and arrangements relating to obtaining necessary approvals from the engineer, for purposes of ensuring that environmental protection measures specified in the contract documents are adopted, and
2) Systematic observation on day-to-day basis, all site activities and contractor's activities including checking that the contract requirements relating to environmental and social matters are being complied with, and that no impacts foreseen and unforeseen are occurring.

These activities will be fully integrated with construction supervision and monitoring activities carried out by the construction supervision consultant. However, primary responsibility for ensuring that adequate level of environmental and social monitoring is carried out will rely on Resident engineer (RE), as part of his duties.

## 6.4. Environmental and Social Management and Monitoring Plans implementation cost

Implementation of ESMP activities as well as those of the monitoring plan will require financial resources. The consultant used professional judgement to calculate the amount of money to be set aside by for meeting the cost of implementing those proposed mitigation measures as well as monitoring activities that are currently not included in the project cost. Based on the nature of the project the estimated budget for environmental and social management along with monitoring plans are estimated at about MMK66,700,000 (where MMK45,400,000 is the estimated cost for implementing enhancement and mitigation measures and MMK21,300,000 is the cost of implementing monitoring measures). However, other costs for certain items associated with

environmental and social management and monitoring have been costed less as they will be an integral part of specific items incorporated in overall project implementation budget.

**Table 6-1**:Environmental and Social Management Plan (ESMP) and Monitoring Plan for proposed Lecture theatres building construction at MUST, under SAVE project

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | **POSITIVE IMPACTS** | | | | | | | | | |
| **PLANNING / PRE-CONSTRUCTION PHASE** | | | | | | | | | | |
| 1 | **Creation of temporary Jobs** | • Prioritize employment of local consultants and Communities<br>• Give equal opportunities for employment to both males and females. | Number of local consultants/ people employed (males versus Females). | 2 contracts given to local consultants | Employment records | MUST-SAVE Project management Team | Thyolo District Labour Office, | Throughout project planning phase | 500,000 | 250,000 |
| 2 | **Increased tax revenues to Government** | • Pay fair remuneration for more taxes collected<br>• Pay tax remittances timely to government | Remuneration records<br>Tax payment records | 100% of taxable remuneration having tax paid to Government | Inspection of remuneration records<br>Inspection of tax payment records | MUST-SAVE Project management Team | Thyolo District Labour Office,<br>MRA | Throughout project planning phase | 300,000 | 200,000 |
| **CONSTRUCTION PHASE** | | | | | | | | | | |
| 1 | **Creation of temporary jobs** | • Give priority to local communities for both skilled and | Number of people employed | All unskilled labourers | Employment records | Contractors | MUST | During Construction | N/A | 500,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | unskilled workers' employment, with all unskilled workers sourced from the surrounding local communities.<br>• Pay good wages/ salaries commensurate with the economic status of the country and Government rules and regulations.<br>• Give equal opportunities for employment to both males and females. | | from project area;<br>40% of the labour force is women | | | | | | |
| 2 | **Increased business opportunities** | • Increase space on the existing market to accommodate new entrants | Size of space created in the already existing market to | At least 10% market space created in the existing market | Inspection of marketplace | MUST-SAVE Project management Team,<br>Local leaders | DCDO | During Construction | NA | 200,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | | accommodate new entrants. | | | | | | | |
| 3 | **Increased skills transfer to local people** | • Employ locals as among skilled workers. | % of local people employed in technical positions | 10 % of skilled personnel from project area;<br>40% of skilled personnel to be women | Employment records | Contractor | MUST-SAVE project management team | During Construction | NA | ,NA |
| 4 | **Increased tax revenues to Government** | • Pay fair remuneration and according to law for more workers to be in the tax paying category.<br>• Support the SMEs to do their businesses at the designated places around the university for easy tax collection by relevant authorities.<br>• Pay tax remittances | Remuneration records<br>Tax remittance reports | 100% of taxable remuneration having tax paid to Government | Inspection of remuneration records<br>Inspection of tax payment records | MUST-SAVE Project management Team, Contractor, | Thyolo District Labour Office/ District Council,<br>MRA, | Throughout Construction | 500,000 | 300,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | timely to government | | | | | | | | |
| **DEMOBILISATION PHASE** | | | | | | | | | | |
| 1 | Reduced noise levels | • Remove all working and damaged construction equipment from the site. | Records of damaged construction equipment removed from the site | 100% of damaged construction equipment removed from the site | Visual Inspection | Contractor | MUST-SAVE Project management Team; EDO | Before and During demobilisation | 1,000,000 | 500,000 |
| 2 | Reduced dust emissions | • Carry out soft and hard landscaping after construction works to reduce risks of further dust emissions | Landscaping plan in place | 100% landscaping in all planned spaces for that activity | Visual Inspection | Contractor | MUST-SAVE Project management Team; | Before and during demobilisation | 2,000,000 | 500,000 |
| **OPERATION AND MAINTENANCE PHASE** | | | | | | | | | | |
| 1 | **Creation of Jobs** | • Prioritise local communities and Malawians, on job recruitment.<br>• Pay good wages/ salaries commensurate with the | Number of local people employed (males versus Females). | All unskilled labourers from project area;<br>40% of the labourer force is women | Site employment records | MUST Management | District Labour Officer, | During Operation | Part of operation cost | 200,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | economic status of the country and Government rules and regulations.<br>• Give equal opportunities for employment to both males and females. | | | | | | | | |
| 2 | **Increased business opportunities** | • Increase space on the existing market to accommodate new entrants | Size of space created in the already existing market to accommodate new entrants. | At least 10% market space created in the existing market | Inspection of market place | MUST-SAVE Project management Team, | DCDO | During Operation Phase | Part of operation cost | 200,000. |
| 3 | **Increased tax revenues for the Government** | • Pay fair remuneration and according to law for more workers to be in the tax paying category.<br>• Support the SMEs to do their businesses at the designated places around the university for | Remuneration records<br>Tax remittance reports | 100% of taxable remuneration having tax paid to Government | Inspection of remuneration records<br>Inspection of tax payment records | MUST-SAVE Project management Team, Contractor, | District Labour Office/ District Council, Malawi Revenue Authority, | During Operation | 700,000 | 500,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | easy tax collection by relevant authorities.<br>• Pay tax remittances timely to government | | | | | | | | |
| 4 | **Increased and improved classroom space and its amenities** | • Provide the necessary equipment to facilitate teaching and learning;<br>• Recruit well qualified academic and non-academic members of staff; and<br>• Maintain all the equipment and infrastructure regularly to support long time teaching and learning. | % of the available infrastructure in equipment in use<br><br>Records of equipment maintenance | 100 % infrastructure and equipment usage<br><br>100% of all faulty infrastructure maintained | Visual inspection<br><br>Maintenance records | MUST-SAVE Project management Team, MUST management, | MoE, MUST Management, | During Operation | Part of project cost | 200,000 |
| 5 | **Increased enrolment and skills transfer to students.** | • Increase enrolment of students including women and vulnerable | Number of students enrolled. | 5 new programmes and courses introduced | Enrollment records<br><br>New curriculum | MUST Management, | Ministry of Education, | During Operation | 1,200,000 | 1,000 ,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | groups as planned.<br>• Maintain the infrastructure, facilities and equipment regularly to sustain long term production of the intended products.<br>• .. | Number of new programs introduced.<br>Number of private sector entities engaged | 2000 additional students enrolled | and programs introduced.<br>Stakeholder engagement reports | | | | | |
| 6 | **Improved aesthesia of the Institution** | • Implement planned activities with stakeholder engagement throughout.<br>• Maintain the infrastructure, facilities and equipment installed regularly, to sustain the infrastructure | Evidence of stakeholder engagement<br>State of the infrastructure | 100% planned infrastructure and its amenities in place | Stakeholder engagement reports on planned infrastructure<br>Number of anti-vandalism structures in place<br>Equipment maintenance records | MUST-SAVE Project management Team, MUST Management, | | Before and during operation and maintenance | Part of operational cost | NA |
| **NEGATIVE IMPACTS** | | | | | | | | | | |
| **PLANNING / PRE-CONSTRUCTION STAGE** | | | | | | | | | | |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| 1 | **Increased risk of blockage of some footpaths** | • Relocate all affected footpaths before project commencement.<br>• Sensitize students on newly designated footpaths<br>• Sensitize students on the proposed project through social weekend event | Number of footpathsblocked against newly created | 50% newly created footpathswith students sensitized on the location of newly created footpaths | Visual Inspection | MUST-SAVE Project management Team, Contractor, | MUST Management | During project planning | 3,000,000 | 500,000 |
| | | | | | | | | | | |
| | | **CONSTRUCTION PHASE** | | | | | | | | |
| 1 | **Loss of existing vegetation/ Flora** | • Adhere and prioritize avoidance and minimization aspects of mitigation hierarchy and precautionary approach in land clearing to protect existing indigenous flora, as per ESS6. | Adherence avoidance and minimization standard by Contractors on vegetation<br><br>Types of bricks being used | 100% adherence to rules/ design with respect to vegetation by contractor<br><br>100% use of bricks from | Visual inspection<br><br>Records of sources of construction materials<br><br>Records on adherence to | Contractor | MUST-SAVE Project management Team; EDO/ DFO | During construction | 1,000,000 | 700,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | • Implement the project as per the design with natural flora protected and retained.<br>• Use cement blocks and from licenced sources during construction and not locally sourced burnt bricks.<br>• Compensate trees cut by replanting and greening open spaces within the site | Trees replanting plan | licenced sources<br><br>100% adherence to tree replanting plan | tree replanting plan | | | | | |
| 2 | **Increased risk of soil erosion** | • Restrict land clearing and excavations only to spaces affected by construction activities and construct drainage where necessary.<br>• Avoid excavations and | Area of exposed soils | area exposed to soil erosion | Regular site inspection | Contractor | MUST-SAVE Project management Team; EDO/ DFO | Throughout construction | 1,200,000 | 700,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | soil disturbance during rainy season.<br>• Back fill all excavations immediately<br>• Landscape/ re-plant vegetation of indigenous species as soon as constructions phase is completed. | | | | | | | | |
| 3 | **Increased noise pollution** | • Restrict construction activities to during daytime (regular work hours) and not at night.<br>• Fence the project area as a barrier to noise.<br>• Limit very noisy activities to times when the university is in holiday time.<br>• Provide workers and with noise muffs as PPE where necessary. | Vehicle and machine servicing records<br>Existence of fence<br>Existence of equipment with noise silencers<br>Notices to surrounding community on time of conducting | period when highest levels of noise are recorded (A notice should be issued out for every high noise level to be generated) | Site Inspection<br>Random interviews to workers and surrounding communities<br>Notices issued for very high noise level activities | Contractor | MUST-SAVE Project management Team; EDO; | Before and during construction | 1,000,000 | 700,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | • Ensure that all employees operate in less than 8 hour shifts during noisy activities (of over 85dB noise levels), to reduce their exposure to noise.<br>• Service vehicles and machinery regularly to avoid excessive noise<br>• Use modern equipment with noise silencers. | very noise activities.<br><br>Employees shifts records during noisy activities | | | | | | | |
| 4 | **Increased risk of vibrations** | • Minimize use of heavy machinery during construction phase of the project | Type of equipment in use versus best practices | 0 number of Complaints from vibrations | Report on equipment used<br><br>Random interviews on vibrations complaints | Contractor | MUST-SAVE Project management Team; EDO; Contractor | During construction | 1,000,000 | 700,000 |
| 5 | **Increased disruption of classes and** | • Avoid concurrent noisy activities from the proposed lecture theatres | Before and during construction | 0 number of complaints of library and classroom | Site Inspection<br><br>Random interviews | Contractor | MUST-SAVE Project management Team; EDO; | During construction | 1,000,000 | 900,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | **library activities** | construction and existing laboratory construction projects happening together.<br>• Restrict noisy activities to when classes are not in session.<br>• Fence project site / put noise barriers.<br>• Identify alternative routes to the construction sites.<br>• Adhere to code of conduct | Existence of fence<br>Records of time of conducting very noise activities<br>Code of conduct in place | users from noise | with students and staff | | | | | |
| 6 | **Increased dust emissions** | • Implement excavation and burrowing activities before the peak of dry season.<br>• Suppress dust regularly using water method through regular sprinkling around the | Number of complaints<br>Use of PPE<br>Water bowser/ dust suppression equipment visible<br>Records of time of | 0 complaints on dust emissions<br>100 % of stockpiles and haulage vehicles carrying fine materials | Site Inspection<br>Random Interviews | Contractor | MUST-SAVE Project management Team; EDO; | During construction | 2,050,000 | 500,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | project area and affected areas.<br>• Provide PPE to workers.<br>• Use closed/covered trucks for transportation of construction materials and debris | delivery of construction materials | (e.g., sand, gravel, quarry dust and gravel covered and wetted where necessary | | | | | | |
| 7 | **Increased generation of rubble/ heaps of excavated soils** | • Dispose construction generated wastes such as rubble in identified burrow pits of the site and/or an area by district authorities | Available appropriately identified disposal site | 0% presence of rubble/ excavated heaps of soils that were generated over a fortnight. | Site inspection | Contractor | MUST-SAVE Project management Team; EDO; | During construction | 1,200,000 | 500,000 |
| 8 | **Increased generation of non hazardous solid waste** | • Provide adequate bins for waste collection with separation at source concept,<br>• Store non-hazardous waste at designated locations before final disposal at appropriate sites | Number of bins segregated by type of waste<br>Number of awareness campaigns<br>Existence of designated areas for | 100% non-hazardous solid waste managed and collected for safe disposal | Visual Inspection | Contractor | MUST-SAVE Project management Team; EDO; | During Construction | 1,050,000 | 400,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | agreed with local authorities<br>• Raise awareness on 4 Rs (Refuse, Reduce, Reuse and Recycle) | storage of waste | | | | | | | |
| 9 | **Increased generation of hazardous waste** | • Segregate hazardous waste from other waste streams to ensure safe handling.<br>• Secure store and label all storage areas for hazardous wastes to minimise the risk of accidents, spills, or contamination<br>• Dispose hazardous wastes at designated places and by a competent authority, according to regulations. | Existence of designated and secure areas for storage of hazardous waste | 100% hazardous waste managed and collected for disposal | Visual Inspection | Contractor | MUST-SAVE Project management Team; EDO; | During Construction | 1,000,000 | 300,000 |
| 10 | **Increased disruption of water** | • Identify and use ground water resources for | Availability of ground water supply for | 100 % of construction water to be | Site Inspection | Contractor | MUST-SAVE Project | During construction | 3,000,000 | 500,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | **supplies at the campus and nearby residents** | construction activities.<br>• Engage in other water management options during construction to conserve water resources. | workers and construction activities. | collected from underground sources and rivers if necessary | | | management Team; | | | |
| 11 | **Increased surface water pollution** | • Compact all excavated areas to reduce run-off and stormwater impact.<br>• Involve waste management authorities for safe disposal of wastes. | State of surface water quality of surrounding premises compared to baseline. | 0 incidences of increased surface water quality pollution reported | Site inspection<br>Assessment of surface soil and water quality compared to baseline | Contractor | MUST-SAVE Project management Team, EDO | During construction | 1,000,000 | 500,000 |
| 12 | **Increased risk of oil spillage** | • Implement a regular maintenance schedule for all equipment and machinery to prevent leaks and hydraulic failures.<br>• Conduct frequent inspections of equipment and storage tanks, to | State of machinery used with respect to potential leakages | 0 incidences of oil spillages sighted or reported | Site/ Visual inspection | Contractor | MUST-SAVE Project management Team, EDO | During construction | 500,000 | 400,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | identify and repair any potential leaks.<br>• Use spill containment trays during refuelling and upon identification of leaks | | | | | | | | |
| 13 | **Increased of occupational hazard and Occupational health and safety** | • Conduct regular risk assessments.<br>• Inspect and maintain all equipment and vehicles regularly.<br>• Install safety barriers, signage, and emergency exit.<br>• Where applicable use permits for specialised or high risk tasks | Availability of risk assessment records<br>Availability of inspection and maintenance records<br>Availability of safety barriers and signage<br>Availability of permits<br>Percentage of workers with PPE | No accidents occurrence and reported | Site inspection<br>Inspection of accident reports/ records | Contractor | District Labour Office, MUST-SAVE Project management Team | During construction | 2,000,000 | 500,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | • Provision of adequate and appropriate PPE<br>• Maintain First Aid Box, first aiders and provide first aid trainings<br>• Ensure provision of appropriate and adequate safety equipment for working on height tasks.<br>• Conduct regular safety inspections to ensure maximum safety of workers.<br>• Enforcing strict safety protocols and reporting mechanisms.<br>• Train all workers on proper use and handling of equipment. | Availability of First Aid Box<br>Availability of inspection records<br>Availability of training records | | | | | | | |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | • Install signage in all critical areas and indicating "Danger equipment" "Pedestrian walking", "No parking", slow down "Stop" etc.<br>• Provide safe scaffolding equipment.<br>• | | | | | | | | |
| 14 | **Increased risk of spread of HIV and AIDS and STIs** | • Implement national HIV and AIDS workplace policy<br>• Sensitize all workers, students and the community at large on HIV and AIDS and STIs, including prevention.<br>• Provide condoms at the site or nearby clinic. | HIV and AIDS Policy implementation in place<br>Number of sensitization meetings/ signage available<br>Condoms distributed | 0 new cases of HIV and AIDS | Inspection of monthly progress reports and Health records | Contractor | MUST-SAVE Project management Team, District Health Office, | During construction | 2,000,000 | 500,000 |
| 15 | **Increased Risk of** | • Conduct sensitizations | Number of Awareness | 0 new cases of COVID-19 | Monthly progress | Contractor | MUST-SAVE Project | During construction | 1,200,000 | 500,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | **Spread of COVID- 19** | COVID-19 symptoms and prevention to workers.<br>• Provide equipment to enhance hygiene i.e. water for washing hands, soap and sanitizers are made available at all time in the work premises<br>• Adhere to COVID-19 measures as specified by government.<br>• Make protective face masks available at the workplace for those potentially ill can wear to avoid COVID-19 spread. | campaigns/ Signage available<br>Sanitary and protective materials distributed and in use<br>COVID-19 Policy in Place | | reports and Inspection of health records | | management Team, District Health Office, | | | |
| 16 | **Increased risk of the spread of Cholera** | • Provide access to safe and clean drinking water through improved water supply and other treatment | Existence of source of clean water for drinking and cooking | 0 cases of Cholera reported | Monthly progress reports and Inspection of health records | Contractor | MUST-SAVE Project management Team; District Health Office, | During construction | 1,200,000 | 700,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | methods e.g. chlorination.<br>• Ensure access to adequate sanitation facilities, including clean toilets for workers to avoid cholera outbreaks.<br>• Promote proper hygiene practices, such as handwashing with soap and water, particularly before eating and after using the toilet.<br>• Implement community-wide sanitation programs, including waste management and proper disposal of faecal matter. | Existence of clean toilets<br>Existence of messages or materials to ensure proper hygiene among workers | | | | | | | |
| 17 | **Increased public safety risks** | • Fence the construction site to limit access. | Fence in place<br>Signage/ safety tape in | 100% construction site is fenced and signage/ | Site inspection | Contractor | District Labour Office, MUST-SAVE | During Construction | 1,000,000 | 700,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | • Put safety tape around all potentially dangerous spaces and excavations.<br>• Install signage to limit access. | place in all potentially dangerous areas | warning signs put in place | | | Project management Team, Public works | | | |
| 18 | **Increased gender based violence** | • Sensitize workers, MUST staff, students and surrounding communities on GBV.<br>• Promote women's employment | Number of GBV sensitization meetings/ materials<br>Percentage of women employed.<br>Number of GBV complaints registered and resolved | 0 incidence of gender-based violence involving workers | Inspection of records | MUST-SAVE Project management Team<br>Contractor | District Gender Office, MUST-SAVE Project management Team | During construction | 1,200,000 | 500,000 |
| 19 | **Increased risk of child labour** | • Employ only those aged 18 years and above as workers.<br>• Sensitizations workers, students and surrounding | Employee Records<br>Number of sensitization meetings/materials on violence | 0 underage workers employed at the construction site | Inspection of records<br>Random Interviews | MUST-SAVE Project management Team<br>Contractor | MUST-SAVE Project management Team; District Labour Office, | During Construction | Part of the project | 1,700,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | communities on child labour<br>• Check workers' ID's before employing them | against children<br>Number of underage employment cases reported and resolved | | | | | | | |
| 20 | **Increased risk of sexual harassment and exploitation of students** | • Sensitize workers and students on the dangers of sexual harassment.<br>• Fence the project site and have own entrance gate to minimize interaction with students<br>• Put in place robust Grievance redress mechanisms and make it known to workers, students and local communities.<br>• Put in place Signage with contacts on | Number of awareness meetings/materials on sexual harassment<br>Number of SEA Cases/ Incidences involving workers reported and resolved | 0 incidence of sexual harassment involving workers | Random Interviews<br>Inspection of GRM records | MUST-SAVE Project management Team<br>Contractor | District Gender Office, MUST management | During construction | 1,500,000 | 550,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | where to report grievances. | | | | | | | | |
| 21 | **Increase in theft cases** | • Sensitize workers on dangers and consequences of theft.<br>• Empower and utilize community policing.<br>• Extend existing community security service to cover project site. | Number of sensitization meetings/materials on theft issues<br>Reports of theft incidences<br>Records of involvement of community security personnel | 0 incidences of theft reported involving construction workers | Random Interviews<br>Inspection of reports of theft cases involving construction workers | MUST-SAVE Project management Team<br>Contractor<br>Existing security services provider, and Malawi Police Service | Malawi Police, MUST-SAVE Project management Team | During construction | 1,500,000 | 500,000 |
| 22 | **Increased generation of liquid waste** | • Channel all construction wastewater to designated places where it can be safely disposed or treated.<br>• Dispose all the waste in designated dumpsite in liaison with Thyolo District Council | Existence of channels for construction wastewater<br>Signage and Awareness of 4Rs in place | 0% undirected effluent from construction site | Visual Inspection | Contractor | MUST-SAVE Project management Team<br>EDO; | During construction | 2,000,000 | 750,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | • Raise awareness on 4 Rs (Refuse, Reduce, Reuse and Recycle) | | | | | | | | |
| 23 | **Increased congestion of campus toilets by construction workers.** | • Construct temporary toilets for the workers on the construction site and segregated by gender | Temporary toilets for workers and segregated by gender in place | 0% congestion of campus toilets by construction workers | Visual Inspection | Contractor | MUST-SAVE Project management Team | During construction | Part of construction funds | Part of construction funds |
| **DEMOBILIZATION PHASE** | | | | | | | | | | |
| 1 | **Loss of jobs and livelihood** | • Give adequate notice of termination of employment.<br>• Signing of contracts that have clear duration by workers<br>• Provide appropriate terminal benefits to workers at demobilisation stage. | Notice of termination of employment.<br>Terminal benefits provided | 3 months notice of termination of contract due to demobilization | Random interviews<br>Site inspection of notices | Contractor | MUST-SAVE project team | Before demobilisation stage | NA | NA |
| 2 | **Increased risk of generation** | • Clear all areas of demolition waste followed by | Demobilisation plan in place | 100% adherence to | Site inspections | Contractor | MUST-SAVE Project | During demobilisation stage | 2,000,000 | 500,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | **of demolition waste** | restoration and vegetative landscaping of all demolished areas. | | demobilisation plan | Inspection of records | | management, EDO | | | |
| **OPERATION AND MAINTENANCE PHASE** | | | | | | | | | | |
| 1 | **Increased vulnerabilities amongst the persons living with physical disabilities in accessing the building** | • Design, construct and operate disability friendly infrastructure for easy access of all | Disability friendly features incorporated | 100% construction and operation of disability friendly structures of the infrastructure | Visual Inspection | MUST-SAVE Project management Team<br>Contractor | Ministry of Education,; MUST Management | Before and during Operation | Part of the project cost | 700,000 |
| 2 | **Increased generation of solid waste** | • Provide adequate bins for waste collection with separation at source concept,<br>• Store waste at designated locations before final disposal at appropriate sites agreed with local authorities | Number of bins segregated by type of waste<br>Signage and awareness of 4Rs in place | 100% solid waste managed and collected for disposal | Visual Inspection | MUST-SAVE Project management Team<br>Contractor | EDO; MUST Management | Before and during operation | 2,000,000 | 500,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | • Raise awareness on 4 Rs (Refuse, Reduce, Reuse and Recycle) | | | | | | | | |
| 3 | **Increased pressure on energy/electricity** | • Install energy saver bulbs and equipment<br>• Ensure that the building designed to allow natural lighting<br>• Switch off lights and equipment when not in use<br>• Use back-up generators to reduce pressure on energy<br>• Install solar energy at the site to ease pressure on energy | Availability of energy saver bulbs and equipment<br>Designs of the building<br>Availability of generators<br>Availability of solar energy | 100% use of energy saving equipment and bulbs | Physical inspection | MUST SAVE project management team | MUST Management | During Operation | Part of project cost | NA |
| 4 | **Increased pressure on water** | • Install water-saving technologies such as low-flow faucets, toilets, and showerheads | Availability of water-saving technologies<br>Availability of a borehole<br>Availability of water | 100% use of water saving technologies | Physical inspection | MUST SAVE project management team | MUST Management | During Operation | Part of project cost | NA |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | • Turn of the faucets when not in use<br>• Supplement water from Southern Region Water Board with water from the borehole<br>• Use harvested water to water the flowers and lawns | harvesting structure | | | | | | | |
| 5 | **Increased risk of spread of HIV and AIDS and STIs** | • Sensitize all staff and students on HIV and AIDS and STIs<br>• Provide VCT services at the Campus.<br>• Provide condoms at the site or nearby clinic. | HIV and AIDS Policy in place<br>Number of sensitization meetings/ signage available<br>Condoms distributed | 0 new cases of HIV and AIDS | Random interviews/ Site Inspection<br>Inspection of Health records | MUST-SAVE Project management Team, | MUST management; District Health Office, | Before and during operation | Part of project cost | NA |
| 6 | **Increased Risk of Spread of COVID- 19** | • Conduct sensitizations on COVID-19 symptoms and prevention to staff and students. | Signage available<br>Sanitary and protective materials | 0 new cases of COVID-19 | Site inspection<br>Inspection of records | MUST-SAVE Project management Team | District Health Office, MUST-management | Before and during operation | 1,200,000 | 500,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | | • Provide equipment to enhance hygiene at all time at the campus.<br>• Adhere to Covid-19 measures as specified by Government | distributed and in use<br>COVID-19 Policy in Place | | | | | | | |
| 7 | **Increased generation of liquid waste** | • Channel all wastewater to designated places for disposal or treatment.<br>• Connect sanitary facilities to the newly constructed septic tanks.<br>• Raise awareness on 4 Rs (Refuse, Reduce, Reuse and Recycle) | Existence of channels for waste water<br>Signage and awareness of 4Rs in place | 0 undirected effluent spillages<br>2 training sessions for waste handlers | Site Inspection | MUST-SAVE Project management Team, | MUST management ; EDO; | During operation | 700,000 | 200,000 |
| 8 | **Increased risk of Gender Based Violence, Sexual exploitation,** | • Sensitize MUST staff and students on GBV/SEA and harassment.<br>• Strengthen grievance redress mechanisms | Number of awareness campaigns on GBV/SEA and harassment<br>Number of SEA Cases/ Incidences | 0 incidence of GBV, SEA and harassment involving staff and students | Random Interviews<br>Inspection of GRM records | MUST-SAVE Project management Team, | MUST Management | During operation | 500,000 | 200,000 |

| | | | | | | Responsibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost(MMK)** |
| | **abuse and harassment.** | including reporting mechanisms for GBV/SEA and harassment. | involving staff and students reported and resolved | | | | | | | |
| **Total** | | | | | | | | | **44,200,000** | **20,800,000** |

## 6.5 Institutional Framework for ESMP implementation and Monitoring

The implementation of the project and this ESMP will be an overall responsibility of the Malawi University of Science and Technology (MUST). Other key institutions including Ministry of education and MEPA through the District environmental office as a monitoring and enforcement agency.

### 6.5.1 Malawi University of Science and Technology (MUST)

MUST is responsible for the environmental and social impact management of the proposed project. MUST as the custodian of the project, will have to ensure that the contractor and parties involved comply with environmental and social mitigation and enhancement measures laid in this ESMP, including the requirements for all policy and legal frameworks and World Bank's ESF highlighted are adhered to. Specifically, the responsibility for environmental and social management of the proposed project at MUST rests with the Environment and Social Safeguards specialists' focal point for MUST, owners engineer and and/or can be delegated to the contactor. Moreover, MUST has to constantly work with the District council including seeking certification of the contractor and to make sure all requirements are satisfied for smooth implementation of the project.

### 6.5.2 SAVE Project Implementation Unit (PIU)

SAVE Project Implementation Unit (PIU) as an overseer of implementation units for the project which includes MUST. PIU will play a crucial role in overseeing the execution of MUST lecture theatres building construction as one of its sub-projects. This will include ensuring that the implementation of both the project including its respective ESMP is delivered within budget, and according to specified quality standards and measures.

### 6.5.3 Ministry of Education

The Ministry of Education is the main implementer of SAVE project and custodian of MUST to which the project will be implemented. As such, will take responsibility of ensuring that there is compliance with national environmental and social laws and the World Bank ESF policies by MUST, during the implementation of the project. The ministry through the SAVE project implementation unit will also have an oversight role during the construction and operation of the lecture theatres building including ESMP implementation and monitoring.

### 6.5.4 Malawi Environment Protection Authority (MEPA)

MEPA is responsible for the determination of the level of environmental assessment a project is to undergo and the provision of environmental certification of the development project. MUST as the developer, contacted Thyolo district environmental office to

undertake the screening process (screening form is attached as appendix 7) for the project. After the screening process and upon development of the project brief by the developer, submissions of the screening forms and project brief were made to MEPA who then recommended that the project should have an Environmental and Social Management Plan. The screening form is presented in Appendix 7. MEPA has also the role of reviewing and approving the ESMP. Through District Environment Officers, MEPA will also inspect the ESMP implementation for compliance to mitigation and enhancement measures proposed by this ESMP and in accordance with the Environment Management Act, 2017.

### 6.5.5 Thyolo District Council

The District council through the environment, labour, social welfare and public works offices, Education etc. will also be responsible for monitoring of the activities both during construction and implementation of the lecture theatres building. The district council has a District Environmental Sub-committee (DESC) which has the responsibility for appraising projects, environmental management plans and monitoring. Therefore, the council should be engaged fully including in the recruitment of the contractor and issuing of contractor certificate. Also all reports from the contractor and MUST will have to be reviewed by the DESC. MUST and Contractor must work with Thyolo district council's Environmental district officer (EDO) in implementing the ESMP and monitoring the project activities. The District social welfare officer (DSWO) and the District gender officer (DGO) will be involved in the implementation, monitoring and follow up of any GBV, sexual abuse and exploitation and any child welfare issues related to the project.

### 6.5.6 Supervising Engineer (SE) for the construction of the Lecture Theatres building.

The supervising engineer (SE) will supervise the implementation of the project. The SE will have environmental, social, GBV/SEA and HIV and AIDS specialist to ensure that all requirements of this ESMP are fully implemented. The SE will also be responsible for monitoring of the activities of the contractor and implementation of this ESMP.

### 6.5.7 The Contractor

The contractor is responsible for the implementation of this ESMP and before that, a contractor environmental and social management plan (CESMP) that is aligned with this ESMP has to be prepared for implementation. This is to ensure that there is sound implementation of environmental and social management measures suggested by this ESMP during construction. Moreover, the contractor like SE will have environmental and social specialists who will be responsible for the implementation of the mitigation measures proposed in this ESMP and/or CESMP including;

- Planning construction works in a manner that avoids or minimizes impact to environment.
- Ensuring that construction personnel manage construction works in accordance with statutory and approval requirements.
- Ensuring that environmental management procedures and protection measures are implemented.
- Ensuring that all project personnel attend an induction prior to commencing works.
- Ensuring that all project personnel sign a code of ethical conduct before commencing works.
- Ensuring that construction works in the Project complies with relevant legislation and conditions of this ESMP.

### 6.5.8 Surrounding communities and Local leaders

The surrounding communities and their local leaders are among the key stakeholders in the implementation of the project and therefore should be engaged throughout the project life cycle. The Local leaders can be engaged in a number of activities to facilitate easy implementation of the ESMP and helping that the benefits accrued to the community due to the implementation of this project, should be enhanced. Among the activities these local leaders can be engaged in are for instance identification of unskilled workers from the community among others. Developer and Contractor should therefore cooperate fully with the communities and their leadership for easy implementation of other activities of the project e.g. recruitment of workers.

# Chapter 7 CAPACITY DEVELOPMENT, TRAINING AND REPORTING

## 7.1 Technical Assistance support for the implementation of safeguards

The success of effective implementation of this ESMP will be rests on the availability of technical equipped staffs and other relevant implementing parties. Thus, the design and implementation of technical capacity building program for implementing institution with the right skills and knowledge is unavoidable. This effective capacity building program could be through availing of the required resources and training of staff and all other parties involved in this ESMP implementation, including the contractor and all subcontractors. Project implementing bodies need to understand inherent social and environmental issues and values of the proposed MUST lecture theatres building construction project and be able to identify and manage.

Given less familiarity on WB ESF by staff from the implementing institution and other relevant institutions and stakeholders directly and/or indirectly engaged in the implementation of the proposed MUST lecture theatres building construction project and to ensure successful implementation of the Environmental and Social Standards, there is need for capacity building. Thus, implementation of environmental and social safeguards management, requires capacity building those addresses required knowledge and skill gaps through planning and implementation of project capacity building program. Therefore, it is proposed to provide capacity building through technical assistance that will support the PIU and other relevant institutions during the implementation of this ESMP and other safeguards requirements over the project period. The technical assistance will provide the necessary technical support to the PIU in its work with contractors as well as other entities involved in the implementation of the ESMP.

Given the nature of construction activities, it is anticipated that the safeguard technical assistance support and training will be provided at least 2 times (one on preconstruction phase and another on construction phase). An indicative training plan is indicated in Table 8-1. The WB safeguard specialists may participate in the capacity building activity in particular, in the training activities if appropriate.

Other than administering trainings to staff from the implementing institution and other relevant institutions and stakeholders, the contractor will also be required to provide regular toolbox trainings to the workers. Toolbox trainings are aimed at equipping workers with capacity to avoid noncompliance to ESMP and facilitating effective implementation of remedial measures in case an incident has happened e.g. an accident.

The ESMP training form template to report details of trainings conducted has been provided in Appendix 2 (b)

### 7.1.1 Training programs proposed.

Training of personnel to be deployed on the proposed project during construction and operation, with regard to environmental and social safeguards requirements should be the integral part of the planning. The training programs will be developed and delivered by MUST-SAVE project management team and MEPA. MUST develop detailed program for training of personnel and implementation with regard to the environmental and social safeguards requirements. MUST with the support of the MoE will provide the training to contractors and other relevant groups.

***- Target groups for the training:*** include MUST-SAVE Project management team, MUST staff and students, field engineers, construction contractors, local authorities, and community representatives in the subproject area. Training of workers and drivers is the responsibility of the contractor.

***- Training schedule:*** At least 1 month before the construction of the first contract. The training can be adjusted in line with the implementation schedule of the project/contracts.

***- Training frequency*:** The basic training programs shall be conducted twice and its content updated and adapted during implementation. The training program for Contractor's staff will continue until the completion of the project. The tentative training plan is presented in Table 7-1.

**Table 7-1: Tentative Training Plan**

| No. | Description of Training | Training Module | Frequency | Participation |
|---|---|---|---|---|
| 1 | Two-day Training Workshop | • Objectives, need and use of ESMP;<br>• Legal requirements of the ESMP (National legislations and World Bank Operational Policies);<br>• Management of environmental and social issues and mitigation strategies as per ESMP;<br>• Monitoring Mechanism Documentation and reporting procedures.<br>• Stakeholder engagement, consultation, and partnerships.<br>• Identification of impacts and mitigation measures and development of site-specific environmental and social plans, such as GBV/SEA etc.<br>• Grievance Redress Mechanism (GRM)<br>• Gender based Violence (GBV), Abuse of child labour, issues etc. | Launch workshop; 1 month before the construction of the first contract | Project management team including Project Manager, Relevant Staff from MoE, Environment and Social Safeguards Specialists, Engineers, and District Environment Officers etc. |
| 2. | One day community sensitization meeting | • Anticipated project impacts and mitigation measures<br>• Grievance Redress Mechanism (GRM), Gender based Violence (GBV), Abuse of child labour and issues linked with labour influx.<br>• Roles and responsibilities of the Community, contractor, MUST and other stakeholders | At Project Design and during construction | Community members, Staff and Students. |
| 3 | Toolbox Training | • Anticipated project impacts and mitigation measures at each stage<br>• Grievance Redress Mechanism (GRM), Gender based Violence (GBV), Abuse of child labour.<br>• Occupational Health and Safety measures including first Aid<br>• Code of Conduct | Depending on type of work, task for the day and risk assessment but at least weekly | All workers at the construction site |

### 7.1.2 Reporting Requirements

The ESMP implementation progress reports should be prepared which summarize the results of all monitoring. The reports will give monitoring data in a standard format (Appendix 2(a)). Performance reports should emphasize any significant violations of contract provisions by the contractor or any failure to implement requirements of the ESMP. Any significant incidents of environmental contamination should be summarized, along with actions taken to mitigate these and to prevent reoccurrence. Progress Reports should be submitted to MUST-SAVE project management team, and other relevant institutions periodically during construction, up on request. In case of follow up monitoring visit, a follow up form for reporting implementations of violations is also prepared and presented in Appendix 2(c).

Regardless of the reporting forms and periods, all accidents and incidents will be reported immediately. Notification will be given by the contractor/Supervising Engineers to MUST-SAVE project management team who will then report the incident to World Bank through the PMU within 48 hours of occurrence. Incidents to be reported will include but not limited to

- near misses
- fatality
- lost time injury
- Spillage
- GBV/SAE incidents

The Incident report shall include.

- Date, time and place of the incident
- Description of the incident
- Type of injury or damage sustained.
- Person involved.
- Corrective action to reduce spread or damage.

# Chapter 8 GRIEVANCE REDRESS MECHANISM (GRM)

## 8.1. General

Grievance redress mechanism (GRM) is designed because the proposed MUST lecture theatres building project activities may affect the existing social balance at the institution and surrounding community. The purpose of a GRM is to establish a way for individuals, groups, or communities affected by the project activities to provide feedback, lodge complaints/grievances and have the grievances redressed.

Complaints relating to any proposed project's problems will be solved through negotiations to achieve consensus. A complaint will go through various stages before it can be transferred to the court. The enforcement unit will pay all administrative and legal fees relating to the acceptance of complaints.

During consultations with MUST staff and students, it was reported that MUST launched a community grievance redress mechanism at the campus, to be accessed and used by staff, students, the communities, community leaders and all stakeholders involved on the sub project. However, community members reported of not knowing and participating in the committee. This therefore point to that;

- Though community GRM already exist at MUST and seeks to even handle community grievances regarding the project, the committee composition should be restructured to accommodate community membership representation, if it is to be effective and generic community grievance redress committee. This CGRM will be regarded as a lower-level committee responsible for uptake, handling and redressing grievances from the community including staff and students at the University.
- Moreover at lower level, a workers grievance redress committee (WGRC) should also be established for the project to uptake, handle and redress workers grievances.
- At higher level, a new Institutional grievance redress committee (IGRC) should be formulated, and its membership should comprise representation from MUST project management, community grievance redress committee, workers grievances redress committee and depending on the nature of the issue, an ex-official can be drawn from University staff, contractor, project workers, students and community members representation. This IGRC will be handling grievances that have been referred from CGRC and WGRC.
- During District consultations, it was indicated that the district grievance redress committee (DGRC) already exist at the Council level. This can be utilised as an institution to handle grievances referred from the IGRC. Representatives from

project management and Institutional GRM will however participate in the DGRC to facilitate feedback processes.

- In case of failure to resolve a grievance at district level (DGRC), referral shall be made to the National Project Implementation Unit grievance redress committee (PIUGRC) as the highest committee for the project. Failure to resolve a grievance at PIUGRC level, then PAPs will be advised to seek further redress from the Courts.

The visual representation of the MUST construction Project's Grievance redress mechanism is presented in Figure 8-1 .

Additionally, the members from all the GRCs (WGRC, CGRC, IGRC, DGRC and PIUGRC) should be trained to record and redress grievances as they receive them. Some key stakeholders at community and contractor's representatives will be included in the trainings. Additionally, he GRM will be launched at the contractor workers site and community levels and all GRC members will be trained. and all stakeholders sensitized on grievance uptake mechanisms, recording and redress mechanisms.

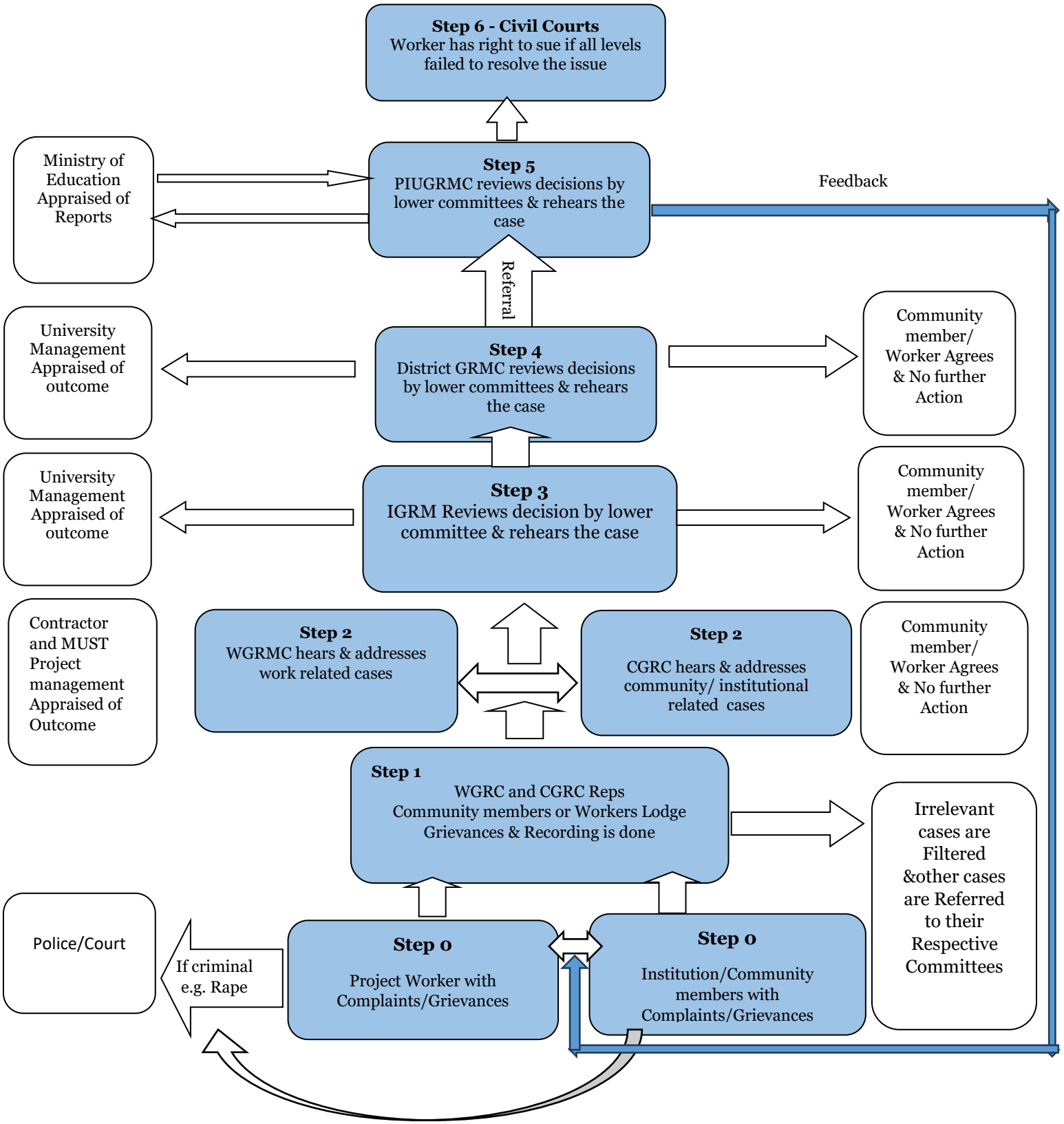


Figure 8-1: Visual representation of the MUST construction Project's Grievance redress mechanism.

## 8.2. Grievance Redress Procedure

Following the GRM structure presented in Figure 8-1, the redress procedure at every will have 5 stages from when a grievance is first reported to when it is resolved. These stages are outlined below as follows.

**Stage 1: Complaint Uptake**

PAPs will present their complaints or grievances to the GRMC by filling a form provided as appendix 4. A drop-in box will be provided at the University and/or any other agreed location in the community to facilitate easy uptake of grievances. A whatsapp message phone number, toll free number or email address will also be provided for grievances uptake.

**Stage 2: GRM Registry**

All grievances received will be entered into an accessible entering recording system as the GRM registry and shall be maintained at both community and district levels.

**Stage 3: Assessment, Analysis and Response**

When a complaint is received by GRC, the GRM provides that a resolution be provided within 15 working days. Once complaints are received, the CGRC shall assess whether the complaint/grievance is related to the project or not.

**Stage 4: Resolution and Closure**

Where a resolution has been arrived at and the PAP accepts the resolution, the PAP shall be required to sign the resolution and closure section in the Grievance Community Log and Resolution Form as attached. Two members of the GRC (Chairperson and Secretary) shall also be required to counter sign. In the event that the grievance has not been resolved at GRC, it will be referred to District GRC and if the resolution is not reached at this level, the PAP has the option of seeking legal redress from civil courts.

**Stage 5: GRM Monitoring and Evaluation**

The GRM process will have to be monitored and evaluated to ensure effectiveness of the process and that the complaints submitted and related to the project have been dully received the required attention. This will be possible by reviewing the copies of registers that the grievances were recorded by the GRC and how they complaints registered were resolved. Thyolo district council will be required to take the leading role in collaboration with MUST project management team. The monitoring will assist to track whether the GRM system is working efficiently and effectively and will inform the project to make any necessary adjustments. The evaluation will help to assess the impact of GRM in response to people's complaints and whether the GRM principles were met or not during the

project implementation. The visual representation of the grievance redress procedure is shown in Figure 8-2.

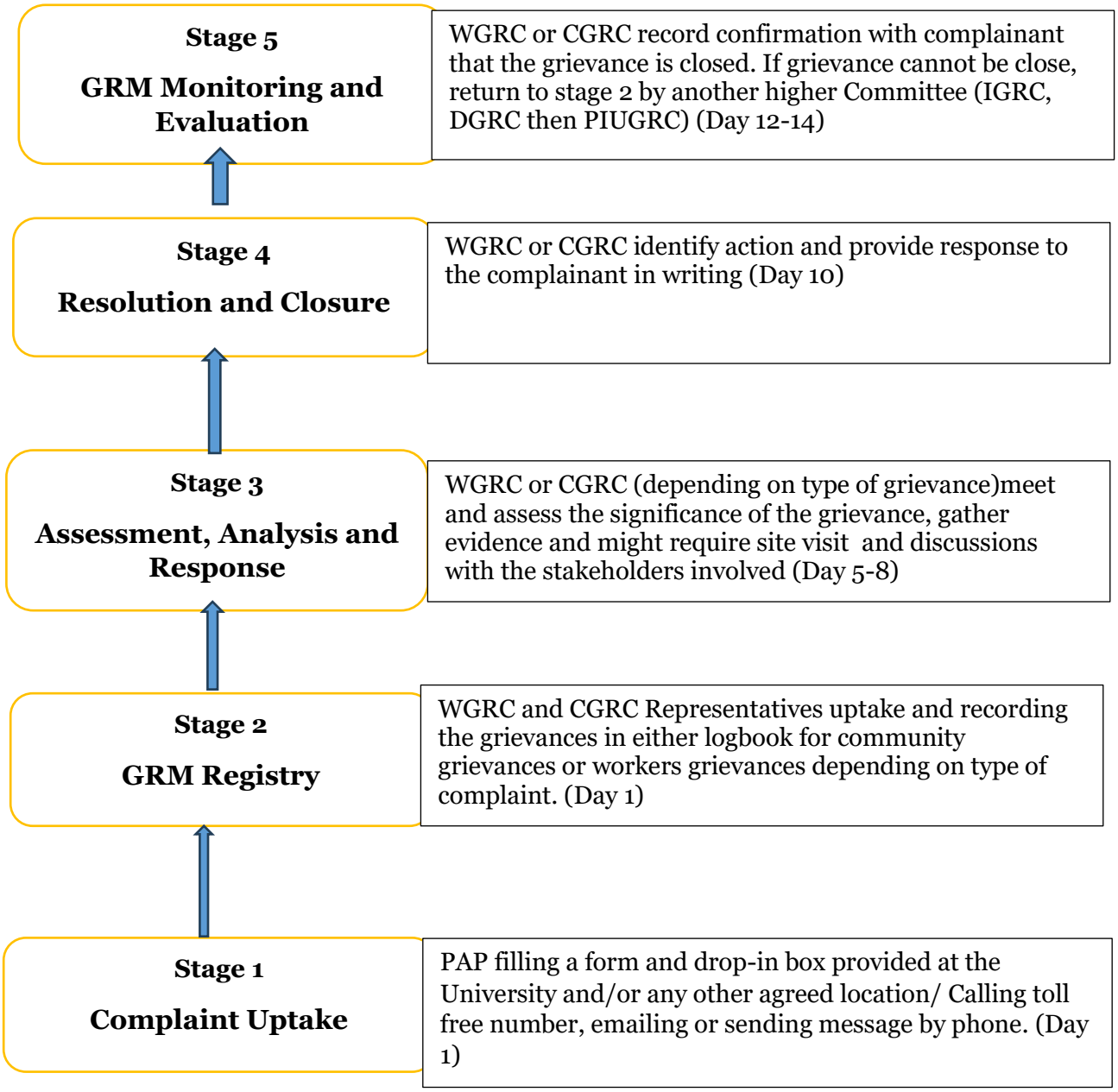


Figure 2-2: GRM process for MUST Construction project

## 8.3. Types of Grievances expected from the project.

The project will receive any kind of grievances and complaints from both workers, students, staff and communities. The types of grievances expected from the project are presented in the table 8-1.

**Table 8-1: Expected community and work grievances**

| Community issues | Workers issues |
|---|---|
| ✓ Environmental issues: noise, dust, and competition for water by MUST Students and Staff as well as surrounding communities,<br>✓ Social issues: sexual harassment, child labour, security concerns, GBV etc.<br>✓ Employment issues for local community (Only recruiting migrant workers, recruitment based on corruption, dismissal from employment on unknown reasons etc.).<br>✓ Unfulfilled development commitments among communities.<br>✓ Compensations for injuries<br>✓ Community safety | ✓ Contract workers are informed about safety requirements and can become unhappy if they do not have access to Personal Protective Equipment (PPE).<br>✓ Workers whose contracts are not renewed frequently complain i.e. Recruitment and Contract Management issues<br>✓ Workers without contracts (Working without contract with purposes of not fulfilling payment agreements and easy dismissal on unknown reasons etc.)<br>✓ Lack of clarification to overtime pay<br>✓ Sexual Harassment & GBV<br>✓ Worker dismissal without been given a chance to be heard. Unfair dismissal<br>✓ Criminal cases |

# Chapter 9 CONCLUSIONS AND RECOMMENDATIONS

## 9.1 Conclusions

This ESMP has presented the major guidelines that have to be followed for safeguards execution during construction and operation of lecture theatres building which is a SAVE sub- project at Malawi University of Science and Technology (MUST). Though the proposed project will likely generate significant socio-economic benefits to the staff and students as well as local people around MUST and the country at large, negative environmental and social impacts that the project activities are likely to bring have also been established by this ESMP. The key positive environmental and social impacts from the project includes but not limited to 1) Creation of temporary jobs to local communities; 2) increased skills transfer to local people; 3) increased business opportunities; 4) increased enrollment and skills transfer to students; 5) increased generation of tax revenues; 6) reduced constraints in classroom space and equipment and 7) improved outlook of the institution. On the other hand, negative impacts include but not limited to 1)loss of existing vegetation/ flora; 2) increased risk of soil erosion; 3) increased risk of blockage of some footpaths; 4)increased risk of disruption of classes and library activities; 5) increased dust emissions and pollution; 6) increased risks of hazards, occupational health and safety; 7) increased public safety risks 8) increased risk of exposure to hazardous wastes 9)increased spread of HIVand AIDS, STI's, Cholera and COVID-19 10)increased discrimination of women and other vulnerable groups; 11)increased gender-based violence.12) increased sexual exploitation of students. 13) increased pressure on water supply 14) increased risk of child labour; 15) increased generation of solid wastes, 16) increased generation of wastewater and 17) increased cases of theft in the area. Following the identified potential impacts, mitigation and enhancement measures have also been identified and must be well followed during the development and implementation of the project.

## 9.2 Recommendations

Further to identification of impacts and subsequent prescription of mitigation or enhancement measures, this ESMP recommends the following;

- The developer should give environmental protection and social considerations the necessary attention during implementation of the project;
- The developer should adopt and implement all the recommendations and mitigation measures advanced in this ESMP and respective monitoring plan.
- The developer should ensure adequate provision of capacity building to all key stakeholders who will be directly involved in the implementation of the project's ESMPs, as it is an integral part to ensuring quality safeguards implementation in the project.

With these conditions fully met and implemented, the recommendation is for this project to be allowed to proceed.

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## APPENDICES

## Appendix 1: List of Stakeholders Consulted

| No | Name of Stakeholder | Designation | Gender | Contacts |
|---|---|---|---|---|
| 1 | Kelvin Kachere | Lands Officer- Thyolo DESC | M | 0993545178 |
| 2 | McPherson Boma | Gender Officer- Thyolo DESC | M | 0992525826 |
| 3 | Joseph Banda | DCDO- Thyolo DESC | M | 0881095078 |
| 4 | Bekson Semphani | District Irrigation Officer-Thyolo DESC | M | 0881912099 |
| 5 | Mphatso Mbulukwa | CAO- Agric- Thyolo DESC | F | 0888383826 |
| 6 | Witness Mbendela | EDO- Thyolo DESC | M | 0999003630 |
| 7 | Yohane Willard | Fisheries Officer- Thyolo DESC | M | 0884852755 |
| 8 | Atanazio Malonda | Irrigation Department- Thyolo DESC | M | 0990389522 |
| 9 | Matthews Mwalwanda | Irrigation Agronomist- Thyolo DESC | M | 0995930158 |
| 10 | Mirriam Yana | Forestry ofiicer- Thyolo DESC | F | 0998153450 |
| 11 | Ernest Kaphuka | DPD- Thyolo DESC | M | 0999003247 |
| 12 | Mirriam Kumsinda | Safeguards Office- MUST Staff member | F | 0888460367 |
| 13 | Ivan Banda | MUST Staff member | M | |
| 14 | Elliot Bamusi | MUST Staff member | M | |
| 15 | Chisomo Daka | MUST Staff member | M | |
| 16 | Madam Elube | MUST Female Warden- MUST Staff member | F | |
| 17 | Taonga Mwale | MUST Students Rep | F | 0885451966 |
| 18 | Alexander M. Kude | SRC President- MUST Students Rep | M | 0887154311 |
| 19 | Titus Mbewe | MUST Students Rep | M | 0994321484 |
| 20 | Priscilla Mauka | Student Environmentalist- MUST Students Rep | F | 0880819488 |
| 21 | Geofrey Nambera | Sub-T/A Mangazi | M | 0881558005 |
| 22 | James Bakali | GVH Mitabali | M | 0994700445 |
| 23 | Alick G. Soza | VDC Chair | M | 0999161274 |
| 24 | Antony Jumbe | ADC Chair | M | 0884035731 |
| 25 | Costa Amani | Youth- Mangazi Village | M | 0987719149 |
| 26 | Lameck Namanyetha | Member- Mangazi Village | M | 0882410335 |
| 27 | Justin Khomolina | Youth- Mangazi Village | M | |
| 28 | Amos Nambera | Youth- Mangazi Village | M | 0887506202 |
| 29 | Patrick Mbilima | Youth- Mangazi Village | M | 0889995642 |
| 30 | Harvest Njolowe | Member- Mangazi Village | M | |
| 31 | Benard Makwinja | Member- Mangazi Village | M | |
| 32 | James Kadulira | Member- Mangazi Village | M | |
| 33 | Elli Edimu | Youth- Mitabali Village | M | |
| 34 | Charles Arabi | Member- Mitabali Village | M | 0998118657 |
| 35 | Mike James | Member- Mitabali Village | M | 0984130272 |
| 36 | Aman Kachepa | Member- Mitabali Village | M | 0884141952 |
| 37 | Chisomo Biziwick | Member- Mitabali Village | M | 0990685762 |
| 38 | Catherine Mandala | Member- Mitabali Village | F | |
| 39 | Esther Dick | Member- Mitabali Village | F | |
| 40 | Alice Juma | Member- Mitabali Village | F | 0999606037 |

| | | | | |
|---|---|---|---|---|
| 41 | Agness Tambala | Member- Mangazi Village | F | |
| 42 | Sakondwera John | Member- Mitabali Village | F | 0991055870 |
| 43 | Ellida Shadreck | Member- Mitabali Village | F | 0885514915 |
| 44 | Tiyanjane Galison | Youth- Mangazi Village | F | |
| 45 | Esther Nambera | Youth- Mangazi Village | F | |
| 46 | Elles Makwinja | Youth- Mangazi Village | F | |
| 47 | Margaret Likhomo | Member- Mangazi Village | F | 0881272783 |
| 48 | Aida Tchinga | Member- Mangazi Village | F | 0995813033 |

## Appendix 2: Suggested Forms for ESMP Reporting, Training and Follow-up

This annex contains three templates to be used in conjunction with monitoring and reporting and follow for ESMP implementation.

### a. ESMP reporting form

| **Subproject title** | **Date of field appraisal undertaken** | **Target(s)/ Impacts in the ESMP being monitored.** | **ESMP mitigation/enhancement measures developed? (yes or no)** | **Achievement rate (%) of implementation of ESMP target/ measures** | **Written warnings of violation of ESMP issued (yes/no)** | **Chance find procedures invoked (yes or no)** |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |

### b. ESMP training form

| **Personnel** | **No. of people trained** | **Training received** |
|---|---|---|
| Relevant staffs from different institutions, including from MUST | | |
| Safeguard specialists/officers | | |
| MUST-SAVE project focal points | | |

| Personnel | No. of people trained | Training received |
|---|---|---|
| Relevant staffs from different institutions, including from MUST | | |
| District focal points | | |
| District staff | | |
| Community members , MUST students and staff etc. | | |
| Tool box talks to workers done by the contractor | | |

**c. Follow up on previous recommendations**

| Recommendation | Date of recommendation | Action taken | Recommendation implemented (yes/no) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

## Appendix 3: Environmental and Social Rules for Contractors

The construction of Lecture theatres building within the University premises can create conditions that can have impacts on students, staff and surrounding community. The following rules will be strictly followed by the contractors during the construction period.

### 1. Workers Code of Conduct

Ensure all workers under my jurisdiction have signed code of conduct with respect to the agreeing to the following;

- Consenting to security background check.
- Treating women, children (persons under the age of 18) and persons living with physical disabilities with respect regardless of race, colour, language, religion, political or other opinion, national, ethnic or social origin, property, birth or other status.
- Not using language or behaviour towards men, women or children/learners that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
- Not participating in sexual activity with children/students—including grooming or through digital media. Mistaken belief regarding the age of a child and consent from the child is not a defence.
- Not exchanging money, employment, goods, or services for sex, with community members including sexual favours or other forms of humiliating, degrading or exploitative behaviour;
- Not having sexual interactions with members of the communities surrounding the work place, worker's camps and fellow workers that are not agreed to with full consent by all parties involved in the sexual act (see definition of consent above). This includes relationships involving the withholding, promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex - such sexual activity is considered "non-consensual" within the scope of this Code;
- Attend trainings related to HIV/AIDS, GBV,SEA , occupational health and any other relevant courses on safety as requested by my employer;
- Report to the relevant committee any situation where I may have concerns or suspicions regarding acts of misconduct by a fellow worker, whether in my company or not, or any breaches of this code of conduct provided it is done in good faith.
- Refrain from and report any forms corruption with regards to any activity to do with the project.
- With regard to children under the age of 18, not invite unaccompanied children into my home, unless they are at immediate risk of injury or in physical danger.
- Not sleep close to unsupervised children unless absolutely necessary, in which case I must obtain my supervisor's permission, and ensure that another adult is present if possible.
- Refrain from physical punishment or discipline of children.

- Refrain from hiring children for domestic or other labour, which is inappropriate given their age, or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury.
- Comply with all relevant local legislation, including labour laws in relation to child labour.
- Refrain from any form of theft for assets and facilities including from surrounding communities.
- Remain in designated working area during working hours;
- Refrain from procession of alcohol and illegal drugs and other controlled substances in the workplace and being under influence of these substances on the job and during workings hours;
- Wear mandatory PPE at all times during work;
- Follow prescribed environmental occupation health and safety standards;
- Channel grievances through the established grievance redress mechanism.
- I understand that the onus is on me to use common sense and avoid actions or behaviours that could be construed as misconduct or breach this code of conduct.

**2. Workplace Safety and Traffic Management**

- Conduct Campus wide safety education programs to promote awareness for construction workers, University staff and students.
- Ensure free and unobstructed access to emergency services and for fire, police, and ambulances etc.
- Ensure free and unobstructed entry and exits points, providing additional staff training when alternative exits are designated, and maintaining and inspecting emergency escape routes to be used by construction workers in construction areas.
- Construct barriers between the University and construction areas to prevent dust from entering University areas and suppress dust as necessary.
- Direct pedestrian traffic from construction areas away from Student areas and provide awareness and signage. As required in MUST approved Traffic Management Plan.
- Locate construction office and materials storage areas in consultation with university authorities to ensure they do not affect the operations of the University.
- Develop and enforce storage, housekeeping, and debris removal practices that reduce that does not affect operations of the University.
- Provide additional fire-fighting equipment and train personnel in its use.
- Respect student rights. Demonstrate respect for students and staff needs, including privacy, and security.
- Implement prevention, and control of infections for Students and Staff, employees, and visitors.

- Conduct risk assessment of susceptible staff and students' locations in consultation with University management and the Students union
- Provide prior warning and instructions on university services interruption and always provide alternative services.
- Control of noise and vibration.

**2. Protection of Water and other Public Services**

- The Contractor shall ensure that no public services are disrupted as a result of execution of the construction works. In particular, the Contractor shall:
- Not interfere with supply or abstraction of water for public or private use; and shall not pollute any water resources (including groundwater);
- Not disrupt power supply or telephone connections or any other public or private services including footpaths and walkways;
- Not discharge or deposit any waste, wastewater or any material into any waters or any grounds except with the permission of the appropriate regulatory authorities.
- At all times ensure that all streams, drains and trenches within and adjacent to the work sites are kept safe and free from any debris and any material arising from the works.
- Protect all water courses (including ditches, canals, drains and lakes) from pollution, siltation, flooding or erosion as a result of the execution of the works.
- Assume all responsibility to locate or to confirm the details and location of all utility services on or in the vicinity of the site.
- Assume responsibility for any damage and \or interference caused by him or his agents, directly or indirectly, arising from actions taken or a failure to take action to protect public or private utilities.
- Be responsible for full restoration of any damage caused and for restoration of services. Restoration shall be to the satisfaction of the client/client's representative. The client/ client's representative will ensure that any affected third party is content before confirming they are content with the restoration enacted by the contractor.
- Ensure that water and waste products shall be collected, removed and disposed of at a site approved by the District Council in a manner that will not cause pollution or nuisance. Not dispose of any surplus material on private land unless authorized in writing by the owner(s), authenticated before a notary public, and with previous authorization of the District Council.

**3. Control of Air Pollution**

- Open fires and burning of construction waste shall not be permitted;
- Dust- generating operations shall not be permitted to affect any residential areas, pedestrians or any public or private property. Where dust generation is inevitable, appropriate measures such as use of water sprays and fencing shields or appropriate covering material shall be employed. All workers shall be protected from dust emissions by providing them with appropriate protective wear.

- All construction machinery, plant and equipment including all vehicles shall be regularly maintained to ensure that no smoke or obnoxious gas is discharged to pollute the air and affect the public or property.

**4. Acquisition of Construction Material**

- Only licensed quarrying, sand mining and brick-making operations and sites shall be used as sources of construction materials.

**5. Prevention of Soil Erosion.**

- The Contractor shall fence off construction sites, provide appropriate drainage and ram or compact soils where necessary to stabilize the soils and reduce erosion.
- All construction sites shall be backfilled, levelled and re-planted with trees, vegetation and grass to restore them to the original state and to prevent soil erosion to the satisfaction of the client or client's representative
- As far as possible the contractor shall avoid or reduce construction activities and mining of construction material during the peak of rainy seasons.

**6. Control of Social Impacts**

- The Contractor shall coordinate with all the neighbouring land users and respect their rights to a clean and safe environment. Written agreements with local landowners for temporary use of their sites or property shall be made and sites must be restored to original condition or conditions acceptable to the owner within an agreed time.
- Health and safety of workers shall be protected by providing basic emergency health and first aid facilities and awareness meetings aimed at the prevention of sexually transmitted diseases.
- Awareness meetings shall be conducted as a part of all construction employee orientation programs. Employees shall be provided with condoms for protection from STIs.
- The Contractor shall obtain all necessary written traffic control permissions
- including for use of flagmen, traffic cones or other devices such as barricades and/or lights which he must use to control traffic for safety of pedestrians,
- Cyclists and all road users, particularly students.
- The Contractor shall neither stockpile nor store any construction materials; not park construction plant or vehicles in walkways, pedestal routes or driveways.
- Stockpiles of material shall be covered with tarpaulins or sprayed with water where these materials pose risks of dust to the public or people's property.

**7. Noise Control and Regulation**

- The Contractor shall take all necessary measures to ensure that the operation of all mechanical equipment and construction processes on and off the site shall not cause any unnecessary or excessive noise to the public. In addition, the
- Contractor shall operate noisy equipment within government working times unless with prior arrangement and permission from the employer

- Vehicle, plant and equipment exhaust systems shall be maintained in good working order, as recommended by the manufacturers, to ensure that no noise is unnecessarily generated to inconvenience the public.
- Construction works and operations shall be scheduled to coincide with periods when people would least be affected by noise, having due regard for avoiding any noise disturbances to local residents, schools or any other public and private places in the work site neighbourhood.
- The contractor shall notify public (likely to be affected by the works) of impending construction operations and specify methods to receive and handle all public complaints.

**8. Environmental Monitoring**

- The Contractor shall be responsible for monitoring all his activities and ensuring that all environmental requirements and the above conditions are met at all times.
- Contractor shall also facilitate regular environmental, social and health; and safety monitoring by the Client, the Client's representative or an independent monitor appointed by the Client, or any other national agency with a remit to inspect and monitor construction, environmental, social and health and safety performance.
- The contractor will immediately agree and implement a rectification plan to bring the contractor back into compliance where inspections, audits and monitoring identify issues that are not in compliance with the ESMP as included in the contract.

## Appendix 4: Grievance Redress Management Forms

### 1. Community Grievance Log & Resolution Form

**SECTION A: GENERAL INFORMATION**

**Form Number .....**

District Name: .....

TA.....GVH.....

| Name of Project Location/ Catchment Area: | Name of Community/ Village: | | Reporting Dates: |
|---|---|---|---|
| Name of Complainant | Complainant Sub Component: | Household Identification: | Phone Number,<br>E-Mail: |

**SECTION B: DETAILS OF THE GRIEVANCE**

| Ref No. | Date of Grievance | Summary description of Grievance/Complaint | Follow-up/Investigation | | Resolution Made |
|---|---|---|---|---|---|
| | | | Date | Person Assigned | |
| G1 | | | | | |
| G2 | | | | | |
| G3 | | | | | |

Name of Reporting Officer: .....

**SECTION C: SUBMISSION OF GRIEVANCE**

If case is closed, GRM Committee members & complainant to sign below

GRM Committee Chair_____

Name & Signature of Project Affected Person /Beneficiary_____

GRM Committee Secretary_____

Date: _____

**SECTION D: REFERRAL OF CASES**

**Referred to DGRMC**

| Ref No. | Date of Referral | Follow up / Investigation | | Summary of action undertaken |
|---|---|---|---|---|
| | | Date | Person Assigned | |
| G1 | | | | |
| G2 | | | | |
| G3 | | | | |

RECEIPT: SUBMISSION OF GRM Form number .....

| Complaint: | |
|---|---|
| Household ID: | TA: |
| Districts: | Program: |
| Name of Complainant: | Reporting officer: |
| Case: - Closed { } - Referred { } | Signature of complainant: |

## 2. Workers' Grievance Log & Resolution Form

**SECTION A: GENERAL INFORMATION** **Form Number .....**

District Name: .....
TA.....GVH.....

| Name of Project Location/ Catchment Area: | Name of Community/ Village: | | Reporting Dates: |
|---|---|---|---|
| Name of Complainant | Complainant Sub Component: | Household Identification: | Phone Number,<br>E-Mail: |

**SECTION B: DETAILS OF THE GRIEVANCE**

| Ref No. | Date of Grievance | Summary description of Grievance/Complaint | Follow-up/Investigation | | Resolution Made |
|---|---|---|---|---|---|
| | | | Date | Person Assigned | |
| G1 | | | | | |
| G2 | | | | | |
| G3 | | | | | |

Name of Reporting Officer: .....

**SECTION C: SUBMISSION OF GRIEVANCE**

If case is closed, GRM Committee members & complainant to sign below

WGRM Committee Chair_____

Name & Signature of Project Affected Person /Beneficiary_____

WGRM Committee Secretary_____

Date: _____

**SECTION D: REFERRAL OF CASES**

**Referred to DGRMC**

| Ref No. | Date of Referral | Follow up / Investigation | | Summary of action undertaken |
|---|---|---|---|---|
| | | Date | Person Assigned | |
| G1 | | | | |
| G2 | | | | |
| G3 | | | | |

RECEIPT: SUBMISSION OF GRM Form number .....

| Complaint: | |
|---|---|
| PAP ID: | TA: |
| Districts: | Program: |
| Name of Complainant: | Reporting officer: |
| Case: - Closed { } - Referred { } | Signature of complainant: |

## Appendix 5: Resource efficiency measures (Use of water and energy)

### Purpose of Resource Efficiency measures (Use of Energy and Water)

These measures are project-specific and outlines actions focusing on the use of water and energy during construction and operation of MUST lecture theatres building. The purpose of these resource efficiency measures are to significantly contribute to sustainability and reduce environmental and social impacts due to use of water and energy during construction and operation of the project. The measures will have to be implemented basing on the potential for the construction project to increase demand of water, and thereby increasing pressure on the availability of the resource at MUST. Also resource efficiency measures for energy have been specified.

### Scope of these Resource Efficiency measures (Use of Energy and Water)

These measures shall be applied during construction and operation of MUST lecture theatres building. These measures are applicable to construction works conducted by the contractor, including all works requiring supply of water and energy during construction and operation. This is due to the potential of construction activities to increase demand of piped water which the institution is supplied with, and the project's construction activities may likely rely upon. The measures outline the considerations, actions, roles and responsibilities with respect to use of water and energy during construction and operation of MUST lecture theatres building.

### A. Efficiency measures (Use of Water)

During construction and operation of MUST lecture theatres building, upon the contractor requiring water for use in construction activities and all water works, the following measures shall be taken:

#### 1. Exploring other sources of water for use in construction

Since the use of water supplied by SRWB is not confirmed for construction activties, the contractor therefore needs to explore other means of sourcing own water for construction of MUST lecture theatres building. Other sources of water for construction purposes that can be considered by the contractor are as follows;

- Groundwater sources through sinking a borehole and pumping the water for all construction activities and water works including use by workers in cooking and drinking.
- Extracting water from surface water sources from the nearby Chimvu and/or Lichenza rivers which are located within 1km and 2km distance respectively.

#### 2. Additional information: Management options for water resources at construction and operation

The contractor and project management should also engage in other water management options during construction to conserve water resources. Suggested water management options include the use of water efficiency measures as follows;

- Utilize rainwater harvesting systems to capture and store rainwater for construction works and toilet flushing.
- Implement water-saving technologies such as low-flow faucets, toilets, and showerheads.
- Implement leak detection and repair programs to promptly address any water leaks in infrastructure or equipment.
- Encourage water conservation practices among students and employees through awareness campaigns and training programs.

**B. Resource Efficiency measures (Use of Energy)**

During construction and operation of MUST lecture theatres building, upon the contractor requiring energy for use in construction activities e.g. metal fabrication, the following measures shall be taken:

**1. Consultation with Electricity Supply Commission of Malawi and MUST**

Since MUST primarily use electricity supplied by Electricity Supply Commission of Malawi (ESCOM), any intention by the contractor to use this electricity in construction activities should be followed by the following actions;

- Consult ESCOM and MUST of the intentions to utilize electricity for the construction activities at the site including seeking authorization.
- Upon confirmation of the use of electricity supplied by ESCOM, agree with MUST and/or ESCOM on the terms and conditions as well as signing of the agreement and payment modalities of the use of the utility body's electricity in construction activities.

**2. Exploring other sources of electricity for use in construction**

Upon the use of electricity supplied by ESCOM is not confirmed, the contractor therefore needs to explore other means of sourcing electricity to support construction activities at MUST. Other sources of electricity to support construction activities such as lighting, fabrication of truces etc. that can be considered by the contractor are;

ü Installation of solar system as a source of elecricity to support construction activities

ü Use of generators as a source of electricity

**3. Additional information: Management options for electricity at construction and operation**

The contractor and project management should also engage in other energy management options during construction to conserve energy resources. Suggested energy management options include

- Energy Efficiency Measures:

  Promote energy-saving behaviors among employees, such as turning off lights and equipment when not in use and optimizing equipment settings for energy efficiency.

Invest in energy-efficient appliances and equipment for operations, such as ENERGY STAR-rated appliances and high-efficiency machinery.

- Students and Employee Engagement and Training:

  Provide training programs to students and employees on the importance of energy resource efficiency and practical tips for reducing energy consumption.

  Foster a culture of sustainability within the organization by encouraging employees to contribute ideas and participate in initiatives to improve resource efficiency.

## Appendix 6: Chance Find procedures

### CHANCE FIND PROCEDURE

### Purpose of the Chance Find Procedure

The chance find procedure is a project-specific procedure that outlines actions required if previously unknown heritage resources, particularly archaeological resources, are encountered during project construction or operation. A Chance Find Procedure is a process that prevents chance finds from being disturbed until an assessment by a competent specialist is made and actions consistent with the requirements are implemented.

### Scope of this Chance Find Procedure

This Chance Find Procedure shall be applied in case previously unknown culturally valuable materials are unexpectedly discovered during the construction of the MUST lecture theatres building. This procedure is applicable to all activities conducted by the personnel, including contractors, that have the potential to uncover a heritage item/site. The procedure details the actions to be taken when a previously unidentified and potential heritage item/site is found during construction activities. Procedure outlines the roles and responsibilities and the response times required from both project staff, and any relevant heritage authority.

### Induction/Training

All personnel, especially those working on earth movements and excavations, are to be inducted on the identification of potential heritage items/sites and the relevant actions for them with regards to this procedure during the Project induction and regular toolbox talks.

### Chance find procedure

If any person discovers a physical cultural resource, such as (but not limited to) archaeological site(s), historical site(s), remains and objects, or a cemetery and/or individual graves during excavation or construction, the following steps shall be taken:

1) Stop all works in the vicinity of the find, until a solution is found for the preservation of these artefacts, or advice from the relevant authorities is obtained;

2) Immediately notify a foreman. The foreman will then notify the Construction Manager and the officers responsible for Environmental and Social Safeguards

3) Record details in Incident Report and take photos of the find;

4) Delineate the discovered site or area; secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities take over;

5) Preliminary evaluation of the findings by archaeologists. The archaeologist must make a rapid assessment of the site or find to determine its importance. Based on this assessment the appropriate strategy can be implemented. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage such as aesthetic, historic, scientific or research, social and economic values of the find;

6) Sites of minor significance (such as isolated or unclear features, and isolated finds) should be recorded immediately by the archaeologist, thus causing a minimum disruption to the work schedule of the Contractor. The results of all archaeological work must be reported to the responsible Ministry/ Department of Museums and Monuments in Blantyre, once completed.

7) In case of significant find the Ministry/Department of Museums and Monuments (responsible for Protection of National Heritage or Archaeological resources) should be informed immediately and in writing within 7 days from the find

8) The onsite responsible officer should provide the Heritage team with photos, other information as relevant for identification and assessment of the significance of heritage items.

9) The Ministry/Department must investigate the fact within 2 weeks from the date of notification and provide response in writing.

10) Decisions on how to handle the find shall be taken by the responsible authorities. This could include changes in the layout (such as when the find is an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage;

11) Construction works should resume only after permission is granted from the responsible authorities.

12) In case no response received within the 2 weeks period mentioned above, this is considered as authorization to proceed with suspended construction works.

One of the main requirements of the procedure is record keeping. All finds must be registered. Photo log, copies of communication with decision making authorities, conclusions and recommendations/guidance, implementation reports - kept.

## Additional information

### Management options for archaeological site

- **Site avoidance**: If the boundaries of the site have been delineated attempt must be made to redesign the proposed development to avoid the site. (The fastest and most cost-effective management option)
- **Mitigation**: If it is not feasible to avoid the site through redesign, it will be necessary to sample it using data collection program prior to its loss. This could include surface collection and/or excavation. (The most expensive and time-consuming management option.)
- **Site Protection:** It may be possible to protect the site through the installation of barriers during the time of the development and/or possibly for a longer term. This could include the erection of high visibility fencing around the site or covering the site area with a geotextile and then capping it with fill. The exact prescription would be site- specific.

### Management of replicable and non-replicable heritage

Different approaches for the finds apply to replicable and non-replicable heritage. Replicable heritage where tangible cultural heritage that is replicable and not critical is encountered, mitigation measures will be applied. The mitigation hierarchy is as follows:

- Avoidance;
- Minimization of adverse impacts and implementation of restoration measures, in situ;
- Restoration of the functionality of the cultural heritage, in a different location;
- Permanent removal of historical and archaeological artefacts and structures ;
- Compensation of loss - where minimization of adverse impacts and restoration not feasible.

### Non-replicable heritage

Most cultural heritage is best protected by in situ preservation, since removal is likely to result in irreparable damage or even destruction of the cultural heritage. Nonreplicable cultural heritage must not be removed unless all of the following conditions are met:

- There are no technically or financially feasible alternatives to removal;
- The overall benefits of the project conclusively outweigh the anticipated cultural heritage loss from removal; and
- Any removal of cultural heritage must be conducted using the best available technique advised by relevant authority and supervised by archaeologist.

**Human Remains Management Options**

The handling of human remains believed to be archaeological in nature requires communication according to the same procedure described above.

There are two possible courses of action:

- **Avoid:** The construction project should be redesigned to completely avoid the found remains. An assessment should be made as to whether the remains may be affected by residual or accumulative impacts associated with the construction project, and properly addressed by a comprehensive management plan.
- **Exhumate:** Exhumation of the remains in a manner considered appropriate by decision makers. This will involve the predetermination of a site suitable for the reburial of the remains. Certain ceremonies or procedures may need to be followed before construction activities can recommence in the area of the discovery.

## Appendix 7: Screening Forms

**Environmental and Social Screening Form for Screening of Potential Environmental and Social Impacts of SAVE activities**

**Government of the Republic of Malawi**

**Ministry of Education, Science and Technology**

**Skills for a Vibrant Economy (SAVE) Project**

**Environmental & Social Screening Form**

Guidelines: Site inspection of project site. The evaluation results to be a consensus of at least three officials.

| | |
|---|---|
| Project Name: Construction of Lecture Theatres | District.: Thyolo |
| Project Location: MUST - Ndata | Nature/Size |
| Name & Signature of Evaluator: Elias Mkandawire | Date of Field Evaluation 17/08/2022 |

| | | Appraisal | Stage of EHS potential impact/risk/issue | | Significance | Potential Mitigation Measures |
|---|---|---|---|---|---|---|
| | | Yes / No | Construction | Operation | Low, medium, high | |
| 1.0 | Environmental Screening | | | | | |
| | Will the project generate the following impacts | | | | | |
| 1.1 | Loss of trees/ vegetation/ biodiversity | Yes | ✓ | | Medium [94] | Plant more trees |
| 1.2 | Soil erosion/siltation in the area | No | | | | |
| 1.3 | Pollution to land- diesel ,oils | Yes | ✓ | | Low | Timely Servicing of Construction Vehicles |
| 1.4 | Dust emissions and increased particulate matter | Yes | ✓ | | Low | - Site Watering<br>- watering the site |
| 1.5 | Solid waste generation | Yes | ✓ | ✓ | Low | - Provision of waste bins<br>- Recycling & Reusing |
| 1.6 | Liquid wastes and waste water generation | Yes | | ✓ | Low | - Redirect the waste water to Septic tank |
| 1.7 | Introduction of hazardous chemicals and wastes | No | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1.8 | Borrow pits and pools of stagnant water | Yes | ✓ | | Low | Backfilling all pits with rubble and waste soil |
| 1.9 | Rubble/heaps of excavated soils | Yes | ✓ | | Low | -Levelling & Landscapping |
| 1.10 | Invasive tree species | Yes | ✓ | | Low | -Use approved tree species |
| 1.11 | Long term depletion of water | No | | | | |
| 1.12 | Reduced flow of water sources | No | | | | |
| 1.13 | Nuisance from noise and vibrations | Yes | ✓ | | Medium | To schedule noisy tasks over the weekend and no use of machines |
| 1.14 | Loss of soil fertility | No | | | | |
| 1.15 | Incidence of flooding | No | | | | |
| 1.16 | Increased Energy use | No | | | | |
| 1.17 | Increased demand and/or portable water use | Yes | | | Low | |
| 1.18 | Increase emergence of man-made and natural disasters e.g. fires etc. | No | | | | |
| 2.0 | Cultural, Social and Economic Screening | | | | | |
| | Will the project generate the following negative social and economic impacts? | | | | | |
| 2.1 | Loss of land to households | No | | | | |
| 2.2 | Loss of properties – houses, structures | Yes | ✓ | | Low | To reallocate the same lots |
| 2.3 | Loss trees, fruit trees by households | Yes | ✓ | | Low | Replace the lost trees |
| 2.4 | Loss of crops by people | No | | | | |
| 2.5 | Loss of access to river/forests/grazing area | No | | | | |
| 2.6 | Impact cultural site, graveyard land | No | | | | |
| 2.7 | Conflicts over use of local water resources | Yes | ✓ | | Low | Sharing of water points |
| 2.8 | Disruption of important pathways, roads | No | | | | |
| 2.9 | Loss communal facilities –churches | No | | | | |
| 2.10 | Loss of livelihood system | No | | | | |
| 2.11 | Blockages to footpath/roads | No | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2.12 | Bring resettlement issues | No | | | | |
| 2.13 | Spread of HIV/AIDS and other STIs | Yes | ✓ | | Low | -Sensitization of workers<br>-Sensitization of Students |
| 2.14 | Spread of Covid-19 | Yes | ✓ | ✓ | Low | -Sensitization Vaccination |
| 2.15 | Occupational safety and health issues | Yes | ✓ | | Medium | -Provision of PPE |
| 2.16 | Increase exposure of Hazardous chemicals and wastes | No | | | | |
| 2.17 | Safety issues with respect to poor building designs | Yes | | ✓ | Medium | -Use & Follow approved Standards. |
| 2.18 | Exclude other users especially disabled and vulnerable with respect to poor building designs | Yes | | ✓ | Low | -To use & implement disability friendly designs Construction ~~materials~~ |
| 2.19 | Increased GBV and SEA | Yes | ✓ | | Low | -Sensitization & implement Policies against GBV |
| 2.20 | Increased violence against children | Yes | ✓ | | Low | -Strictly to avoid employing the under age |

**Overall evaluation of Screening Exercises.**

The results of the screening process would be either the proposed sub - projects would be exempted or subjected to further environmental and resettlement assessments. The basis of these options is listed in the table below:

| Review of Environmental Screening | Tick | Review of Social and Economic Screening | Tick |
|---|---|---|---|
| 1. The project is cleared. No serious impacts. (When all scores are "No" in form)), though the bids/contracts still would have standard EHS clauses | | 1.The project is cleared. No serious social and economic impacts, (Where scores are all "No", "few" in form) though the bids/contracts still would have standard clauses on addressing emerging social and economic issues | ✓ |
| 2. There is need for further assessment -ESMP or ESIA (when some score are "Yes, High" in form), as determined by MEPA | | 2.There is need for resettlement/ compensation. (When some score are "Yes, High" in form ) including need for ESMP or ESIA as determined by MEPA | |
| | | | |
| **Approval by Environmental officer/** | | **Approval by Director of Planning and Development** | |
| Name: Eling Mkandawire | | Name: Maison Mapombo | |
| Signature Date | | Signature Date | |
| 17/08/2022 | | M. Mapombo 17-08-2022 | |

DISTRICT COMMISSIONER
THYOLO DISTRICT COUNCIL
17 AUG 2022
PRIVATE BAG 5
THYOLO