ENVIRONMENTAL IMPACT ASSESMENT REPORT FOR THE PROPOSED UPGRADING OF THE URBAN ROADS (9.5KM) TO BITUMEN STANDARD LOCATED AT MJIMWEMA, MISUFINI, MATARAWE AND MJINI WARDS IN SONGEA MUNICIPALITY, SONGEA DISTRICT, RUVUMA REGION

FINAL REPORT

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SUBMITTED ON: 20th/OCTOBER/2023

Executive Summary

Project Title

The title of this project is "Environmental and Social Impact Assessment (ESIA) for the Proposed Upgrading of The CBD Roads (9.5km) To Bitumen Standard in Songea Municipality, Ruvuma Region.

Name of the proponent and contact

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Project Background

The Government of the United Republic of Tanzania through The President's Office - Regional Administration and Local Development (PO-RALG) has received a credit from the Word Bank towards in implementing projects-financed Tanzania Cities Transforming Infrastructure and Competitiveness Project (TACTIC), which will be, implemented through the President's Office - Regional Administration and Local Development (PO-RALG).

NORPLAN Tanzania Ltd was awarded the contract by PO-RALG to conduct; Feasibility Study, Urban Design, Detailed Engineering Design, Environmental and Social Due Diligence, Preparation of Cost Estimates and Bidding Documents for Urban Infrastructure Investments for Songea Municipal Council. Songea is among four (4) Municipalities under TACTIC-Zone 3; others include Sumbawanga, Morogoro and Mbeya.

The good road network for the transportation of goods and passengers within the Municipality shall contribute to the social and economic development. Roadwork under TACTIC project Zone "3" in Songea Municipal shall involve the Upgrading the 9.5km urban roads to Bitumen standard. Upgrading of the roads will facilitate in improvement of infrastructures in Songea Municipality, enhance connectivity with other roads, increase accessibility to schools, public facilities and businesses at Songea urban area which is currently hampered by poor roads conditions especially during the rainy seasons. Implementation of selected urban roads shall facilitate safer and timely movement of the people and vehicles from their destinations to various areas within the Municipality.

TACTIC Project's Objectives

The objective of the proposed TACTIC project is to strengthen urban management performance and deliver improved basic infrastructure and services in participating urban local government authorities. At its core, the project aims to promote economic development of Tanzania's cities and towns and its enabling infrastructure. Investments and technical assistance under the project are intended to promote urban development that is productive, inclusive and resilient. The project will support 45 urban Local Government Associations (LGAs) spread geographically across all regions of Tanzania, ranging in population from 26,402 to 416,442 (2012), divided into three tiers based on population and growth rate.

Subproject's Objective

The objective urban infrastructure upgrading "Roads" is to increase percentage of good roads within the Municipality roads' network which seeks to ensure a balanced distribution of economic resources for total socio-economic growth within Songea Municipality.

Scope of the study

The Consultant was required to conduct environmental and social impact assessment for the proposed upgrading of urban roads subproject. To review all available and relevant documents, maps, previous studies if any, and conduct the environmental and social impact assessment study, field visit and investigations, public consultations and other related works to meet the stated objectives. The assignment encompassed development of a comprehensive ESIA study which includes ESMP to be implemented by the contractor during the subprojects' implementation.

The consultant was also required to prepare the Resettlement Action Plan (RAP) for Upgrading of urban roads with the most recent and accurate information on the:

i. Proposed resettlement and its impacts on displaced persons and other adversely affected groups; and
ii. Legal issues affecting resettlement.

The ESIA study was carried out in accordance with ToRs (Appendix I) that is in accordance with the requirements of the applicable national legislations and World Bank's Environmental and Social Framework (ESF).

The Environmental Impact Assessment has been conducted in accordance with the requirements of the Environment Management Act No.20 of 2004 and Environmental Impact Assessment and Audit Regulations of 2005 and the Amendments of 2018. Other important legal provisions providing guidance on environmental issues pertaining to road sector, such as the Road Act (2007), Environmental Code of Practice for Road works (2008), and Environmental Assessment and Management Guidelines in the Road Sector (2004) have been used in the undertaking of Environmental and Social Impact Assessment.

This report presents the Environmental and Social Impact Assessment (ESIA) for the proposed upgrading of 9.5km roads' sections in Songea Municipality

Methodology

The methodology employed in conducting the study is in line with the Environment Impact Assessment and Audit Regulations, 2005 as amended in 2018, GN No.349 of 2005. The study was undertaken based on the checklists developed by NORPLAN Limited for guiding ESIA for roads projects.

A multi-disciplinary team of experienced environmentalist, social and RAP expert was assembled to carry out the required resource assessment, generation of baseline data, determination of potential impacts and recommendation of mitigation measures. An interactive approach among the environmental team members and other project professionals was adopted.

Boundaries of the ESIA Study

The study has considered two critical impact zones that define the special boundaries of the project, these are;

The core impact zone - include the area immediately bordering the project considered to be 100m width from the centre line of each proposed road.

The zone of influence - which includes the wider geographical area within Songea Municipal Council

Structure of the Report;

Chapter 1: **Introduction**: This chapter provides the general overview of the project including how the project background and justification, objectives and scope of the study and methodology used for conducting the study.

Chapter 2: Project Description: This chapter details the project components and further outlines activities and materials used in all phases of the project i.e. (mobilization, construction and operation and decommissioning).

Chapter 3: **Policy, Legal & Institutional Framework**: This chapter provides details of important policies, acts and regulations that govern the project.

Chapter 4: **Baseline Environmental and Social Conditions**: This chapter elaborates the project influence area and boundaries. It also describes the baseline / existing conditions of the study area.

Chapter 5: **Stakeholders Identification and Analysis**: Chapter five explains how the stakeholders were involved during the ESIA process and presents their concerns regarding the project.

Chapter 6: **Identification and Assessment of Impacts and Project Alternatives Identification**: This chapter discusses environmental and social impacts associated with the project analyzed according to impacts significance as well as alternative projects that are more suitable to the proposed one while serving the same purpose.

Chapter 7: Environmental & Social Management Plan: The Environmental and Social Management Plan (ESMP) presents how the identified impacts during all project phases will be managed to avoid, minimize or offset any adverse significant impacts of the proposed development.

Chapter8: **Environmental and Social Monitoring Plan**: Environmental and Social Monitoring Plan elaborates how the implementation of the ESMP will be monitored throughout the phases of the project. It is a plan to monitor the efficiency of the proposed project mitigation measures.

Chapter 9: **Cost Benefit Analysis**: In this chapter, the Environmental cost benefit analysis is assessed in terms of the negative versus positive impacts. The potential benefits of the project, in terms of financial and social benefit are substantial.

Chapter 10 Decommissioning: This chapter presents the activities involved when the proposed project is no longer operational and potential impacts to be managed.

Chapter 11: **Summary and Conclusions**

Summary and conclusion summarize findings concerning how feasible, viable and environmentally acceptable the project is and provides recommendations to the proponent on the feasibility of the project

Project Location

Songea Municipal Council is one of the 8 Ruvuma Regional Councils. The proposed roads located within Misufini ward, Mfaranyaki ward, Matarawe ward and Mjini ward in Songea municipal, Ruvuma Region

Project Description

Currently all roads are earth roads comprising 7.3 kilometres except for Kilimomseto – Mjimwema – Lizaboni Road which cover 2.2 kilometers which is of bitumen standard. However, it has cracks and many potholes. Roads' side drains have malfunctioned require attention. As for this time, it is expected that activities for the roads's subproject shall be carried out in four (4) stages i.e., Designing, Construction, Operation and Decommissioning.

Conditions of Existing Roads

Generally, the proposed roads were on moderate condition which can be passable but there were challenges during the rainy seasonal such as over fall by storm water, road erosion and extreme slippery. Mostly of proposed roads have narrow carriage way with no side drains. Within the RoWs of proposed roads there are other infrastructures such as TANESCO distribution poles, TTCL distribution poles, SOUWASA pipelines and Television cables.

Key Components of the Proposed Roads' Subprojects

A summary of the key components of the proposed roads' subproject is described below. It should be noted at the outset that the exact specifications of the proposed subproject's components will be determined during the detailed engineering design phase.

- Carriage Way
- Shoulders
- Pedestrian Walkways
- Storm water Drains
- Bridges
- Outlet Ditches
- Side Ditches
- Road Side Parking Lots
- Culverts
- T/Y Junctions
- Bus Bays
- Road Signs and Crossings
- Road Lights
- Construction camps and any other supporting infrastructure

Land Acquisition

Upgrading of proposed roads shall be done within existing routes. The roads are within Municipal Roads' Reserves.

Compensation and Resettlement Issues

There is neither both compensation and resettlement expected to occur for residential nor commercial houses during implementations of the proposed upgrading of CBD roads Section (9.5Km) road project.

Project Schedule and Life

Site preparation for the proposed upgrading of CBD roads Section (9.5Km) road project is expected to start soon after approval of all related studies, engineering designs and environmental clearance and construction tender award in early 2022. The subproject life is expected to be 20 years.

Estimated Project Cost

The proposed upgrading of CBD roads (9.5Km) subproject construction is estimated to cost approximately TShs 10.3 billion, this includes the cost for construction, purchasing materials, labor

cost and all miscellaneous expenses subjected in the implementation of the project. The project is wholly funded by the Tanzanian government through loan from World Bank.

Project Cycle

During project planning phase only, paper works are involved as summarized below:

- Evaluation of subproject's concepts and alternatives selection;
- Design of all subproject components;
- Topographic survey;
- Geo-technical Investigations;
- Soils and Materials Investigations;
- Carrying out RAP for the affected people (with completion note);
- Carrying out ESIA of the subproject;
- Carrying out the ESMP for the roads' subproject
- Compensations and Land Tenure;
- Tendering for construction works;
- Approval of Engineering designs and Environmental Certification

Below is a summary of activities during mobilization and construction phase of the proposed project;

- Site clearance and construction of campsite
- Implementation of the RAP
- Installation of temporary security fence at the camp sites, site office and storage facilities
- Acquisition of materials from a reliable sources and storage
- Testing of the construction materials
- Acquisition of other permits such as water use permits
- Confirmation of data and accuracy of topographical survey
- Mobilization of labour force, equipment and plant for construction works
- Relocation of utilities,
- Earthworks
- Material transportation and storage
- Abstraction and transportation of water to the construction site
- Collection, storage, transportation, treatment and disposal of wastes generated from construction activities
- Actual construction works
- Occupational health and safety management
- Landscaping and environmental restoration.

Once the construction phase is completed, the roads will start to operate to serve the intended purposes. The activities that are expected to be executed during operational phase include:

- Transportation of goods, agriculture produce and services
- Traffic management
- Road and Facilities maintenance

Due to consistent use of the roads during operational phase there will be a routine roads' maintenance as the results of wear and tear of the roads that will affect quality. Among others, the maintenance works will include:

- Repainting or roads' marks and signs
- Repairing cracks on the structures (culverts, roadside drains),
- Routine maintenance of traffic/road lights

Relevant policies and Legislation

Several relevant policies and legal documents have been reviewed to ensure that "Proposed Upgrading of The CBD Roads (9.5km) To Bitumen Standard at Songea Municipal meets policy and legislative criteria.

World Bank Policies

World Bank's Environmental and Social Framework and its components [Vision for Sustainable Development, World Bank Environmental and Social Policy for Investment Project Financing, and Environmental and Social Standards].

- Environmental and Social Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- Environmental and Social Standard 2: Labour and Working Conditions
- Environmental and Social Standard 3: Resource Efficiency and Pollution Prevention and Management
- Environmental and Social Standard 4: Community Health and Safety
- Environmental and Social Standard 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- Environmental and Social Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Environmental and Social Standard 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities
- Environmental and Social Standard 8: Cultural Heritage
- Environmental and Social Standard 10: Stakeholder Engagement and Information Disclosure

The Applicable Sectorial Policies and Law include:

The National Environmental Policy, 1997; The National Land Policy, 1995; The National Gender Policy, 2002; The National Investment Promotion Policy, 1996; The National Water Policy, 2002; Construction Industry Policy (2003) Environmental Code of Practice for Road Works (2009); Road Sector Compensation and Resettlement Guidelines (2009) The National Health Policy, 2003; The Environmental Management Act, No. 20 of 2004; The Local Government (Urban Authorities), Cap 288, RE. 2002; The Regional and District Act, No. 9 of 1997; The Water Supply and Sanitation Act, No. 12 of 2009; The Land Act, No. 4 of 1999; The Urban Planning Act, No. 8 of 2007; The Occupational Health and Safety Act, No. 5 of 2003; The Employment and Labour Relations Act, No. 6 of 2004; The Public Health Act, No. 1 of 2009; The Fire and Rescue Force Act, No 14 of 2007; The HIV and AIDS (Prevention and Control) Act, No. 28 of 2008; The Water Resources Management Act No.11 of 2009; The Land Use Planning Act, No. 6 of 2007; The Road Act, No. 13 of 2007; The Standards Act, No. 2 of 2009; The Engineers Registration Act, No. 15 of 1997; The Contractors Registration Act, No. 17 of 1997; and The Environmental (Solid Waste Management) Regulations, 2009.

International Conventions

The International Conventions/Treaties to be reviewed include:

(i) International Convention on Trade of Endangered Species (CITES);
(ii) Convention on Biological Diversity (1996); and
(iii) United Nations Convention to Combat Desertification (1997);
(iv) Basel Convention on Control on the Trans-Boundary Movement of Hazardous Waste and Disposal.

Project Stakeholders and their Involvement in the study Process

Stakeholder consultation is necessary to be conducted during ESIA study because the impacts of the proposed developments may influence the surrounding in one way or another. It is therefore, compulsory to seek the opinions of the relevant stakeholders in relation to the development of the proposed sub-project. World Bank ESS10 and Section 89 of the Environmental Management Act (EMA, 2004) provides directives on public participation and its importance in the ESIA. Regulation 17 of the EIA Regulations (URT, 2005) provides further details and procedures for public participation in the ESIA process.

Stakeholder engagement enhances the effectiveness, efficiency, and accountability of the ESIA process and the project as required by Stakeholders Engagement Plan (SEP). When undertaken in a

transparent, balanced manner, it can reduce conflicts and strengthen the sense of ownership of a project and the project's sustainability

The main stakeholders for upgrading of proposed urban infrastructure during 1st Round Consultations under TACTIC Project in Songea Municipality included;

- Ruvuma region and Songea Municipal (Regional Secretariat and Municipal Council),Government public agencies/institutions (TARURA, TANESCO, SUOWASA, TTCL, Fire and rescue force, Ruvuma and Southern Coast River basin)
- Wards and mitaa committees
- Communities along the proposed roads
- Non-Governmental Organizations (Bus Companies, Students, women, Community groups, People with Disabilities (SHIVYIWATA) and other agencies like religious institutions)

Some summaries of Issues raised by different stakeholders includes

- TTCL will cooperate in these TACTIC sub projects to give detailed information and location of the telecommunication infrastructures
- There should be bus bays around the schools and the streets
- Road signs to prevent accidents
- Zebra crossings should be put across the roads and should be respected
- There should be signs and facilities to support people with disabilities for example slide ways along step stairs
- Road infrastructures and signs should be well visible at night and during the rainy seasons
- Waste water drainages should be large, covered and accessible for cleaning
- The project constructor should not employ school children because it is against the law
- Girls should not have sexual relationship with contraction workers because they will create unstable family and conflicts

Identification of Environmental and Social Impacts

Identification Methods for Project Impacts includes;

a) Matrices (Activities-Environment Interactions); Interactions between the project activities and the environment were identified for each stage of the project, by using a matrix as indicated on chapter 6
b) Focused Approach Impacts Mapping/Identification; This is a collaborative process of reflecting the reality along the proposed road's sections in order to find implementable solutions/mitigations to avoid or reduce the impacts. Impacts mapping has been detailed on *Chapter 6*

Potential identified impacts

The following are the potential impacts for the proposed project

Construction phase

Job Creation and Increased Income to Local Communities: Most of the casual labourers and some skilled workforce will be recruited from around the project area and other nearby areas. In addition, the local people will be selling food and other merchandise to the construction workforce. For the activities that do not require a high specialization, utilization of local workmanship will take place. In any case, there will be diffusion of knowhow from the more qualified personnel towards the local personnel.

Increased Water and Soil Pollution: Whichever construction method to be used, it anticipated that water sources and drainage structures crossing the project area shall be affected by small-scale and short-term water pollution. Accidental spillage of fuels from vehicles and construction equipment and materials may pollute both water and soil. The road development will require the creation of drainage channels in order to drain concentrated run-off from the road.

Increased Vibration, Air and Noise pollution: The construction activities shall be associated with increase of vibration level generation of exhaust emission from the machines and vehicles as well as

particulate matters generation from excavation activities and construction materials, all these if not properly managed shall cause disturbances to the surrounding community and raises of complains from the locals.

Increased Possibility of Road Accidents: Increased traffic during construction and poor road safety measures like traffic control measures (where necessary) during construction and road safety awareness campaigns will result into unnecessary road accidents to people.

Soil Erosion and Instability of Slopes: Construction works would accelerate erosion problems in most cut sections. However, all cuts in the sloping grounds will be refurbished firmly and provided with the vegetation cover to reduce the effect of soil erosion.

Safety and Health Risks: Construction will expose labourers and the public in general to bronchial and other respiratory tract diseases. Also, poor use (or not using at all) of the safety gears during construction phase may result into loss of lives or injuries during construction. Furthermore, if there will be no proper sanitation practices at the camps, there might be increased incidence rates of water borne diseases such as cholera and diarrhoea.

Increased Wastes: Construction activities are associated with wastes generation both solid waste and liquid waste. These wastes will be resulted from construction activities and domestic activities of the workers at the camp and site. The solid waste includes, spoil, rubbles, tree logs, metals, glasses, papers etc. while the liquid waste include sewage, oils etc. If not well handled, these wastes can change the aesthetic nature of the project area and can even lead to water pollution in case of improper disposal of oils.

Loss of Vegetation: There shall be little land clearance to obtain the required area for the facilities will involve uprooting vegetation, which falls within the area as well as displacing huge masses of topsoil. This impact is has low significant since the existing alignments in the project area have few vegetation cover vegetation mainly grasses and trees Apart from that, the project road shall follow the existing alignments hence clearing of vegetation will be within the confined area.

Likely incidences of Child Labour: Due to status of Songea Municipal to be in poverty, the proposed upgrading of roads section shall in high risk of employed the child particular for boys and girls younger than 18 years.

Increased HIV/AIDS Infections and other STIs: The serious harm of HIV/AIDS in Tanzania population is well recognized. The construction phase workers are going to earn money and probably involve themselves into drinking irresponsibly subsequently to practice unprotected sex.

Population influx; The construction of the proposed upgrading of roads infrastructures shall definitely be accompanied by in-migration of job seekers and opportunistic businesses and speculators. People from surrounding areas may move in the project areas to seek employments and business opportunities. This would also lead to an increased pressure and demand on social services.

Operational phase

Benefits to Community Resulting from Employment: Pertaining to roads maintenance activities such as grass cutting, cleaning drainage culverts, etc during operation phase, there would likely be employment availability as well as some clerical/low level supervision jobs. Such employment would contribute to poverty reduction especially for women.

Increased productivity of the Songea urban: The construction of the proposed roads will open up the short-cut road to the Dodoma town. The improved road surface condition will make the accessibility to be all year around hence increased number of urban activities.

Improved Transport and Economy of the People*:* The proposed road upgrading will facilitate easy provision of goods and services in Songea urban by increasing and expanding the business network. Furthermore, construction of CBD roads will enhance the development of the proposed upgrading of Manzese A and B to modern market, which shall be served by such road for entry, and exit of agricultural goods.

Increased Road Accidents: Road deaths, injuries and damage to property are most tangible negative impacts on the community environment and may be reduced or increased because of road projects.

Increased traffic and speed driving will result into unnecessary road accidents. Since trucks and vehicles will mainly use the road, the main causes for accidents are reckless driving, defective vehicles, drunkenness and unqualified drivers

The Project Alternatives

No project alternative: A no project alternative means the project will not be carried out in the area. This will affect the nearby community that would have being saved by the project. Also, the existing environment of the site to be developed will remain idle. The employments expected for community will not be there. Generally, the study findings (positives & negatives) on environmental, social and economic aspects will occur although mitigation measure and enhancement measure will be developed.

The preferred project alternatives: The option of having the project carried out is the best alternative compared to other options. The preferred project option has been assessed to ascertain suitable site layout and project activities that will minimize environmental and social impact in the project area.

Environmental and Social Management Plan (ESMP)

This plan describes the mitigation measures, responsible agents, monitoring parameters and frequency of their execution. The plan is proposed as one of measures to help rectify the significant impacts because of the road works project undertaking in Songea municipality.

The environmental and social monitoring plans (ESMP) for this project will be operationalized at a number of levels of the project phases. It is based upon the anticipated impacts, required mitigation measures and degree of follow-up (monitoring) required. It is also advisable that, collaboration with different stakeholders at all levels in some aspects of the project is very important. However, the main responsibilities lie in the hand of the project proponent and contractor

The contractor shall be responsible for overall implementation of the ESMP and will establish an organizational structure with clearly defined lines of authority, areas of responsibility and accountability. Assigned staff at the site shall be responsible for day to day follow-ups (supervision and liaising with key stakeholders). The assigned staff's primary responsibilities will be to ensure that all project activities comply with applicable environmental and social regulations and that ESMP commitments are honoured.

The proponent shall ensure that qualified expertise is provided in a coordinated manner. To a considerable degree, contractor will be responsible for implementing mitigation measures but, in any case, the ultimate responsibility for ensuring that environmental and social protection elements are being carried out properly is of Songea Municipal Council. Most of the predicted impacts can be reduced or avoided through the application of sound operation management practices.

Monitoring and Auditing

Monitoring shall begin at the start of the project and proceed throughout the construction period. Its purpose is to establish benchmarks so that the nature and magnitude of anticipated environmental and social impacts are continually assessed. Therefore, monitoring will involve the continuous or periodic review of mitigation activities to determine their effectiveness. Consequently, trends in environmental pollution or recovery can be established and previously unforeseen impacts can be identified and dealt with during the construction. The monitoring plan in this report specifies the type of monitoring; who will carry out monitoring and what other inputs such as training are necessary

Cost Benefit Analysis

The EIS presents an assessment of the project, in terms of negative impacts, compared to the socio-economic benefits that will not happen if the road project is not implemented in Songea Municipal. Environmental cost benefit analysis is assessed in terms of the negative versus positive impacts. The potential benefits of the project, in terms of financial and social benefit are substantial. Similarly, the environmental impacts can be reasonably mitigated and the financial resources needed to mitigate negative impacts, when compared to the required investment, are relatively small

Summary and Conclusion

TACTIC ZONE “3” project in Songea municipal deal on the upgrading of CBD roads if properly implemented shall enhance the living stand of people and economic growth of the municipality at high level by providing both the strong social and economic stimulus with a multiplier effects in the municipality and region at large.

The ESIA has been completed by describing the project’s characteristics and identifying impacts and proposing corresponding mitigation measures. Most of the project negative impacts can be mitigated to the acceptable level using the proposed mitigation measures. Constant (s) involvement of all parties including the project proponent, contractors and other relevant stakeholders of project is required to implement and monitor the mitigation measures. The contractor should engage a qualified Environmental, Health and Safety Officers to monitor the application and performance of the ESMP as well as dealing with all other environmental related issues that shall emerge during the project implementation. Therefore, based on these facts the company wishes to assure the government and all relevant stakeholders that the proposed environmental management and monitoring plan if appropriately implemented will safeguard the integrity of the environment

During project implementation, the Contractor will review the ESMP and ultimately develop the Site specific ESMP and Action Plan for implementation. During this stage all key stakeholders like the TARURA, Utilities authorities, Songea Municipal Council, local officials and local communities in general should be involved in the development and implementation of the site specific ESMP.

Acknowledgement

The Songea Municipal Council (The Proponent) wishes to convey heartfelt thanks and appreciation to all stakeholders who in one way or another supported the completion of this work. Special thanks to President's Office – Regional Administration and Local Development (PO-RALG) for their inputs and collaborations. Also, the client would wish to express warm thanks to the different Government departments, ward, and Street leaders who facilitated the ESIA study team to obtain vital information necessary for this report. Lastly but not the least; much appreciations to the consultants team for the good job.

Study Team

This Environmental Impact Assessment report has been prepared by:

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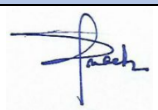
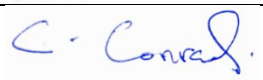
Eng. Nanai K Nanai	Environmentalist and ESIA Team Leader	
Mr Concedo Conrad	Environmentalist and ESIA Assistant	

Associate Expert

Mr. Hamisi Mkoma

Sociologist

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ABBREVIATIONS

BOQ	Bills of Quantity
CWIS	Citywide Inclusive Sanitation
DMDP	Dar es Salaam Metropolitan Development Project
ESIA	Environmental and Social Impact Assessment
ESS	Environmental and Social Standards
HQ	Head Quarters
I&Aps	Interest and Affected Parties
LGA	Local Government Authority
PO-RALG	President's Office Regional Administration and Local Government
RAP	Resettlement Action Plan
ROW	Right of Way
SOUWASA	Songea Urban Water Supply and Sanitation Authority
TACTIC	Tanzania Cities Transforming Infrastructure and Competitiveness
TANESCO	Tanzania Electric Supply Company
TANROADS	Tanzania National Roads Agency
TAREF11	Tanzania Reference Framework 2011
TARURA	Tanzania Rural and Urban Roads Agency
TSCP	Tanzania Strategic Cities Project
TTCL	Tanzania Telecommunication Company Limited
ULGSP	Urban Local Government Support Program
UTM	Universal Transverse Mercator
VETA	Vocational Education and Training Authority
WB	Word Bank
WGS84	World Geodetic System 1984

1. INTRODUCTION

1.1 Background

The Government of the United Republic of Tanzania through The President's Office - Regional Administration and Local Development (PO-RALG) has received a credit from the Word Bank towards in implementing projects-financed Tanzania Cities Transforming Infrastructure and Competitiveness Project (TACTIC), which will be, implemented through the President's Office - Regional Administration and Local Development (PO-RALG).

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The good road network for the transportation of goods and passengers within the Municipality shall contribute to the social and economic development. Roadwork under TACTIC project Zone "3" in Songea Municipal shall involve the Upgrading the 9.5km urban roads to Bitumen standard. Upgrading of the roads will facilitate in improvement of infrastructures in Songea Municipality, enhance connectivity with other roads, increase accessibility to schools, public facilities and businesses at Songea urban area which is currently hampered by poor roads conditions especially during the rainy seasons. Implementation of selected urban roads shall facilitate safer and timely movement of the people and vehicles from their destinations to various areas within the Municipality.

In order to upgrade the proposed sub-projects, PO-RALG commissioned Norplan Tanzania Ltd to undertake the detailed engineering designs for the envisaged upgrading works, including carrying out of Environmental and Social Impact Assessment (ESIA) for the proposed roads' subproject.

1.2 TACTIC Project's Objectives

The objective of the proposed TACTIC project is to strengthen urban management performance and deliver improved basic infrastructure and services in participating urban local government authorities. At its core, the project aims to promote economic development of Tanzania's cities and towns and its enabling infrastructure. Investments and technical assistance under the project are intended to promote urban development that is productive, inclusive and resilient. The project will support 45 urban Local Government Associations (LGAs) spread geographically across all regions of Tanzania, ranging in population from 26,402 to 416,442 (2012), divided into three tiers based on population and growth rate.

1.3 Subproject's Objective

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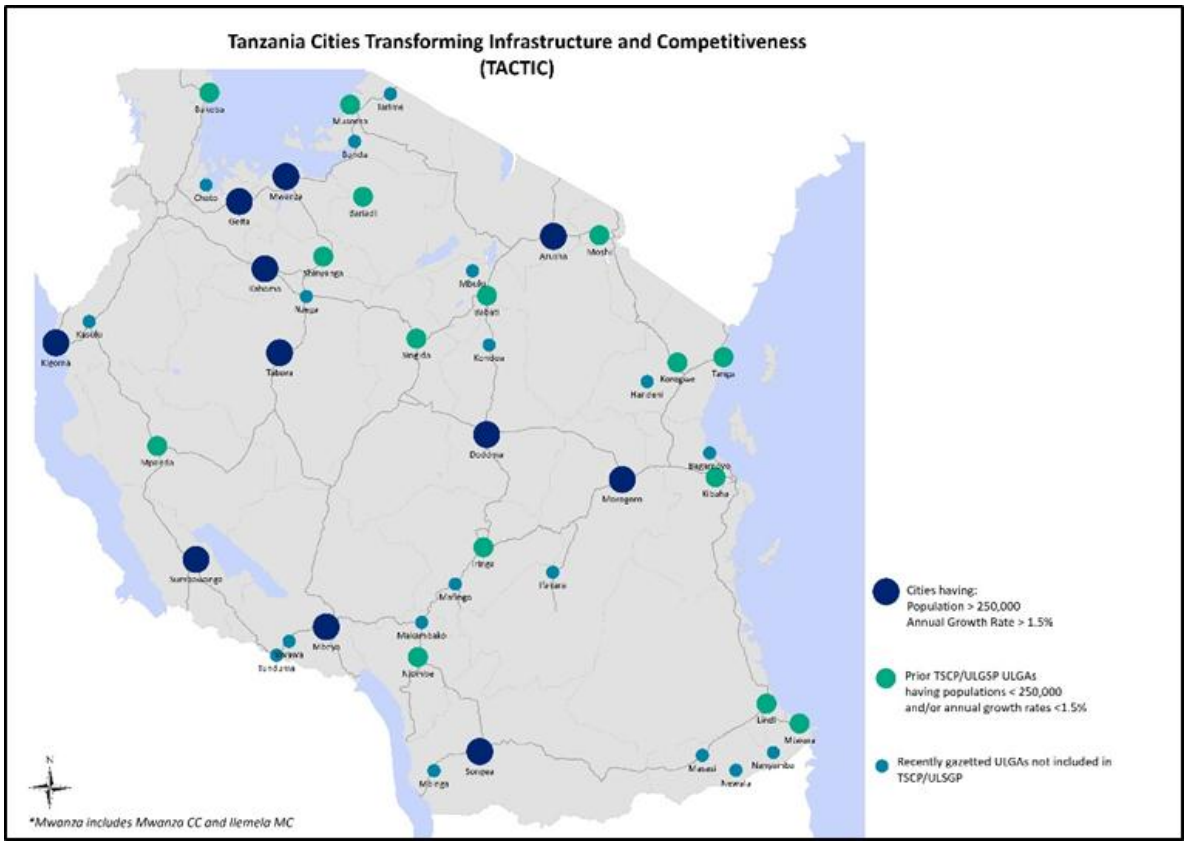

Figure 1-1: A map of Tanzania cities under TACTIC

1.4 Requirements for an ESIA

According to the guidelines by the Environment Management Act (EMA, 2004), Part IV of the EIA Regulations GN No. 349, this Project falls under the list of projects requiring EIA pursuant to the First Schedule made under Regulation 6(1) of the Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations, 2018 and shall be read as one with the Environment Impact Assessment and Audit Regulations, 2005.

In terms of the EIA and Audit Regulations, 2005 read together with amendments of 2018. The proposed Urban Roads' sections (15km) falls into "Type A" projects which are mandatory to ESIA, under section 9 "TRANSPORT AND INFRASTRUCTURE" subsection (a) construction and/or expansion of trunk roads.

Also, the World Bank requires that all environmental and social risks and impacts of the project be addressed as part of the environmental and social assessment conducted in accordance with ESS1 – Assessment and Management of Environmental and Social Risks and Impacts. ESS2–10 set out the obligations of the Borrower in identifying and addressing environmental and social risks and impacts that may require particular attention.

1.5 Objective of ESIA

The objectives of carrying out ESIA study were to identify, predict and assess both positive and negative environmental and social impacts associated with the proposed subproject and propose mitigation measures to minimize the negative impacts and enhance the positive ones. The assessment made use of data and information on the physical, biological and socio-economic features to predict both negative and positive impacts of the project, to design mitigation measures of the adverse impacts, as well as to plan the monitoring of potential changes that may arise in the course of

implementing the project. Part IV of the EIA Regulations G.N. No. 349 of 2005 provides the objectives for carrying EIA, among others the list comprises the following:

- To address and incorporate environmental considerations into the decision-making process;
- To anticipate and avoid, minimise or offset the adverse significant biophysical, social and relevant effects of developmental proposal;
- To protect the productivity and capacity of natural systems and ecological processes which maintain their functions;
- To promote sustainable development and optimises resources use and management opportunities;
- To establish and assess impacts that are likely to affect the environment before a decision is made to authorise the project;
- To propose mitigation and socio-management procedures aimed at managing the proposed mitigation of the identified potential impacts that will form part of the overall EMP for the proposed project;
- To enable information exchange, notification and consultations between stakeholders. Consequently, Division of Environment undertook Environmental Assessment so as to decipher the principles of sustainable development and environmental protection into strategies and actions that can be applied in the proposed project

1.6 Scope of the Study

The Consultant was required to conduct environmental and social impact assessment for the proposed upgrading of urban roads subproject. To review all available and relevant documents, maps, previous studies if any, and conduct the environmental and social impact assessment study, field visit and investigations, public consultations and other related works to meet the stated objectives. The assignment encompassed development of a comprehensive ESIA study which includes ESMP to be implemented by the contractor during the subprojects' implementation.

The consultant was also required to prepare the Resettlement Action Plan (RAP) for Upgrading of urban with the most recent and accurate information on the:

iii. Proposed resettlement and its impacts on displaced persons and other adversely affected groups; and
iv. Legal issues affecting resettlement.

The ESIA study was carried out in accordance with ToRs (Appendix I) that is in accordance with the requirements of the applicable national legislations and World Bank's Environmental and Social Framework (ESF).

The Environmental Impact Assessment has been conducted in accordance with the requirements of the Environment Management Act No.20 of 2004 and Environmental Impact Assessment and Audit Regulations of 2005 and the Amendments of 2018. Other important legal provisions providing guidance on environmental issues pertaining to road sector, such as the Road Act (2007), Environmental Code of Practice for Road works (2008), and Environmental Assessment and Management Guidelines in the Road Sector (2004) have been used in the undertaking of Environmental and Social Impact Assessment.

This report presents the Environmental and Social Impact Assessment (ESIA) for the proposed upgrading of 9.5km roads' sections in Songea Municipality

1.7 Methodology

The methodology employed in conducting the study is in line with the Environment Impact Assessment and Audit Regulations, GN No.349 of 2005 as amended in 2018. The study was undertaken based on the checklists developed by NORPLAN Limited for guiding ESIA for roads projects.

A multi-disciplinary team of experienced environmentalist, social and RAP expert was assembled to carry out the required resource assessment, generation of baseline data, determination of potential impacts and recommendation of mitigation measures. An interactive approach among the environmental team members and other project professionals was adopted.

1.7.1 Checklist

The team utilized the checklist for data gathering, analysis, and presentation whereby team members conducted the field investigation to determine the critical elements for analysis and the issues to be highlighted for the design and planning process.

Methodology for conducting ESIA study used primary field data collection and secondary information. Information was collected through physical observation, interviews and meetings. Physical observation entails observation of natural environmental and social aspects such as landscape, vegetation, soils, water collection points, agricultural lands etc.

1.7.1.1 Consultations

Consultations through meetings and interviews with major stakeholders were conducted at Mtaa/street, ward, district and regional levels with key informants including community leaders and local people. Interviews and meetings provided an opportunity to learn and share the salient information with stakeholders about the project. The consultation process has been described on chapter 5

1.7.1.2 Document Review

Reviews of additional information were done. This included review of the international policies, conventions and guidelines, policies, legislation, strategies and World Bank's ESF. Documents reviw included: feasibility study report, Songea Social-Economic Profile e.t.c

1.7.1.3 Physical observation

Study team was visiting the subproject area between December 27th, 2021 and January 4th, 2022 to conduct the physical assessment on biological and social environment such as vegetation cover, settlement patterns, land use activities and accessibility to site and social services in the area.

1.7.1.4 Assumptions of the Study

- The study assumes that the respondents provided information that are reliable on the implementation of the proposed subproject;
- The study assumes that the Design Team has incorporated ESIA mitigations into the roads' designs; and
- The study also assumes that the project contractor will fully adhere to ESMP

1.8 Boundaries of the EIA Study

The study has considered two critical impact zones that define the special boundaries of the project, these are;

- **The core impact zone** - include the area immediately bordering the project considered to be 100m width from the centre line of each proposed road.
- **The zone of influence** - which includes the wider geographical area within Songea Municipal Council

1.9 Report Structure

This report is organized in eleven chapters as described below;

Chapter 1: **Introduction**: This chapter provides the general overview of the project including how the project background and justification, objectives and scope of the study and methodology used for conducting the study.

Chapter 2: Project Description: This chapter details the project components and further outlines activities and materials used in all phases of the project i.e. (mobilization, construction and operation and decommissioning).

Chapter 3: **Policy, Legal & Institutional Framework**: This chapter provides details of important policies, acts and regulations that govern the project.

Chapter 4: **Baseline Environmental and Social Conditions**: This chapter elaborates the project influence area and boundaries. It also describes the baseline / existing conditions of the study area.

Chapter 5: **Stakeholders Identification and Analysis**: Chapter five explains how the stakeholders were involved during the ESIA process and presents their concerns regarding the project.

Chapter 6: **Identification and Assessment of Impacts and Project Alternatives Identification**: This chapter discusses environmental and social impacts associated with the project analyzed according to impacts significance as well as alternative projects that are more suitable to the proposed one while serving the same purpose.

Chapter 7: Environmental & Social Management Plan: The Environmental and Social Management Plan (ESMP) presents how the identified impacts during all project phases will be managed to avoid, minimize or offset any adverse significant impacts of the proposed development.

Chapter8: **Environmental and Social Monitoring Plan**: Environmental and Social Monitoring Plan elaborates how the implementation of the ESMP will be monitored throughout the phases of the project. It is a plan to monitor the efficiency of the proposed project mitigation measures.

Chapter 9: **Cost Benefit Analysis**: In this chapter, the Environmental cost benefit analysis is assessed in terms of the negative versus positive impacts. The potential benefits of the project, in terms of financial and social benefit are substantial.

Chapter 10 Decommissioning: This chapter presents the activities involved when the proposed project is no longer operational and potential impacts to be managed.

Chapter 11: **Summary and Conclusions**

In addition, the report presents references and appendices that are attached herein

2. PROJECT BACKGROUND AND DESCRIPTION

2.1 Overview

This section of the report presents the subproject's current situation and and description of stage-by-stage of the proposed subproject components, activities and logistics. As for this time, it is expected that activities for the roads' subproject shall be carried out in four (4) stages i.e., Designing, Construction, Operation and Decommissioning. Description of the various project components is provided in the subsequent sections. During physical observation of the proposed project site; it is observed that the project site is not within or near the sensitive ecosystem/areas (e.g., water bodies, protected areas, schools, public utilities)

2.2 Project Location

Songea Municipal Council is one of the 8 Ruvuma Regional Councils. The council has 616.36 square kilometers equivalent to 0.9 percent of the area of Ruvuma Region. Administratively, Songea Municipal Council has a total of 95 mitaa, 21 Wards and 2 Divisions. The Council has a total of 28 esteemed councilors, of whom 21 are elected, 7 are Special Seat representatives. The council has one constituency. The proposed roads located within Misufini ward, Mfaranyaki ward, Matarawe ward and Mjini ward in Songea municipal, Ruvuma Region. The proposed project's coordinates are 10° 41'S Latitudes and 35° 39' E Longitudes

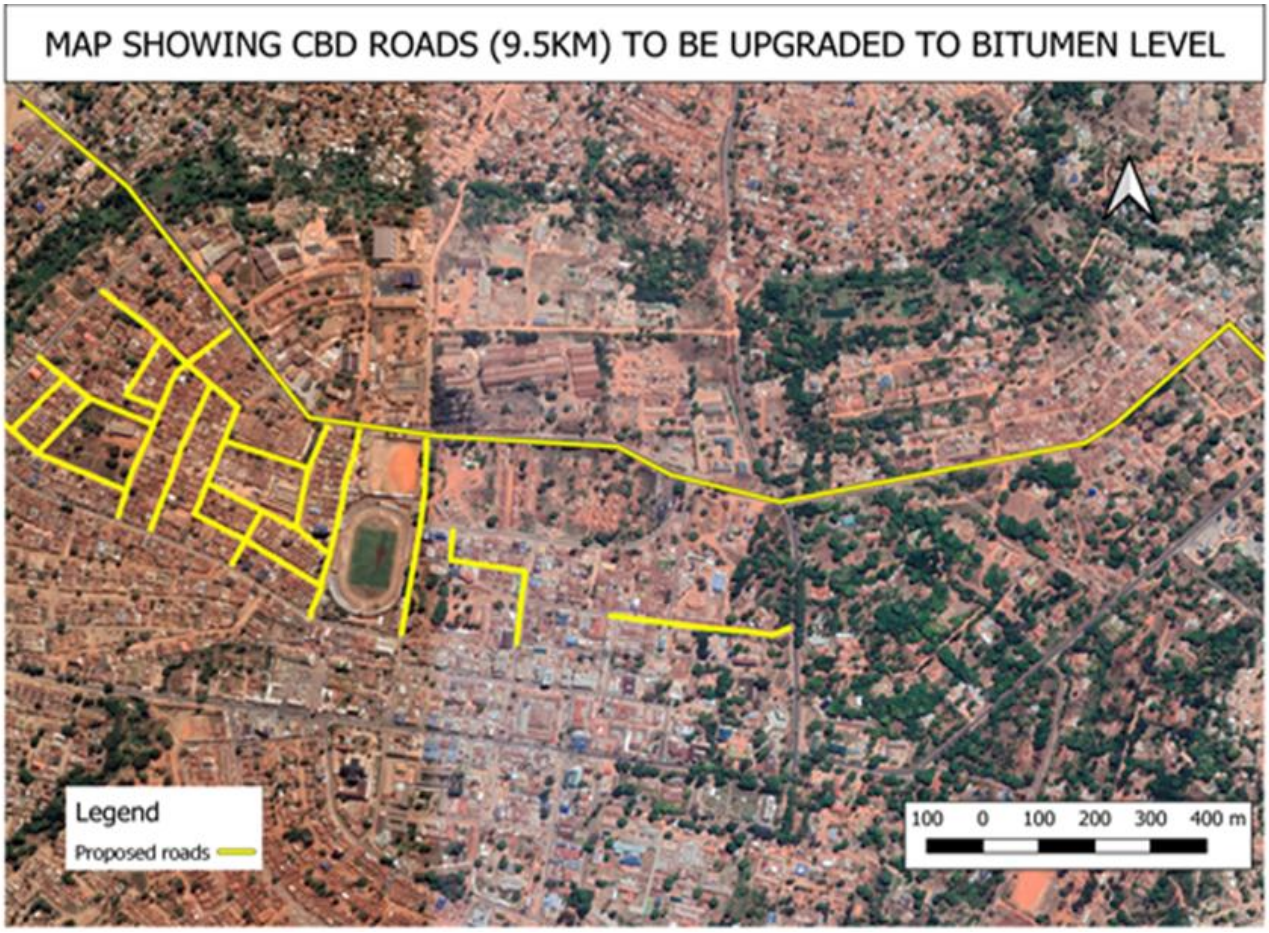

Figure 2-1: Map Showing Proposed CBD Road Network to Be Upgraded in Songea.
Source: field data December 2021

2.3 Description of Proposed Urban Roads' Subproject

Currently all roads are earth roads comprising 7.3 kilometres except for Kilimomseto – Mjimwema – Lizaboni Road which cover 2.2 kilometers which is of bitumen standard. However, it has cracks and many potholes. Roads' side drains have malfunctioned require attention.

These proposed urban roads for upgrading are connecting 3 wards within the Municipality as shown in table 2-1 below.

Table 2-1: Proposed Urban Roads for Upgradingin Songea Municipality

SN	Road Name	Ward	Distance Covered
1	Sousa Tunduru Bus Stand Road	Mjimwema	0.8 km
2	Majimaji Stadium-Sabena	Msufini	0.3 km
3	Mpangwa-Soni-TAG	Msufini	0.3 km
4	Regional Mosque-Kalembo	Msufini	0.3 km
5	Manyara-TAG	Mjini	0.3 km
6	Mission-garage-Kalembo	Mjini	0.4 km
7	Kaboma-Kalembo	Mjini	0.3km
8	Manzese A-Kalembo	Msufini	0.4 km
9	TPB-Sabato Church	Mjimwema	0.3 km
10	Kisiwa-Lamshaba	Mjini	0.45 km
11	Msikitini-Policequarter	Msufini	0.12 km
12	Majengo P/S-Mchekanae	Mjini	0.52 km
13	Osaka-Kisumapai	Msufini	0.5 km
14	Shinyanga Annex-CCM	Mjini	0.33km
15	Matomondo-Buhemba2	Mjini	0.35 km
16	Liganga-Magengeni	Mjini	0.53 km
17	Madamba-Magengeni	Mjini	0.58 km
18	Kapungu road	Mjini	0.53 km
19	Kilimomseto-Mjimwema-Lizaboni	Mjimwema Matarawe Mjini	2.2 km
20	Namanga-Manzese	Msufini	0.3 km

Source: field data December 2021

2.4 Conditions of Existing Roads

Generally, the proposed roads were on moderate condition which can be passable but there were challenges during the rainy seasonal such as over fall by storm water, road erosion and extreme slippery. Mostly of proposed roads have narrow carriage way with no side drains. Within the RoWs of proposed roads there are other infrastructures such as TANESCO distribution poles, TTCL distribution poles, SOUWASA pipelines and Television cables.

2.5 Key Components of the Proposed Roads' Subprojects

A summary of the key components of the proposed roads' subproject is described below. It should be noted at the outset that the exact specifications of the proposed subproject's components will be determined during the detailed engineering design phase.

- Carriage Way
- Shoulders
- Pedestrian Walkways
- Storm water Drains
- Bridges
- Outlet Ditches
- Side Ditches
- Road Side Parking Lots
- Culverts

- T/Y Junctions
- Bus Bays
- Road Signs and Crossings
- Road Lights
- Construction camps and any other supporting infrastructure

2.6 Road Classification

Referring to IRC:69-1977 of space standard for roads in urban areas. The roads at urban area are classified into express ways, arterial streets, Sub-arterial Street, collector streets and Local Street. Upgrading of these CBD roads project may lay on some of classification mention above.

The road will be upgraded from gravel road to bituminous standards and combined with the above road classification; the project road is classified as a Trunk Road. Thus, the minimum design criteria for the road are as follows:

- Carriageway width: 6.5 m two way
- Carriageway width: 6.0 m two lanes
- Shoulder width: 1.5 m

2.7 Proposed Road Design

2.7.1 Road Design and Classification

The Project shall be designed to meet the requirements of applicable International and Tanzania road design standards, guidelines and regulations. To mention few these are as listed

Table 2-2Design Standards to be followed

1	Geometric design	MoW Road Geometric Design Manual of 2011, Code of practice for Geometric Design (Draft) published by SATTC –TU, 1998
2	Pavement and Materials	MoW Pavement and Materials Design Manual, 1999
3	Specifications	MoW Standard Specifications for Road Works
4	Testing Procedure	MoW Central Materials Laboratory testing Manual
5	Structures	British Standards BS 5400
6	Hydrology and Hydraulics	TRRL East African Flood Model
7	Surveying	Land Survey and Mapping Standards of Tanzania (Land Surveying Regulations CAP 390)

2.7.2 Typical Cross-Section

The typical cross section that was used in the design is illustrated in drawings attached in separate book of drawings. The cross section is in line with the specifications from both manuals used in terms of the following detail;

Table 2-3: Typical Road cross section

S/No.	PARAMETER	DIMENSION
1	Carriageway widths:	6.5m and 6.0m (Two Way Two lanes)
2	Shoulder width:	Minimum 1.5m
3	Cross fall/camber:	2.5% for paved carriageway and shoulders.
4	Drainage:	Open drains. Pedestrians access slabs provided over open drains in some places

2.7.3 Junctions and Access Roads

Intersection design and control is a major factor in improving road safety. The identified and possible accident spots have been considered in the design by providing facilities such as pavement markings, signs, and traffic islands to regulate and direct conflicting traffic streams into specific paths.

2.7.4 Realignments

The proposed roads alignment generally follows the existing alignment with minor improvements (realignments) due to several factors with key ones indicated below:

- Avoiding sharp curves
- Improving road drainage
- New locations of Bridges
- Avoiding built-up areas and religious buildings hence reducing compensation costs
- Improvement of road safety
- Reduction of cost of construction

2.7.5 Pedestrian and Cyclists Ways

Shoulders along the project CBD roads sections shall be used for pedestrians and cyclists. A 2.0m wide shoulder has been provided in built up areas to ensure safety of pedestrians.
Consultant has provided a raised 2m wide cycle way and 1.5m wide for footway on built up area(villages) as it was noted that combined daily volume of pedestrians and cyclists is exceeding 100.
Semi-mountable kerbs shall be placed at the edges of this cycle way and footways for safety of the pedestrians and cyclists for village locations with intermittent gaps between the kerbs provided to drain away road surface runoff.

2.7.6 Drainage structures

The drainage structures along the road alignment are proposed at natural watercourses, where required to relieve side drains, and catch water drains. It has also been all new drainage structures (pipe culverts and box culverts) are proposed to be constructed from the reinforced concrete. The full width of the carriageway (i.e., road and shoulders) shall be accommodated on all structures to be provided.

All pipe- and box culverts will be constructed with monolithic head - and wing-walls, aprons and cut-off walls. Additional erosion protection of gabions, riprap and stone pitching will be provided as required to prevent erosion of the road embankment and foundations for the drainage structures both up and downstream of the crossing.

There will be provision of minor drainage structures, including pipe culverts and box culverts with an opening less than 2.0 m wide. The minimum size of pipe culverts proposed is of diameter 900 mm for cross-culverts and 600 mm for access road culverts. Pipe culverts and minor box culverts have been designed to cater for the predicted 10-year return period flood discharge.

The major drainage structures, including bridges having a span of more than 10 metres and box culverts with a total opening greater than or equal to 3.0 m wide will also be provided.
The box culverts opening provided will be in accordance with the Standard Manual for Box Culverts prepared by MoW in June 1991. Major box culverts designed carries the full Trunk Road design bridge. They have also designed to carry a single 24 tonnes axle. In addition, the culverts have been designed to carry the overburden depending on the fill thickness. These have been designed to cater for the predicted 50-year return period flood discharge.

The choice between replacing an existing drainage structure with a box culvert was based on the design runoff and the nature and geometry of the channels.

2.7.7 Road Furniture

2.7.7.1 Road Signs and Road Markings

Road signs are devices mounted on a fixed or portable support, whereby a specific message is conveyed by means of symbols or words officially erected for the purpose of giving instructions or provide information to road users.

Road markings are traffic control devices in form of lines, symbols, words and patterns painted or otherwise applied on the surface of the road for the control, warning, guidance or information to the road users.

Both signs and markings are also needed in giving to the road user's information concerning routes, directions and points of interest. A number of road signs have been provided in accordance with "A Guide to Traffic Signing (2009)".

2.7.7.2 Bus Bays

Bus bays enable buses to slow down and stop outside the traffic lane. Fully effective bus bay is composed of deceleration lane or taper, standing space and merging lane.
Bus bays are provided at all strategic area. Design Consultant has provided bus bays of 3.25m wide placed adjacent to the paved shoulder so that buses can stop clear of the carriageway. Schedule of bus bays and typical bus bay is incorporated in the book of drawings. Final positions of these bus bays will be finalized during construction in consultation with local authorities.

2.7.7.3 Road Humps and Rumble Strips

Road hump is a device for controlling the speed of vehicles, consisting of a raised area across the roadway. It is of two main types namely; circular and flat-topped humps.
Rumble strips are transverse strips across the road used to alert and warn drivers with a vibratory and audible effect before a hazard ahead such as sharp bend, an intersection or a significant change in allowable road speeds.

Road humps and rumble strips have been provided in accordance with "Road Geometric Design Manual (2011)". They are provided mostly in combination at village locations as a speed calming measure to enhance safety of significant number of pedestrians at such locations. Details and schedules for humps and strips adopted are as shown in the book of drawings.

2.8 Preliminary Drainage Design

On completion of the conditional assessment, the preliminary design was done for the major structures to be adopted. The extent of design carried out at this stage however is only to enable establishing the quantities required for the economic assessment. The total length for the drainage to be constructed is the same as road distance.

2.8.1 Design Standards

The Code of Practice used for the design of drainage structures is British Standard 5400, with design load for the new major drainage structures being taken in accordance with the specifications for loads in Part 2 of BS 5400. All live loadings including HA live load and 37.5 units of HB as defined in the terms of reference have been used.

2.8.2 Box Culverts

Concrete box culverts will be cast in situ and will be founded on an improved soil base (possibly with the incorporation of geotextile material) in the event that samples from trial pits at the proposed location confirm the visual assessment of the existence of black cotton soils.
For protection on the riverbanks, gabion boxes will also be adopted based on the hydraulic considerations and river flow conditions. All these will be included in the detailed design stage.

2.8.3 Pipe Culverts

New pipe culverts will be made of concrete and will have a minimum diameter of 900mm.

2.8.4 Materials

Concrete Class for bridges has adopted various classes. For the bridge deck including beams Class 35 will be used, abutment, piers, and foundation Class 30 will be used. For box culverts, concrete Class used is Class 30. Class 15 concrete will be used in channel linings and erosion protection works and in blinding layers.

2.8.5 Reinforcement Quantities

For the purpose of quantification of reinforcement, appropriate unit weights were used based on the experience of consultant in the completed projects.

2.9 Assessment of Existing Structures

The existing road is gravel which is planned to be improved to bitumen standard as required by the terms of reference. The construction of both proposed road and drainage shall be within RoW, there will be no any affected residential houses.

2.9.1 Dimensions

The existing structures range from 600mm pipe culverts, box culverts of various sizes. Most of the pipes are wide enough covering the entire road width that reaches the dimensions of dual carriage way.

2.9.2 Type of Structures

The existing pipe culverts are of concrete and steel (Armco). All box culverts are reinforced concrete whereas for bridges there is a combination of concrete bridge deck and stone pitching abutments.

2.9.3 Condition of Superstructure

Assessment made on the superstructure indicated that most of the structures appear to be old and with workmanship that is not very good but without a notable crack. Structurally all the concrete culverts appear to be intact.

2.10 Climate Change Adaptation Strategies

The proposed roads under TACTIC should be resilient to climate change scenarios. Adaptation measures shall do so by:

- Protecting the road infrastructure from the impacts of climate change and,
- Ensuring that the road infrastructure does not increase the vulnerability of the surrounding area to climate change.

In that case; the design has considered two climatic factors: 1) Temperature and 2) Rainfall

With regard to Temperature: Possible adaptation measures for managing pavements for extreme temperatures include:

- Assessment of pavement material compositions during planning and before construction phases;
- Building on good-working practices from areas with warmer temperatures;
- Using more rut-resistant and/or stripping-resistant resurfacings;
- Surface dressing with chippings with higher reflectivity;
- Pervious wearing courses; and
- Improving surface and sub-surface drainage systems;

With regard to Rainfall Adaptation measures that have been considered are:

- Reviewing storm water drainage requirements;
- Frequent clearing of ditches and culverts;
- Resizing drainage systems to meet threat;
- Paving ditches to reduce erosion;
- Reviewing design storm return periods in the light of new weather information; and
- In extreme case, rerouting

2.11 Land Acquisition

Upgrading of proposed roads shall be done within existing routes. The roads are within Municipal Roads' Reserves.

2.12 Compensation and Resettlement Issues

There is neither both compensation and resettlement expected to occur for residential nor commercial houses during implementations of the proposed upgrading of CBD roads Section (9.5Km) road project.

2.13 Project Schedule and Life

Site preparation for the proposed upgrading of CBD roads Section (9.5Km) road project is expected to start soon after approval of all related studies, engineering designs and environmental clearance and construction tender award in early 2022. The subproject life is expected to be 20 years.

2.14 Estimated Project Cost

The proposed upgrading of CBD roads (9.5Km) subproject construction is estimated to cost approximately TShs 10.3 billion, this includes the cost for construction, purchasing materials, labor cost and all miscellaneous expenses subjected in the implementation of the project. The project is wholly funded by the Tanzanian government through loan from World Bank.

2.15 Project Cycle

2.15.1 Project Planning Phase

Feasibility study, ESIA and RAP, preliminary engineering planning, final engineering planning and construction planning form the planning phase of the project. The project RAP will be implemented (with a RAP completion note) prior to commencement of construction phase.

During project planning phase only, paper works are involved as summarized below:

- Evaluation of subproject's concepts and alternatives selection;
- Design of all subproject components;
- Topographic survey;
- Geo-technical Investigations;
- Soils and Materials Investigations;
- Carrying out RAP for the affected people (with completion note);
- Carrying out ESIA of the subproject;
- Carrying out the ESMP for the roads' subproject

- Compensations and Land Tenure;
- Tendering for construction works;
- Approval of Engineering designs and Environmental and Social Certification

2.15.2 Mobilization and Construction Phase

The mobilization and construction phase will take place subsequent to the issuing of Environmental Impact Assessment Certificate, completion of the implementation of the project RAP, and once a construction contract with a suitable contractor is signed. The construction phase is expected to be approximately 18- 24 months for the upgrading of proposed roads' sections.

The construction phase will involve the transportation of personnel, construction materials and equipment to the site, and personnel away from the site (the personnel that will not be accommodated on-site).

All efforts will be made to ensure that all construction work will be undertaken in compliance with local and national legislation, local and international best practice, World Bank's ESSs as well as the Environmental and Social Management Plan (ESMP) (Chapter 7), which was compiled during the ESIA Phase and included in the ESIA Report.

During the construction phase, both skilled and unskilled temporary employment opportunities will be created. It is difficult to specify the actual number of employment opportunities that will be created at this stage; however approximately 150 direct and indirect employment opportunities are expected to be created during the construction phase. It should however be noted that employment during the construction phase will be temporary, whilst being long-term during the operational phase.

Below is a summary of activities during mobilization and construction phase of the proposed project;

- Site clearance and construction of campsite
- Implementation of the RAP
- Installation of temporary security fence at the camp sites, site office and storage facilities
- Acquisition of materials from a reliable sources and storage
- Testing of the construction materials
- Acquisition of other permits such as water use permits
- Confirmation of data and accuracy of topographical survey
- Mobilization of labour force, equipment and plant for construction works
- Relocation of utilities,
- Earthworks
- Material transportation and storage
- Abstraction and transportation of water to the construction site
- Collection, storage, transportation, treatment and disposal of wastes generated from construction activities
- Actual construction works
- Occupational health and safety management
- Landscaping and environmental restoration.

As construction progresses towards the end, demobilization phase starts. Demobilization will be done for proper restoration of the sites under temporary use (laydown area, campsite/office, borrow pits, etc.) after completion of construction activities such as removing/spreading top-soils piled along the roads, removing all temporary structures, campsites/offices may be left to the local government / government institutions depending on agreement that will be reached during the demobilization phase. Other activities shall include clearance of all sorts of wastes including used oil, sewage, solid wastes (plastics, wood, metal, papers, etc).

This shall also involve collection and deposition of all wastes to the approved dumpsite and termination of temporary employments and subcontracts before handling over the project to TARURA for operation and maintenance.

2.16 Construction Material

The proposed upgrading of urban roads' sections (9.5km) in Songea Municipality will use the following earth material as initial estimate while the actual amount will be indicated on the detail design.

Table 2-4: Types, Amounts and Sources of Project Requirements During the Construction Phase

Requirements	Type	Quantity	Source
Raw Materials	Aggregates	20 M^3	Existing Licence dealers at Mwengemshindo or Ngilimalitembo quarry.
	Sand	80,000 M^3	Existing Licence dealers around project site
	Water	20 M^3	SOUWASA, Lilula A, Lilula B and Matogoro streams
	Cement	100 Tones	Songea licenced dealers
	Reinforcement bars	20 Tones	Songea licenced dealers
	Timber	-	Iringa licenced dealers
Energy	Electricity	-	TANESCO/Generators
	Fuel	-	Songea licenced dealers
Manpower	Skilled	50	Contractor
	Unskilled	100	Local People along the road
Equipment	Dump Truck	4	Contractor
	Graders	2	Contractor
	Dozer	2	Contractor
	Water Boozers	2	Contractor
	Vibrators	2	Contractor
	Excavator	2	Contractor

2.16.1 Hard Stone Material

Two sites with hard rock sources were identified. This quarry was investigated and tested. The sites investigated were Mwengemshindo Quarry which located about 9km from the site and Ngilimalitembo Quarry which located about 7km from the site. Both of the sources are legally owned.

2.16.2 Water Sources

Water for construction will be sourced from SOUWASA network which adjacent to the proposed sites. However, the contractor will source water from Lilula A and Lilula B streams respectively; in case of shortage or outage of water from SOUWASA. However the contractor is allowed to use any other source of water as long as has a permit.

2.16.3 Sand

A search for sand deposit was carried out in areas close to project area, in which two sand potential sources were discovered. The two (2) sources are Mwengemshindo alluvial deposit and Subira alluvial deposit have been investigated and tested. Mwengemshindo alluvial sand deposition is located approximately 9km from the proposed site. Subira alluvial sand deposition is located approximately 7km from the site. Both of the sources are legally owned.

2.16.4 Manufactured Materials

A survey was made for industrial manufactured materials in Songea municipal, where the sources (suppliers) of cement (mainly 32.5N, 32.5R & 42.5R), steel bars (10mm, 12mm, 16mm, 20mm and BRC), hydrated lime and wire mesh were confirmed. However, special materials such as concrete admixtures, bitumen products, thermoplastic paints, geotextile, and road signs are not obtainable in the project area and hence can just be procured from special agents in Dar es Salaam or through import.

As all industrial materials produced or imported in the country are being monitored by the Tanzania Bureau of Standards (TBS), no samples were collected for regular testing during the investigation. However, the projects specifications shall require the contractor to avail in due time the certificates from the manufacturers to confirm if the materials supplied for the project comply with the relevant specifications.

2.17 Power Supply for Projects

The source of energy will be electricity as all areas for proposed subproject are close to power line. For the case of emergency, diesel generators will be used with 230kv capacity. In campsites, solar power might also be used especially for lighting purposes

2.18 Labour Force

Most of the workforce will come from within the region. It is expected that during the construction phase 150 people will be employed by the subproject.

2.19 Storm Water Management

Road side Storm water drainage system shall be constructed along the proposed roads. Collected storm water runoffs will be directed to the existing drainage patterns of the area. During the construction, the storm water drainage systems shall be taken very carefully to all CBD roads.

2.19.1 Waste Generation

Construction phase is expected to generate more solid and liquid wastes than operation phase. Types and management of wastes from the project construction are described hereunder

2.19.2 Solid Wastes

Solid waste which likely to be generated during construction of the proposed subproject, these include cleared vegetation, scrap metals, tins and drums, cement bags and domestic solid wastes including plastics bottle and food left overs. These solid waste require good practice on management especial on collection, separating and disposal method. Collected waste shall be disposed at Mafisa dumpsite.

2.19.3 Liquid Waste

Liquid wastes which likely to be gerated during construction of the proposed roads' subproject, this includes mainly from sanitary activities. Onsite management of liquid waste shall be applied during construction phase.

2.19.4 Hazardous Waste

Generation of hazardous waste during construction is expected, this shall include: waste oils from engines, grease, used oil filters, used batteries e.t.c. Management for hazardous waste has been outlined in table 2-5.

Table 2-5: Categories of Waste Generated During Construction of Roads' Subproject

Waste	Types	Quantity	Treatment/ Disposal
Solid Waste (Degradable)	Vegetation (Trees, Grasses) and remnants of timber.	$2m^3$ biomass	Source of energy to the neighbouring communities
	Food remains, cardboards and papers	10kg/day	Collected in a large skip bucket at the campsite then to be composted and used as manure for the gardens at the camp site
Solid Waste (Non-Degradable)	Scrap metals, drums and plastics	15kg/day	Sold to Recyclers
	Tins, glasses	10kg/day	Taken to the authorised dumpsite at Subira dumpsite
Liquid waste	Sanitary	$3m^3$/day	Septic tank –Soak away system at the office site
	Oils and greases	Unpredictable	Car maintenance will be done at proper garages, Wastes shall be collected by licensed hazardous waste collector

2.20 Security, Health and Safety

The construction activities are associated with occupational health hazards as well as public health hazards. In this case measures to offset or reduce health hazards shall be employed accordingly and these include among others provision of personal protective gears, construction to be restricted only during the day time, providing induction training to all employees to ensure they are aware of the health hazards and thus take appropriate initiative to protective themselves. Machines operating at site shall be equipped with fire extinguishers just in case of fire. Furthermore, the site of work shall be registered by OSHA as required

2.20.1 Project Operation and Maintenance Phase

Once the construction phase is completed, the roads will start to operate to serve the intended purposes. The activities that are expected to be executed during operational phase include:

- Transportation of goods, agriculture produce and services
- Traffic management
- Road and Facilities maintenance

Due to consistent use of the roads during operational phase there will be a routine roads' maintenance as the results of wear and tear of the roads that will affect quality. Among others, the maintenance works will include:

- Repainting or roads' marks and signs
- Repairing cracks on the structures (culverts, roadside drains),
- Routine maintenance of traffic/road lights

3. POLICY, ADMINISTRATIVE AND LEGAL FRAMEWORK

3.1 Overview

This section is aimed at reviewing relevant environmental resource and planning legislations and regulations to ensure that "Upgrading of Roads' sections (9.5km) Project in Songea Municipality" meets policy and legislative criteria, international conventions and World Bank's Environmental and Social Standards (ESSs) requirements are built into project design and implementation. It also outlines specific procedures and measures to be carried out before, during and after subproject development.

Below are identified policies, legislations, World Bank's Environmental and Social Standards (ESSs) and International Conventions reviewed and included in the Draft ESIA describing their relevance to the proposed subproject.

3.2 World Bank's Environmental and Social Framework

The World Bank Environmental and Social Framework sets out the World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity.
This Framework comprises:

- A Vision for Sustainable Development, which sets out the Bank's aspirations regarding environmental and social sustainability;
- The World Bank Environmental and Social Policy for Investment Project Financing, which sets out the mandatory requirements that apply to the Bank; and
- The Environmental and Social Standards, together with their Annexes, which set out the mandatory requirements that apply to the Borrower and projects.

This ESIA has reviewed the above framework's components' relevance to the Project as shown in the below sub sections;

3.2.1 Vision for Sustainable Development

World Bank Group is globally committed to environmental sustainability, including stronger collective action to support climate change mitigation and adaptation, recognizing this as essential in a world of finite natural resources. It recognizes that climate change is affecting the nature and location of projects, and that World Bank-financed projects should reduce their impact on the climate by choosing alternatives with lower carbon emissions.

Equally, social development and inclusion are critical for all of the World Bank's development interventions and for achieving sustainable development.
At the project level, these global aspirations translate into enhancing development opportunities for all, particularly the poor and vulnerable, and promoting the sustainable management of natural and living resources. Therefore, within the parameters of a project, the Bank seeks to

- Address project-level impacts on climate change and consider the impacts of climate change on the selection, siting, planning, design and implementation and decommissioning of projects;
- Maximize stakeholder engagement through enhanced consultation, participation and accountability.

The design of Upgrading Songea Municipal roads has observed climate change adaptation strategies for sustainability of the urban the proposed infrastructure.

3.2.2 World Bank Environmental and Social Policy for Investment Project Financing

This Environmental and Social Policy for Investment Project Financing sets out the mandatory requirements of the Bank in relation to the projects it supports through Investment Project Financing
The Bank is committed to supporting Tanzania government in the development and implementation of projects that are environmentally and socially sustain-able, and to enhancing the capacity of Borrowers 'environmental and social frameworks to assess and manage the environmental and social risks and impacts of projects.

The Bank will assist Tanzania government in their application of the ESSs to projects supported through Investment Project Financing in accordance with this Environmental and Social Policy for Investment Project Financing (Policy).

To carry out this Policy, the Bank will:

- Undertake its own due diligence of proposed projects, proportionate to the nature and potential significance of the environmental and social risks and impacts related to the project;
- As and where required, support the Tanzania government to carry out early and continuing engagement and meaningful consultation with stakeholders, in particular affected communities, and in providing project-based grievance mechanisms;

The Banks shall evaluate the environmental and social risks management plan including the extent of stakeholders' engagement on the project throughout

TACTIC project engaged various stakeholders during preparation of Environmental and Social Management Framework (ESMF) and other supporting Environmental and Social Safeguard Instruments i.e. Labour Management Procedures (LMP), Resettlement Policy Framework (RPF), Stakeholders Engagement Plan (SEP) and Gender-Based Violence Action Plan (GBV Plan). However; at subprojects level, the proposed urban roads have been conducted with ESIA study to comply with Environmental and Social Policy for Investment Project Financing. During the study, various stakeholders from Mtaa level to National Level were engaged, their views captured and used for influencing the design of proposed subprojects as indicated in chapter 5 of this ESIA.
In addition, specific SEP, RAP and LMP have been prepared for subprojects to guide the implementation and operation of the proposed subprojects.

3.2.3 Environmental and Social Standards

3.2.3.1 Environmental and Social Standard 1: Assessment and Management of Environmental and Social Risks and Impacts

ESS1 sets out the Borrower's responsibilities for assessing, managing and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank through Investment Project Financing, in order to achieve environmental and social out-comes consistent with the Environmental and Social Standards (ESSs).
Borrowers will conduct environmental and social assessment of projects proposed for Bank financing to help ensure that projects are environmentally and socially sound and sustainable. The environmental and social assessment will be proportionate to the risks and impacts of the project. It will inform the design of the project, and be used to identify mitigation measures and actions and to improve decision making.
Borrowers will manage environmental and social risks and impacts of the project throughout the project life cycle in a systematic manner, proportionate to the nature and scale of the project and the potential risks and impact
Among the requirements under ESS1 relevant to the Upgrading of Songea Municipal roads project include:
15.The borrower will:

- Conduct an environmental and social assessment of the proposed project, including stake holder engagement
- Undertake stakeholder engagement and disclose appropriate information in accordance with ESS10;
- Develop an ESCP, and implement all measures and actions set out in the legal agreement including the ESCP; and
- Conduct monitoring and reporting on the environmental and social performance of the project against the ESSs

18. The project will apply the relevant requirements of the Environmental Health and Safety Guidelines (EHSGs) when host country requirements differ from the levels and measures presented in the EHSGs, the Borrower will be required to achieve or implement whichever is more stringent.
When a project is proposed for Bank support, the Borrower and the Bank will consider whether to use all, or part, of the Borrower's ES Framework in the assessment, development and implementation of a project. Such use may be proposed provided this is likely to address the risks and impacts of the project, and enable the project to achieve objectives materially consistent with the ESSs.
The proposed Upgrading of Songea Municipal roads project has been conducted with ESIA study and has adequately undertaken stakeholders' engagement as required necessary to create a sense of subproject's ownership by the communities and sustainability

3.2.3.2 Environmental and Social Standard 2: Labor and Working Conditions;

ESS2 recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions as well as both good working contracts and good/ required working time.

Among ESS2 objectives include:

- To promote safety and health at work
- To promote the fair treatment, non-discrimination and equal opportunity of project workers
- To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS) and migrant workers, contracted workers, community workers and primary supply workers, as appropriate.
- To prevent the use of all forms of forced labour
- The provisions of ESS2 regarding primary suppliers and their workers are well addressed in (paras 39 to 42) as;
- 39. As part of the environmental and social assessment, the Borrower will identify potential risks of child labor, forced labor and serious safety issues which may arise in relation to primary suppliers.
- 40. Where there is a significant risk of child labor or forced labor related to primary supply workers, the Borrower will require the primary supplier to identify those risks consistent with paragraphs 17 to 20. The labor management procedures will set out roles and responsibilities for monitoring primary suppliers. If child labor or forced labor cases are identified, the Borrower will require the primary supplier to take appropriate steps to remedy them.
- 41. Additionally, where there is a significant risk of serious safety issues related to primary supply workers, the Borrower will require the relevant primary supplier to introduce procedures and mitigation measures to address such safety issues. Such procedures and mitigation measures will be reviewed periodically to ascertain their effectiveness.

- 42. The ability of the Borrower to address these risks will depend upon the Borrower's level of control or influence over its primary suppliers. Where remedy is not possible, the Borrower will, within a reasonable period, shift the project's primary suppliers to suppliers that can demonstrate that they are meeting the relevant requirements of this ESS.

The project contractor shall adhere to the objectives under regular audits to be conducted by PO-RALG, OSHA and the project Supervising Engineer. However, specific subproject's Labour Management Procedures (LMP) have been prepared to guide labour issues during construction and operation of the proposed roads.

3.2.3.3 Environmental and Social Standard 3: Resource Efficiency and Pollution Prevention and Management

ESS3 recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, eco- system services and the environment at the local, regional, and global levels. The current and projected atmospheric concentration of greenhouse gases (GHG) threatens the welfare of current and future generations At the same time, more efficient and effective resource use, pollution prevention and GHG emission avoidance, and mitigation technologies and practices have become more accessible and achievable.
Among ESS3 objectives include:

- To promote the sustainable use of resources, including energy, water and raw materials
- To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities
- To avoid or minimize project-related emissions of short and long-lived climate pollutants
- To avoid or minimize generation of hazardous and non-hazardous waste
- To minimize and manage the risks and impacts associated with pesticide use

On pollution prevention and management, the Borrower will avoid the release of pollutants or, when avoidance is not feasible, minimize and control the concentration and mass flow of their release using the performance levels and measures specified in national law or the EHSGs, whichever is most stringent.

Upgrading of Songea Municipal roads' subproject to bitumen standard will significantly reduce emissions from vehicles that are current likely generated as a result of low vehicle speed along the roads. During construction, the contractor shall adhere to all recommended actions to reduce GHG emissions from operating vehicles and plant.

3.2.3.4 Environmental and Social Standard 4: Community Health and Safety;

ESS4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to project activities.

ESS4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable.
Objectives of the ESS4 include:

- To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life cycle from both routine and non-routine circumstances.
- To promote quality and safety, and consider actions relating to climate change, in the design and construction of infrastructure, including dams.

- To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials
- To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities

ESS4 requires:
The Tanzania government will design, construct, operate, and decommission the structural elements of the project in accordance with national legal requirements, the EHSGs and other GIIP, taking into consideration safety risks to third parties and affected communities.

Where the project involves provision of services to communities, the Borrower will establish and implement appropriate quality management systems to anticipate and minimize risks and impacts that such services may have on community health and safety. In such circumstances, the Borrower will also apply the concept of universal access, where technically and financially feasible
The provisions of ESS4 regarding security personnel are well addressed in (paras 24 to 27) as;
24. When the Borrower retains direct or contracted workers to provide security to safeguard its personnel and property, it will assess risks posed by these security arrangements to those within and outside the project site. In making such arrangements, the Borrower will be guided by the principles of proportionality and GIIP, and by applicable law, in relation to hiring, rules of conduct, training, equipping, and monitoring of such security workers. The Borrower will not sanction any use of force by direct or contracted workers in providing security except when used for preventive and defensive purposes in proportion to the nature and extent of the threat.
25. The Borrower will seek to ensure that government security personnel deployed to provide security services act in a manner consistent with paragraph 24 above, and encourage the relevant authorities to disclose the security arrangements for the Borrower's facilities to the public, subject to overriding security concerns.
26. The Borrower will (i) make reasonable inquiries to verify that the direct or contracted workers retained by the Borrower to provide security are not implicated in past abuses; (ii) train them adequately (or determine that they are properly trained) in the use of force (and where applicable, firearms), and appropriate conduct toward workers and affected communities; and (iii) require them to act within the applicable law and any requirements set out in the ESCP.
27. The Borrower will review all allegations of unlawful or abusive acts of security personnel, take action (or urge appropriate parties to take action) to prevent recurrence and, where necessary, report unlawful and abusive acts to the relevant authorities

The GoT will identify, evaluate and monitor the potential traffic and road safety risks to workers, affected communities and all roads' users throughout the project life cycle and, where appropriate, will develop measures and plans to address them. The GoT through PO-RALG will incorporate technically and financially feasible roads' safety measures into the subproject design to prevent and mitigate potential safety risks.

3.2.3.5 Environmental and Social Standard 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

ESS5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons Project-related land acquisition or restrictions on land use may cause physical displacement (relocation, loss of residential land or loss of shelter), economic displacement (loss of land, assets or access to assets, leading to loss of income sources or other means of livelihood), or both The term "involuntary resettlement" refers to these impacts Resettlement is considered involuntary when affected per sons or communities do not have the right to refuse land acquisition or restrictions on land use that result in displacement.

Objectives of ESS5 include:

- To avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives
- To avoid forced eviction
- To mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by: (a) providing timely compensation for loss of assets at replacement cost and (b) assisting displaced persons in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher
- To improve living conditions of poor or vulnerable persons who are physically displaced, through provision of adequate housing, access to services and facilities, and security of tenure
- To conceive and execute resettlement activities as sustainable development programs, providing sufficient investment resources to enable displaced persons to benefit directly from the project, as the nature of the project may warrant
- To ensure that resettlement activities are planned and implemented with appropriate dis closure of information, meaningful consultation, and the informed participation of those affected

Among the requirements of ESS5 include the following:

11.The Borrower will demonstrate that involuntary land acquisition or restrictions on land use are limited to direct project requirements for clearly specified project purposes within a clearly specified period of time The Borrower will consider feasible alternative project designs to avoid or minimize land acquisition or restrictions on land use, especially where this would result in physical or economic displacement, while balancing environmental, social, and financial costs and benefits, and paying particular attention to gender impacts and impacts on the poor and vulnerable.

12. When land acquisition or restrictions on land use (whether permanent or temporary) cannot be avoided, the Borrower will offer affected persons compensation at replacement cost, and other assistance as may be necessary to help them improve or at least restore their standards of living or livelihoods, subject to the provisions of paragraph 26 through 36 of this ESS.

13. Compensation standards for categories of land and fixed assets will be disclosed and applied consistently Compensation rates may be subject to upward adjustment where negotiation strategies are employed. In all cases, a clear basis for calculation of compensation will be documented, and compensation distributed in accordance with transparent procedures.

14. Where livelihoods of displaced persons are land-based, or where land is collectively owned, the Borrower will offer the displaced persons an option for replacement land in accordance with paragraph 35(a), unless it can be demonstrated to the Bank's satisfaction that equivalent replacement land is unavailable.

15. The Borrower will take possession of acquired land and related assets only after compensation in accordance with this ESS has been made available and, where applicable. In addition, livelihood restoration and improvement programs will commence in a timely fashion in order to ensure that affected persons are sufficiently prepared to take advantage of alternative livelihood opportunities as the need to do so arises.

19. The Borrower will ensure that a grievance mechanism for the project is in place, in accordance with ESS10 as early as possible in project development to address specific concerns about compensation, relocation or livelihood restoration measures raised by displaced persons (or others) in a timely fashion.

Upgrading Songea roads' subproject has prepared a Resettlement Action Plan (RAP) in line with RPF to guide land acquisition and/or resettlement.

3.2.3.6 Environmental and Social Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

ESS6 recognizes the importance of maintaining core ecological functions of habitats, including forests, and the biodiversity they support.
This ESS also addresses sustainable management of primary production and harvesting of living natural resources.

ESS6 recognizes the need to consider the livelihood of project-affected parties, including Indigenous Peoples, whose access to, or use of, biodiversity or living natural resources may be affected by a project The potential, positive role of project affected parties, including Indigenous Peoples, in biodiversity conservation and sustainable management of living natural resources is also considered
Objective of ESS6 include but not limited to:

- To protect and conserve biodiversity and habitats
- To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity
- To promote the sustainable management of living natural resources
- To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities

ESS6 requirements include among others:
8. The environmental and social assessment as set out in ESS1 will consider direct, indirect and cumulative project-related impacts on habitats and the biodiversity they support. This assessment will consider threats to biodiversity, for example habitat loss, degradation and fragmentation, invasive alien species, overexploitation, hydrological changes, nutrient loading, pollution and incidental take, as well as projected climate change impacts.
10. Through the environmental and social assessment, the Borrower will identify the potential project related risks to and impacts on habitats and the biodiversity that they support.
11. The Borrower's assessment will include characterization of baseline conditions to a degree that is proportional and specific to the anticipated risk and significance of impacts.
The provisions of ESS6 regarding primary suppliers and their workers are well addressed in (paras 38 to 40) as;
38. Where a Borrower is purchasing natural resource commodities, including food, timber and fiber, which are known to originate from areas where there is a risk of significant conversion or significant degradation of natural or critical habitats, the Borrower's environmental and social assessment will include an evaluation of the systems and verification practices used by the primary suppliers.
39. The Borrower will establish systems and verification practices which will:
(a) Identify where the supply is coming from and the habitat type of the source area;
(b) Where possible, limit procurement to those suppliers that can demonstrate 21 that they are not contributing to significant conversion or degradation of natural or critical habitats; and
(c) Where possible and within a reasonable period, shift the Borrower's primary suppliers to suppliers that can demonstrate that they are not significantly adversely impacting these areas.
40.The ability of the Borrower to fully address these risks will depend upon the Borrower's level of control or influence over its primary suppliers.

Within roads subproject's areas there are no sensitive sites to be impacted by the proposed development during both construction and operation phases.

3.2.3.7 Environmental and Social Standard 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

ESS7 contributes to poverty reduction and sustainable development by ensuring that projects supported by the Bank enhance opportunities for Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities to participate in, and benefit from, the development process in ways that do not threaten their unique cultural identities and well-being.
Among the ESS7 objectives include:

- To ensure that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource based livelihoods of Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities.
- To improve project design and promote local support by establishing and maintaining an o-going relationship based on meaningful consultation with the Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities affected by a project throughout the project's life cycle.

Among the general requirements of ESS7 include:

11.A key purpose of this ESS is to ensure that Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities present in, or with collective attachment to, the project area are fully consulted about, and have opportunities to actively participate in, project design and the determination of project implementation arrangements The scope and scale of consultation, as well as subsequent project planning and documentation processes, will be proportionate to the scope and scale of potential project risks and impacts as they may affect Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.

Within the project subproject areas, there is no existence of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.

3.2.3.8 Environmental and Social Standard 8: Cultural Heritage;

This ESS sets out general provisions on risks and impacts to cultural heritage from project activities ESS7 sets out additional requirements for cultural heritage in the context of Indigenous Peoples. ESS6 recognizes the social and cultural values of biodiversity. Provisions on Stakeholder Engagement and Information Disclosure are set out in ESS10
Objectives of the ESS8 include:

- To protect cultural heritage from the adverse impacts of project activities and support its preservation.
- To address cultural heritage as an integral aspect of sustainable development
- To promote meaningful consultation with stakeholders regarding cultural heritage
- To promote the equitable sharing of benefits from the use of cultural heritage

ESS8 requires:
8. The environmental and social assessment, as set out in ESS1, will consider direct, indirect and cumulative project-specific risks and impacts on cultural heritage. Through the environmental and social assessment, the Borrower will determine the potential risks and impacts of the proposed activities of the project on cultural heritage.
9. The Borrower will avoid impacts on cultural heritage. When avoidance of impacts is not possible, the Borrower will identify and implement measures to address impacts on cultural heritage in accordance with the mitigation hierarchy

During impacts' assessment study and through communities and stakeholders' consultations, no heritage site was identified to be within or near the proposed sites for implementation of urban roads.

3.2.3.9 Environmental and Social Standard 10: Stakeholder Engagement and Information Disclosure

This ESS recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation
Objectives of ESS10 are:

- To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project-affected parties
- To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken into account in project design and environmental and social performance.
- To promote and provide means for effective and inclusive engagement with project affected parties throughout the project life cycle on issues that could potentially affect them
- To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format

ESS10 requirements among others include:
6. Borrowers will engage with stakeholders through- out the project life cycle, commencing such engagement as early as possible in the project development process and in a timeframe that enables meaningful consultations with stakeholders on project design. The nature, scope and frequency of stakeholder engagement will be proportionate to the nature and scale of the project and its potential risks and impacts.

7. Borrowers will engage in meaningful consultations with all stakeholders. Borrowers will provide stakeholders with timely, relevant, understandable and accessible information, and consult with them in a culturally appropriate manner, which is free of manipulation, interference, coercion, discrimination and intimidation.

8 The process of stakeholder engagement will involve the following, as set out in further detail in this ESS: (i) stakeholder identification and analysis; (ii) planning how the engagement with stakeholders will take place; (iii) disclosure of information; (iv) consultation with stakeholders; (v) addressing and responding to grievances; and (vi) reporting to stakeholders.

The TACTIC project has prepared a specific Stakeholder Engagement Plan (SEP) for the proposed urban roads' Subprojects which guided consultations during the EIA scoping stage as a 1st round stakeholders' engagement and shall also guide during feedback stage/2nd round community/ies engagement. 1st round was purposely for stakeholders to air their views, comments and concerns on the type of urban roads' subproject under TACTIC program as indicated in chapter 5 of this ESIA report. 2nd round consultations shall be conducted as part of SEP to review how the draft designs has incorporated their aired views, comments and concerns.

3.3 The World Bank ESH Guidelines

Once a member of the World Bank Group is involved in a project, adherence to the EHS Guidelines is mandatory as a matter of policy. The General EHS Guidelines are a set of technical reference documents which addresses "Good International Industry Practices" in four focus areas: 1)

Environmental 2) Occupational Health and Safety 3) Community Health and Safety and 4) Construction and Decommissioning

The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. The applicability of the EHS Guidelines should be tailored to the hazards and risks established for each project on the basis of the results of an environmental assessment in which site-specific variables, such as host country context, assimilative capacity of the environment, and other project factors, are taken into account.
Under TACTIC project, these guidelines shall be implemented during construction and operation of the urban roads' subproject.

3.4 National Policies

The government has been progressively developing and reviewing her national policies to address environmental management in various sectors. Among others, the objective of these policies is to regulate the development undertaken within respective sectors so that they are not undertaken at the expense of the environment. There are several national policies that addresses environmental management as far as this project is concerned and which form the corner stone of the present study.

3.4.1 The National Environmental Policy, 2021

.
The new 2021 National Environmental Policy that comes into force following the review of the 1997 National Environmental Policy also seeks to control use of chemicals, invasive species like weeds and water as well as control of pollution at oil and gas extraction activities in the country
The NEP 1997 aimed at addressing six (6) main environmental challenges namely: land degradation; lack of accessible good quality water for both rural and urban inhabitants; loss of Wildlife Habitats and Biodiversity; deterioration of aquatic systems; deforestation and environmental pollution.

The National Environment Policy 2021 provides a broad range of measures and actions responding to key environmental issues and challenges. It provides the framework for an integrated approach to planning and sustainable management of environment in the country. It also recommends strong institutional and governance measures to support the achievement of the desired objectives and goals.

The proposed Upgrading of urban roads in Songea Municipality has observed the policy objectives at various stages where there will be environmental impacts including transport emission gases, noise, dust, particulates and spills, road accidents e.t.c. Prior to the execution of the proposed roads project, Environmental and social impact assessment (ESIA) has been conducted including preparation of Environmental Management Plan that will be implemented by the subproject for the purpose of preventing and minimize environmental and social impacts resulted from the construction activities

3.4.2 National Transport Policy (2003)

The transport policy commitment to environmental issues is contained in its vision and mission statement. The vision of the sector is to have efficient and cost effective domestic and international transport services to all segments of the population with maximum safety and minimum environmental degradation. Its mission is to develop safe, reliable, effective, efficient and fully integrated transport infrastructure and operations that will best meet the needs of travel and

transport at improving levels of service at lower costs in a manner, which supports government strategies for, socio-economic development whilst being economically and environmentally sustainable.
Roads' upgrading under TACTIC project in Songea Municipality aims at improving the movement of people and reducing the cost of transportation by improving the roads infrastructures in the municipality, by doing so, it will abide to the requirements of the policy

3.4.3 National Water Policy (2002)

The overall objective of the policy is to develop a comprehensive framework for sustainable management of the national water resources. The policy seeks to ensure that water plays an important role in poverty alleviation. Section 2.15 of the policy state that, the scale of geography of Tanzania means that communication is time consuming and expensive. The inadequate communication system affects the effective implementation of water resources management activities in terms of higher cost of monitoring, supervision, policing and data transfer. This road development will help to alleviate accessibility problems and thus facilitate enhancement of water resources management within the project influence area. However, appropriate measures shall be taken to ensure that road construction activities minimally affect quality and quantity of water bodies in the project area by avoiding any kind of waste discharges to the open grounds.

The construction activities for proposed upgrading of urban roads in Songea Municipality will use water from Lilula A, Lilula B and Matogoro streams and water use/abstraction permit from the Ruvuma River & Southern Coast Water Basin under the Ministry of Water shall be applied for. However, the contractor will be issued with temporary water use permit upon application.

3.4.4 National Mineral Policy (1998)

The National Mineral Policy also addresses that the mining activities should be undertaken in a sustainable manner. Reclamation of lands after mining activities is recommended. As far as this project is concerned, mining activities are directed to quarrying activities, borrow pitting and sand mining. Therefore, extraction of building materials from quarries and borrow pits for construction of the roads shall be done in a manner that do not environmentally contravene the policy provisions including extracting materials to the authorized areas.

The proposed upgrading of urban roads in Songea Municipal will lead to the achievement of the objectives of the mining policy by upgrading to bitumen standard and provide efficient road service accessible at all weather which promotes good economic environment for the development of mining sector. Either, the project is expected to use locally available sources for sand, gravel, aggregates e.t.c as part of implementation of policy's objectives

The proposed TACTIC project will lead to the achievement of the objectives of the mining policy by upgrading to bitumen standard to provide efficient infrastructure services which are all weather accessible and promotes good economic environment for the country's development. In addition, the subproject shall use locally available sources for sand, gravel, aggregates e.t.c as part of implementation of policy's objectives.

3.4.5 Women and Gender Development Policy (2000)

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

The PO-RALG shall ensure the provision of equal opportunities to both men and women in roads construction and related activities under TACTIC. This subproject shall also ensure that urban women, who are the main users of the urban infrastructure, are adequately involved at all levels of subproject's planning to implementation.

3.4.6 National Energy Policy (2015)

The continuing decline in industrial and agricultural production during the period of 1980 -1985 led to increased inflation rate and a decline in the standard of living. In order to arrest the decline, the GoT gave priority to the rehabilitation of the basic economic infrastructure, especially communication, so that they can fully support the production sector. The energy policy considers roads conditions as a determinant factor of vehicle energy use. Rough and potholes filled roads necessitate frequent braking and acceleration, leading to wasteful use of energy (for petrol and diesel powered vehicles). Thus, smooth and well-surfaced roads lead to energy savings

The implementation of roads upgrading in Songea Municipality will open new areas for fuel retailing stations. Furthermore, the upgraded road will be will be used for transportation during dry and rainy seasons which will facilitate easy and timely distribution of petroleum and other energy products

3.4.7 National Human Settlements Development Policy (2000)

Among the policy objectives that touch the road sector are to improve the level of the provision of infrastructure and social services for sustainable human settlements development and to make serviced land available for shelter and human settlements development in general to all sections of the communities. The infrastructure and services constitute the backbone of urban/rural economic activities. All weather roads, reliable and efficient transport system are essential to increase productivity and establishment of manufacturing industries.

The proposed upgrading of urban roads to bitumen standard road will provide efficient year round transportation services and easy accessibility to various socioeconomic areas. Employments shall be generated during construction of roads.

3.4.8 National Land Policy, 1995 (as Revised 1997)

The Policy advocates for an equitable distribution and access to land by all citizens. It aims to ensure that existing rights in the land, especially customary rights of small holders (i.e. Peasants and herdsmen who form the majority of the country's population) are recognized, clarified, and secured by law. Under the policy framework land is to be put to its most productive use to promote rapid social and economic development of the country among other objectives.

The National Land Policy recognizes the need for protecting environmentally sensitive areas. The policy emphasis on the protection of environment and natural ecosystems from pollution, degradation, and physical destruction. In addition, the policy recognizes the importance of social services such as water, roads, energy, and solid waste management for environmental protection. Finally, the policy identifies the need for conservation and preservation of prehistoric / historic sites and buildings.

The proposed subproject will ensure that soil erosion measures are taken into consideration during construction and afforestation plan is put forth along the road so as to protect land resource from degradation for sustainable development.

Although the subproject will use existing routes for roads, construction activities within the proposed RoW might impact people's houses, shops, farms, market, electrical distribution line,

telecommunication line, bodaboda and bajaji stand etc. However, all affected parties will be identified and their properties valuated and fairly compensated.

3.4.9 National Policy on HIV/AIDS, 2001

The overall goal of the national policy on HIV/AIDS is to provide for a framework for leadership and coordination of the National multi-sectoral response to the HIV/AIDS epidemic. This includes formulation, by all sectors of appropriate interventions which will be effective in preventing transmission of HIV/AIDS and other sexually transmitted infections, protecting and supporting vulnerable groups, mitigating the social and economic impact of HIV/AIDS. It also provides for the framework for strengthening the capacity of institutions, communities and individuals in all sectors to arrest the spread of the epidemic. Being a social cultural and economic problem, prevention and control of HIV/AIDS epidemics will very much depend on effective community based prevention, care and support interventions. The local government councils will be the focal point for involving and coordinating public and private sector, NGOs and faith groups in planning and implementing of HIV/AIDS interventions, particularly community based interventions. Best experiences in community based approaches in some district in the country will be shared with local council.

HIV/AIDS awareness and education will be provided by the contractor to the workers and communities. The contractor shall be responsible for provision of free condoms to construction workers and voluntary HIV testing to both communities and workers.

3.4.10 Road Safety Policy, 2009

The purpose of this national road safety policy is to provide an overall sense of direction to guide the efforts of all those involved in the provision of road safety policy and services on behalf of the Government. This policy, therefore, sets in motion the Government's concerted efforts to reduce road crash fatalities, injuries and damages to property because of road crashes. This should result in strong alignment across the wide range of specific interventions that are undertaken in relation to achieving the Government's road safety goals.

The policy will be capable to initiate strategies, activity programmes which stakeholders within, and outside the transport sector can implement. The national road safety policy will, therefore, set direction during the project implementation to stop the growing epidemic of deaths and injuries on roads, promote road safety as a health, transportation, law enforcement, education and development priority for Tanzania, strengthen pre-hospital and emergency services in order to provide timely and appropriate care to road traffic injured patients to minimize their effects and long - term disability.

The proposed subproject shall ensure inclusion of road safety measures during design phase, involvement of communities and other stakeholders was done including the decision of typical and implementable safety measures. PO-RALG shall ensure all measures are implemented by contractor during construction phase.

3.4.11 Agriculture and Livestock Policy (1997)

The Agriculture and Livestock Policy takes cognisance of the importance of conservation of natural resources and environment. This is clearly indicated in one of its objectives that states, "To balance the optimal use and conservation of natural resources i.e. land, soils, water and vegetation so as to conserve the environment".

The policy developed Agricultural Sector Development Strategy (ASDS) 2001, with the aim to create an enabling and conducive environment for improving the productivity and profitability of the agricultural sector as the basis for improved farm incomes and reducing rural poverty in the medium and long term.
Various innovative and practical actions are included in the ASDS as part of its strategy such as:

- A focus that agricultural productivity and profitability to come first;
- The promotion of private sector/public sector and processor/contract grower partnerships;

The participatory implementation of the strategy through District Agricultural Development Plans (DADPS)
Generally, all aforementioned policies underscored the importance of applying Environmental Impact Assessment in developing projects as it provides policy guidance on choices to maximize long-term benefits of development and environmental objectives. EIA as a planning tool shall be used to integrate environmental consideration in the decision-making process to ensure that unnecessary damage to environmental is avoided.

The proposed urban roads will complement the objectives of this policy by providing all-weather road to facilitate transportation of agriculture produce from other parts of Songea to the proposed Agro-Processing Industry and Grain Market.

3.4.12 National Population Policy 2006

Among the Policy Objectives is: To harmonise population and economic growth and among the Policy Direction is to Enhance awareness to the leaders and communities about the linkages between population, resources, the environment, poverty eradication and sustainable development. The proposed upgrading of roads project at Songea Municipal project is in line with the policy's objectives and direction.

The population along the road will be benefit economically after completion of the project through provision of conducive environment for economic growth even during rain seasons.

3.4.13 The National Construction Industry Policy (2003)

This policy promotes among other things, application of cost effective and innovative technologies and practices to support socio-economic development including utilities and ensure application of practices, technologies and products which are not harmful to both the environment and human health.

3.4.14 National Economic Empowerment Policy 2004;

The National Economic Empowerment Policy aims at addressing various constraints so as to create a more conducive environment for various groups of Tanzanians to participate fully in economic activities. The Policy takes on board farmers, livestock keepers, fishermen, employees, traders as well as other groups of individuals in various economic activities.
The Empowerment of the citizens of Tanzania is among the goals set in the Tanzania Vision 2025. It is envisaged that, by the year 2025, a large segment of the national economy will be owned by Tanzanians. This process will embrace all Tanzanians by availing equal opportunities to all groups to develop themselves, particularly the poor. In addition, a more favourable business environment will be created to foster a strong economy that is capable of competing effectively in a globalised world market as stated in its visions.
The mission (ii) of the policy is to focus on areas that have high potential to generate quick results especially those which directly impact on the lives of individuals with entrepreneurial capability in agriculture, livestock keeping, fishing, forestry, building and construction, trade, tourism, mining, manufacturing, and transportation.
Among its primary objective of this policy is to provide general guidelines which will ensure that the majority of the citizens of Tanzania have access to opportunities to participate effectively in

economic activities in all sectors of the economy. In this regard, sector policies will give preferential treatment to nationals where necessary so as to enhance their bargaining position and opportunities. Accordingly, the Policy focuses on:- (i) Creating a favourable business environment for investment and economic growth; (iii) Reviewing laws, rules and regulations from time to time to ensure that they meet the requirements of a market-oriented economy; (v) Improving efficiency in public service delivery; (vii) Raising skills and knowledge levels; (viii) Strengthening economic infrastructure and involving Tanzanians in infrastructure development; (x) Improving the capacity to produce goods of a high quality, provide better and reliable public services, support the establishing of appropriate marketing systems, including the use of government tendering system to assist Tanzanians to access markets. (xii) Using land as a springboard to accelerate empowerment;
The proponent shall adhere to the policy by ensuring all of its requirements and visions, missions and objectives.

3.4.15 National Action Plan to end Violence against Women and Children (2017/18-2021/22)

Addressing violence against women and children is a central development goal in its own right, and key to achieving other development outcomes for women, children, their families, communities, and nation.

National Action Plan to end Violence against Women and Children (2017/18-2021/22) Addressing violence against women and children is a central development goal in its own right, and key to achieving other development outcomes for women, children, their families, communities, and nation.

Tanzania has committed itself to working towards Agenda 2030, and is party to numerous regional and international instruments and declarations on child rights, gender equality, and women's empowerment The National Action Plan is preceded through eight (8) foundational plans relevant to the protection of women and children that work on creating systems for violence response. The Plan has the mission in section 2.2 to Prevent and respond to all forms of violence against women and children through comprehensive

The action plan calls upon Multi-sectoral collaboration at all levels to address multiple forms of discrimination that contribute to increased vulnerability to violence on the basis of class, age, disability, gender identity and others factors. The national response to addressing violence against women and children needs to be comprehensive, coordinated and multi-sectoral. It also requires coordination and partnerships between the public and private sector, as well as civil society, professional associations and other relevant stakeholders.

During construction of the proposed urban roads' subproject in Songea, women will be given priority on employment to facilitate improvement of their quality of lives, taking care of families and economic/financial security.

PO-RALG will ensure that GBV along with HIV/AIDS awareness is regularly provided at the subprojects' areas as recommended in the environmental and social management plan.

3.5 National Development Strategies

3.5.1 Tanzania Development Vision 2025

The Tanzania Vision 2025 was developed in the mid-1980s. It was developed when the government realized that past development policies and strategies were not adequately responding to changing market and technological conditions in the regional and world economy and were also not adapting to changes in the domestic socio-economic conditions.
Consistent with this vision, Tanzania of 2025 should be a nation imbued with five main attributes:-

- High quality livelihood;

- Peace, stability and unity;
- Good governance;
- A well-educated and learning society; and
- A competitive economy capable of producing sustainable growth and shared benefits.

Through implementation of the proposed upgrading of roads under TACTIC, the GoT through PO-RALG will contribute towards realisation of the Vision's objectives by making conducive environment for all passengers on achieving their goals.

3.5.2 Rural Development Strategy (2001)

The strategies have the primary objectives of stimulating growth in the rural economy by building on gains in the national economy and by empowering rural poor people to overcome poverty through better access to land, water, energy, financial resources and markets.

There is a large population still lacking proper roads in Tanzania and the proposed project will create an enabling environment for more rural road construction projects.

3.5.3 The National Strategy for Growth and Reduction of Poverty (NSGRP) II (2015)

The NSGRP-II paper recognizes that reliable infrastructure such as urban city roads' Subproject is critical for the attainment of the NSGRP II which was launched in 2010 and Sustainable Development Goals which were laid down by the United Nations in 2015. These SDGs are such as Goal No.1 to end poverty, Goal No. 2 on zero hunger, Goal No. 3. to ensure Health life and promote wellbeing for all at all ages, Goal No. 5 on Gender equality and Goal No. 9 on Industry, Innovation and Infrastructure which fosters the importance to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

The TACTIC project will focus in the reduction of poverty for both men and women and address issues of gender discrimination and GBV. Once the urban roads have been constructed, various activities such as transportation of agricultural products and urban irrigation will be enhanced thereby increasing employment and revenues and eventually improving livelihoods. The NSGRP also recognizes the role of other sectors in poverty eradication and the need for mainstreaming environment as one of the crosscutting issues in the sector.

3.5.4 The National Climate Change Strategy (NCCS) - 2012

The goal of this Strategy is to enable Tanzania to effectively adapt to and participate in global efforts to mitigate to climate change with a view to achieving sustainable economic growth in the context of the Tanzania's national development blueprint, Vision 2025; Five Years National Development plan; and national cross sectoral policies.

To achieve the stated goal, the following specific objectives have been set.

- To build the capacity of Tanzania to adapt to climate change impacts.
- To enhance resilience of ecosystems to the challenges posed by climate change.
- To enable accessibility and utilization of the available climate change opportunities.
- To enhance participation in climate change mitigation activities that lead to sustainable development.
- To enhance public awareness on climate change.
- To strengthen information management on climate change.
- To enhance institutional arrangements to adequately address climate change and
- To enhance mobilization of resources in particular finance to address climate change.

Design and implementation of urban roads' subproject shall include climate change adaptation measures for infrastructural resilience to climate change

3.6 Legal and Regulatory Framework

The Environment Management Act, 2004 constitutes the main part of the legal and regulatory framework. Nevertheless, there are several other pieces of sector legislations with environmental aspects that complement the environmental legal and regulatory framework. Legislations normally contain provisions that empower certain authorities to make regulations that become binding under the particular legislation. An overview of the relevant legislations applicable to environmental management in general and the proposed project in particular is given below.

3.6.1 Environmental Management Act (2004)

The provisions of Part V section 60(1) requires that an applicant for water use permit issued under relevant laws governing management of water resources, abstraction and use of water shall be required to make a statement on the likely impact on the environment due to the use of water requested.

The proposed roads' upgrading in Songea Municipality will use water from Luhira A and Luhira B streams which requires the contractor to apply for water use permit issued by Lake Rukwa Water Basin under relevant governing laws and as required by this Act.

The provisions Part VI section 83(1) require that Environmental Impact Assessment shall be carried out by experts or firms of experts whose names are registered as such by the council. The subproject complies with the provisions of this section by ensuring that the ESIA for proposed infrastructure has been conducted by registered experts under registered firm of expert -Norplan Limited.

Subject to the provisions of section 110(2) which requires that a person who discharges any hazardous substances, chemical oil or mixture containing oil in any water or any other segment of the environment commits an offense. And (4) it will be duty of every organization producing, transporting, trading, storing and disposing of such wastes.

The proposed roads' upgrading will comply with the provisions of this section by ensuring proper management of hazardous substances, chemical and oils as recommended in the Environmental Management Plan.

3.6.2 The Roads Act 2007

With regards to the protection of the environment, Part IV, 30 of the Act states that: "The road authority entrusted with the duties of developing, managing and maintaining the public roads under its jurisdiction, shall comply with the prescribed guidelines, regulations or any other written law relating to environmental protection and waste disposal".

Section 29(1), the road reserve is exclusively for the use of road development and expansion or any other road related activities. However, clause 29 (2) does give provision for the request and terms of approval for the use of the road reserve by utilities such as power lines and water pipes.

On land acquisition the Act clearly states in part III, Section 16 that 'where it becomes necessary for the road authority to acquire a land owned by any person, the owner of such land shall be entitled to compensation for any development on such land in accordance with the Land Act and any other written law'.

With regards to quarrying, Part IV, 19 - (2) states: "The road authority may acquire quarries for the purpose of developing and maintaining road in any area under its jurisdiction and the Minister responsible for finance after consultation with the Minister responsible for minerals may exempt the road authority from paying any levy, royalty and fees for license."

Regarding Safety, Part V, 33 - (1) states: "The road authority shall ensure to the safety of road users during the design, construction, maintenance and operation of a public road by providing sidewalks, overhead bridges, zebra crossings and other matters related thereto".

During the operation phase, the proposed roads under the road authority (TARURA) shall ensure to comply with the provision of this Act for the purpose of safeguarding the safety of the public or of preserving the condition of a road by fixing a limit to the maximum weight, speed or dimensions of vehicles which may lawfully be driven or hauled over any part of a road.

However; in any case individual lands should be required for construction activities, the affected parties shall be entitled to compensations.

3.6.3 Energy and Water Utilities Authority (EWURA) Act (2001)

This Act provides guidance in EWURA administrative system by specifying roles and responsibilities of every actor and related stakeholders, power and proceedings of authority, complains and dispute resolutions, enforcement and compliance.

The provision Part II section 6(f) dictates that it shall be the duty of authority (Energy and Water Utilities Regulatory Authority) that in carrying out its functions it shall strive to enhance the welfare of Tanzanians society by taking into account the need to protect and preserve the environment.

The proposed roads' upgrading in Songea under TACTIC project through the contractor shall take into account the need to preserve and protect environment by ensuring good storage and transportation of fuel, control oil seepage and ensure proper re-use or disposal of waste oil.

3.6.4 Water Resources Management Act No 11 of (2009)

The Act provides a description of water resource management framework in Tanzania including roles and responsibilities of every actor and related stakeholders. One of the Key objectives of this Act in Part II section 4(1) is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account the fundamental principles of sustainability including subsection (h) preventing and controlling pollution and degradation of water resources.

The proposed roads' upgrading in Songea under TACTIC project will adhere to the objective of this Act by ensuring that water sources are protected from pollution during construction.

The provision of Part VI, section 39(1) requires that the owner or occupier of land on which any activity or process is performed which is likely to cause pollution of a water source, shall take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.

The proposed roads' upgrading in Songea under TACTIC project comply with this Act by adhering to proper waste management practices during road construction activities.

The provision of Part VIIA, section 43(1) requires that any person who diverts, dams, stores, abstracts or uses water from surface or underground water source, or for any such purpose constructs or maintains any works, shall apply for a Water Use Permit in accordance with this Act. And subject to section 45(2) The Basin Water Board may grant the applicant a temporary Water Use Permit for any purpose under such conditions as may be deemed fit. In addition to section 48 (b) as the user of water use permit granted under this Act you are required to prevent any damage to the source from which water is taken, or to which water is discharged after use.

The proposed roads' upgrading in Songea under TACTIC project will comply with this Act, the water will be obtained from Lilula A, Lilula B and Matogoro streams which shall require water use

permit to be granted under requirement of this Act and ensures conservation of its water sources within or near the project site during construction phase.

3.6.5 Mining Act 2010

This Act provides guidance on general principles, administrative system of mineral in Tanzania and responsibilities of each actor and related stakeholders, categorizations of mineral rights, types of mineral licenses, charges, right of entry, registration and dispute settlement.

One of the key general principles of this Act in Part II, section 6(1) states that no person shall, on or in any land to which this Act applies, prospect for minerals or carry on mining operations except under the authority of a mineral right granted or deemed to have been granted, under this Act. However section 7(3) states that nothing in this Act shall prevent any person engaged in the construction of tunnels, road, dams, aerodromes and similar public works of an engineering nature from utilizing as building materials any minerals derived from a source approved by the Minister in writing.

The proposed roads' upgrading in Songea under TACTIC project will comply with the provisions of this Act by ensuring that all suppliers/sources for aggregates and sand are licensed by the Ministry of Minerals.

3.6.6 Occupational Health and Safety Act (2003)

This act provides guidance on health and safety administrative system and responsibilities of every actor, requirements and procedures for registration of workplaces, safety provision, health and welfare provisions, safety special provision, hazardous material and processes, chemical handling provisions, offences penalties and regal proceedings.

The provisions of Part III, section 15 requires that there shall be a register of work place in which inspector shall enter such particulars in relation to every work place as he may consider necessary for the purpose of this Act and subject to section 16(1) that any person being an occupier of the work place shall before operating being required to register under this Act.
The proposed roads' upgrading in Songea under TACTIC project will comply with the provisions of this Act by ensuring that the contractor registers the work place by following all required procedures under this Act.

The provisions of Part IV section 24, requires that all employees will be provided periodic occupation medical examination carried out by qualified occupational health physician for fitness for employment and all the expenses and prescribed fee will be paid by the employer.
Subject to the provisions of Section 26 which requires that the employees should be protected from every danger of machinery use through fencing and by providing operator with protective safety devices from machinery parties. Section 27 that efficiency of machine should be provided and maintained; section 28 and 30 that an examination or lubrication, adjustment or cleaning of the machinery should not be carried out while the machine is in motion. And section 32 that corrosive or poisonous liquids should be covered or fenced to reasonable height according to the nature of the work and a warning sign should be posted to the plant or nearby.

Also subject to the provisions of Part IV, section 50(1)a), the employer shall ensure that the workplace is equipped with fire extinguishers which shall be adequate and suitable having regard to fire risks; and paragraph (b) stocks of inflammable materials should be kept in a safe place

The proposed roads' upgrading in Songea under TACTIC project will comply with the provisions of part IV of this Act by ensuring that all protection needed for safety of employees are provided as required.

The provisions of Part V, section 54(1), requires that the employer shall ensure supply of safe and clean drinking water that is readily accessible to all employees; section 55(1)sufficient and suitable sanitary conveniences shall be provided in a work place and shall be maintained and kept clean and shall be provided with lighting. Section 65(1) there should be washing facilities which should be kept clean and orderly condition. And section 58 there should be provision of first aid box, a person trained and qualify for first aid and there should be reliable means of transport if a person required further medical attention.

The proposed roads' upgrading in Songea under TACTIC project will comply with the provisions of Part V of this Act by ensuring that all requirements are met include providing clean drinking water and hygiene services.

The provisions of Part VI, section 60(a) requires that in work environment where activities involve hazardous chemical substances, equipment and processes which are likely to result in adverse health effects to people or environment, the employer shall ensure that risks assessment is done either annually or when deems necessary by approved inspector. Subject to section 61(1) that all practical measures should be taken to protect employees against inhalation of dust or fume or any impurity and against the working environment.

The proposed roads' upgrading in Songea under TACTIC project will comply with the provisions of part VI of this Act by ensuring that all protective devices are provided as stipulated in Environmental Management Plan and required by this Act.

The provisions of Part VII, section 67(1) and (2) requires that toxic materials or substances shall only be used where the use of non-toxic materials is not reasonably practicable. During this situation the number of employees exposed should be minimum and recognized antidote should be kept ready. Subject to section 68 that where there is dangerous or corrosive liquids in case of emergence there should be ready and accessible means of drenching with water for any person who has been splashed with such liquid. And Section 71 that no employer shall make an employee carry out work that is not adapted to their physical and cognitive capabilities and limitation.

The proposed roads' upgrading in Songea under TACTIC project will comply with the provisions of part VII of this Act by ensuring that all precaution measures are taken against hazardous substances as recommended in Environmental Management Plan and by this Act.

The provisions of Part VIII, section 73(1) the employer shall ensure that preventive, administrative and technical measures are taken to prevent or reduce contamination to workers and the environment and subsection (7) that shall ensure proper disposal of all chemical containers and residues. The proposed Songea TACTIC Project will comply with the provisions of part VIII of this Act by ensuring that all preventive measures are taken against contamination to ensure health and safety as recommended in Environmental Management Plan and this Act.

The provisions of Part X, section 89(1) requires that there should be posted prescribed abstract of this
Act at work place and any other notice and document required by this Act in both Kiswahili and English. Subject to section 103 requires that no employer shall dismiss an employee, reduce rate of

his remuneration, alter terms or his employment or position to his advantages by the reason of the fact or because he suspects or believes whether or not the suspicion is justified or not, however in subsection (2) the employer may terminate the employment of employee if is unable to work for reasons of health condition.

The proposed roads' upgrading in Songea under TACTIC project will comply with the provisions of part X of this Act by ensuring that all safety rules are posted, safety policy are developed and employment rights are observed related to Health and Safety as recommended in Environmental Management Plan and by this Act.

3.6.7 HIV and AIDS (Prevention and Control) Act No. 28/08 (2008)

The HIV and AIDS Act gives provision of general duties by specifying general responsibilities of every actor, emphasize on provision of public education and programs on HIV and AIDS, testing and counselling, confidentiality, health and support services, stigma and discrimination, rights and obligations of persons living with HIV and offences and penalties.

The provisions of Part II, section 4(1) a) requires that Every person, institution and organization living, registered or operating in Tanzania shall, be under the general duty to promote public awareness on causes, modes of transmission, consequences, prevention and control of HIV and AIDS; also subsection (2) a) and b) integrate or priorities on HIV and AIDS in their proceedings and public appearances; and advocate against stigma and discrimination of people living with HIV and AIDS. The proposed Songea TACTIC Project will comply with the provisions of this Act by ensuring that HIV and AIDS awareness and education is provided to workers and all people living along the road where the project is taking place.

Subject to the provisions of section 6 (1) that every ministry, department, agency, local government authority, parastatal organization, institution whether public or private, shall design and implement gender and disability responsive HIV and AIDS plans in its respective area and such plans shall be main streamed and implemented within the activities of such sector. Subject to subsection (4) every sector preparing a plan or programme under this section shall before implementation of such plan or programme, submit them to TACAIDS for coordination and advise.

HIV/AIDS awareness and education will be provided by the contractor to the workers and communities. The contractor shall be responsible for provision of free condoms to construction workers and voluntary HIV testing to both communities and workers.

3.6.8 Local Government Laws (Miscellaneous Amendments), No. 13 (2006)

The local government Laws (Miscellaneous Amendments) provides amendments of local government (district authorities) Act, amendment of local government Act (urban authorities), amendment of local government (elections Act), amendment of the regional administration Act. The law has specifies roles and responsibilities of every authority and related stakeholders.

The provisions of Part II, section 2, of this Act gives instructions that this part shall read as one with the Local Government (District Authorities) Act, in this Part referred to as the "principal Act".
The principal Act is amended in section 54A (a) in Part III, section 20 (h)of this Act requires to provide and secure enabling environment for successful performance of the duties of the urban authority; paragraph (i) ensure compliance by all persons and urban authorities with appropriate government decisions, guidelines in relation to the promotion of the local government system; and paragraph (j) do such acts and things as shall facilitate or secure the effective, efficient and lawful execution by the urban authorities of the statutory or incidental duties."

The proposed roads' upgrading in Songea under TACTIC project will comply with the provisions of this Act by ensuring consultation with all levels of local government, including Songea Municipal council, ward executive officers and mitaa executive officers to ensure compliance by all levels of authority in relation to the promotion of the local government system.

3.6.9 The Village Land Act (1999), (Identifying Considerations for Women)

The village Act provides directions on management and administration of village land by specifying roles and responsibilities of every actor, gives guidance on provision of village land tenure systems and right of occupancy as well as responsible authorities and procedures.
The provisions of Part IV, section 7(1)a)defines village land as land within the boundaries of a village registered in accordance with the provisions of section 22 of the Local government (District Authorities) Acts 1982.

The objectives of Village Land Act are based on application of the fundamental principles of land use policy as directed in part II, section3. Such principles include subsection (l) g) to pay full, fair and prompt compensation to any person whose right of occupancy or recognized long-standing customary occupation or use of land is revoked or otherwise interfered with to their detriment by the State under this Act or is acquired under the Land.
The proposed Songea TACTIC Project will comply with this Act by ensuring that full and fair compensation are done in case of a land owned by any person whose right of occupancy is interfered with activities of road construction.

The provisions of Part II, Section 3(2) requires that the right of every woman to acquire, hold, use and deal with land shall to the same extent and subject to the same restriction be treated as the right of any man, is hereby declared to be law.

The proposed Songea TACTIC Project will comply with this Act by making sure that every woman whose land will be used for any activities of road construction her right of occupancy will be recognized equally as men and be compensated equally.

The provisions of Part IV, section 17 (5) requires that, On and after the coming into operation of this Act, a non-village organization which wishes to obtain a portion of village land for the better carrying on of its operations may apply to the village council for that land, and the village council shall recommend to the Commissioner for the grant or refusal of such grant.

The proposed roads' upgrading in Songea under TACTIC project will comply with this Act by ensuring that full and fair compensation is done in case of a land owned by any person whose right of occupancy interferes with activities of road construction.

It shall also, sure that every woman whose land will be used for any activities of road construction her right of occupancy will be recognized equally as men and be compensated equally.

3.6.10 Land Act No. 2/04 (2004), Amendment of the Land Act (1999)

This Act has provided general amendments of Land Act of 1999 by adding section 2 which identifies a "sale" be used as transfer of interest in or over land on condition attached to a granted right of occupancy. Section 19 requires that a person who is in a cooperate body or company made under company ordinance including a corporate body the majority of whose shareholders or owners are noncitizens, may only obtain be offered right of occupancy approved by Tanzania Investment Act 1997 to facilitate compliance with development. Section 20 which clarifies that land acquired by

non-citizen will have no value except shall be paid compensation on unexhausted improvement. Section 37 explains the sale of right of occupancy and repeal and substation of part X that gives guidance on mortgage, Mortgage right of occupancy, lease, sublease and subsequent mortgage. And also explains rights and responsibility of all actors and stakeholders including mortgagor and mortgagee.

The proposed roads' upgrading in Songea under TACTIC project will involve acquisition, destruction of houses and trees, utilities and private properties. Hence, the proposed subproject is required to restore the destructed properties and rectify affected utilities before construction works begins.

3.6.11 Antiquities Act (1964)

The 1964 Act, offers general protection to objects or structures, which are of archaeological, paleontological, historic, architectural, artistic, ethnological or scientific interest. Also responsibilities of different actors and stakeholders of cultural heritage resources have been clarified. The provisions of section 10(1) requires that any person who, discovers a relic or monument, or any object or site which may reasonably be supposed to be a relic or monument, in Tanganyika, otherwise than in the course of a search or excavation made in accordance with a license granted under section 13, and the occupier of any land who knows of any such discovery on or under such land, shall forthwith report the same to an administrative officer, the Commissioner, the Conservator or the Curator of the Museum. The discoverer of such a relic, monument, object or site shall take such steps as may be reasonable for the protection thereof and shall, where he makes a report concerning a portable relic or object, if so required (and on payment of the cost of delivery if any) deliver such antiquity or object to an administrative officer, the Commissioner, the Conservator or the Curator of the Museum, as the case may be.

The proposed roads' upgrading in Songea under TACTIC project does not fall on any cultural heritage resources. However, the project will ensure compliance with this Act wherever it encounters any related discoveries.

3.6.12 The Standards Act No. 2 of 2009

The 2009 standard Act has clarified administrative system governing the Tanzania bureau of standards by specifying roles and responsibilities of each actor, financial provision, and establishment of standards and enforcement of provision.

The provision of Part IV, section 18 subsection (1) states that the Minister may, on the recommendation of the board of the Bureau of Standards, subject to the provisions of subsections (2) and (3), by notice published marks in the Gazette, declare any mark which has been approved by the Bureau in respect of any standard prescribed or recognized by the Bureau for any commodity or the manufacturing, production, processing or treatment of any commodity, to be a standards mark in respect of it and may, in like manner, cancel or amend that mark.

The provisions of section 19 requires that every person who is required to make a statement in a contract, tender, quotation or other similar document as to the question whether the commodity offered or supplied by him complies with or has been manufactured in accordance with a particular National Standard, shall make such a statement provided compliance therewith has been verified by the Bureau.

Also subject to the provisions of Part V, section22, subsection(2) requires that every person to whom a license has been issued to offer a calibration service shall be required to submit such samples of any commodity to the Bureau for calibration against the National Measurement Standard of his equipment or instrument.

The proposed roads' upgrading in Songea under TACTIC project shall ensure all materials involved in the construction and facilities to be installed for the operation of the proposed subprojects are certified by TBS.

3.6.13 Land Acquisition Act 1967, Revised in 2012

The act offers clarification on the power of the president to acquire land in the public interest or national economy, compensation on land acquired and related conditions, notice and proceedings where the land is withheld and declaration of right of occupancy.
The provision of part II, section 3 clarify that the President may, subject to the provisions of this Act, acquire any land for any estate or term where such land is required for any public purpose. Subject to paragraph (a) subsection (1) section 5 which clarifies that as seen fit by the president that land in certain locally should be examined for the view to its possible acquisition for public interest then workmen authorized by the minister in his behalf are then allowed to enter the land for survey and paragraph (d) to clear, set out and mark the boundaries of the land proposed to be taken and the intended line of the work proposed.

Subject to subsection (2) that as soon as conveniently may be after any entry made under subsection (1), the Government shall pay for all damage done in consequence of the exercise of any of the powers conferred by subsection (1), and, in the case of a dispute as to the amount to be paid, either the Minister or the person claiming compensation may refer such dispute to the Regional Commissioner for the region in which the land is situate and the decision of the Regional Commissioner shall be final. The provisions of part II (b), section 11 subsection (1) required that, where any land is acquired by the President under section 3 the Minister shall on behalf of the Government pay in respect thereof, out of moneys provided for the purpose by Parliament, such compensation as may be agreed upon or determined in accordance with the provisions of this Act. Section 12(2) whether such land is in an urban area or in a rural area, any compensation awarded shall be limited to the value of the unexhausted improvements of the land.

Also subject to the provisions of paragraph (a-d) section 30 clarifies that it shall be lawful for the President to require any corporation to which land has been declared for use to enter a contract with the Government with regard to payment of compensation cost of acquired land, terms of land use, time of land to be used and terms to which the public will be entitled to use and benefit from the work done by corporation.

The provisions of section36, subsection (1) requires that the minister will grant development proponent a right of occupancy over the land for proposed project, the provision of section 37(3) requires that the development proponent make full disclosure of all trust and other referred interests on the land in a specified time without which or by falsifying the statement shall be convicted. Section 38(1) and (2) specify that no fees or stamp duty shall be paid under land ordinance for such granted right of occupancy on the first registration.

The proposed roads' upgrading in Songea under TACTIC project is the public development project that will be carried out on the land zoned as road, however due to road width extension and diversion during construction activities more land will be needed as well as the land for contractor's office site. Therefore, the project will comply with all the provisions of this Act by ensuring that all the requirements for the granted right of occupancy are met including payment of compensations to land holders.

3.6.14 Contractors Registration Act (1997)

This Act provides general provisions on roles and responsibility of contractor's Board and every other related actor, gives guidance on registration procedures and necessary conditions.

The provisions of section 7 subsection (1) part III, states that the Registrar shall keep and maintain registers of contractors of different types, categories and classes in which the name of every person entitled to have his name in them as a registered contractor. Subject to this is subsection (6) in the case of an individual, the qualifications and skills as prescribed by the Board necessary to enable him to discharge in satisfactory manner the obligations which he may reasonably be expected or called upon to undertake as a contractor belonging to the category, type and class in respect of which registration is being sought.

The provision of section 10(3) requires that upon registration, the person shall be issued with a certificate of registration indicating the registration number, type, and category, and class, date of registration and duration of registration. Subject to this provision is section 32b) which gives warning that any fraudulently procures or attempts to procure, whether for himself or for any other person, registration as a contractor or a trading license for a contractor; or commits an offence.

The proposed roads' upgrading in Songea under TACTIC project will ensure to comply with the provisions of this Act by employing contractors that are registered following the procedures underlined by this Act and with relevant certificate of registration.

3.6.15 Engineers Registration Act 1997 (Amendments 2007)

This Act provides general Amendments of engineers' registration Act of 1997 by deleting and substituting new paragraphs, sections and subsections including redefining engineering project, organizations, institutions, registered engineers and firms. Also clarify the responsibility of the Board, engineers and firms' registration procedures and conditions as well as adding substitutions to help engineers graduate and technicians to get opportunities of being linked to employers and learning.

The provision of subsection 7; the principal Act is amended by adding immediately after section 12 the new section 12A (1) every professional engineer or consulting engineer who has been registered under this Act, shall in addition to such registration possess practicing certificate. Subject to subsection (3) a person who practices engineering activities without valid practicing certificate, commits an offence and can be convicted

Provision of subsection 9; Section 14 of the principal Act is amended in paragraph (a) by deleting subsection (1) and substituting for subsection (1) which requires that a person shall not employ as an engineer any person who is not a professional engineer or consulting engineer, or cause to undertake engineering works or services without employing the services of a professional engineer or consulting engineer. Subject to subsection (5) where an employer employs any person as a trainer engineer or incorporated engineer, this section shall not apply to that employee's employer.

The proposed roads' upgrading in Songea under TACTIC project has complied with the act by employing NORPLAN Limited, a registered consulting firm by Engineers' Registration Board.

3.6.16 Employment and Labour Relations Act (2004)

This Act gives provisions for fundamental rights of employees including child labor, forced labor discrimination and freedom of association; Employment standards including hours, remuneration,

leave and unfair termination of employment; Trade unions, employer association and federation; Organizational rights; collective bargaining; strikes and lock outs and dispute resolutions.

The provision of Part II subpart A, section 5 (1)requires that no person shall employ a child under the age of fourteen years, and subsection (2) a child under eighteen should not be employed in a workplace considered hazardous. Also subject to Subpart B section 6(1) which clarifies that any person who procures, demands or imposes forced labor, commits an offence. Subpart C, subsection 7(2) requires that an employer shall register, with the Labour Commissioner, a plan to promote equal opportunity and to eliminate discrimination in the work place. And Subpart D section 9 (1) a) every employee shall have the right to form and join a trade union; and section 10(1) a) every employer shall have the right to form and join an employer's association;
The provisions of Part III, subpart A, section 14(1) requires that a contract with an employee shall be of the specified period of time and task. Section 15(1) requires that an employer shall provide employee with written statement of particulars and a statement of employee's right in a prescribed form. Subpart B, section 19(1), (3) and (5) requires that an employer shall not require or permit an employee to work more than 12 hours in any day or work overtime unless with agreement and be paid not less than one and one half times the employee's basic wage for any overtime worked. Section 20 (2) (a)and (b) requires that pregnant employees should not work night shift 2months before their due date as well as nursing mothers 2months after birth; subsection (4) an employer shall pay an employee at least 5% of that employee's basic wage for each hour worked at night as an overtime. Section 21(1) and 24(1) dictates that employees shall be given a 60 minutes break in a working day and a day off for rest and 24 hours rest a week. Subpart C section 26(1) and 28(1) a) requires calculation of wage rates applicable hourly, daily, weekly or monthly rate of pay, no deduction shall be made unless agreed by employee for respect of debt. Subpart D section 31 (1) and (4) an employee should be given leave with paid remuneration as if he was working. Section 32(1) requires that an employee shall be entitled to sick leave and section 33(1) three months maternity leave. And Subpart E, section 37(1) it shall be unlawful for an unfair termination of an employee.
The provisions of Part IV, section 45 (1) Employer shall register into a trade union or employers' association. Part V, section 61(1) an employer shall deduct dues of a registered trade union from an employee's wages if that employee has authorized the employer to do so in the prescribed form. Section 67(1) recognition as exclusive bargaining agent of employees and section 68(1) an employer or employers Association shall bargain in good faith with a recognized trade union.

The proposed roads' upgrading in Songea under TACTIC project will employ 150 direct employments, notwithstanding the provisions of this Act, the project will comply with the provisions of this Act by ensuring that all the requirements, restriction and rights of employees are respected and guided as underlined by this Act.

3.6.17 Urban Planning Act (2007)

This Act provides the provisions of fundamental principles of urban planning, institutional framework and responsibilities of every actor, the planning processes, land acquisition and compensation and supplementary planning power.
The provisions of Part II section 3a) states that with a view to giving effect to the fundamental principles of the National Land Policy and the Human Settlements Development Policy, all persons and authorities exercising powers, applying or interpreting the provisions of this Act shall be under the duty to improve the level of the provision of infrastructure and social services for sustainable human settlements development.

Provision of part IV, section 29(I) requires that no person shall develop any land within a planning area without planning consent granted by the planning authority or otherwise than in accordance with

planning consent and any conditions specified. Subject to the provision of subsection (3) that Where in connection with an application for planning consent to develop land and subject to any other relevant law, the planning authority is of the opinion that proposals for industrial location, dumping sites, sewerage treatment, quarries or any other development activity shall have injurious impact on the environment, the applicant shall be required to submit together with the application of an environmental impact assessment report.

The provisions of Part IV, section 52(1) requires that no person shall carry a development on a conservation area without a consent of the planning authority. Subject to the provision of part V, section 63(2) that in giving planning consent under the provisions of this Act to the temporary development of any land within a planning area, the planning authority concerned may give such planning consent on the condition that the value of such temporary development shall not be taken into account for the purposes of assessing any compensation payable to the landholder of such land and, in such case the value of any temporary development shall not be taken into account for the purpose of assessing compensation payable. Subject to section 64(1), However if land is injuriously affected by the coming into operation of the development project compensation will be done, and section 67 that the compensation under this section shall be paid as provided for under the Land Act and the Village Land Act.

The proposed roads' upgrading in Songea under TACTIC project will ensure to comply with the provisions of this Act by consulting planning authority for fulfilment of all required procedures, has conducted Environmental Impact Assessment and the report will be submitted to the authority, will ensure compensation wherever needed as the payable rates required by this Act.

3.6.18 Worker's Compensation Act (2008)

This Act provides general provisions for rights for workers to compensations for occupational accidents and diseases. It includes workers compensation funds, board of trustee and its responsibility, right of compensation and protection, claims for compensations and relevant procedures, determination of compensation including medical and rehabilitation benefits and the roles and responsibilities of an employers to ensure workers compensations and settling of disputes.
The provisions of Part I section 3 provides the objectives of this Act including Paragraph (a) to provide for adequate and equitable compensation for employees who suffer occupational injuries or contract occupational diseases arising out of and in the course of their employment and in the case of death, for their dependents.

The provision of Part IV section 19 (1) requires that where an employee has an accident resulting in the employee's disablement or death, the employee or the dependents of the employee shall subject to the provisions of this Act, be entitled to the compensation provided under this Act. Subject to section 20 that any accident during the conveyance of an employee to or from his place of employment for the purpose of his employment by any means of conveyance shall be compensated. Also subject to provisions of section 22 (1) Where an employee contracts a disease and the disease has arisen out of and in the course of the employee's employment, the employee shall be compensated.

Subject to the provision of Part VI section 58 (I) the manner on which calculation for compensation shall be done will be through calculating the earnings of an employee in the monthly rate at which the employee was being remunerated by the employer at the time immediately before the accident. Provisions of Part VIII section 71 (1) requires that an employer carrying on business in Tanzania within the prescribed period shall register to the Director General in the prescribed form and shall submit prescribed particulars as he may require, and section (4)that failure to do that will be

conviction. Subject to the provision of this section 74 that employer will be assessed by Director General according to a tariff of assessment calculated on the basis of the percentage of annual earnings of the employer's employees as the Board may with due regard to the requirements of the Fund for the year of assessment deem necessary.

Provision of section 76(1) requires that where a mandator in the course of or for the purposes of his business enters into an agreement with a contractor for the execution by or under the supervision of the contractor of the whole or any part of any work undertaken by the mandator, the contractor shall, in respect of the employees of the contractor employed in the execution of the work, register as an employer in accordance with the provisions of this Act and pay the necessary assessment.
The provision of section 78 requires that an employer or the relevant trade union shall notify any employee who is injured in an accident or who contracts an occupational disease of his rights and the procedures to be followed in order to claim compensation under this Act.

The proposed roads' upgrading in Songea under TACTIC project will ensure to comply with the requirements of this Act by ensuring that the contractor for project execution will register as an employer and pay the necessary assessment fees as required by this Act. Also, throughout project execution, employees' rights as regard to compensation in case of occupational accidents or disease will be done according to the provision of this Act.

3.6.19 The Sexual Offenses Act 1998

An Act provide special provisions in regard to sexual and other offences to further safeguard the personal integrity, dignity, liberty and security of women and children.
The provision of Section 138D subsection (3) requires that for the avoidance of doubt, unwelcome sexual advances by words or action used by a person in authority, in a working place or any other place, shall constitute the offence of sexual harassment.

The proposed roads' upgrading in Songea under TACTIC project will ensure to comply with the provisions of this Act by ensuring that sexual harassment offenses are translated at work place for every employee to know their rights.

3.6.20 Law of Marriage Act, 1971

This Act provides the general provisions of Marriage, marriage registration, annulments and divorces and evidence of property, rights, liabilities and status marriage as well as matrimonial proceedings and offenses.

The proposed roads' upgrading in Songea under TACTIC project will ensure to comply with this Act by respecting marriage, employees will be required to respect their marital status and of others. In addition to this employees and public along the road project will be offered regular HIV and AIDS and gender education and awareness.

3.6.21 Law of the Child Act, 2009

This Act provides general provisions of rights and welfare of the child including care and protection of a child conditions. Also clarifies responsibilities of different actors including parents in ensuring the rights of a child whether at home, foster home, school, institutionalized care, and workplace or in custody. The provision of Part II section 12 requires that a person shall not employ or engage a child in any activity that may be harmful to his health, education, mental, physical or moral development.

The provisions of Part VII, section 78(1) a person shall not employ or engage a child in any kind of exploitative labour. Subject to the provision of subsection (2) that every employer shall ensure that

every child lawfully employed or engaged in accordance with the provisions of this Act is protected against any discrimination or acts which may have negative effect on him taking into consideration his age and evolving capacities. In addition to section 79(1) the child shall not be employed or engaged in a contract of the service performance which shall require a child to work at night. And subject to provision of section 81 (1) a child has a right to be paid remuneration equal to the value of the work done.

The proposed roads' upgrading in Songea will comply with the provisions of this Act by ensuring does not employ a child or impose a forced child labour in any phase of project execution.

3.6.22 Land Use Planning Act (2007)

45. – (1) An approved plan published under section 38 shall apply to the area or zone to which it relates, whether or not it is embodied in a local government authority by-law, and every person, agency or the relevant planning authority shall comply with the requirements of the approved plan.
(2) Upon approval of plan and, unless the planning authority otherwise determines, no development shall take place on land unless it is conformity with the approved plan.

47. – (1) Any landholder or occupier of land shall take all steps necessary to ensure voluntary compliance with the aspects of an approved plan that are relevant to activities carried out on the land he holds or occupies.

Part VII section 48(I) of the Act also stipulates that "Where it comes to the notice of planning authority that the development of land has been, or is being carried out after the commencement of the Act, otherwise than in accordance with applicable land use plan, the planning authority may serve an enforcement notice to the owner, occupier or developer of that land.

Since the proposed TACTIC project in Songea shall involve resettlement exercise, the consultant has conducted sensitization meetings to the PAPs before evaluation to smoothen the exercise and project implementation.

3.6.23 Social Security Authority Act Cap 135 R.E 2015

Part III Registration of Schemes, Managers, Administrators and Custodians during Registration Section 14 states that, A person intending to establish or continue to operate a scheme or act as a manager, administrator or custodian shall not operate or act as such unless such person is registered under this Act.

During Conditions for registration of schemes states that,
Section 15.-(1) a scheme shall not be registered under this Act unless
(a) The scheme-
(i) Is established under a written law or an irrevocable trust deed;
(ii) Presents an initial actuarial valuation report; and
(iii) Protects the rights and interests of its members and public; and
(b) The trustees thereof satisfy the requirements specified in the regulations.
Section 15.-(2) any trust deed establishing a scheme shall be approved by authority
During Application for Registration
Section 16.-(1) a person intending to establish a scheme, act as a manager, custodian or administrator shall submit an application to the Authority in a prescribed form.
Section 16.-(2) the application under subsection (1), shall be accompanied by a prescribed fee,
Section 16.-(3) The Authority after receiving the application under subsection (1), shall process the same in the manner prescribed in the regulations.
Under the Register

Section 17.-(I) The Authority shall keep a register for all schemes, managers, administrators and custodians registered under this Act in such form as the Board may determine and shall enter therein such particulars as the Board may specify.
Section 17.-((2) The Board may determine the time or times during which and the extent to which a person may, on payment of the prescribed fee, inspect the register kept under this section or obtain copies thereof.
Under Issuance of certificates
Section 18 The Authority may, subject to the provisions of this Act, register and issue the applicant with a Certificate of registration.
The proponent shall follow all the requirements required under the act during its operational activities

3.6.24 The Water Supply and Sanitation Act, No. 12 of 2019

This is also a new legislation that provides for sustainable management and adequate operation and transparent regulation of water supply and sanitation services; provides for establishment of water supply and sanitation authorities as well as community owned water supply organizations; and provides for appointment for service providers. The main aim of this law is to ensure the right of every Tanzanian to have access to efficient, effective and sustainable water supply and sanitation services for all purposes by taking into account among others protection and conservation of water resources and development and promotion of public health and sanitation; and protection of the interest of customers. Under this law, the Minister responsible for water affairs shall establish water authority and cluster water authorities in order to achieve commercial viabilities.
The proponent shall ensure that water is used appropriately for the intended uses only; misuse of water shall strictly be controlled.

3.6.25 The Valuation and Valuers Registration Act, 2016 & Regulations No:10

38.-(1) Subject to this Act, a person shall not offer assistance in inspection, carrying out valuation or preparation of valuation report unless the person has been enlisted by the Board.
50.-(1) In the course of undertaking valuation and preparation of valuation report, a registered valuer shall state the basis and method of valuation adopted and all assumptions used in arriving at values.
51.-(1) In the valuation process, a registered valuer shall apply the appropriate method of valuation and shall include-

(a) direct market comparative method;
(b) replacement cost or contractors test method;
(c) income approach or investment method;
(d) profit method; and
(e) residual method

52(2) Notwithstanding subsection (1), valuation conducted together with valuation reports prepared under this Act for purposes of compensation shall be valid for the period of two years commencing from the date of endorsement of the valuation report.
52(3) The endorsement of valuation report under subsection (2) shall be effected within six months after the valuation of interest in property of the last person.

The valuation exercise of the PAPs under TACTIC subproject shall be led by the registered valuer in accordance to this act. All legal procedures on evaluation exercise shall be followed as required.

3.6.26 The Valuation and Valuers Regulations of 2018

Land will be valued by means of the Comparative Method of Valuation, i.e. by determining the market value of a land parcel through an analysis of market prices of similar land parcels sold recently in the same or competing neighbourhoods. Where available current base (indicative) market

rates for land will be issued to the Registered Valuer from the Office of the Chief Valuer (Section 53 of the Valuation and Valuers Regulations 2018).
These market base rates for land will be based on consultations (through the Chief Valuer) with District Land Officers and the Regional Valuers and convert indicative rates into specific rates.

Specific rates for land will be determined at RAP stage. Any transactional costs associated with acquiring new land will be included in the compensation amount.

3.6.27 The Land (Assessment of the Value of Land for Compensation) Regulations, 2001

The basis for assessment of the value of any land and unexhausted improvement for purposes of compensation under the Act shall be the market value of such land.
Every assessment of the value of land and unexhausted 'improvement for the purpose of the Act shall be prepared by qualified valuer.

Every assessment of the value of land and unexhausted improvement for the purposes of payment of compensation by Government or Local Government Authority shall be verified by the Chief Valuer of the Government or his representative.

Compensation for loss of any interest in land shall include value of unexhausted improvement disturbance allowance, transport allowance, accommodation allowance and loss of profits.
The project's valuation assessment to the PAPs shall abide to the regulations' requirements.

3.6.28 The Environmental Management (Hazardous Control and Management) Regulation 2009

The Regulations emphasizes for proper handling of all types of hazardous materials which are harmful when in contact with humans or environment. The regulations also require the hazardous waste to be guided by principles of environment. In addition, the regulations place responsibility to the hazardous waste generator for the sound management and disposal of such waste and that shall be liable for damage to the environment and human health arising thereby.

The construction contractor shall abide to all hazardous waste control measures especially during construction of in water structures. During operation of the project, all ships shall be provided with hazardous waste management guidelines.

3.6.29 Road Sector (Environmental Protection) Regulations, 2009

These are regulations for implementing Road Act 2007 on aspects of environmental protection. The regulations direct how to implement environmental management in the road sector and shall be appropriately adhered during the proposed implementation of urban roads in Songea Municipality.

3.6.30 Environmental Code of Practice for Road Works 2008

The main objective of the Environmental Code of Practice is to provide a tool that integrates identified environmental impacts/aspects for project managers, road engineers, technicians, contractors, and environmental specialists.

The Code presents the environmental norms that are to be observed or used during the conception / planning and construction of road infrastructure. It is intended for project managers, road engineers and technicians to use. Environmental consultants taking part in road-sector Environmental Assessments can also use this Code as a reference,

During undertaking of this impact assessment study for TACTIC project in Songea, the code of practise has been used and shall be used during the construction phase.

3.6.31 National Environmental Impact and Auditing Regulations (2005)

These regulations require the EIA study to be carried out by experts or firms of experts whose names have been duly certified and registered in accordance with the provision of the Registration of Environmental Experts. They also provide Environmental Impacts Assessment steps and the format of an environmental impact statement as indicated under the section 18 (2) of these regulations.

The proposed subproject has complied to the regulations' requirements by deploying registered environmental experts and firm during undertaking of this ESIA study.

3.6.32 The Environmental (Registration of Environmental Experts) Regulations, 2005

These regulations require the EIA study to be carried out by experts or firms of experts whose names have been duly certified and registered in accordance with the provision of the Registration of Environmental Experts.

All experts involved in this study a duly certified and registered by the council as per requirements of the regulations.

3.6.33 Road management Regulation 2009

The regulation provides for the road authority in whose jurisdiction a road is situate shall be responsible for control and management of road. Regulation 6 provides for road access where by it indicates the requirement s for road access. In addition, Regulation 7 provides for prohibitions of activity in the place where it is designated as a road of access. The law prevent obstruction visibility, or hinders convenient passage of motor vehicles or trailer along the road**.**

The proponent will observe this by avoid constructing roads in prohibited areas.

3.6.34 Urban Planning (use group and use classes) Regulation, 2018

At the first schedule under use groups and uses classes (made under regulation 3) at Use Group S – Way Leaves for Public Utility Services a) Roads and road reserves, railway lines, metro lines, tram lines, footpaths and cycle ways, cart ways: For the purposes of planning and the control of development, all uses of land and buildings are categorized in the use groups and use classes in the First Schedule. Hence, the proponent shall comply with the Regulation as its compound planned in both use group and classes.

3.6.35 The Urban Planning (Planning space standards) Regulations, 2018

These regulations shall apply to all planning areas declared by the Minister under section 8 of the Act. Part II under Urban Planning Space Standards Section 4-1 during functional space states that, adequate and functional space shall be allocated in accordance with the Urban Planning Space Standards prescribed in the Schedule to these Regulations.

By considering standards for residential areas, unplanned settlements, building height, building lines and setbacks, floor are, plot coverage and plot ratio, public facilities, parking and road width during the establishment of the project, Hence, proponent shall comply with the Regulation as its compound planned in planning space standards.

3.6.36 The Environmental (Registration of Environmental Experts) Regulations, 2021;

Regulations direct Proponents to conduct environmental studies through registered environmental experts. In doing so, this study has been conducted under coordination of registered environmental expert firm.

3.6.37 The Environmental Management (Fee and charges) Regulations, 2021;

Thee propnent shall pay all fees related to this EIA study as per regulations, these include registration and site verification and review costs. During operation, proponent shall pay Annual Charges for Environmental Monitoring and Audit as required.

3.7 International Agreements, Conventions and Treaties

3.7.1 Africa Convention on the Conservation and Natural Resource (1968)

This convention intends to promote conservation efforts by requiring contracting States to adopt the measures necessary to ensure conservation, utilization and development of soil, water, flora and fauna resources in accordance with scientific principles and with due regard to the best interests of the people.

The proponent will support Tanzania's commitment by promoting conservation efforts in all of its operations.

3.7.2 The Minimum Age Convention, 1973 (No. 138)

The present report form is for the use of countries which have ratified the Convention. It has been approved by the Governing Body of the International Labour Office, in accordance with article 22 of the ILO Constitution, which reads as follows: "Each of the Members agrees to make an annual report to the International Labour Office on the measures which it has taken to give effect to the provisions of the Conventions to which it is a party. These reports shall be made in such form and shall contain such particulars as the Governing Body may request." The Government may deem it useful to consult the appended text of the Minimum Age Recommendation, 1973 (No. 146), the provisions of which supplement the present Convention and can contribute to a better understanding of its requirements and facilitate its application

Article 1

Each Member for which this Convention is in force undertakes to pursue a national policy designed to ensure the effective abolition of child labour and to raise progressively the minimum age for admission to employment or work to a level consistent with the fullest physical and mental development of young persons

Article 2

1. Each Member which ratifies this Convention shall specify, in a declaration appended to its ratification, a minimum age for admission to employment or work within its territory and on means of transport registered in its territory; subject to Articles 4 to 8 of this Convention, no one under that age shall be admitted to employment or work in any occupation.

2. Each Member which has ratified this Convention may subsequently notify the Director General of the International Labour Office, by further declarations, that it specifies a minimum age higher than that previously specified

3. The minimum age specified in pursuance of paragraph 1 of this Article shall not be less than the age of completion of compulsory schooling and, in any case, shall not be less than 15 years

4. Notwithstanding the provisions of paragraph 3 of this Article, a Member whose economy and educational facilities are insufficiently developed may, after consultation with the organisations of employers and workers concerned, where such exist, initially specify a minimum age of 14 years.

5. Each Member which has specified a minimum age of 14 years in pursuance of the provisions of the preceding paragraph shall include in its reports on the application of this Convention submitted under article 22 of the Constitution of the International Labour Organisation a statement: (a) that its reason for doing so subsists; or (b) that it renounces its right to avail itself of the provisions in question as from a stated date.

Article 3

1. The minimum age for admission to any type of employment or work which by its nature or the circumstances in which it is carried out is likely to jeopardise the health, safety or morals of young persons shall not be less than 18 years.
2. The types of employment or work to which paragraph 1 of this Article applies shall be determined by national laws or regulations or by the competent authority, after consultation with the organisations of employers and workers concerned, where such exist.
3. Notwithstanding the provisions of paragraph 1 of this Article, national laws or regulations or the competent authority may, after consultation with the organisations of employers and workers concerned, where such exist, authorise employment or work as from the age of 16 years on condition that the health, safety and morals of the young persons concerned are fully protected and that the young persons have received adequate specific instruction or vocational training in the relevant branch of activity.

The proponent shall ensure no child is employed to do any of its activities.

3.7.3 The Labour Clauses (Public Contracts) Convention, 1949 (No. 94)

Following an examination of the current relevance of Convention No. 94 by the Working Party on Policy regarding the Revision of Standards, the Governing Body decided in November 1998 (a) to invite member States to contemplate ratifying Convention No. 94, and (b) that the Working Party, or the LILS Committee of the Governing Body, re-examine the status of Convention No. 94 in due course.1 It is also to be noted that, in 2007, the Committee on Sustainable Enterprises of the International Labour Conference concluded that "the ILO should promote the ratification and application of the international labour Conventions relevant to the promotion of sustainable enterprises", including Convention No. 94, and that it "should work with international, multilateral and bilateral institutions in order to ensure sustainable procurement and lending practices that demonstrate an understanding and application of the principles contained in international labour standards and the MNE Declaration

3.7.4 The Workmen's Compensation (Accidents) Convention, 1925 (No. 17)

The present report form is for the use of countries which have ratified the Convention. It has been approved by the Governing Body of the International Labour Office, in accordance with article 22 of the ILO Constitution, which reads as follows "Each of the members agree to make an annual report to the international labour office on the measures which it has taken to give effect to the provisions of convections to which it is a part. These reports shall be made in such form and shall contain such particulars as the Governing Body may request

Article 1

Each member of the International Labour Organization which ratifies this Convection undertakes to ensure that workmen who suffer personal injury due to an industrial accident or their dependants, shall be compensated on terms at least equal to those provided by the convection

Article 2

1. The laws and regulations as to workmen's compensation shall apply to workmen, employees and apprentices employed by any enterprises, undertaking or establishment of whatsoever nature whether public or private

2. It shall nevertheless be open to any Member to make such exceptions in its national legislation as it deems necessary in respect to

a) Persons whose employment is of casual nature and whose are employed otherwise than for the purpose of the employers trade or business
b) Out workers
c) Member of the employers family who work exclusively on his behalf and who live in the his house
d) Non-manual workers whose remuneration exceeds a limit to be determined by national laws or regulation

Article 5

The compensation payable to the injured workman, or his dependents, where permanent incapacity or death results from the injury, shall be paid in the form of periodical payments, provided that it may be wholly or partially paid in a lump sum, if the competent authority is satisfied that it will be properly utilized

Article 6

In case of incapacity, compensation shall be paid no longer be paid no later than as from the fifth day after the accident, whether it be payable by the employer, the accident insurance institution, or the sickness insurance institution concerned

Article 7

In case where the injury results in incapacity of such a nature that the injured workman must have the constant help of another person, additional compensation shall be provided

The proponent and contractor shall insure all compensations are considered as required by the workmen compensation convection.

3.7.5 The Minimum Wage-Fixing Machinery Convention, 1928 (No. 26)

The present report form is for the use of countries which have ratified the Convention. It has been approved by the Governing Body of the International Labour Office, in accordance with article 22 of the ILO Constitution, which reads as follows: "Each of the Members agrees to make an annual report to the International Labour Office on the measures which it has taken to give effect to the provisions of the Conventions to which it is a party. These reports shall be made in such form and shall contain such particulars as the Governing Body may request."

Article 1

1. Each Member of the International Labour Organisation which ratifies this Convention undertakes to create or maintain machinery whereby minimum rates of wages can be fixed for workers employed in certain of the trades or parts of trades (and in particular in home working trades) in which no arrangements exist for the effective regulation of wages by collective agreement or otherwise and wages are exceptionally low.
2. For the purpose of this Convention, the term "trades" includes manufacture and commerce.

Article 2

Each Member which ratifies this Convention shall be free to decide, after consultation with the organisations, if any, of workers and employers in the trade or part of trade concerned, in which trades or parts of trades, and in particular in which home working trades or parts of such trades, the minimum wage-fixing machinery referred to in Article 1 shall be applied.

Article 3

1. Each Member which ratifies this Convention shall be free to decide the nature and form of the minimum wage-fixing machinery, and the methods to be followed in its operation.
2. Provided that:

(a) before the machinery is applied in a trade or part of trade, representatives of the employers and workers concerned, including representatives of their respective organisations, if any, shall be

consulted as well as any other persons, being specially qualified for the purpose by their trade or functions, whom the competent authority deems it expedient to consult;
(b) The employers and workers concerned shall be associated in the operation of the machinery, in such manner and to such extent, but in any case in equal numbers and on equal terms, as may be determined by national laws or regulations;
(c) Minimum rates of wages which have been fixed shall be binding on the employers and workers concerned so as not to be subject to abatement by them by individual agreement, nor, except with general or particular authorisation of the competent authority, by collective agreement

Article 5

Each Member which ratifies this Convention shall communicate annually to the International Labour Office a general statement giving a list of the trades or parts of trades in which the minimum wage-fixing machinery has been applied, indicating the methods as well as the results of the application of the machinery and, in summary form, the approximate numbers of workers covered, the minimum rates of wages fixed, and the more important of the other conditions, if any, established relevant to the minimum rates.

Tanzanian government adhere to the convection's requirements through setup of minimum wage to the workers throughout the country.

3.7.6 The Equal Remuneration Convention, 1951 (No. 100)

The General Conference of the International Labour Organisation, Having been convened at Geneva by the Governing Body of the International Labour Office, and having met in its Thirty-fourth Session on 6 June 1951, and Having decided upon the adoption of certain proposals with regard to the principle of equal remuneration for men and women workers for work of equal value, which is the seventh item on the agenda of the session, and Having determined that these proposals shall take the form of an international Convention, adopts this twenty-ninth day of June of the year one thousand nine hundred and fifty-one the following Convention, which may be cited as the Equal Remuneration Convention, 1951:

ARTICLE 1

For the purpose of this Convention-
(a) The term remuneration includes the ordinary, basic or minimum wage or salary and any additional emoluments whatsoever payable directly or indirectly, whether in cash or in kind, by the employer to the worker and arising out of the worker's employment;
(b) The term equal remuneration for men and women workers for work of equal value refers to rates of remuneration established without discrimination based on sex.

ARTICLE 2

1. Each Member shall, by means appropriate to the methods in operation for determining rates of remuneration, promote and, in so far as is consistent with such methods, ensure the application to all workers of the principle of equal remuneration for men and women workers for work of equal value.
2. This principle may be applied by means of-
(a) National laws or regulations;
(b) Legally established or recognised machinery for wage determination;
(c) Collective agreements between employers and workers; or
(d) a combination of these various means

- **ILO Convention: C182 Worst Forms of Child Labour Convention, 1999** (Ratified by Tanzania (United Republic of) on 12/09/2001). PO-RALG through contractor shall ensure no child is employed in its activities.

3.7.7 Discrimination (Employment and Occupation) Convention, 1958

The International Labour Organization having considered the declaration of Philadelphia and the discriminations prohibited by the Universal Declaration of Human Rights, convened at Geneva by the ILO Governing Body in 1958, passed a Convention on Discrimination (Employment and Occupation. The Convention defines discrimination as any distinction, exclusion or preference made on the basis of race, colour, sex, religion, political opinion, national extraction or social origin, which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation; and that, such other distinction, exclusion or preference which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation as may be determined by the Member concerned after consultation with representative employers' and workers' organizations, where such exist, and with other appropriate bodies.

The Discrimination (Employment and Occupation) Convention of 1958 has been ratified by Tanzania on 26th February, 2002. Thus, the contents of this convention are binding Tanzania jurisdictions. Each Member for which this Convention is in force undertakes to declare and pursue a national policy designed to promote, by methods appropriate to national conditions and practice, equality of opportunity and treatment in respect of employment and occupation, with a view to eliminating any discrimination in respect thereof.

The Convention further requires member states for which this Convention is in force to undertake, by methods appropriate to national conditions and practice: to seek the co-operation of employers' and workers' organizations and other appropriate bodies in promoting the acceptance and observance of this policy; to enact such legislation and to promote such educational programmes as may be calculated to secure the acceptance and observance of the policy; to repeal any statutory provisions and modify any administrative instructions or practices which are inconsistent with the policy; to pursue the policy in respect of employment under the direct control of a national authority; to ensure observance of the policy in the activities of vocational guidance, vocational training and placement services under the direction of a national authority; to indicate in its annual reports on the application of the Convention the action taken in pursuance of the policy and the results secured by such action.

The Convention further stipulate that, any Member may, after consultation with representative employers' and workers' organizations, where such exist, determine that other special measures designed to meet the particular requirements of persons who, for reasons such as sex, age, disablement, family responsibilities or social or cultural status, are generally recognized to require special protection or assistance, shall not be deemed to be discrimination.

PO-RALG and associated project implementors shall not practice any kind of discrimination of the employees during both construction and operation phases.

3.7.8 Termination of Employment Convention, 1982 (ILO Convention No. 158)

Although this convention may exclude certain categories of employees including probationary workers, the convention is generally applicable to all branches of economic activity and to all employed persons. This provision suggests that member states have been given options to apply or to skip the application of certain contents of this convention when dealing with certain category of employees, but before such neglect certain requirements should be considered.

From the above provision is should be learnt that, exclusion of the probationary employees, among others, stated in the Convention is not a compulsive requirement upon member states. This suggests that some members will opt to apply the stipulated Convention provisions to probationary employees expressly or impliedly.

In conjunction with The Employment and Labour Relations (Code of Good Practice) G.N. No 42, PO-RALG and associate project implementers shall comply to the requirements of convention by following proper termination procedures of the employees during both construction and operation phases.

3.7.9 The Universal Declaration of Human Rights, 1948

The declaration proclaims a common standard of achievement for all peoples and all nations, to the end that every individual and every organ of society, keeping this Declaration constantly in mind, shall strive by teaching and education to promote respect for these rights and freedoms and by progressive measures, national and international, to secure their universal and effective recognition and observance, both among the peoples of Member States themselves and among the peoples of territories under their jurisdiction.41 The declaration (UDHR) further states clearly that, all human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood. It further declares that, "everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status. Furthermore, no distinction shall be made on the basis of the political, jurisdictional or international status of the country or territory to which a person belongs, whether it be independent, trust, non-self-governing or under any other limitation of sovereignty.

The declaration (UDHR) has declared universally that "everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment. Everyone, without any discrimination, has the right to equal pay for equal work. Everyone who works has the right to just and favourable remuneration ensuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection. Everyone has the right to form and to join trade unions for the protection of his interests."

Even though the Universal Declaration of Human Rights of 1948 not formally by itself legally binding, the Declaration has been adopted in or influenced United Republic of Tanzania, wherein the government commit itself and its people to progressive measures to secure the universal and effective recognition and observance of the human rights set out in the Declaration.

Thus, the declaration is obviously a fundamental document of the United Nations and a powerful tool when applying diplomatic and moral pressure to governments that violates and of its provisions.

PO-RALG and its associates during the subproject implementation shall observe/comply to the provision of human rights during both phases.

3.8 Administrative Framework

3.8.1 Overall Management Responsibility

The institutional arrangement for environmental management in Tanzania is well spelt out in the EMA (2004). There are seven (7) institutions mentioned by the act, of which the Minister Responsible for the Environment is the overall in-charge for administration of all matters relating to the environment.

Part III, Section 13(1) of EMA (2004) states that the Minister responsible for environment shall be in overall charge of all matters relating to the environment and shall in that respect be responsible for articulation of policy guidelines necessary for the promotion, protection and sustainable management of environment in Tanzania.

The legal institutions for environmental management in the country include;

- Minister responsible for Environment;
- National Environmental Advisory Committee
- Department of Environment;
- National Environment Management Council (NEMC);
- Sector Ministries;
- Regional Secretariat;
- Local Government Authorities (City, Municipal, District, Township, Ward, Village, sub-village "Kitongoji")

3.8.2 Minister Responsible for Environment

The Minister is responsible for matters relating to environment, including giving policy guidelines necessary for the promotion, protection and sustainable management of the environment in Tanzania. The Minister approves an EIA and may also delegate the power of approval for an EIA to the DOE, Local Government Authorities or Sector Ministries. The Minister also:

- Prescribes (in the regulations) the qualifications of persons who may conduct an EIA;
- Reviews NEMC reports on the approval of an EIA;
- Issues an EIA certificate for projects subject to an EIA;
- Suspends an EIA certificate in case of non-compliance

3.8.3 National Environmental Advisory Committee

The National Advisory Environmental Committee is comprised of members with experience in various fields of environmental management in the public and private sector and in civil society. The committee advises the Minister on any matter related to environmental management. Other functions include:

- Examine any matter that may be referred to it by the Minister or any sector Ministry relating to the protection and management of the environment;
- Review and advice the Minister on any environmental plans, environmental impact assessment of major projects and activities for which an environmental impact review is necessary;
- Review the achievement by the NEMC of objectives, goals and targets set by the Council and advise the Minister accordingly;
- Review and advise the Minister on any environmental standards, guidelines and regulations;
- Receive and deliberate on the reports from Sector Ministries regarding the protection and management of the environment;
- Perform other environmental advisory services to the Minister as may be necessary

3.8.4 Division of Environment

The Division of Environment (DoE) is placed in the Vice-President's Office. The functions of the Division of Environment include:

- Coordination of various environmental management activities undertaken by other agencies;
- Promotion of the integration of environmental considerations into development policies, plans, programmes, strategies, projects;
- Undertaking strategic environmental assessments with a view to ensuring the proper management and rational utilization of environmental resources on a sustainable basis for the improvement of quality of human life in Tanzania;
- Advise the Government on legislative and other measures for the management of the environment or the implementation of the relevant international environmental agreements in the field of environment;

- Monitoring and assessing activities undertaken by relevant Sector Ministries and agencies;
- Preparation and issuing of reports on the state of the environment in Tanzania through relevant agencies;
- Coordination of issues relating to articulation and implementation of environmental management aspects of other sector policies and the National Environment Policy

3.8.5 National Environment Management Council (NEMC)

The NEMC's purpose and objective is to undertake enforcement, compliance, review and monitoring of EIA's and to facilitate public participation in environmental decision-making.
According to the Environmental Management Act (2004) the NEMC has the following responsibility pertaining to EIA in Tanzania:

- Registers experts and firms authorized to conduct EIA;
- Registers projects subject to EIA;
- Determines the scope of the EIA;
- Set-ups cross-sectoral Technical Advisory Committee (TAC) to advise on EIA reviews;
- Requests additional information to complete the EIA review;
- Assesses and comments on EIA, in collaboration with other stakeholders,
- Convenes public hearings to obtain comments on the proposed project;
- Recommends to the Minister to approve, reject, or approve with conditions specific EIS;
- Monitors the effects of activities on the environment;
- Controls the implementation of the Environmental Management Plan (EMP);
- Makes recommendations on whether to revoke EIA Certificates in case of non-compliance;
- Promotes public environmental awareness;
- Conducts Environmental Audits

3.8.6 Sector Ministries

The existing institutional and legal framework the Sector Ministries are required to establish Sector Environmental Sections headed by the Sector Environmental Coordinator. The Sector Ministries' Environmental Sections:

- Ensure environmental compliance by the Sector Ministry;
- Ensure all environmental matters falling under the sector ministry are implemented and report of their implementation is submitted to the DOE;
- Liaise with the DoE and the NEMC on matters involving the environment and all matters with respect to which cooperation or shared responsibility is desirable or required;
- Ensure that environmental concerns are integrated into the ministry or departmental development planning and project implementation in a way which protects the environment;
- Evaluate existing and proposed policies and legislation and recommend measures to ensure that those policies and legislation take adequate account of effect on the environment;
- Prepare and coordinate the implementation of environmental action plans at national and local levels;
- Promote public awareness of environmental issue through educational programmes and dissemination of information;
- Refer to the NEMC any matter related to the environment;
- Undertake analysis of the environmental impact of sectorial legislation, regulation, policies, plans, strategies and programmes through strategic environmental assessment (SEA);
- Ensure that sectorial standards are environmentally sound;
- Oversee the preparation of and implementation of all EIA's required for investments in the sector;
- Ensure compliance with the various regulations, guidelines and procedures

- Issued by the Minister responsible for the environment and;
- Work closely with the ministry responsible for local government to provide environmental advice and technical support to district level staff working in the sector.
- For the road sub-sector, the Ministry of Works has established the Division of Safety and Environment in which among others its role is to monitor the implementation of policies related to environmental management in road sector. Other national agencies like Occupation Safety and Health Authority (OSHA) are also mandated to check compliance to workers safety.

3.8.7 Regional Secretariat

The Regional Secretariat, which is headed by the Regional Administrative Secretary under which there is a Regional Environmental Management Expert, who is responsible for the co-ordination of all environmental management programmes in their respective regions. The Regional Environmental Expert thus:

- Advises local authorities on matters relating to the implementation of and enforcement of environmental laws and regulations;
- Creates a link between the region and the DOE and the Director General of the NEMC.

3.8.8 Local Government Authorities

Under the Local Government Act of 1982 (Urban and District Authorities), Local Government Authorities include the City Councils, Municipal Councils, District Councils, Town Councils, Township, Kitongoji, Ward, and Village.

The Environmental Management Committee of each jurisdiction includes:

- Initiating inquiries and investigations regarding any allegation related to the environment and implementation of or violation of the provisions of the Environmental Management Act;
- Requesting any person to provide information or explanation about any matter related to the environment;
- Resolving conflicts among individual persons, companies, agencies non-governmental organizations, government departments or institutions about their respective functions, duties, mandates, obligations or activities;
- Inspecting and examines any premises, street, vehicle, aircraft or any other place or article which it believes, or has reasonable cause to believe, that pollutant or other articles or substances believed to be pollutant are kept or transported;
- Requiring any person to remove such pollutants at their own cost without causing harm to health and;
- Initiating proceedings of civil or criminal nature against any person, company, agency, department or institution that fails or refuses to comply with any directive issued by any such Committee.

Under the Environmental Management Act (2004), the City, Municipal, District and Town Councils are headed by Environmental Management Officers who are responsible for environmental matters. The functions of the Officers are to:

- Ensure enforcement of the Environmental Management Act in their respective areas;
- Advice the Environmental Management Committee on all environmental matters;
- Promote awareness in their areas on the protection of the environment and conservation of natural resources;
- Collect and manage information on the environment and the utilization of natural resources;
- Prepare periodic reports on the state of the local environment;
- Monitor the preparation, review and approval of EIA’s for local investors;

- Review by-laws on environmental management and on sector specific activities related to the environment;
- Report to the DoE and NEMC on the implementation of the Environmental Management Act and;
- Perform other functions as may be assigned by the local government authority from time to time.

3.8.9 Government Executive Agencies - Tanzania Rural and Urban Roads Agency (TARURA)

TARURA is responsible for procurement and management of contracts 'for design, maintenance, emergency repairs, spot improvements, rehabilitation, upgrading and construction of roads and bridges' under its control.

For environment and social issues matters, TARURA collaborates with the Division of Safety and Environment at each phase of the project cycle in order to reduce negative environmental impact of road projects. With regard to the new road sector guidelines, TARURA is mandated to:

- Fill the Application Form for project screening and registration;
- Review EIA Reports;
- Select the best project alternative in regard of environmental, technical and economic criteria;
- Integrate mitigation measures within technical specifications, drawings, contract documents;
- Follow-up construction activities according to the mitigation plan and ESMP;
- Monitor road project activities according to ESMP; and
- Develop and implement environmental management system (EMS).

4. ENVIRONMENTAL AND SOCIAL BASELINE

4.1 Overview

This chapter provides an overview of the baseline environment for the proposed Upgrading of roads' in Songea Municipality and the surrounding environment. The receiving environment is understood to include biophysical and socio-economic aspects which could be affected by the proposed development or which in turn might have impacts on the proposed development

This information is provided to identify the potential issues and impacts of the proposed roads' subproject on the Environment. Area of Influence

The baseline section presents an overview of the biophysical and socioeconomic characteristics relating to the areas in which the development will take place as well as the surrounding areas which may be directly or indirectly affected by the proposed roads' construction. All the baseline condition data like climatic data are sourced from the regulatory Authority i.e., Tanzania Meteorological Authority as per TMA Act (2019) section 48; (*See appendices G*)

This Area of Influence includes the subproject's areas, the ar surrounding areas to be potentially affected and nearby communities. The area of influence for this TACTIC subproject are defined as:

- The area likely to be affected include
  - (i) the project's activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the subproject;
  - (ii) Indirect project impacts on biodiversity or on ecosystem services upon which Affected Communities' livelihoods are dependent.

- Associated facilities, which are facilities that are not part of the subproject and that would not have been constructed or expanded if the project did not exist and without which the subproject would not be viable
-
- Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted

4.1.1 Direct Area of Influence

In the context of this report, the Direct Area of Influence includes the proposed roads footprint as well as the receiving environment surrounding the project likely to be affected by the subproject activities during construction, operation, and decommissioning phases within a radius of 100m

This also includes areas that will be impacted by the construction of the roads, health and safety impacts (including disturbance from noise and dust during construction), and construction camps and in-migration of job opportunists into the local area

4.1.2 Indirect Area of Influence

The Indirect Area of Influence includes areas within Songea Municipality which may be affected by the proposed roads' upgrading.

4.2 Biophysical Environment

4.2.1 Climatic Condition and projection

4.2.1.1 Temperature

The climate of subproject's site is identical to the overall climate of the Songea Municipality. The average air temperature ranges from 16^0C (lowest) in June/July to 36^0C (highest) in November. The following bar chart shows the years average weather condition readings covering rain, average maximum daily temperature and average minimum temperature for Songea.

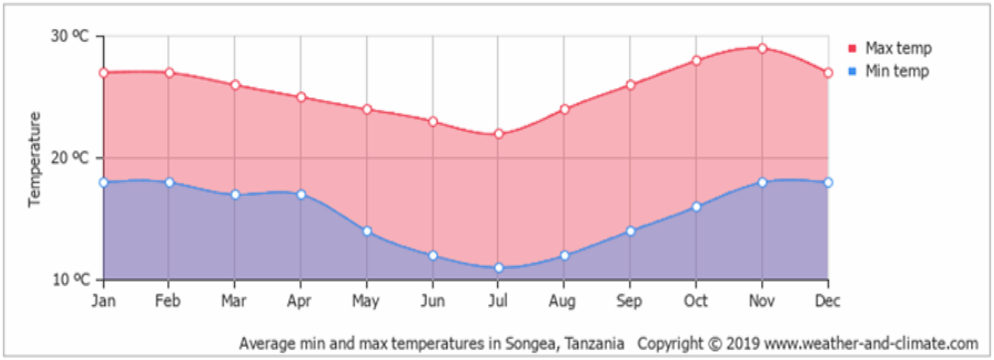

Figure 4-1: Average Monthly Temperature in Songea.

RPC4.5 has been used to project temperature changes during the project's operation period, annual temperatures between 1979-2005 have been considered as reference for projection period of 2020-2040.

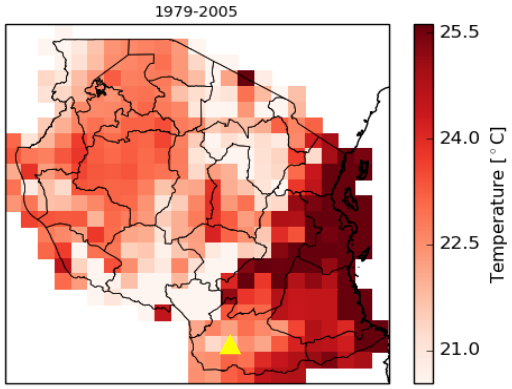

Figure 4-2: Temperature average over the reference period 1979-2005. This map is based on the EWEMBI dataset.
Source: http://regioclim.climateanalytics.org/choices

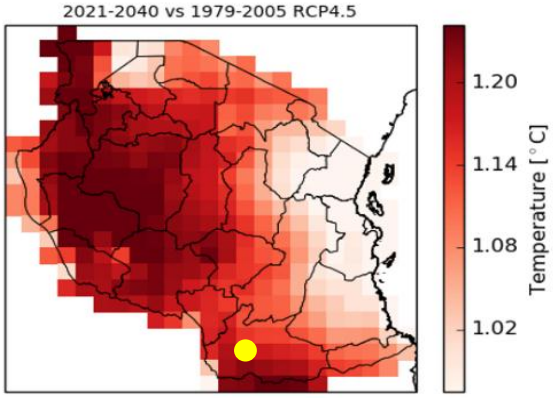

Figure 4-3: Projected change in temperature for 2021-2040 compared to the reference period 1979-2005. Here the ensemble mean of regional climate model projections is displayed. Grid-cells for which a model-disagreement is found are coloured in grey. The projections are based on the emission scenario RCP4.5.
Source: http://regioclim.climateanalytics.org/choices

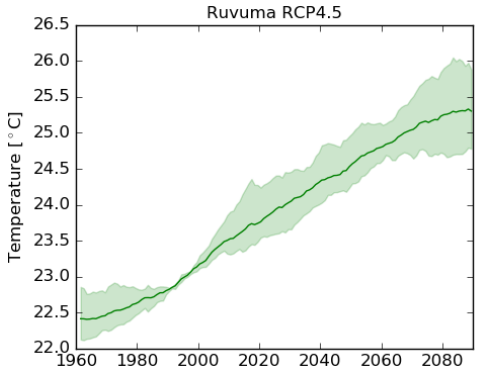

Figure 4-4: Regional climate model projections for temperature displayed as 20 year running mean. The line represents the ensemble mean while the shaded area represents the model spread. The projections are based on the emission scenario RCP4.5.
Source: http://regioclim.climateanalytics.org/choices

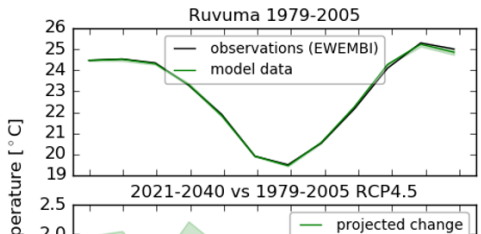

Figure 4-5: Top: Annual cycle of temperature for the period 1979-2005. Bottom: Changes in annual cycle projected for 2021-2040 compared to the reference period 1979-2005. EWEMBI data is shown in black, regional climate model simulations in green. The green line represents the ensemble mean while the shaded area represents the model spread. The projections are based on the emission scenario RCP4.5.
Source: http://regioclim.climateanalytics.org/choices

Temperature is predicted to increase throughout from year 2021 to 2040, figure 6-8 indicates the highest increase of 1.3˚C in April and the lowest of 1.0˚C in July. Notable period of steady temperature increase is between March and April.

Hot Extreme

Hot extreme conditions have been projected for Songea by using RCP4.5 as indicate in figures below.

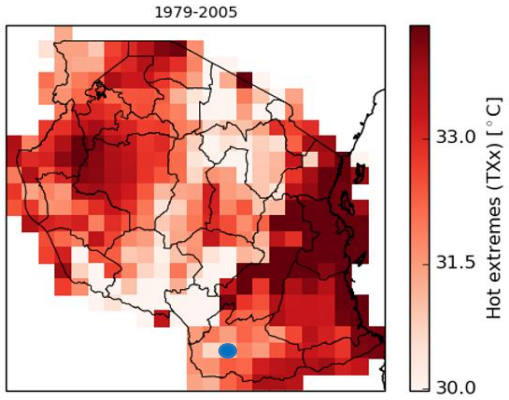

Figure 4-6: Hot extremes (TXx) average over the reference period 1979-2005. This map is based on the EWEMBI dataset.
Source: http://regioclim.climateanalytics.org/choices

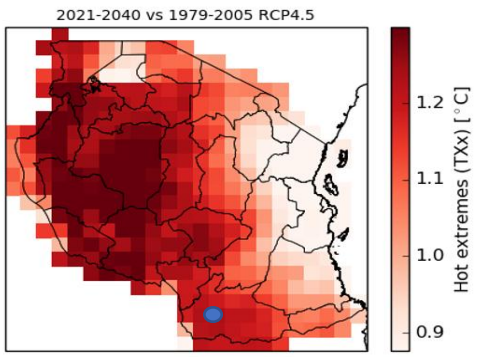

Figure 4-7: Projected change in hot extremes (TXx) for 2021-2040 compared to the reference period 1979-2005. Here the ensemble mean of regional climate model projections is displayed. Grid-cells for which a model-disagreement is found are colored in grey. The projections are based on the emission scenario RCP4.5.
Source: http://regioclim.climateanalytics.org/choices

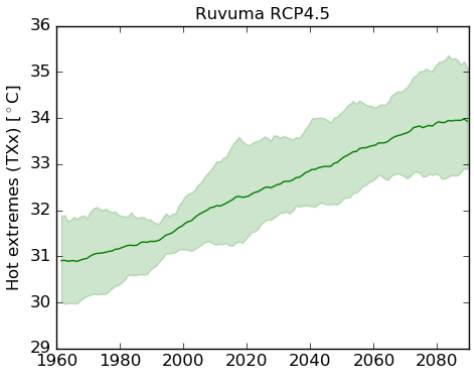

Figure 4-8: Regional climate model projections for hot extremes (TXx) displayed as 20 year running mean. The line represents the ensemble mean while the shaded area represents the model spread. The projections are based on the emission scenario RCP4.5.
Source: http://regioclim.climateanalytics.org/choices

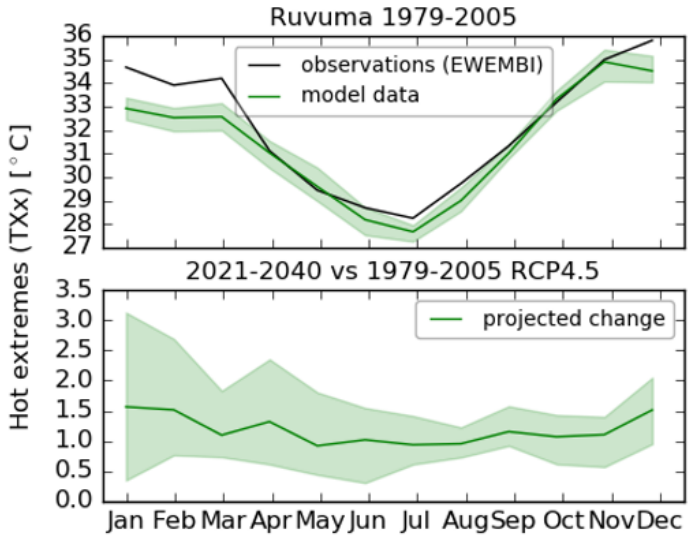

Figure 4-9: Top: Annual cycle of hot extremes (TXx) for the period 1979-2005. Bottom: Changes in annual cycle projected for 2021-2040 compared to the reference period 1979-2005. EWEMBI data is shown in black, regional climate model simulations in green. The green line represents the ensemble mean while the shaded area represents the model spread. The projections are based on the emission scenario RCP4.5.
Source: http://regioclim.climateanalytics.org/choices

Songea Municipality will continue to experience hot weather extremes, currently is experiencing an average of 31.5˚C with projected yearly slight fluctuations, in 2040 hot extreme expected to attain 32.5˚C. Highest hot extreme weather which shall be experienced in December and January.

Extreme increase of temperatures expected in the future, roads will be subjected to temperature loads and cause road pavement to soften and expand. This can create rutting and potholes, particularly in high-traffic areas and can place stress on bridge joints.

4.2.1.2 Rainfall and temperature

Songea Municipality has a reliable average annual rainfall of about 1200 mm (See Figure 4-2). Rainfall is concentrated during the period of November to May. The dry season occurs between June and October. The average day time temperature is 20 to 25°C and the night time temperature 11 to 17°C.

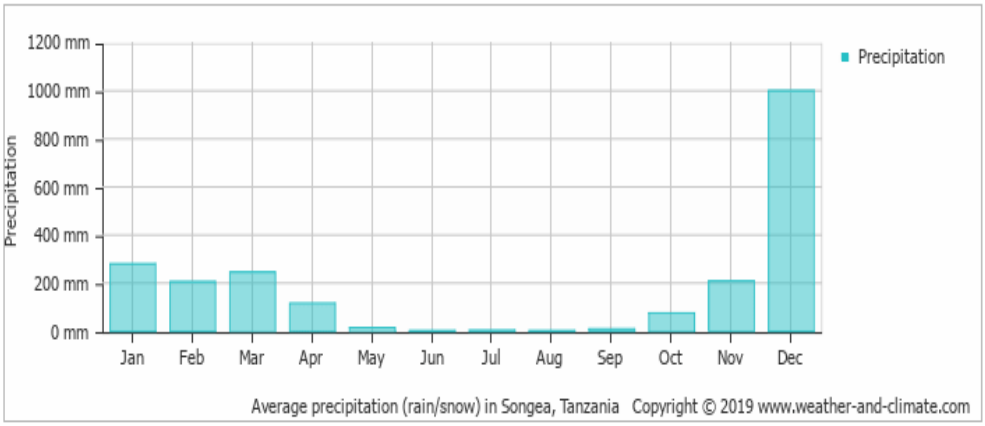

Figure 4-10: Average Monthly Rainfall in Songea
Source: https://weather-and-climate.com/

Rainfall projection was made with reference period 1979-2005 and projection from 2020-2040.

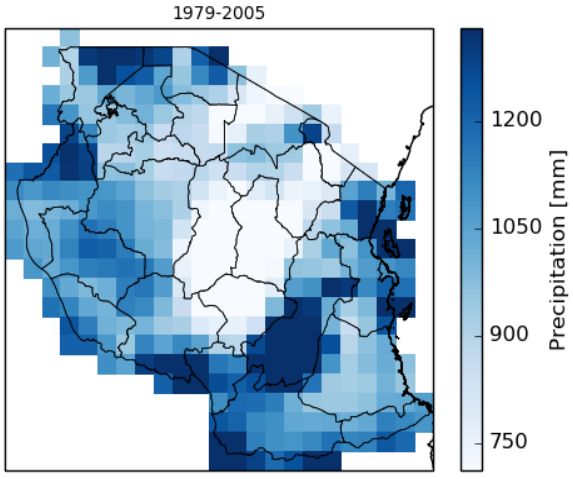

Figure 4-11: Precipitation sum over the reference period 1979-2005. This map is based on the EWEMBI dataset.
Source: http://regioclim.climateanalytics.org/choices

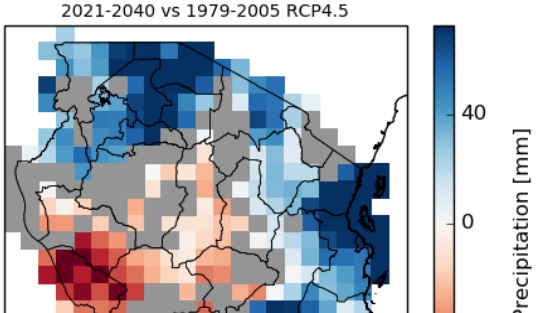

Figure 4-12: Projected change in precipitation for 2021-2040 compared to the reference period 1979-2005. Here the ensemble mean of regional climate model projections is displayed. Grid-cells for which a model-disagreement is found are coloured in grey. The projections are based on the emission scenario RCP4.5.
Source: http://regioclim.climateanalytics.org/choices

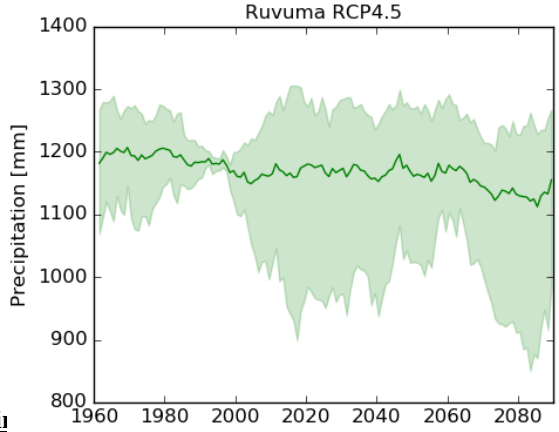

Figure 4-13: Regional cli d as 20 year running mean. The line represents the ensemble mean while the shaded area represents the model spread. The projections are based on the emission scenario RCP4.5.
Source: http://regioclim.climateanalytics.org/choices

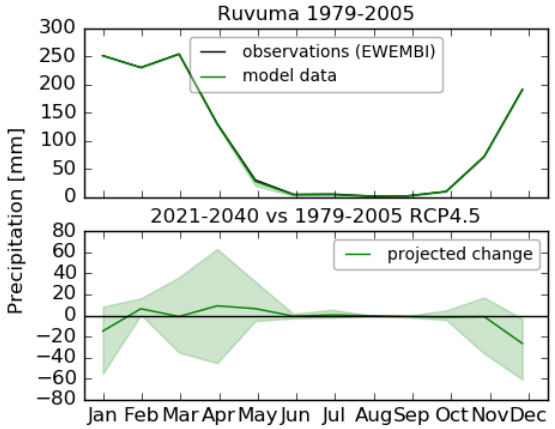

Figure 4-14: Top: Annual cycle of precipitation for the period 1979-2005. Bottom: Changes in annual cycle projected for 2021-2040 compared to the reference period 1979-2005. EWEMBI data is shown in black, regional climate model simulations in green. The green line represents the ensemble mean while the shaded area represents the model spread. The projections are based on the emission scenario RCP4.5.
Source: http://regioclim.climateanalytics.org/choices

From the analysis, the Municipality will experience a rainfall range of 1150mm and 1180mm up to 2040 In comparison with the reference period of 1979-2005, the months of February, April and May will be experiencing an average rainfall increase of 5mm.

Wet Extreme

This indicates much rain falling too fast that can trigger floods in the project area.

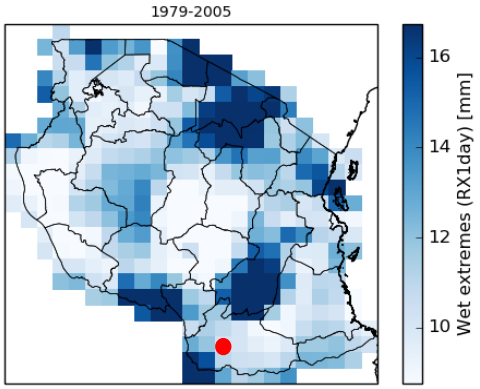

Figure 4-15: Wet extremes (RX1day) average over the reference period 1979-2005. This map is based on the EWEMBI dataset.

Source: http://regioclim.climateanalytics.org/choices

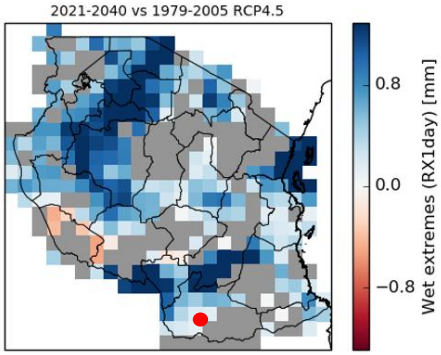

Figure 4-16: Projected change in wet extremes (RX1day) for 2021-2040 compared to the reference period 1979-2005. Here the ensemble mean of regional climate model projections is displayed. Grid-cells for which a model-disagreement is found are coloured in grey. The projections are based on the emission scenario RCP4.5.

Source: http://regioclim.climateanalytics.org/choices

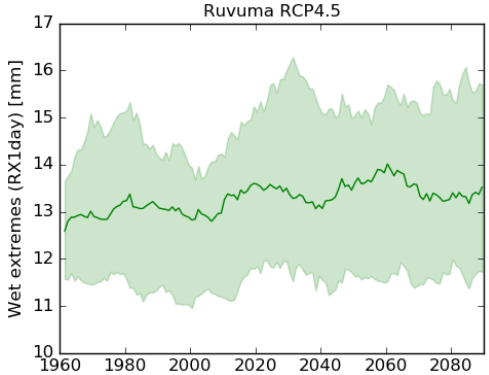

Figure 4-17: Regional climate model projections for wet extremes (RX1day) displayed as 20 year running mean. The line represents the ensemble mean while the shaded area represents the model spread. The projections are based on the emission scenario RCP4.5.
Source: http://regioclim.climateanalytics.org/choices

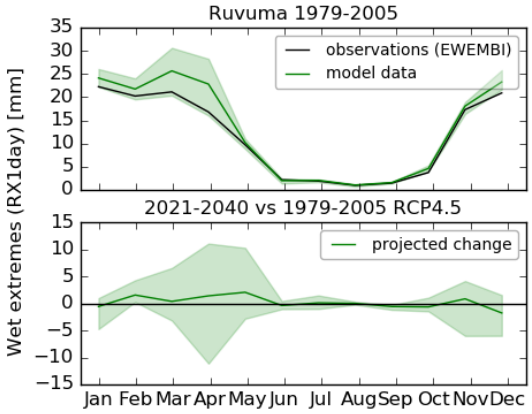

Figure 4-18:Top: Annual cycle of wet extremes (RX1day) for the period 1979-2005. Bottom: Changes in annual cycle projected for 2021-2040 compared to the reference period 1979-2005. EWEMBI data is shown in black, regional climate model simulations in green. The green line represents the ensemble mean while the shaded area represents the model spread. The projections are based on the emission scenario RCP4.5.
Source: http://regioclim.climateanalytics.org/choices

Analysis from the model indicates wet extremes from 2025 to 2030. Extreme precipitation will start decreasing from 2031 towards 2040. Months of February, April and May are expected to be with highest precipitation.

Extreme rains may result in floods, which could disrupt traffic and weaken or wash out the soil and other infrastructures that support roads, tunnels, and bridges. Exposure to flooding events also shortens the life expectancy of roads. The stress of water may cause damage, requiring more frequent maintenance, repairs, and rebuilding.

4.2.1.3 Seismicity

Songea Municipality and Ruvuma region as a whole experience weak and non-frequent earthquakes of Richter Scale between 3-5.

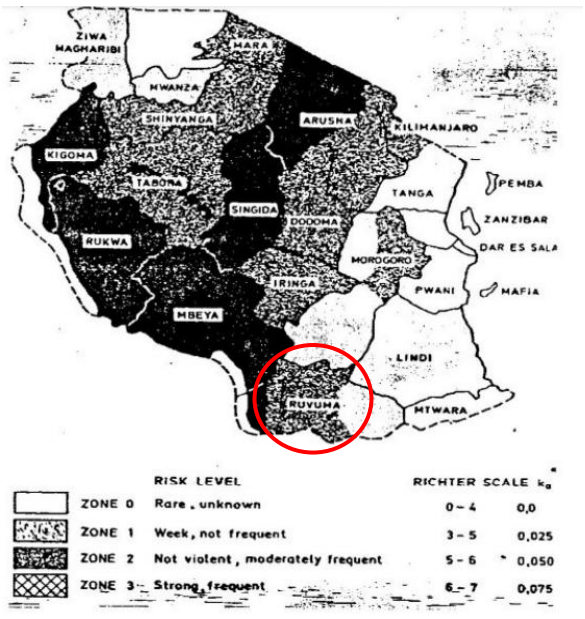

Figure 4-19: Seismic Risk Map of Tanzania. Red Circled Area Is Ruvuma Region
Source: I.A Rutabaruka

Since the project area has weak and non-frequent earthquakes, no impacts are expected during operation of the proposed CBD roads.

4.2.2 Wind speed and direction

The average hourly wind speed in Songea experiences significant seasonal variation over the course of the year.

The windier part of the year lasts for 4.6 months, from July 23 to December 9, with average wind speeds of more than 7.7 miles per hour. The windiest month of the year in Songea is October, with an average hourly wind speed of 10.4 miles per hour.

The calmer time of year lasts for 7.4 months, from December 9 to July 23. The calmest month of the year in Songea is February, with an average hourly wind speed of 5.0 miles per hour.

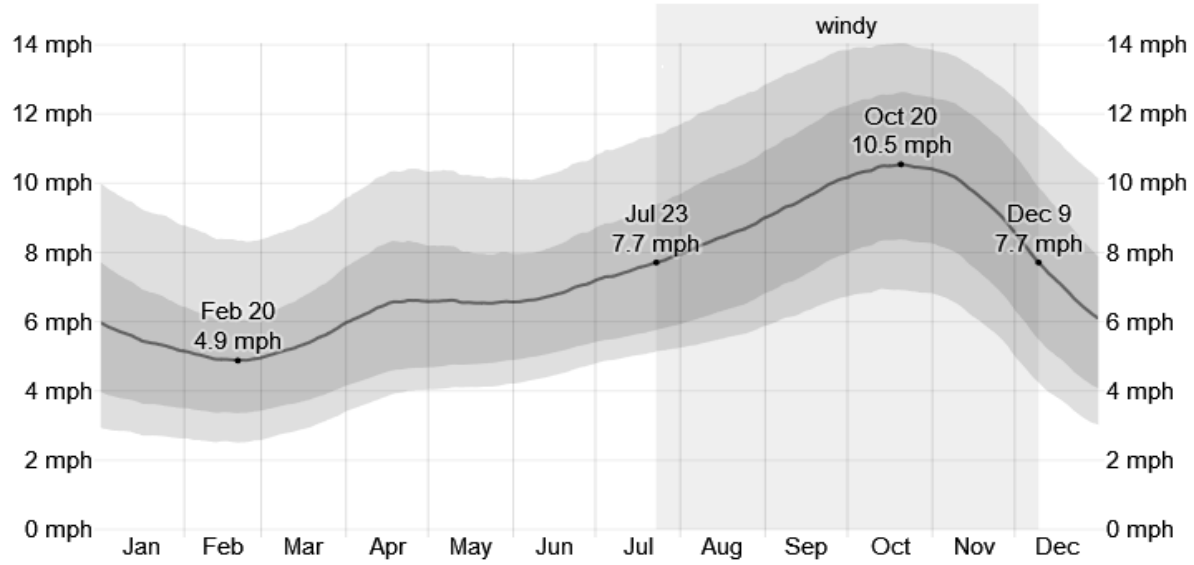

Figure 4-4-20: Average Wind Speed in Songea

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Being located in a densely populated area, the proposed subproject is likely not to be affected by wind pressure.

4.2.3 Topography and soil

The project site is within the area characterized by red brown loam soil. Loam is the best soil type for construction due to its ideal combination of silt, sand, and clay. It combines the best of all their qualities into the ideal balance for supporting a foundation. Loam generally does not shift, expand, or shrink drastically and handles the presence of water very well. The one potential drawback that the design team should consider is that, building on loam is the possibility of undecomposed material, which can and should be filtered prior to construction. The general area is characterized by undulating terrain and the specific site has a largely flat topography with gentle slope toward western direction.

Topography of the project site is likely to have effect on stormwater runoff collection and disposal and soils type can have impacts on structural stability of the proposed roads.

4.2.4 Flora and Fauna

Being in the townhood, the project sites have no either non-exotic plants or animals. There are no flora species of conservation significances identified within the subproject sites. Adjacent sites are covered by buildings and other commercial facilities. Few trees, grasses and shrubs were observed along the proposed roads.

4.2.5 Air Quality & Dust

The proposed project is located at Songea municipality. The air quality in the projects area depends on the pollutant substances emissions originating from energy consumption mainly households, as well as from traffic. Currently there are no established air quality data in Songea region and therefore national and international standards will be used for comparison.

The ambient air quality at all sampling locations were measured in December 2021 using ECO-12 Environmental Air Quality taster with model number L21I-D00277 and Multi-gas monitor TA8421. The devices were placed at a height level of about 1.2 meter from the ground for air quality parameters measurements.

Dust levels in terms of PM10 and PM2.5 were measured by using ECO-12 Environmental Quality taster with model number L211-D00277. The device was placed at breath height of about 1.2 meter from the ground to monitor dust concentrations at each identified point. This position is assumed a relatively breathing zone of people at their respective locality or working environment. The recorded average values shown in table (4-1) below compared with prescribed available limit to check their compliance with local and international standards.

During construction, operation and decommission of proposed upgrading of urban roads there will be generation of dust resulting from excavations, concrete and asphalt preparations.

4.2.6 Noise and Vibration

Noise level were measured using IEC 61672-1 Class 2 Data logger. On noise level Meter range; 30 dB – 130 dB (A). On taking measurements, the device-meter scale was set to the ‘A’ weighed measurement scale, which enables the device to respond in the same manner as human ear. During measurement, the device was fixed/and or held approximately 1.2 meter above the ground and at least 3 m away from hard reflecting surface or objects. The source of noise at the project area were observed to be vehicles and other human activities.

Vibration level were recorded by using digital vibration meter with model number TA8663. On taking measurements the device was set to velocity mode and the probe placed on the ground.

During construction, operation and decommission of proposed upgrading CBD roads there will be the increase of noise level which caused by equipment used in construction, cars and trucks during operation, so the base line data measured will help to know the existing conditional of noise and on monitory which will be the best mitigation measure.

Compaction of subgrade materials during construction of the roads shall result into cracks of the adjacent houses due to increased vibrations levels.

Table 4-1: Measurement Results

36L 791217E 8818882N	SOUSA TUNDURU BUS STAND 0.8km	Oxygen O_2 (% volume)	22.8	Commercial activities	
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	16		
		Carbon dioxide CO_2 (ppm)	498		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	11		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	11		45
		Noise (dB)	68		
		Vibration (mm/s)	0.2		
36L 789494E 8818860N	MAJIMAJI SABENA ROAD 0.3km	Oxygen O_2 (% volume)	22.8	Commercial residential activities	
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	17		
		Carbon dioxide CO_2 (ppm)	474		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	10		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	13		45
		Noise (dB)	79.5		
		Vibration (mm/s)	0.01		
36L 790113E 8818482N	TPB- SABATO CHURCH	Oxygen O_2 (% volume)	28.2	Residential activities	

		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	16		
		Carbon dioxide CO_2 (ppm)	403		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	19		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	24		45
		Noise (dB)	76		
		Vibration (mm/s)	0.02		
36L 789897E 8818529N	MSIKITINI POLICE QUARTER ROAD	Oxygen O_2 (% volume)	20.9	Commercial residential activities	
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	16		
		Carbon dioxide CO_2 (ppm)	371		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	9		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	11		45
		Noise (dB)	73.6		
		Vibration (mm/s)	0.02		
36L 789654E 8818669N	SHINYANGA ANNEX-CCM ROAD	Oxygen O_2 (% volume)	24.9	Residential activities	
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	16		

		Carbon dioxide CO_2 (ppm)	407		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	22		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	22		45
		Noise (dB)	72		
		Vibration (mm/s)	0.4		
36L 790229E 8818715N	KILIMOMSETO-MJIMWEMA LIZABONI ROAD	Oxygen O_2 (% volume)	20.9	Commercial residential activities	
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	15		
		Carbon dioxide CO_2 (ppm)	375		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	13		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	24		45
		Noise (dB)	70.6		
		Vibration (mm/s)	0,02		
36L 784356E 8811568N	DUMPSITE ROAD	Oxygen O_2 (% volume)	22.8	Residential activities	
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	16		
		Carbon dioxide CO_2 (ppm)	399		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	4		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	6		45

		Noise (dB)	76.1		
		Vibration (mm/s)	2.2		
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	17		
		Carbon dioxide CO_2 (ppm)	377		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	8		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	8		45
		Noise (dB)	76.8		
		Vibration (mm/s)	3.4		
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	17		
		Carbon dioxide CO_2 (ppm)	367		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	8		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	10		45
		Noise (dB)	72		
		Vibration (mm/s)	2.1		
36L 789262E 8819049N	MISSION GARAGE KALEMBO ROAD	Oxygen O_2 (% volume)	22.6	Commercial residential activities	
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	17		

		Carbon dioxide CO_2 (ppm)	475		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	38		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	149		45
		Noise (dB)	75		
		Vibration (mm/s)	0.2		
36L 788927E 8819003N	REGIONAL MOSQUE KALEMBO ROAD	Oxygen O_2 (% volume)	20.6	Commercial residential activities	
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	15		
		Carbon dioxide CO_2 (ppm)	363		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	7		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	10		45
		Noise (dB)	69		
		Vibration (mm/s)	0.0		
36L 789246E 8819043N	MANZESE A-KALEMBO ROAD	Oxygen O_2 (% volume)	20.6	Commercial activities	
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	15		
		Carbon dioxide CO_2 (ppm)	383		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	18		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	35		45

		Noise (dB)	73		
		Vibration (mm/s)	0.2		
36L 789259E 8819047N	MPANGWA-SONI-TAG ROAD	Oxygen O_2 (% volume)	20.6	Commercial residential activities	
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	19		
		Carbon dioxide CO_2 (ppm)	370		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	5		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	6		45
		Noise (dB)	77		
		Vibration (mm/s)	0.2		

COORDINATES (UTM)	**STATION NAME**	**PARAMETERS**	**AVERAGE CONCENTRATION**	**STATUS**	**TBS/WHO STANDARDS**
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases LEL (% volume)	17		
		Carbon dioxide CO_2 (ppm)	377		500
		Particulate Matter $PM_{2.5}$ ($\mu g/m^3$)	8		15
		Particulate Matter PM_{10} ($\mu g/m^3$)	8		45
		Noise (dB)	76.8		
		Vibration (mm/s)	3.4		
		Carbon monoxide CO (ppm)	0.0		4
		Hydrogen Sulphide H_2S (ppm)	0.0		
		Combustible Gases	17		

		LEL (% volume)			
		Carbon dioxide CO_2 (ppm)	367		500
		Particulate Matter $PM_{2.5}$ (µg/m^3)	8		15
		Particulate Matter PM_{10} (µg/m^3)	10		45
		Noise (dB)	72		
		Vibration (mm/s)	2.1		

Source: Consultant Fieldwork, December 2021

4.3 Social Economic Environment

4.3.1 Population Size and Growth

Like other councils in Ruvuma region, the population of Songea Municipal Council has experienced a significant increase in growth. The council's growth of the population during the 1988 to 2002 census periods was three percent, but increased to 4.4 percent between 2002 and 2012. According to the 2002 and 2012 Population and Housing Censuses the population of the council increased from 148,955 in 2002 before reaching203, 309 in 2012.

At ward level, Bombambili Ward had the largest population share in the council with 13.4 percent in 2002, followed by Mjimwema at 8.8 percent and Lilambo at7.0 percent of total council population; while Ndilimalitembo had the least share of only one percent. The situation changed much in 2012 as Bombambili ward remained the most populated ward with 28,058 residents or 13.8 percent of the council residents followed this time by Msamala Ward at 9.3 percent as indicated in Table 4-2.

The construction of proposed urban roads will attract people from outside Songea searching for jobs which shall increase population in the subproject's areas.

Table 4-2: Population Distribution by Ward, Songea Municipal Council, 2002 and the 2012 Censuses

	2002 Census		2012 Census	
Ward	Total	Percent of Total	Total	Percent of Total
Mjini	9,224	6.2	9,443	4.6
Majengo	6,654	4.5	7,400	3.6
Misufini	4,275	2.9	4,599	2.3
Mfaranjaki	8,465	5.7	9,115	4.5
Lizaboni	4,304	2.9	14,815	7.3
Matarawe	5,379	3.6	6,949	3.4
Bombambili	19,997	13.4	28,058	13.8
Matogoro	9,537	6.4	5,127	2.5
Ruvuma	9,614	6.5	13,543	6.7
Subira	6,589	4.4	7,662	3.8
Ruhuwiko	3,911	2.6	7,377	3.6
Mshangano	4,254	2.9	8,205	4.0
Mletele	5,104	3.4	5,331	2.6
SeedFarm	4,572	3.1	6,228	3.1
Tanga	7,621	5.1	8,754	4.3
Msamala	7,336	4.9	18,920	9.3
Lilambo	10,474	7.0	11,981	5.9
Mwengemshindo	2,273	1.5	2,601	1.3
Mjimwema	13,093	8.8	12,055	5.9
Mateka	4,829	3.2	13,537	6.7
Ndilimalitembo	1,450	1.0	1,609	0.8
Total	**148,955**	**100.0**	**203,309**	**100.0**

Source: National Bureau of Statistics, Computed Data from 2002 and 2012 Population Censuses Report.

Ethnic Group

Generally, the main ethnic groups in Ruvuma region are Wamatengo, Wangoni, Wayao, Wanyasa, Wandendeule, Wamakua, Wapoto, Wamanda, Wanindi, Wamatambwe and Wabena. While Wamatengo are the main ethnic group in Mbinga district, Wanyasa, Wamanda and Wapoto reside largely along the shores of Lake Nyasa. Wangoni constitutes the major ethnic group in Songea Municipality followed by Wandendeule, Wamanda, Wayao, Wamatengo and Wanyasa.

Proposed construction will attract different people from different places for employments on roads construction. The interaction of ethics groups will lead to culture transfer or deterioration of moral at different occasion.

4.3.2 Economic Activities

The majority of inhabitants of Songea municipal are predominantly agriculturalists with agriculture being the main pillar of the municipal economy and livestock keeping as their main economic venture. Other economic activities include; small scale businesses, cross-border businesses and livestock keeping. Small scale businesses include, among others, shops and food stalls. There are also tourism activities, which contribute to the economic growth of the local people.

Construction of urban roads will improve economic as will easily facilitate timely transportation people and goods and enhance per capital income.

4.4 Agriculture

Agriculture is a major economic sector of Songea Municipality, contributing about 87 percent of the Municipal Gross Domestic Product (GDP). About 90 percent of the land in the Municipality is arable in which different food and cash crops can be cultivated. Farming is concentrated in the peri urban wards of Subira, Mletele, Mshangano, Matogoro, Ruhuwiko, Tanga and Lilambo. The main food crops are maize, cassava, paddy, sweet potatoes, legumes, millets and sorghum, while coffee tobacco, cashew-nuts are the major cash crops. Other crops are sunflower, soya beans, simsim, finger millet, and groundnuts. Some of these crops are sold in the markets in Songea, while others are sold in the urban centres of the neighbour regions as well as other regions in the country including Dar es Salaam.

4.5 Employment

Songea Municipal economy is based on agriculture, livestock keeping trading and small scale industries, with the agriculture sector employing the majority (75 percent) of the urban population. Trading activities, which include small scale industries and petty business, rank the second sector in terms of employment of the Municipal population. However, based on the household socio-economic survey conducted in 2014, about 20 percent of the urban population is unemployed. Data obtained from the Songea Municipal Council indicates that total work force stands at 172, 572 out of the total population of 218, 942 and the dependency ratio is 0.2. The household socio-economic survey conducted further indicates that only 16.6 percent of the households are employed in the formal sectors while majority, 83.4 percent are employed in the informal sectors. This means that large proportion of people in the Municipality is employed in the informal sector.
Upgrading of proposed CBD roads will contribute to the creation of 150 employment opportunities.

4.6 Child Labour

Despite laid down regulations and policies against child, the problem of child labour is in the increase in Tanzania. From activities carried out by the government, with support from ILO's International Program on the elimination of child labour (IPEC) which has been operating in Tanzania since 1995, there are ample evidences indicated that child labour and in particular of hazardous and exploitative nature was becoming rampant. It is estimated that out of 11,965,146 children of the age between 5 – 17 years in Tanzania, 4,735,528 (39.6%) were reported to have worked in economic activities while 5,721,496 (47.8%) were engaged d in domestic activities. The participation rate in economic activities is highest in rural areas (45.7%) compared to Dar es Salaam and other urban areas (20.0%). Integrated Labour Force and Child Labour Survey).

The proposed upgrading of urban roads might contribute to the increase of child labour during construction phase when the contractor fails to comply with recruitment rules and regulations and employ children.

4.7 Gender Based Violence (GBV)

Gender-based violence (GBV) has gained international recognition as a grave social and human rights concern. In Tanzania, GBV and violence against children (VAC) have become major problems due to negative cultural beliefs and practices, existing gender norms, and economic, social, and gender inequalities. Victims of GBV and VAC can be any age and sex, including women, men, girls, and boys. GBV and VAC are related to socially defined norms of gender and sexual identity and can be carried out by intimate partners, family members, community members, people of authority, and others. These acts can take place at home, in public, or in institutions. GBV incidents with data on child abuse indicates that 155 cases have been reported for the year 2021.

The proposed upgrading of Road's sections might result into gender based violence as it will employ women as part of financial empowerment. Empowered women are normally envied by men with negative backgrounds which results into harassment and sexual abuse at the workplace and at household's level.

4.8 Health Facilities

Health facilities in Songea Municipality include dispensaries, health centres, and hospitals, which are owned and operated by either the government or the private sector.

Dispensaries

There are 23 dispensaries in Songea Municipality of which 16 are owned by the government and 7 are privately owned. Most of the wards have a dispensary except Ruvuma, Lizaboni and Mateka Wards.

Health Centres

There are 3 health centres in Songea Municipality in which two of them are owned by the government and one is privately owned. The health centres are located at Majengo, Mjimwema and Mshangano Wards.

District Hospital

Songea Municipality has no the hospital which have the district hospital level.
The proposed subproject's shall increase health services' demand during construction phase.

4.8.1 Water Supply

There is no doubt about the importance of water to human existence. People need clean and safe water to survive and stay healthy. Lack of clean and safe water contributes to water borne diseases and therefore high mortality rates in children around the world. Water is also critical to a country's development as it is needed not only for agricultural productivity but also for industrial production.

The project is expecting to use water from SOUWASA network, Lilula A, Lilula B and Matogoro streams during. Water demand is expected to increase and therefore to affect the current water supply capacity of the system.

5. STAKEHOLDERS CONSULTATION AND PUBLIC PARTICIPATION

5.1 Overview

Stakeholder consultation is necessary to be conducted during ESIA study because the impacts of the proposed developments may influence the surrounding in one way or another. It is therefore, compulsory to seek the opinions of the relevant stakeholders in relation to the development of the proposed sub-project. World Bank ESS10 and Section 89 of the Environmental Management Act (EMA, 2004) provides directives on public participation and its importance in the ESIA. Regulation 17 of the EIA Regulations (URT, 2005) provides further details and procedures for public participation in the ESIA process.

Stakeholder engagement enhances the effectiveness, efficiency, and accountability of the ESIA process and the project as required by Stakeholders Engagement Plan (SEP). When undertaken in a transparent, balanced manner, it can reduce conflicts and strengthen the sense of ownership of a project and the project's sustainability.

5.2 Objectives of Public Consultations and Engagement

Objectives of public consultations and engagement for the proposed subproject under TACTIC are:

- Provide clear and accurate information about the subproject to the communities
- Disseminate information to affected stakeholders to raise their awareness of the proposed subproject.
- Increase stakeholder understanding about the proposed subproject, including its context, aims, opportunities and constraints.
- Accumulate feedback from affected stakeholders to inform project development and ensure that outcomes appropriately meet the relevant needs of those concerned. Consultation will seek to:
- document stakeholders' concerns and preferences;
- identify any issues and constraints existing in the subproject's areas which may affect the design ;
- assess and document the commonality and relevance of issues and concerns identified through the consultation to feed the ESIA process.
- Provide updates about consultation outcomes to the stakeholders involved, to keep them informed.
- Influence the perception and attitude among stakeholders consulted to enable and obtain acceptable levels of feedback from stakeholders.
- Inform communities along the way leave about the subproject's schedule
- Gathering from population and their representatives about main environmental and social concerns and perceptions regarding the roads' upgrading
- Gather opinions and suggestions directly from the communities on their preferred mitigation measures and
- Gather opinions and concerns of the various minority groups of women, children, disabled and youth on the proposed roads' upgrading

5.3 Subproject's Levels of Public Engagement and Consultations

The public engagement and consultations were conducted in phases which are; 1st Round Consultation and 2nd Round Communities' Consultation.

1st Round Stakeholders engagement involved: **(a) To Inform:** Provide stakeholders with balanced and objective information to help them understand the project, the problem, and the solution alternatives (**b) To Consult:** Gather feedback on the information given. This was followed by: 2nd Round communities'

engagement which: **(a) Involve:** Worked directly with communities during the process to ensure that their concerns and desired outcomes are fully understood and taken into account and (**b) Collaborate:** Partner with communities on the decision-making, including developing alternative solution ideas and choosing the preferred solution together.

5.4 1st Round Stakeholders Engagement Methodology

a) Stakeholders Identification

The main stakeholders for upgrading of proposed urban infrastructure under TACTIC Project in Songea Municipality included;

- Ruvuma region and Songea Municipal (Regional Secretariat and Municipal Council),Government public agencies/institutions (TARURA, TANESCO, SUOWASA, TTCL, Fire and rescue force, Ruvuma and Southern Coast River basin)
- Wards and mitaa committees
- Communities along the proposed roads
- Non-Governmental Organizations (Bus Companies, Students, women, Community groups, People with Disabilities (SHIVYIWATA) and other agencies like religious institutions)

b) Stakeholders Analysis

After identifying and grouping stakeholders, stakeholder analysis was used to characterize stakeholder groups' interests, how they will be affected by the proposed subproject and to what degree, and how those groups may influence the subproject. The stakeholder analysis process revealed important differences among groups, including their concerns and priorities.

Communities and other stakeholders that will be affected by proposed subproject have to be engaged as early as possible during subproject design. By engaging with stakeholders early, it may be possible to avoid, mitigate, or decrease the subproject's impact. It is generally not practical or feasible to engage with every single stakeholder group at every level.

c) Public Meetings

Dissemination of subproject's information among communities along the proposed/selected roads through MEOs and WEOs and later through meetings was an important aspect of the public participation process, they needed to be appropriately informed about what is planned in their areas.

Each meeting was hosted by local authorities and was conducted for an average of 2hrs; ESIA team of three (3) members present; one to act as moderator, and other to take notes for the minutes of the meeting.

5.5 Public Participation Process

Several methodologies were used during the stakeholder consultation process. First, the fieldwork which is necessary to formalize and record public opinion about the potential impacts of the project which was undertaken by ESIA team of experts. Key informant interviews were used to seek the public opinion. The ESIA experts explained the structure of the proposed development to the identified stakeholders and responded to their questions as appropriate. At the same time, the ESIA experts also inquired of the local environmental history of the site and adjacent areas in order to identify potential environmental impacts. The exercise was conducted through interviews with key informants, field surveys and discussions. The table below shows the Study plan and number of informants consulted by wards.

Table 5-1: Public Consultation Schedule at Songea Municipality

S/N	Ward/ Village/ Institution	Date	Focus Group /Consultation	Number
1	Songea Municipality	27/Dec/2021	Acting Municipal director	1

2	General Municipal Meeting	27/Dec/2021	Heads of departments	6
			Officers	35
3	SOUWASA	29/Dec/2021	Technical Manager	1
4	Ruvuma and Southern Coast water basin	29/Dec/2021	Acting Manager	1
			Chemist	1
5	TARURA	29/Dec/2021	Manager	1
			Technical Engineer	2
6	POLICE	30/Dec/2021	OCS	1
7	Traffic Police	30/Dec/2021	DTO	1
		31/Dec/2021	I/C traffic Operations Ruvuma Region	1
8	Fire and rescue force	31/Dec/2021	DFO- Songea	1
9	TANESCO	30/Dec/2021	Regional Manager	1
10	TTCL	30/Dec/2021	Ag. Regional Manager	1
11	Mfaranyaki ward	31/Dec/2921	Political Leaders	3
			Ward officials	4
			Influential elder	1
			Women	19
			Special need (disabled)	1
			Men	20
			(transporters) motorcyclists	3
12	Misufini ward	31/Dec/2021	Ward leaders	2
			Manzese A leaders	3
			Manzese B leaders	4
			Mamantilie (food sellers)	7
			Transporters/ motorcyclists	5
			Traders	8
			Citizen’s representatives	3
13	Town ward (Mashujaa street)	30/Dec/2021	Leaders (chairman)	1
			Politicians	1
			Women	6
			Transporters (bodaboda)	4
			Influential elder	1
			Traders	7
			Public representatives	7
14	Matarawe ward	28/Dec/2021	Political leaders	3
			Women	12
			Influential elder	1
			Citizen’s representatives	9
			Council officers	3
15	St. Joseph schools (centenary school)	29/Dec/2021	School Director	1
			School head teachers	2
			girls	6
			boys	7
16	SHIVYAWATA (Association People with Disabilities Tanzan	01/Jan/2022	People with disability	6
17	Songea Municipal Council Tea feedback meeting	02/Jan/2021	Acting Municipal Director	1
			Head of Departments	5
			Municipal officers	10

	TOTAL	**281**

5.6 Public Consultation and Engagement

5.6.1 Focus Group Interview

Group interview was conducted to guide, focus and inform planning and implementation of upgrading of CBD roads and ensuring that the activities undertaken responded to the needs of primary stakeholders and learning their perceptions about the current proposed project activities.

Among other advantages of Focus Group Discussions is Transparency. Everyone see and hear what is going on and those using information can easily understand the results.
Focus Group Interviews place participants in a naturalistic, relaxed setting assisting a higher degree of candour from participants as well as immediate crosschecking of responses from other group members. Focus group interviews give the moderators the opportunity to probe and explore unanticipated issues and diverse experiences.

ESIA expert jointly with LGA team send the invitations through community leaders and required the leaders to form a group of 8-10 participants of similar background and experiences like School Children and teachers, Traders (entrepreneurs) Women and Children, Community leaders and politician, People with Disabilities, Commuter bus drivers, religious leaders, Bodaboda drivers, Traffic Police, Government agencies at Ministerial levels and other public authorities.

During the interview/discussion, the team found comfortable and calm place where everyone sat facing each other. Sometimes refreshments were offered where need arise (due to weather conditions) and for interview climate setting purposes.

Open-ended questions were asked /invited everyone/anyone to come with a number of answers. Participants of a similar background or experience like community leaders were used to generate a variety of responses to questions with a comparable body of experiences. Through the discussion the team gained deeper understanding of various issues and constraints related to other infrastructure project they themselves faced and their possible solutions

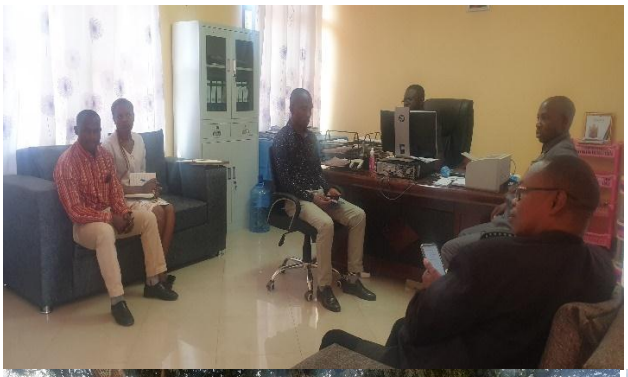



Figure 5-1: Group Interview
Source: Site Pictures-December 2021

5.6.2 Public Meetings

Dissemination of project information among communities along the road through MEOs and WEOs and later through meetings was an important aspect of the public participation process, they needed to be appropriately informed about what is planned in their area to the larger groups and later on splits into groups for in-depth interview based upon their characteristics.

The community consultations were conducted with the intention to;

- Provide clear and accurate information about the Project to the communities
- Inform communities along the way leave about the Project schedule
- Gathering from population and their representatives about main environmental and social concerns and perceptions regarding the road upgrading
- Gather opinions and suggestions directly from the communities on their preferred mitigation measures
- Gather opinions and concerns of the various minority groups of women, children, disabled and youth on the proposed upgrading road were noted

Public awareness meetings were conducted in all wards located along road section as detailed in the table below. The sites were over crowded led the team to start with larger group for preliminaries information about the Project. Cross cutting issues of Gender Based Violence, HIV/AIDs transmission awareness, Environmental issues taken into account

Respecting Environmental needs and managing its environmental responsibilities (Responding to risks) like Transfer, Toleration on climate change resilient, and treat/mitigate the risks and uncertainties.

Figure 5-2: Public meeting
Source: Site Pictures-December 2021

The discussions focused on environmental, social economic aspects, road safety issues, temporary employment opportunities in the area raised by community groups that are likely to be obstructed during the project construction and operation phases

5.6.3 Consultative Meetings with Municipal Authorities and Other Stakeholders

Consultative meetings at municipal levels included discussions with Council Management Team which comprised of technical staff from all departments and Regional Secretariat. Stakeholders' meetings from other sectors included both managerial and technical staff.

In order to strengthen partnerships, collaboration and linkages stakeholders meeting at Municipal level are of higher importance. It promotes goals, bind the team together with the common interest.
During the Meetings, The ESIA team was able to high-lighten an Overview of Project Justifications (Perspective, Purpose and Goal) Networking and Partnerships issues amongst service institutions (TANESCO, TTCL, SOUWASA, etc). and pledge to come back for feedback after primary stakeholders consultative meeting (needs assessments and anticipated positive or negative effects of the project.

Figure 5-3: Stakeholder meeting with municipal authority
Source: Consultant

5.7 Concerning raised by stakeholder

The stakeholders in the subproject's areas raised the following issues during Public Meeting and focus group discussion as captured in Table 5-1.

Table 5-2: Stakeholders Concern

S/N	Institution/ward/village/NGO	Name	Position	Concern/ issue/ suggestion
1	Municipal Office	Philipo Beno	*Acting Municipal Executive Director *Head of Environmental Management Department	• The municipal will give support and cooperation in the project in all aspects. • The community should be constantly updated on the proceeding of the project to get their opinions • The roads should be constructed in focus of the rainy seasons because it is more challenging • The quality of the upgraded road should be better to support us for at least 50+ Years • Most of previous projects have not caused significant environmental and social setbacks, it is expected to follow laws and all social and environmental standards and we shall be stricter in that.
		Mensa A. Ngelangela	*Head of department Community Development Officer (CDO) *Grieving Officer (GO)	• Songea people have a good, respectable and cooperative culture that the contactor is expected to follow. • My office will open for the community to address their grieving and complain prior to the project and during the construction so as to resolve issues that may arise. • As we always do, shall prepare educative meetings around the road project areas educating people on how to prevent themselves from risks of HIV/AIDS. • The community will be put aware about the project need for labors and expected working hours so that to reduce social, specifically family conflicts that may be gender based. • The community, potential and active worker through the meetings and announcements will be put aware of their labor rights so that they have expected working conditions and payments • The community also will be oriented constantly on their obligations so that to observe contractors' rights and avoid issues like child labor. • Our office will make follow up so that to ensure priority of employment from community workers to experts is given to locals and residents since is the national's policy to support community development.
		Benhery	*Municipal Economist	• Roads should be large enough to allow quick travel of people and

		Chamicha		goods • Most of road's pieces to be constructed are around Misufini ward which have markets hence it will be an economical advantage • Road lights should be available to all upgraded roads to facilitate people who work and use the road at night. • The completion of the sub project roads will trigger the initiation to construct others peripheral to the CBD roads.
		Bertram Njelekela	*Municipal Environmental Management Officer	• We expect the contactor to preserve the environment as others did in the previous road projects • We shall be in position to make consultation with the contactor to discuss on environmental laws observations • Continuous project site assessments will be made to ensure proper disposal of wastes from machinery and displacements • Legal sources of material for construction • Contractors should in good conditions machinery have minimal noise and air pollutions • Temporary road ways should be safe and will be checked (better to change routes and use the long way road rather than short unsafe way road)
	SOUWASA (Songea Urban Water Supply Authority)	Eng. Jafari Yahaya	Technical manager	• We shall provide support to the designing team and contractor to discover water infrastructures that may be affected by the project • If some infrastructures are to be replaced SOUWASA have to be fully consulted. • SOUWASA will participate in sites verification • Solid Waste disposal should be controlled to prevent blockage of drainages • Hard covers for drainage waters should be put in place to prevent the breakdown of covered drainages • The existing run way water drainage systems are hard to shift since the water is not pressured: they can just be reconstructed to better • The cost of shifting of the existing water infrastructures along the road will be covered by the contactor
	TARURA (Tanzania Rural and	Eng. John M.	Municipal Manager	• Traffic lights are needed at most junctions of CBD road

	Urban Roads Agencies)	Ambrose	TARURA	• Drainages alongside and across the roads should be well covered • The junction at (Mahenge) require a roundabout if the design allows • TARURA will delegate professionals to follow up Road concern in the three subprojects
	TANESCO (Tanzania electricity supply Company)	Florence Mwakasege	TANESCO Regional Manager – Ruvuma Region	• In case of temporally or permanent re allocation of electrical infrastructure TANESCO should be informed • Electric equipment installed should be of standard quality
	POLICE	Sp. Saana Ndatu	OCS Songea	• Police points should be placed on high traffic areas e.g., Mahenge junction • The bus stand near the Mahenge junction should be removed • CCTV cameras should be installed at Mahenge junction • Traffic lights should be installed on the proposed CBD roads
	TRAFFIC-POLICE	Ins. A. Mwaipopo	DTO	• The public should fully inform on the proceeding of the subprojects to make them have clear understanding • The construction of subprojects should allow continuation of other social and economic activities like safe temporary roads should be built • The designers and contractors should review previous projects to see their weakness so as to avoid repeated mistakes in construction • Traffic Police checkpoints should be built along the roads • Municipal security should be put in place to protect people at the construction areas • The Police deploy officers to control traffics during construction • Enough parking should be built along the road • The CBD Road need small bus stands and special packing for transporters such as motorcyclists and Bajaj
	Fire and Rescue – POLICE	Police Inspector Jackson Mahali	DFO Songea	• Upgraded roads should be large enough to reduce accidents • Drainage alongside roads should be covered • There were 44 rescue cases in Songea for the year 2021, people should be more careful with water (especially during the rainy seasons) • Fire outbreak cases are very minimal although always dangerous everybody should stay alert
	TTCL (Tanzania Telecommunication Company	Habil Mwaimu	Acting Regional manager	• Contactor should be careful not to destroy the communication infrastructures in areas of construction, that involves to observe

	Limited)			warning signs for the presence of fibers • Since the cost of telecommunication facilities are high all people should be careful • Construction of infrastructures such as roads increase telecommunication accessibility hence development • TTCL will cooperate in these TACTIC sub projects to give detailed information and location of the telecommunication infrastructures • We shall prepare early the cost of reallocation of any communication infrastructure
	St. Joseph Schools (Centenary Secondary School and St. Joseph Primary School)	Pd. Telesphor Zenda	Schools Director	• I encourage bridges across the road because are more secure • Continual education to the students and the whole society by the Police on the safe use of the roads • Traffic lights and road lights should be put to maximize security
		Dennis Ndunguru	Head of the school- Centenary Secondary School	• The infrastructures built should maximize safety of young school children, like the roads should have separate sidewalks, drainages along the road should be covered • There should be bus bays around the schools and the streets • Road signs to prevent accidents • To make sure that highway laws are respected example school child Gaston Mpangala in class three was hit by the speedy motorcyclist thankful he did not die
		Hajra C. Fungafunga	Student - Centenary Secondary School	• The bridges across the roads near schools are very important since most users ignore other road signs like zebra crossing • Road lights should be put, these will protect students and children who use the road at night and those who come to school early morning • Good roads will allow more children to like school hence education development • Travel will be simplified and students wont delay to come to school and to go home early
		Joseph L. Komba	Student - Centenary Secondary School	• Zebra crossings should be put across the roads and should be respected • During construction machines should have less noise so that to not disturb the students
		Lilian S.	Student - Centenary	• The bridges should be secure to the children since other children my

		Luoga	Secondary School	climb and play at such bridges • All left-overs during the construction should be covered or disposed • Workers should be warned to avoid sexual engagement with school female students
		Vanessa A. Kafyulilo	Student - Centenary Secondary School	• There should be signs and facilities to support people with disabilities for example slide ways along step stairs • Police check stations, road lights will reduce risks of accidents and social disturbances
		Nicholaus S. Njiwa	Student - Centenary Secondary School	• Road infrastructures and signs should be well visible at night and during the rainy seasons • Road infrastructures should not attract the child games like playing with traffic lights at bridges • Child labor should be prohibited during the construction of the subprojects because they need to focus on school
		Amogastro M. Mponda	Student - Centenary Secondary School	• The roads should be expanded to allow easy movement • Pedestrian walk ways are very important
		Emmanuely A. Kifaru	Student - Centenary Secondary School	• If possible, there should be security cameras along the roads so that to check illegal activities at night, there will help to catch wrong doers and minimize such activities • The contactors should build good infrastructures and strong ones because we always see buildings and roads collapse on TVs which is dangerous
	MISUFINI ward (Manzase) market motorcyclist transporters (bodaboda)	Abel Maurus	motorcyclist transporters (bodaboda)	• Special bays for motorcyclists • Roads should be expanded when upgraded because the available roads are thing and Songea is growing up • At bays there should be lights
		John Naboth	motorcyclist transporters (bodaboda)	• Road signs should be put in all required places • Education to drivers and the public on road use
		Mafisango Ngonyani	motorcyclist transporters (bodaboda)	• Roads inside the markets should allow carriers to enter sand offload goods or carry them
				• The public should have secure transporters to avoid thieves who hide

				in the umbrella of being motorcyclist transporters
	MISUFINI ward	Ismail Aziz Fakir	Misufini Ward Councilor	• Misufini ward office should be well reconstructed
		Angelina Anatory	Misufini acting Ward Executive Officer (WEO)	• Drainages along roads should be standard
		Swalehe Abdalah	Ward Health Officer	• Waste water drainages should be large, covered and accessible for cleaning
		Editha Baltazary	Mtaa (street) Executive Officer (MEO) Mwanamonga Street	• We don't expect the project to cause gender based violence because we already have an understanding community.
		Halima Yazidu	MEO Myegeya Street	• It is good to use the local man power, pay them good and observe their work time so as to not bring family conflict
	Mfaranyaki ward	Ajira Kalinga	Ward Council – Mfaranyaki ward	• The upgrading the CBD road will improve other activities • This will trigger upgrading of other roads by the municipal • There should be positive interaction of the construction workers with the Songea community • The employment during the construction phase should follow the national's rules and policy of prioritizing the residents • IT is an opportunity to promote Vaccination for COVID 19
		Flaviana Henjewele Alphonse	Resident elder	• Projects will trigger development • The roads and drainages should be constructed to avoid water from entering the households
		Damian N. Komba	Fussi street resident	• The drainages alongside the roads should be covered with hard covers
		Magdalena B. Tweve	MEO- Mbalika sreet	• The project constructor should not employ school children because it is against the law • Girls should not have sexual relationship with contraction workers because they will create unstable family and conflicts
		Ally Mwogelo	Teacher	• If possible, the road should be double lane per direction • There should be round about at Mahenge junction (near the Regional Commissioner resident)
		Wilgis Benedict Tossy	Mfaranyaki resident	• Special infrastructures to support people with disability should be considered • Road lights to reduce hijackers at night

		Christopher Kayombo	Mfaranyaki street chairman	• Double roads for the roads interacting at the Regional Commissioner residents
		Said Ally	Mfaranyaki resident	• During construction the people of Songea should be prioritized in employment • Sexual relationship of the workers with residents will bring social conflicts • Education on potential risks that are associated with interaction with external people like sexual transmitted diseases especially HIV/AIDS
	Mjini ward Mashujaa street	Athumani Limalikilo	Street chairman – Mashujaa street	• The road should be wide enough to allow secure use of the road • Education should be given to the public on road safety • Mashujaa residents will provide every support to make sure that the project of road construction goes on well
		Elias Masota	Resident (Influential elder) Mashujaa street	• The client should employ the constructor of good quality so as to build standard road • Land management authorities should check road reserves and make necessary compensations so as to avoid future conflicts • The road construction will increase house and land value of Songea Municipality
		Hassan I. Mbunda	Resident of Mashujaa street (influential elder)	• Youths who are motorcyclist transporters should have specific bays • The road should have good drainages which can accommodate enough rain waters
		Asha Saidi	Resident of mashujaa street	• The construction workers should respect women and young girls • Any sexual harassment and involvement with young girls should be reported • Women should be given priority in project construction employment
		Ngaringenja Haule	Mashujaa street resident	• Traffic lights and road light should be functioning properly • It is the responsibility of every citizen to secure road infrastructures • Residents should also put public lights for night visibility
		Philipo Haule	Mashujaa street resident	• The public should be given information and feedbacks on the projects • Any conflict between the citizens and the workers or constructor should be resolved following the law

	SHIVYAWATA (Association Of People with Disabilities Tanzania)	Ally Kipondo	Ruvuma Regional Secretary- SHIVYAWATA	• It is good to have such development projects • Infrastructures in project areas should support the disabled • Roads should have safe and large walkways • Drainages should be covered • Bridges should have protective railings
		Athanas Nguru	Ruvuma regional Chairman SHIVYAWATA	• Present roads are challenging for blind and people with reduced vision • Drainages should be covered • There should be protective railings across the bridges and culverts • Culverts should be strong
		Siwema Vicent. Kihwili	Leg disabled woman	• Education should be given to all on road signs for people with disabilities
		Mariam Mponji	Leg disabled woman	• Car parking along the load should have ways for the disabled to simply cross • Signs of presence of disabled people should be put in all necessary places • Thanks for the Songea people for understanding and respecting the people with disability
	SUPER FEO – bus transportation services	Ezekia John Mgaya	SUPER FEO manager	• CBD road upgrading will facilitate easy travel around the Songea Municipal • The Mahenge junction is more challenging the designers should come up with a good solution • Transportation services will develop due to better roads
		Haruna Msigwa	Super FEO assistant Manger	• Road lights will strengthen security at night • Roads should be wide enough for large vehicles like buses • Drivers should get more seminars and workshops on road safety • Transportation companies should employ professional drivers
	Matarawe ward	Ester Kossa	Ward Executive Officer - Matarawe ward	• Roads should be widened because most accidents are results of road thinness • Drainages should be well constructed • The upgrading of the CBD road will trigger he construction of Matarawe roads
		Abubakar M.	Chairman of Sabasaba	• The financier and constructor should consider a road piece extension

		Luoga	street	to Matarawe • Expanded roads will facilitate business
		Felstar Philpho Mapunda	Matarawe resident	• There should be good road drainages from Bomba Mbili street to Matarawe • Road drainages should be covered • Citizens should have information all the time on projects continuations
		Beda Joel Matembo	CCM (chama sha mapinduzi) (revolutionary Party) – ward chairman	• All the three subprojects are good strategy for society development • The contractor can tip up by constructing a social service like classrooms, health center building as experiences from previous projects
		Avalima Komba	Matarawe Resident	• Citizen especially women should avoid sexual interaction with the project's workers • In case preventive measures for avoiding HIV/AIDS and unplanned pregnancies should be used • Local people should have the right to work during the constructions • Security during the project's construction should be increased to avoid theft
		Flowi N. Milinga	Matarawe resident	• The public should be aware on commencing of subprojects constructions • As the budget allow any adjustments Matarawe ward should be considered

5.8 Summary of Issues Raised by Stakeholders

- The Municipal will give support and cooperation in the project in all aspects.
- The community should be constantly updated on the proceeding of the project to get their opinions
- The roads should be constructed in focus of the rainy seasons because it is more challenging
- Respectable and cooperative culture of the Municipality the contactor shall obey.
- Contractor shall prepare educative meetings around the road project areas educating people on how to prevent themselves from risks of HIV/AIDS.
- Roads should be large enough to allow quick travel of people and goods
- Road lights should be available to all upgraded roads to facilitate people who work and use the road at night.
- Contactor shall preserve the environment as others did in the previous road projects
- Legal sources of material for construction shall be used
- If some infrastructures are to be replaced SOUWASA have to be fully consulted;SOUWASA v participate in sites verification
- Solid Waste disposal should be controlled to prevent blockage of drainages
- Hard covers for drainage waters should be put in place to prevent the breakdown of cove drainages
- The cost of shifting of the existing water infrastructures along the road will be covered by contactor
- During construction the people of Songea should be prioritized in employment
- Traffic lights are needed at most junctions of CBD road
- TARURA will delegate professionals to follow up Road concern in the three subprojects
- In case of temporally or permanent re allocation of electrical infrastructure TANESCO should be informed
- There were 44 rescue cases in Songea for the year 2021, people should be more careful with wa (especially during the rainy seasons)
- Fire outbreak cases are very minimal although always dangerous everybody should stay alert
- TTCL will cooperate in these TACTIC sub projects to give detailed information and location of the telecommunication infrastructures
- There should be bus bays around the schools and the streets
- Road signs to prevent accidents
- Zebra crossings should be put across the roads and should be respected
- There should be signs and facilities to support people with disabilities for example slide ways along step stairs
- Road infrastructures and signs should be well visible at night and during the rainy seasons
- Waste water drainages should be large, covered and accessible for cleaning
- The project constructor should not employ school children because it is against the law
- Girls should not have sexual relationship with contraction workers because they will cre unstable family and conflicts
- School along the roads (KILIMO MSETO-MJIMWEMA-LIZABONI, MANYARA- TAG, MAJENGO PRIMARY SCHOOL-MCHEKANAE) shall be fenced by contractor.
- Contractor should have water permit before construction starts.

6. ASSESSMENT OF IMPACTS AND IDENTIFICATION OF ALTERNATIVE

6.1 Overview

This chapter outlines the potential negative and positive impacts that will be associated with the project. The impacts are related to activities to be carried out during construction and operation phases of the project. In addition, closure and decommissioning phase impacts of the project have been highlighted.

The impacts of the project during each of its life cycle stages (mobilization, construction, operation and decommissioning) have been categorized into: impacts on the biophysical environment, health and safety impacts and socio-economic impacts

6.2 Methodologies for Identification of Impacts

The assessment of environmental impacts and their significance is largely dependent on the extent and duration of the expected change, size of the resource affected and their sensitivity to the change. Project impacts can be adverse and/or beneficial and the methodology defined in section 1.6 has been applied to describe and assess both.

Impact identification is a process designed to ensure that all potential significant impacts are identified and taken into account in project design and implementation. Several 'tools' are available to assist in impact identification. The most frequently used, are checklists of impacts, although matrices, network diagrams and map overlays are also commonly used. In this ESIA study, the following are the method used.

6.2.1 Matrix

For identification of environmental impacts, the Consultants team used the matrix method (screening matrix), which is based on identifying and qualifying actions of the Project comparing them to natural and social environmental conditions. This gave a list of anthropomorphic actions with impacts to the environment including health and safety to project's communities. The latter was carried out through the use of a cause-effect relationship matrix.

6.2.2 Focused Approach-Impacts Mapping

The approach was used to identify and locate all possible impacts' receiving environments from upgrading the 9.5km CBD roads to Bitumen standard at Songea Municipality. Odometer was used to measure distance and cameras were used to capture real time pictures.

6.2.3 Experts Knowledge

Expert or knowledge-based systems were used to assist diagnosis, problem solving and decision-making.

6.3 Identification of Impacts

6.3.1 Susceptible Impacts' Generating Actions

Definition of actions in each stage of the project was done, which were considered as actions caused by a simple, concrete, well-defined and located cause of the impact

Table 6-1: Concrete Actions on the Project Phases

Phase	Action
Planning	Evaluation of Properties and compensations
Mobilization	Permitting and/Licensing
	Delimitation of working zones
	Land clearing, Setup & construction of contractor's camp/s including provisional facilities (building offices, machinery and equipment warehouses, concrete plant,)

	Transportation of consumables, equipment, materials and Staff
	Storage of materials, equipment and machinery

Construction	Construction/Maintenance of access road to borrow pits/quarry site
	Sourcing/preparation and transport of construction materials, aggregates, gravel, sand and stone borrowing, preparation of cement, timber, reinforcement bars, asphalt, casting of pre-cast materials such as concrete culverts etc.
	Construction & Maintenance of Diversions
	Site clearing works, including cutting of trees
	Earth works including removal of top soils, excavation, cutting/filling, and compaction
	Demolition/relocation of existing structures
	Bitumen processing and tarmacking activities
	Construction of bridges, which will include such activities as welding works, concrete works, metal works, bridge protection works
	Creation of storm water drainage channels, relief culverts
	Collection and disposal of dredges, spoilt materials removed from excavation of existing road

Operation & Maintena	Transportation of people and goods
	Land restoration in provisional roads and temporarily disturbed areas
	Road maintenance

Site Abandonment/ Decommissioning	Dismantling and demolition of structures
	Cleaning and rehabilitation

6.3.2 Impacts' Generating Actions

In this section, key biological, physical, and social receptors were selected from the baseline data. The impacts of the Project activities on each of these "Valued Ecosystem Components" were evaluated using a significance ranking process.

The environment complexity and its systemic nature was broken down into several levels to obtain simple and concrete factors

Table 6-2: Components and Factors of the Environment

Environment	Component		Factor
Abiotic	Climate		Microclimate, Temperature, Rainfall
	Atmosphere		Air Quality
			Noise
	Land		Structure
			Quality
			Relief
	Surface water		Surface drainage (run-off patterns)
			Quality
	Groundwater		Aquifer's recharge
			Quality
Biotic	Flora	Terrestrial	Habitat
			Distribution
			Species within any category
	Ecosystem		Biodiversity
Landscape	Landscape		Quality-vegetation cover, soil erosion
Socioeconomic	Economic		Change of land use
			Jobs
			Local and Regional Development

	Services Demand	Water
		Energy
		Communication
		Waste management and disposal

6.3.3 Identification Methodologies for Project Impacts

6.3.3.1 Matrices (Activities-Environment Interactions)

Interactions between the project activities and the environment were identified for each phase of subproject, by using a matrices presented tables 6-3 - 6-5

Table 6-3: Matrix 1; Identification of Impacts for Upgrading of 9.5km Urban Roads to Bitumen Standard in Songea Municipality -Planning & Mobilization Phase

	Components		Climate	atmosphere		Land		Surface Water			Ground Water		Flora		Fauna						Ecosystem	Landscape		Socioeconomic																											
															Terrestrial			Aquatic						Economic																				Services					
Phase	Actions	Factors	Climate & Microclimate	Air Quality	Noise & Vibration	Structure/Topography	Erosion/Quality	Surface drainage /Hydrology	Water Quality/Pollution	Downstream Effect	Aquifer's recharge	Ground Water Quality	Vegetation Coverage	Species/Category	Habitat	Distribution	Species/Category	Habitat	Distribution	Species/Category	Biodiversity	Quality	Change of Land use	Resettlement	Jobs/Employment	Local and Regional Development	At Risk Population i.e., Child Labor	Occupational Health & Safety	Local Life Style	Improved Local Trade	Migrant Population	Gender Based Violence	Spread of HIV/AIDS	Community Stability	Cultural/Religion Values	Improved Road Condition	Tourism	Water	Energy/Electricity	Energy/Fuel Transfer	Communication	Waste Management & Disposal					
Planning & Design	Evaluation of Properties and compensations																						Θ	Θ		Θ			Θ			Θ	Θ		Θ											
Mobilization	Permitting and/Licensing								Θ				Θ											Θ		Θ				Θ						Θ		Θ	Θ	Θ	Θ					
	Delimitation of working zones																						Θ			Θ																				
	Land Clearance		Θ	Θ	Θ	Θ	Θ		Θ	Θ	Θ		Θ	Θ	Θ	Θ	Θ				Θ	Θ			Θ	Θ										Θ		Θ				Θ				
	Construction of contractor's offices including provisional facilities (building offices, machinery and equipment)			Θ	Θ	Θ			Θ		Θ		Θ		Θ	Θ	Θ				Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ									Θ	Θ			Θ					
	Transportation of consumables, equipment, materials and Staff			Θ	Θ																	Θ									Θ	Θ	Θ		Θ				Θ					
	Storage of materials, equipment and machinery					Θ			Θ			Θ				Θ						Θ					Θ																			

Table 6-4: Matrix 2; Identification of Impacts for Upgrading of 9.5km Urban Roads to Bitumen Standard in Songea Municipality -Construction Phase

	Components		Climate	atmosphere		Land		Surface Water			Ground Water		Flora		Fauna						Ecosystem	Landscape		Socioeconomic																					
															Terrestrial			Aquatic							Economic																	Services				
	Actions	Factors	Climate & Microclimate	Air Quality	Noise & Vibration	Structure/Topography	Erosion/Quality	Surface drainage /Hydrology	Water Quality/Pollution	Downstream Effect	Aquifer's recharge	Ground Water Quality	Vegetation Coverage	Species/Category	Habitat	Distribution	Species/Category	Habitat	Distribution	Species/Category	Biodiversity	Quality	Change of Land use	Resettlement	Jobs/Employment/ Risk of Child Labour	Local and Regional Development	Traffic	Occupational Health & Safety	Local Life Style	Improved Local Trade	Migrant Population	Gender Based Violence	Spread of HIV/AIDS	Community Stability	Cultural/Religion Values	Improved Road Condition	Tourism	Water	Energy/Electricity	Energy/Fuel Transfer	Communication	Waste Management & Disposal
Phase	Sourcing/preparation and transport of construction materials, aggregates, gravel, sand and stone borrowing, preparation of cement, timber, reinforcement bars, asphalt, casting of pre-cast materials such as concrete culverts etc.			Θ	Θ																			Θ	Θ	Θ	Θ		Θ					Θ							
	Construction & Maintenance of Diversions			Θ	Θ	Θ	Θ	Θ	Θ	Θ			Θ	Θ	Θ	Θ	Θ				Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ		Θ	Θ	Θ	Θ	Θ
	Site clearing works, including cutting of few trees			Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ		Θ	Θ	Θ	Θ	Θ				Θ	Θ	Θ	Θ	Θ	Θ							Θ								Θ
	Earth works including removal of top soils, excavation, cutting/filling, and compaction			Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ		Θ	Θ	Θ	Θ	Θ				Θ	Θ	Θ	Θ	Θ	Θ									Θ		Θ	Θ	Θ	Θ	Θ
	Demolition/relocation of existing structures/utilities			Θ	Θ	Θ	Θ	Θ	Θ	Θ					Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ			Θ	Θ									Θ		Θ	Θ	Θ	Θ	Θ
	Bitumen processing and tarmacking activities																																									
Construction	Construction of bridges, which will include such activities as welding works, concrete works, metal works, bridge protection works			Θ	Θ	Θ	Θ	Θ	Θ	Θ					Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ			Θ	Θ									Θ		Θ	Θ	Θ	Θ	Θ
	Creation of storm water drainage channels, relief culverts on bridge approaches			Θ	Θ	Θ	Θ	Θ	Θ	Θ					Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ			Θ	Θ									Θ		Θ	Θ	Θ	Θ	Θ
	Collection and disposal of dredges, spoilt materials removed from excavation of existing			Θ	Θ																																					Θ

	Components		Climate	atmosphere		Land		Surface Water			Ground Water		Flora		Fauna						Ecosystem	Landscape		Socioeconomic																		
Phase															Terrestrial			Aquatic						Economic														Services				
	Actions	Factors	Climate & Microclimate	Air Quality	Noise & Vibration	Structure/Topography	Erosion/Quality	Surface drainage /Hydrology	Water Quality/Pollution	Downstream Effect	Aquifer's recharge	Ground Water Quality	Vegetation Coverage	Species/Category	Habitat	Distribution	Species/Category	Habitat	Distribution	Species/Category	Biodiversity	Quality	Change of Land use	Resettlement	Jobs/Employment/ Risk of Child Labour	Local and Regional Development	Traffic	Occupational Health & Safety	Local Life Style	Improved Local Trade	Migrant Population	Gender Based Violence	Spread of HIV/AIDS	Community Stability	Cultural/Religion Values	Improved Road Condition	Tourism	Water	Energy/Electricity	Energy/Fuel Transfer	Communication	Waste Management & Disposal
	road																																									

Table 6-5 Matrix 3; Identification of Impacts for Upgrading of 9.5km Urban Roads to Bitumen Standard in Songea Municipality - Operation, Maintenance and decommission Phase

	Components		Climate	atmosphere		Land		Surface Water			Ground Water		Flora		Fauna						Ecosystem	Landscape	Socioeconomic																			
Phase															Terrestrial			Aquatic						Economic														Services				
	Actions	Factors	Climate & Microclimate	Air Quality	Noise & Vibration	Structure/Topography	Erosion/Quality	Surface drainage /Hydrology	Water Quality/Pollution	Downstream Effect	Aquifer's recharge	Ground Water Quality	Vegetation Coverage	Species/Category	Habitat	Distribution	Species/Category	Habitat	Distribution	Species/Category	Biodiversity	Quality	Change of Land use	Resettlement	Jobs/Employment/ Risk of Child Labor	Local and Regional Development	Traffic	Occupational Health & Safety	Local Life Style	Improved Local Trade	Migrant Population	Gender Based Violence	Spread of HIV/AIDS	Community Stability	Cultural/Religion Values	Improved Road Condition	Tourism	Water	Energy/Electricity	Energy/Fuel Transfer	Communication	Waste Management & Disposal
Operation & Maintenance	Transportation of people and goods			Θ	Θ				Θ														Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ	Θ		Θ	Θ	Θ	Θ	Θ	Θ	Θ			
	Land restoration in provisional roads and temporarily disturbed areas														Θ	Θ	Θ																									
	Road Maintenance			Θ	Θ	Θ																			Θ	Θ				Θ						Θ						Θ
Decommiss	Dismantling and demolition of structures			Θ	Θ	Θ			Θ													Θ			Θ			Θ										Θ	Θ			Θ
	Cleaning & Rehabilitation			Θ	Θ				Θ		Θ				Θ	Θ									Θ	Θ												Θ				Θ

	Components		Climate	atmosphere		Land		Surface Water			Ground Water		Flora		Fauna						Ecosystem	Landscape	Socioeconomic																													
															Terrestrial			Aquatic						Economic																									Services				
Phase	Actions	Factors	Climate & Microclimate	Air Quality	Noise & Vibration	Structure/Topography	Erosion/Quality	Surface drainage /Hydrology	Water Quality/Pollution	Downstream Effect	Aquifer's recharge	Ground Water Quality	Vegetation Coverage	Species/Category	Habitat	Distribution	Species/Category	Habitat	Distribution	Species/Category	Biodiversity	Quality	Change of Land use	Resettlement	Jobs/Employment/ Risk of Child Labor	Local and Regional Development	Traffic	Occupational Health & Safety	Local Life Style	Improved Local Trade	Migrant Population	Gender Based Violence	Spread of HIV/AIDS	Community Stability	Cultural/Religion Values	Improved Road Condition	Tourism	Water	Energy/Electricity	Energy/Fuel Transfer	Communication	Waste Management & Disposal							

6.3.3.2 Focused Approach Impacts Mapping/Identification

This is a collaborative process of reflecting the reality along the proposed road's sections in order to find implementable solutions/mitigations to avoid or reduce the impacts. See table 6-6 below

Table 6-6: Location / Source Based Impacts Identification

Chainage			**Description**	**Picture Presentation**	**Impact**	**Site-Specific Mitigation Measures**
Start	**Intermediate**	**End**				
Sousa Tunduru Bus Stand road 0.8 km						
0+00			At the start of the chainage there is T junction to Mtwara to Mbambabay highway and in both sides of the road there is commercial and residential buildings	 	• Noise, dust and vibration is likely to affect the nearby facilities • Temporal blocking of roads shall cause disturbances to the road users • Potential for accidents and injuries	• Construction should be done in day time only • Early notice to locals regarding the vibration and noise construction works • Find appropriate road diversions • Put enough road signs to guise the road users • Spray water to reduce dust pollution • Construction activities should not interfere with Mtwara to Mbambabay highway
	0+250		T Junction		• Possible Road accidents involving deaths/Injuries to pedestrians, bicyclists, and motorcyclists • Car crashes to houses	• The design should take into consideration pedestrian and cyclists pathways on both sides of the carriage way • Safety road signs should be in place during the road operation phase Road users should be provided with road safety awareness/education before and during operation phase. • Provide appropriate speed limit towards and from the junction. E.g., 30-50km/hr. • Provide road markings at/towards the corner. E.g., single yellow/white solid line, double solid line etc.

Chainage			Description	Picture Presentation	Impact	Site-Specific Mitigation Measures
Start	**Intermediate**	**End**				
	0+520		Populated center T junction	 	• Noise and dust disturbances to locals • Possible Road accidents involving deaths/Injuries to pedestrians, bicyclists, and motorcyclists	• The design should consider realignment option/s to allow visibility towards both sides of the corner/s • The design should take into consideration pedestrian and cyclists pathways on both sides of the carriage way • Safety road signs should be in place during the road operation phase • Road users should be provided with road safety awareness/education before and during operation phase. • Provide appropriate speed limit towards and from the junction. E.g., 30-50km/hr. • Provide road markings at/towards the corner
		0+800	Public Institution		• Dust and vibration during construction phase • Blockage to Kilimomseto office's entrance	• Safety road signs should be in place during the road construction and operation phases
Kilimomseto-Mjimwema-Lizaboni 2.2 km						

Chainage			Description	Picture Presentation	Impact	Site-Specific Mitigation Measures
Start	**Intermediate**	**End**				
0+00			Connected with Sousa Tunduru Bus Stand Road where old bitumen road starts		• Noise and dust disturbances to locals especially mestoomseto office located near the road	• Construction timing shall be scheduled to avoid to interfere with working hours. • Early notice to officers regarding the vibration and noise construction works • Find appropriate road diversions • Spray water to reduce dust pollution
	0+400		Mahenge junction		• frequently road accidents at the junction • During construction the junction will be closed temporarily and create inconvenience to the road users. • Traffic jam on filling station during construction because entrance/exit of filling station in on road proposed	• The design should take into consideration construction of roundabout at Mahenge junction • Construction phase shall consider the alternative diversions • Safety road signs should be in place during the road construction and operation phases
	0+500		Local bus bay where the mini buses turn and pick/ drop passengers	 	• Frequent road accident caused by busses turning and pedestrian crossing	• The bus stop/ bay should be removed because it located very near the Mahenge junction, • The designing should ensure zebra crossing and if possible, the bridge across the road in this area • Safety road signs should be in place during the road construction and operation phases
	1+780		Bridge for stormwater crossing the road		• Water pollution due to improper solid & liquid wastes management during construction • Contamination of surface flow due to mishandling of chemical materials (e.g. fuels, lubricants, hydraulic fluids, coolants • Change of water qualities and turbidity of the river	• Proper designing of the bridge and culverts opening • Observation of proper handling practices and procedures for chemical input materials and wastes; • For each river or large stream which may be affected, Contractor must prepare and implement a site specific water resources Management Plan in accordance with relevant legal and regulatory framework (e.g. (Tanzania Environmental Code of Practice for Road works) defining the risks and mitigation measures (e.g. prevention of water sources contamination) to be applied • No occupation of the stream bed or the banks (including washing of equipment) will be allowed, unless there is no other reasonable alternative to carry

Chainage			Description	Picture Presentation	Impact	Site-Specific Mitigation Measures
Start	**Intermediate**	**End**				
						out the construction work.
Namanga-Manzese 0.3km						
0+00		0+300	Residential and commercial activities along the both sides of the road no drainage system along the road		• Blockage of entrance to commercial facilities during construction period • Cracking of buildings due to vibration • Road blockages and accidents • Noise and dust disturbances to locals	• Construction timing shall be scheduled during dry season or put diversion of existing storm water if construction is done in rainy season • Early notice to locals regarding the vibration and noise construction works • Find appropriate road diversions • Put enough road signs to guise the road users • Spray water to reduce dust pollution
Kapungu road 0.53 km						
0+00		0+500	Residential and commercial activities along the both sides of the road no drainage system along the road		• Disturbance to the traders during construction activities • Noise and dust disturbances to locals • Temporal closure of roads shall cause disturbances to the road users	• Early notice to locals regarding the vibration and noise construction works • Find appropriate road diversions • Put enough road signs to guise the road users • Spray water to reduce dust pollution
Shinyanga Annex-CCM	0.33km					
0+00	0+055		T junction to Kilimomseto -Lizaboni road Sharp corner and poor visibility in residential area		• Construction activities • On construction of T junction may lead to close of road temporary • Possible Road accidents involving deaths/Injuries to pedestrians, bicyclists, and motorcyclists • Car crashes to houses	• Construction phase shall consider the alternative diversions • Early notice to locals regarding the vibration and noise construction works • Safety road signs should be in place during the road operation phase • Provide appropriate speed limit towards and from the junction. E.g., 30-50km/hr. • Provide road markings at/towards the corner. E.g.,

Chainage			Description	Picture Presentation	Impact	Site-Specific Mitigation Measures
Start	**Intermediate**	**End**				
						single yellow/white solid • line, double solid line etc.
		0+330	T junction to street road			
Matomondo-Buhemba2 0.35 km						
0+00		0+350	Commercial and residential along the road Electrical Pole along the road		• There will be temporary electricity power cut around the area during relocation of distribution line. • Electrical Hazard risk during relocation of electricity distribution line to nearby people and workers. • Noise, dust and vibration is likely to affect the nearby facilities • Temporal blocking of roads shall cause disturbances to the road users • Potential for accidents and injuries	• Early notice to locals regarding the vibration and noise construction works • Construction activities shall be conducted in dry season • Regular maintenance of equipment • All the electric pole be installed at their designated place before removing the current distribution line if possible so that the time for electricity cut be reduced • Provide prior information to the public about the time of relocating the line and the risks of electric exposure • The power line should be relocated before construction starts
Madamba-Magengeni Road 0.58 km						

Chainage			Description	Picture Presentation	Impact	Site-Specific Mitigation Measures
Start	**Intermediate**	**End**				
0+00		0+580	Commercial and residential along the road		• Blocking of road during construction will lead to inconvenient of people who depend on the road • Blockage of entrance to commercial facilities during construction period • Cracking of buildings due to vibration • Road blockages and accidents • Noise and dust disturbances to locals	• Construction phase shall consider the alternative diversions • Early notice to locals regarding the vibration and noise construction works • Safety road signs should be in place during the road operation phase • Provide appropriate speed limit towards and from the junction. E.g., 30-50km/hr. • Provide road markings at/towards the corner. E.g., single yellow/white solid • line, double solid line etc.
Liganga-Magengeni Road 0.53 km						
0+00		0+530	Residential facilities Electrical poles		• Blocking of road during construction will lead to inconvenient of people who depend on the road • Power outage during re allocation of electric facility	• Early notice to locals regarding the vibration and noise construction works • Construction activities shall be conducted in dry season • Regular maintenance of equipment • All the electric pole be installed at their designated place before removing the current distribution line if possible so that the time for electricity cut be reduced • Provide prior information to the public about the time of relocating the line and the risks of electric exposure • The power line should be relocated before construction starts
Osaka-Kisumapai Road 0.5 km						
0+00	0+100		Residential houses and commercial facilities		• Dust and noise generation during road construction • Possible Road accidents involving deaths/Injuries to pedestrians, bicyclists and motorcyclists • Possibility of causing house break	• Construction should be done in day time only • Early notice to locals regarding the vibration and noise construction works • Find appropriate road diversions • Put enough road signs to guise the road users • Spray water to reduce dust pollution
Msikitini – Police quarter Road 0.12 km						
0+00			T junction and residential houses		• Dust and noise generation during road construction • Possible Road accidents involving deaths/Injuries to pedestrians, bicyclists • and motorcyclists • Possibility of causing house break	• Vibration level analysis should be conducted to the house close to the road • Before and after picture of house close to the road should be taken to assess the impact after construction • Safety road signs should be in place during the road operation phase • Vehicle speeding should be • limited to 30-50km/hr.

Chainage			Description	Picture Presentation	Impact	Site-Specific Mitigation Measures
Start	**Intermediate**	**End**				
						
	0+050		Mosque and residential houses		• Dust and noise generation during demolition and road construction • Inconvenience to mosque believers and other road users during road construction stages	• If possible, Construction should be schedule not to be in church hours to avoid noise and vibration to mosque believers • Water spraying on dust areas during construction should be regularly practiced • Safety road signs should be in place during the road operation phase • Vehicle speeding should be • limited to 30-50km/hr.
Kisiwa-Lamshaba Road 0.45 km						
0+00			T junction to another CBD road, bodaboda parking and commercial activities		• During construction the T junctions will be closed temporarily and create inconvenience to the road users • The Bodaboda stand and commercial facilities' entrance will be temporarily closed during construction. This will create inconvenience and economic impact	• Community should be informed on the temporary closure of the road • The Bodaboda drivers should be informed prior to starting a project so that can find another mutual place until the construction is completed on that particular road section • Alternative access to the existing commercial facilities should be provided during construction phase • The new road design should consider convenient parking space for Bodaboda and customers
		0+450	Commercial activities and electrical poles		• Electrical distribution line will be relocated which increase cost of the road project. • There will be temporary electricity power cut around the area during relocation of distribution line. • Electrical Hazard risk during relocation of electricity distribution line to nearby people and workers • Inconveniences to services providers and customers	• Safety road signs should be in place during the road operation phase. • The power line should be • relocated before construction starts • Establish a new line and install the poles before relocating the existing line to reduce time for power • Cut • Find appropriate road diversions • Put enough road signs to guide the road users • Spray water to reduce dust pollution

Chainage			Description	Picture Presentation	Impact	Site-Specific Mitigation Measures
Start	**Intermediate**	**End**				
TPB-Sabato Church 0.3 km						
0+00	0+100		T junction to Njombe road Flower and tree nursery and electrical poles	 	• Inconvenience to the road user during construction activities when road blocking • Electrical distribution line will be relocated which increase will cost of the road project. There will be temporary electricity power cut around the area during relocation of distribution line. Electrical Hazard risk during relocation of electricity distribution line to people nearby and workers.	• The work during construction phase shall conducted during the day and the owners of nursery should be informed • Observing clear method of collection, reuse and disposal of waste generation • All the electric pole be installed at their designated place before removing the current distribution line if possible so that the time for electricity cut be reduced • Provide prior information to the public about the time of relocating the line and the risks of electric exposure • The power line should be relocated before construction start
Mission-garage-Kalembo 0.4 km						
0+00	0+200		T junction to Lizaboni road and carpenter at LHS and Bajaji garage at RHS		• Inconvinces on road use when the road will close for construction • Cutoff of accessibility the garage	• The construction activities shall timing the dry seasonal • Alternative way to road use should be known before construction to starting
	0+300		3) T junction to local government office and another to Kashai road		Electrical distribution line will be relocated which increase will cost of the road project. There will be temporary electricity power cut around the area during relocation of distribution line Dust and noise generation during road construction	• All the electric pole be installed at their designated place before removing the current distribution line if possible so that the time for electricity cut be reduced • Provide prior information to the public about the time of relocating the line and the risks of electric exposure • The power line should be relocated before construction start • Water spraying on dust areas during construction should be regularly practiced

Chainage			Description	Picture Presentation	Impact	Site-Specific Mitigation Measures
Start	**Intermediate**	**End**				
Manyara-TAG 0.3 km						
0+00			T junction to another CBD road Commercial activities		• During construction the T junctions will be closed temporarily and create inconvenience to the road users • Removing of all commercial activities because they conducted within a road reserve.	• There should be sensitization meeting with business owners and tenants. Water spraying on dust areas during construction should be regularly practiced Demolition wastes should be collected, re-used and/or disposed at an authorized dumpsite • Roadside parking space should be considered in the design to facilitate easy access to shops/business • Safety road signs should be provided at/towards the junction
	0+200		TAG church Residential houses Electrical poles		• Dust and noise generation during demolition and road construction • Inconvenience to church believers and other road users during demolition and road construction stages • There will be temporary electricity power cut • around the area during relocation of distribution line. • Electrical Hazard risk during relocation of • electricity distribution line to people • nearby and workers.	• Re allocation of water pipe line will required early before construction • Base line data shall be know and monitory through the construction phase
Regional Mosque-Kalembo 0.3 km						
0+000		0+300	Houses and commercial facilities on both sides of the road to be affected		• Noise, dust and vibration is likely to affect the nearby facilities • Temporal blocking of roads shall cause disturbances to the road users • Potential for accidents and injuries	• Construction should be done in day time only • Early notice to locals regarding the vibration and noise construction works • Find appropriate road diversions • Put enough road signs to guise the road users • Spray water to reduce dust pollution
Majimaji Stadium-Sabena Road 0.3 km						

Chainage			Description	Picture Presentation	Impact	Site-Specific Mitigation Measures
Start	**Intermediate**	**End**				
0+000		0+300	Residential facilities electrical pole		• Noise, dust and vibration is likely to affect the nearby facilities • Temporal blocking of roads shall cause disturbances to the road users • Potential for accidents and injuries	• Construction should be done in day time only • Early notice to locals regarding the vibration and noise construction works • Find appropriate road diversions • Put enough road signs to guise the road users • Spray water to reduce dust pollution
Mpangwa-Soni-TAG 0.3 km						
0+000		0+300			• Noise, dust and vibration is likely to affect the nearby facilities • Temporal blocking of roads shall cause disturbances to the road users • Potential for accidents and injuries	• Construction should be done in day time only • Early notice to locals regarding the vibration and noise construction works • Find appropriate road diversions • Put enough road signs to guise the road users • Spray water to reduce dust pollution
Majengo P/S-Mchekanae 0.52 km						
0+000	0+100		Residential houses and commercial facilities		• Noise, dust and vibration is likely to affect the nearby facilities • Temporal blocking of roads shall cause disturbances to the road users • Potential for accidents and injuries	• Construction should be done in day time only • Early notice to locals regarding the vibration and noise construction works • Find appropriate road diversions • Put enough road signs to guise the road users • Spray water to reduce dust pollution
Kaboma-Kalembo 0.3km						
0+000		0+300	Residential and commercial facilities along the whole road Electrical pole		• Noise, dust and vibration is likely to affect the nearby facilities • Temporal blocking of roads shall cause disturbances to the road users • Potential for accidents and injuries	• Construction should be done in day time only • Early notice to locals regarding the vibration and noise construction works • Find appropriate road diversions • Put enough road signs to guise the road users • Spray water to reduce dust pollution

6.3.4 Proposed Road Chainage Description

Sousa Tunduru Bus Stand Road 0.8 km

The road starts at T junction of Tunduru Road at Mjimwema ward cover a distance of 0.8km. The earth road is rolling to gentle terrain, which is passable throughout the year. The existing subproject alignment passes through residential and commercials activities comprising of shops, business canters and institutions i.e., Kilimomseto. At the Ch 0+250 there is sharp corner and poor visibility within residential area. The chainage ends at CH. 0+800 where Kilimomseto-Mjimwema-Lizaboni Road starts. The proposed road construction will facilitate easily connection of Tunduru Road with Songea to Njombe Road.

Majimaji stadium to Sabena Road 0.3 km

The road laying between Majimaji stadium and Manzese markets in Msufini ward with a distance of 0.3km. The road is rolling to flat terrain, which is passable throughout the year. The existing subproject alignment passes through commercials and entertainment activities comprising of markets and shops. The proposed road construction will facilitate easily transportation of goods and people to Manzese markets and into Majimaji stadium.

Mpangwa-Soni-TAG 0.3 km

The road at T junction of Kilimomseto, Mjimwema to Lizaboni Road ending to Manyara to TAG Road in Msufini ward with a distance of 0.3 km. The road is rolling to flat terrain, which is passable throughout the year. The existing subproject alignment passes through residential areas. The proposed road construction will facilitate easily accessibility to the residential houses.

Regional Mosque-Kalembo 0.3 km

The road start at T junction of Mission, Garage to Kalembo Road in Msufini ward with a distance of 0.3 km. The road is rolling to flat terrain, which is passable throughout the year. The existing subproject alignment passes through residential areas. The proposed road construction will facilitate easily accessibility to the residential houses.

Manyara-TAG 0.3 km

Proposed CBD urban road is located in Mjini ward, which covers length of 0.3km. The road section traverse in flat rolling terrain with steep/gentle slopes that links residential, commercial buildings and churches. During construction the T junctions will be closed temporarily and create inconvenience to the road users. the road has poor drainage system which cause spread of water on the road and near facilities during rainy season.

Mission-garage-Kalembo 0.4 km

The road starts at T junction of Kisumapai Road at Mjini ward with a distance of 0.4km, connects with Regional to mosque Road at the Ch 0+242. The road is rolling to flat terrain, which is passable throughout the year. The existing subproject alignment passes through residential and commercials activities comprising of shops, business canters and institutions. The proposed road construction will facilitate easily connection to other CBD Road.

Kaboma-Kalembo 0.3km

The road is at Mjini ward cover a distance of 0.3km, the road is dominated with residential, commercial facilities on the both sides of the road and TANESCO poles along the road. The road is rolling to gentle

terrain, which is passable throughout the year. The proposed road construction will facilitate easily connection to other CBD Road.

Manzese A-Kalembo 0.4 km

The road starts at T junction of Manyara to TAG Road at Msufini ward with a distance of 0.4km, connects with Regional to mosque Road at the Ch 0+242. The road is rolling to flat terrain, which is passable throughout the year. The existing subproject alignment passes through residential and commercials activities comprising of shops and business canters. The proposed road construction will facilitate easily connection to other CBD Road.

TPB-Sabato Church 0.3 km

The road is at Mjimwema ward cover a distance of 0.3km, the road is dominated with commercial facilities on the both sides of the road and TANESCO poles along the road. The road is rolling to gentle terrain, which is passable throughout the year. The road is currently murram surfaced and in a moderate condition of use as is eroded by storm water and no proper drainage futures in place.

Kisiwa-Lamshaba 0.45 km

The road starts at Y junction of other CBD Road at Mjini ward cover a distance of 0.45 km, connects with other CBD Road at the Ch 0+200. The road is rolling to flat terrain, which is passable throughout the year. The existing subproject alignment passes through residential and commercials activities comprising of shops and business canters. The road is currently murram surfaced and in a moderate condition of use as the road edges are eroded by storm water and no proper drainage futures in place.

Msikitini – Police quarter 0.12 km

The road starts at T junction of Kilimomseto, Mjimwema to Lizaboni Road at msikitini area straight to Songea police quarter at Msufini ward. The road alignment covers 0.12 km, The existing subproject alignment passes through residential and commercials activities comprising of shops and business centers. The road is currently murram surfaced and in a moderate condition of use as the road edges are eroded by storm water and no proper drainage futures in place.

Majengo P/S-Mchekanae 0.52 km

The road is at Mjini ward cover a distance of 0.52km, the road is dominated with residential, commercial facilities on the both sides of the road and TANESCO poles along the road. The road starts near Mjengo primary school to Mchekanae area. At the Ch 0+200 and Ch 0+300 there are curve corners which causes poor visibility to the road users. The road is rolling to gentle terrain, which is passable throughout the year.

Osaka-Kisumapai 0.5 km

The road starts at T junction of Kilimomseto, Mjimwema to Lizaboni Road at Misufini ward cover a distance of 0.5 km, there is curved corner at the Ch 0+200. The road is rolling to gentle terrain, which is passable throughout the year. The existing subproject alignment passes through commercials activities comprising of shops, hardware and other business. The road is currently murram surfaced and in a moderate condition of use as the road edges are eroded by storm water and no proper drainage futures in place.

Shinyanga Annex-CCM 0.33km

The road starts at T junction of Kilimomseto, Mjimwema to Lizaboni Road at Mjini ward cover a distance of 0.33km, there is sharp corner at the Ch 0+100 within residential area. The road is rolling to gentle terrain, which is passable throughout the year. The existing subproject alignment passes through residential and commercials activities. The road is currently sand surfaced and in a moderate condition of use as the road is eroded by storm water and no proper drainage futures in place.

Matomondo-Buhemba2 0.35 km

The road starts at T junction of Kilimomseto, Mjimwema to Lizaboni Road at Mjini ward cover a distance of 0.35km, the road is dominated with commercial and residential facilities on the both sides of the road. The road is rolling to gentle terrain, which is passable throughout the year. The road is currently murram surfaced and in a moderate condition of use as is eroded by storm water and no proper drainage futures in place.

Liganga-Magengeni 0.53 km

The road starts at T junction of Kilimomseto, Mjimwema to Lizaboni Road at Mjini ward cover a distance of 0.53km, there is T junction to another CBD road at the Ch 0+210. The road is rolling to gentle terrain, which is passable throughout the year. The existing subproject alignment passes through commercials activities. The road is currently sand surfaced and in a moderate condition of use as the road is eroded by storm water and no proper drainage futures in place.

Madamba-Magengeni 0.58 km

The road starts at T junction of Mission, garage to Karembo Road at Mjini ward to Magengeni area. The road alignment covers 0.58 km, The existing subproject alignment passes through residential and commercials activities. The road is currently murram surfaced and in a moderate condition of use as the road edges are eroded by storm water and no proper drainage futures in place.

Kapungu road 0.53 km

The road starts at T junction of Kisiwa-Lamshaba Road at Mjini ward ends at other CBD road. The road alignment covers 0.53km, the existing subproject alignment passes through residential and commercials activities. The road is currently murram surfaced and in a moderate condition of use as the road edges are eroded by storm water and no proper drainage futures in place.

Kilimomseto-Mjimwema-Lizaboni 2.2 km

The road starts at the end of Sousa to Tunduru Bus Stand Road where old bitumen road starts at Mjimwema ward ends at Matarawe primary school at Matarawe ward. At Ch 0+400 there is Mahenge junction which currently is the main source of road accidents because of lack of the signage and existence of zebra crossing near the junction. At Ch 0+500 there is bus bay where the mini buses turn and pick/ drop passengers and contributes to the road accidents as well as traffic jam at that area. Also, at Ch 1+780 there is narrow bridge for storm water crossing which needs to be extended during implementation of the subproject. The existing subproject alignment passes through commercials activities comprising of shops and private busses stand and institutions. The road is currently bitumen surfaced and in a moderate condition of use as the road is narrow and have many potholes, also, poor drainage futures are in place.

Namanga-Manzese 0.3 km

The road starts at T junction of Manyara to TAG Road at Misufini ward to Mnzese area. The road alignment covers 0.3 km, The existing subproject alignment passes through residential and commercials activities. The road is currently murram surfaced and in a moderate condition of use as the road edges are eroded by storm water and no proper drainage futures in place.

6.3.5 Integration of Impacts from Identification Methodologies

The purpose is to strengthen the reliability of subproject's information, validity of the findings and recommendations, and to broaden and deepen our understanding of the impacts identified, and how these can be mitigated during and after project's implementation.

Since impacts' mapping is location based, categorization of impacts has resulted into the following: Aimed at specific impacts along the road section

Table 6-7: Impacts Integration

S/No	Categorized Impacts from Mapping Approach	Impacts from Matrices	
		Component	**Factors**
1	Road safety impacts at road junctions	Socioeconomic/economic	At Risk Population / Road Accidents /Occupational Health & Safety
2	Road safety impacts at community centers	Socioeconomic/economic	At Risk Population / Road Accidents /Occupational Health & Safety
3	Road safety impacts at steep hills/slopes	Socioeconomic/economic	At Risk Population / Road Accidents /Occupational Health & Safety
4	Road safety impacts due to narrowed road and bridges	Socioeconomic/economic	At Risk Population / Road Accidents /Occupational Health & Safety
5	Disruption of water services (SOUWASA)	Socioeconomic/services	Water
6	Disruption of electrical services (TANESCO)	Socioeconomic/services	Electricity/Energy
7	Disruption of communication services (TTCL)	Socioeconomic/services	Communication
8	Interference with local market activities (Manzese A and B)	Socioeconomic/economic	Improved Local Trade
9	Interference with worshiping services along the proposed roads	Socioeconomic/economic	Cultural/Religion Values
10	Transportation inconveniences during construction	Socioeconomic/services	Transportation
11	Clearance of terrestrial vegetation	Flora	Vegetation Coverage/ Species/Category
13	Generation Noise & Vibration	Atmosphere	Noise & Vibration
14	Air quality deterioration	Atmosphere	Air Quality

6.4 Impacts Prediction & Evaluation

After identification of impacts as a result of the proposed project's activities, their significance was determined, that is, whether they are acceptable or unacceptable and thus require mitigation measure. The significance of an impact was determined by considering the impact characteristics and the importance (or value) attached to them by the consultant team.

Information provided by the consultant's team of experts was used to calculate an overall impact score by multiplying the product of the nature, magnitude and the significance of the impact by the sum of the extent, duration and probability based on the following equation

Overall Score = (NxMxS) x (E+D+P)

Where:

N = Nature;
E = Extent
M = Magnitude
D = Duration
P = Probability
S = Significance

Table 6-8: Impacts Methodology Table

Nature				
Negative		Neutral		Positive
-1		0		+1
Extent				
Site	Local	Regional	National	International
1	2	3	4	5
Magnitude				
Low		Medium		High
1		2		3
Duration				
Short Term (0-5yrs)	Medium Term (5-11yrs)		Long Term	Permanent
1	2		3	4
Probability				
Rare/Remote	Unlikely	Moderate	Likely	Almost Certain
1	2	3	4	5
Significance				
No Impact/None	No Impact After Mitigation/Low		Residual Impact After Mitigation/Medium	Impact Cannot be Mitigated/High
0	1		2	3

The analysis was conducted on a quantitative basis with regard to the nature, extent, magnitude, duration, probability and significance of the impacts. The following definitions and scoring system applied

Nature (/Status)
The project could have a positive, negative or neutral impact on the environment.

Extent
- Site – impact within the project site.
- Local – extend to the site and its immediate surroundings.
- Regional – impact on the region but within the districts.
- National – impact on an interregional scale.
- International – impact outside of Tanzania.

Magnitude
Degree to which impact may cause irreplaceable loss of resources.
- Low – natural and social functions and processes are not affected or minimally affected.
- Medium – affected environment is notably altered; natural and social functions and processes continue although in a modified way.
- High – natural or social functions or processes could be substantially affected or altered to the extent that they could temporarily or permanently cease.

Duration
- Short term – 0-5 years.
- Medium term – 5-11 years.
- Long term – impact ceases after the operational life cycle of the activity either because of natural processes or by human intervention.
- Permanent – mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient

Probability
- Almost certain – the event is expected to occur in most circumstances.
- Likely – the event will probably occur in most circumstances.
- Moderate – the event should occur at some time.
- Unlikely – the event could occur at some time.
- Rare/Remote – the event may occur only in exceptional circumstances.

Significance Provides an overall impression of an impact's importance, and the degree to which it can be mitigated. The range for significance ratings is as follows 0 – Impact will not affect the environment. No mitigation necessary. 1 – No impact after mitigation. 2 – Residual impact after mitigation. 3 – Impact cannot be mitigated.

On the other hand, if the nature of an impact is 0 (neutral or no change) or the significance is 0 (no impact), then the impact is 0.

Impact Scores will therefore be ranked in the following way:

Table 6-9: Ranking of Overall Impact Score

Impact Rating	Low/Acceptable impact	Medium	High	Very High
Score	0 to -30	-31 to -60	-61 to -90	-91 to -117

Table 6-10: Impacts Evaluation

Component		Factor/Impact	Nature		Extent (E)					Timing				Magnitude (M			Duration (D)				Probability (P)					Significance (S)						Score
			+ve	-ve	Site	Local	Regional	National	Intern	Planning	Mob &Cons	Deco	Op	Low	Med	High	ST	MT	LT	P	Rare	Unlike	Moderat	Likely	Certain	Nil	Low	Medium	High	NMS	E+D+P	
Impact Score Value			**1**	**-1**	**1**	**2**	**3**	**4**	**5**					**1**	**2**	**3**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**5**	**0**	**1**	**2**	**3**			
Climate		Climate		Θ		Θ					Θ	Θ	Θ	Θ					Θ						Θ		Θ			-2	10	-20
Atmosphere		Air Quality		Θ	Θ						Θ	Θ	Θ	Θ			Θ						Θ				Θ			-1	5	-5
		Noise		Θ	Θ						Θ	Θ	Θ	Θ			Θ						Θ				Θ			-1	5	-5
		Vibration		Θ	Θ						Θ	Θ	Θ	Θ			Θ					Θ					Θ			-1	4	-4
Land		Erosion/Quality		Θ	Θ						Θ	Θ		Θ			Θ							Θ			Θ			-1	6	-6
Surface Water		Surface drainage /Hydrology		Θ	Θ						Θ			Θ			Θ							Θ			Θ			-1	6	-6
		Water Quality/Pollution		Θ		Θ					Θ	Θ	Θ		Θ		Θ					Θ					Θ			-2	5	-10
Ground Water		Aquifer's recharge		Θ		Θ					Θ	Θ	Θ	Θ				Θ				Θ					Θ			-1	6	-6
		Ground Water Quality		Θ		Θ					Θ	Θ	Θ	Θ				Θ				Θ					Θ			-1	6	-6
Flora		Vegetation Coverage		Θ	Θ						Θ			Θ			Θ							Θ			Θ			-1	5	-5
		Species/Category		Θ	Θ						Θ			Θ			Θ							Θ			Θ			-1	4	-4
Fauna	Terrestrial	Habitat		Θ	Θ						Θ			Θ			Θ							Θ			Θ			-1	5	-5
		Distribution		Θ	Θ						Θ			Θ			Θ							Θ			Θ			-1	4	-4
		Species/Category		Θ	Θ						Θ			Θ			Θ							Θ			Θ			-1	4	-4
Ecosystem		Biodiversity		Θ	Θ						Θ	Θ		Θ			Θ					Θ					Θ			-1	4	-4
Landscape		Quality	Θ			Θ							Θ		Θ				Θ						Θ			Θ			2	5	10
Socioeconomic	Economic	Change of Land use	Θ				Θ						Θ		Θ				Θ						Θ				Θ		4	11	44
		Land Acquisition & Resettlement		Θ	Θ					Θ					Θ		Θ								Θ				Θ		-4	7	-28
		Jobs/Employment	Θ			Θ					Θ	Θ			Θ		Θ							Θ			Θ			2	7	14
		Risk of child labour		Θ		Θ					Θ	Θ	Θ		Θ		Θ						Θ				Θ			-2	6	12
		Local and Regional Development	Θ				Θ						Θ		Θ				Θ						Θ				Θ		4	11	44
		Traffic		Θ		Θ					Θ		Θ			Θ				Θ			Θ						Θ		-9	9	-54
		Occupational Health & Safety		Θ	Θ						Θ	Θ			Θ		Θ						Θ						Θ		-4	5	-20
		Improved Local Trade	Θ			Θ					Θ	Θ	Θ		Θ				Θ					Θ					Θ		4	9	36
		Migrant Population		Θ		Θ					Θ				Θ		Θ						Θ						Θ		-4	6	-24
		Gender Based Violence		Θ		Θ					Θ	Θ		Θ					Θ				Θ						Θ		-2	8	-16
		Spread of Covid-19, HIV/AIDS		Θ				Θ			Θ			Θ					Θ				Θ						Θ		-2	10	-20
		Cultural/Religion Values		Θ		Θ					Θ			Θ			Θ						Θ				Θ				-1	6	-6
		Improved Road Condition	Θ			Θ							Θ		Θ				Θ					Θ					Θ		4	9	36
	Services	Water		Θ		Θ					Θ			Θ			Θ						Θ				Θ				-1	6	-6
		Energy/Electricity		Θ		Θ					Θ			Θ			Θ						Θ				Θ				-1	6	-6
		Waste Management & Disposal	Θ			Θ					Θ	Θ		Θ			Θ						Θ				Θ			2	7	14

6.5 Impacts' Description

6.5.1 Climate (-ve)

6.5.1.1 Mobilization & Construction Phase

The construction of infrastructures has many impacts on the environment and contributes enormously to climate change. Although construction practices/related activities (i.e., clearing of vegetation) typically do not produce large quantities of GHGs compared to the operations of many other sectors. During construction of the proposed Upgrading of urban roads (9.5km) to Bitumen Standard in Songea, the input of steel, cement and asphalt, and management of excavated materials are the largest contributors to material-related greenhouse gas emissions.

Impacts on the climate and meteorology of the local area will be negligible since there will be minor changes in surface reflection, no aerodynamic disturbances and average temperature and rainfall increase during operation of the project.

6.5.2 Air pollution (-ve)

6.5.2.1 Mobilization & Construction Phase

The emissions in the air during the construction will appear as a result of the exhaust gases such as SOx, NOx, CO, VOC from the constructional mechanization (rippers, bulldozer and excavator, trunks and tanks). Generally, a low concentration of these polluters is expected, but when the machines are operating, or when the motor is not functioning properly (potentially due to the poor maintenance of the construction machines), potential harmful polluting material may be released. Still a fast dispersion of these polluters within the project site is expected, and it is also expected to potential jeopardize a small number of people, because of the small number of settlements along the proposed route.

Dust will appear as a result of the earth works and the activity of the preparation of the terrain and clearance, excavation, rock mining, transportation of construction materials etc. These activities shall generate dust and solid particles. It is expected that the effects from these impacts to be of local and short-term importance. Generating dust may influence the ability of the surrounding vegetation to survive and maintain efficient transpiration. The occurrence of dust may also represent a potential source for health problems for the workers (disruption of breathing) in the roads' sections where the construction works are conducted. Namely, dust may represent a source for irritation and health risk for people.

The proposed upgrading roads section stretches along habited areas; it is considered that there are crucial sensitive receptors of air pollution (including dust), such as residential houses, trading centers and institution along the proposed site such as primary school, church etc.

6.5.2.2 Operation Phase

During operation, emissions will appear from vehicles that will run along the upgraded roads' sections, i.e., from System of exhaust gases;

It is considered that the exhaust gases from vehicles contain several organic components as harmful material, whose concentration is the highest at places with increased number of vehicles and motors working in place or stopping. The impact from toxic gases may have consequences for people who have been directly and for a long period of time exposed to them though their direct actions (inhaling), as well as indirect. The smoke, influences the respiratory organs, the skin etc., and the carbon oxide acts as a strong poison and antioxidant. The nitrogen oxide causes asthma, allergies and malignant diseases on the respiration system.

6.5.3 Noise & Vibration (-ve)

6.5.3.1 Construction Phase

Construction of the roads' sections of 9.5km is linked with a series of activities which are the cause of **noise. Noise** shall be generated from the equipment to be used.

The noise levels can be associated with the levels on typical construction sites, i.e., similar activities such as cleared, trench digging and vehicle movement. The noise generated by construction activities on site locations will be temporary, and the levels will vary and be of increased intensity during the operation of the motors of the vehicles, i.e., the noise will be unequal and intermittent, reaching its maximum during the operation of the construction machines at the time of excavations/clearance/compaction etc.

Most of the construction works will be done along the roads with residential houses, worship buildings, some schools and trading centers adjacent to it. The nature of the noise during construction is of temporary (short term) inconvenience so that the impact is not significant except in the immediate surroundings of the construction sites.

The noise can make their life unpleasant and expose them to stress and influence their psychological health when exceeding the standard levels. However, residents adjacent to the proposed road are secondary recipients of increased noise levels, because the noise will be relatively dispersing and with a decreased intensity at those locations. Significant impact points are expected only on few locations along the routes of the proposed upgraded roads sections in Songea Municipality.

Construction of the proposed roads.is linked to a series of activities that cause **vibrations** as a consequence of using construction mechanization and blasting activities. The impact of the ground vibrations is expected on the domestic houses located at the nearby settlement surrounding the project areas. The houses might be prone to cracks and damage due to the vibrations especially during compaction activities.

It is expected that the impacts from vibrations will be insignificant, mostly localized, at the construction sites and limited to the local workers as well as the local species.

6.5.3.2 Operation Phase

Considering the fact that the road on some places is near sensitive receptors (trading centers, schools, residential houses, worship building etc.), the noise will mostly impact the surrounding population on mentioned areas.

Excess noise levels are not expected along the operating roads due to the relatively low traffic which is not expected to increase by large factor in the near future. However, the road is near trading centers, schools and residential houses at some places, the population around those areas may be potentially endangered from damaging noise. The road sections potentially endangered of noise are at all area along the roads since its urban.

In case of significant increase of traffic frequency, the noise impact will be more apparent and appropriate reduction measure will be needed.

6.5.4 Soil Erosion (-ve)

6.5.4.1 Construction Phase

The Upgrading the 9.5km CBD roads to Bitumen standard at Songea Municipal will involve the clearing grasses and shrubs. Vegetation reduces the speed at which raindrops hit the ground and hence reduces the amount of erosion. The roots of the vegetation bind the soil particles together and hence reducing the

chances of soil erosion. The right amount of moisture in the soil binds the soil particles together thereby reducing the rate of soil erosion. Vegetation cover reduces the rate of loss of moisture from the soil.

To allow for enough space for driving and pedestrians' walkways, the proposed road will have a 6m carriageway and 1.5-2m for pedestrians' walkways. Considering that the length of the realignment is 9.5 km. There is area covered by the pavement which is impervious to rain water and therefore the construction of the road will increase surface runoff. This increase in surface runoff is likely to increase the rate of soil erosion in the area.

6.5.5 Impact on Surface Drainage /Hydrology (-ve)

6.5.5.1 Construction Phase

Although the proposed roads located far from surface water bodies, construction activities will contribute to the pollution of water ways located at the site. Also, when the pollutants materials concentrate in these waterways, causes contamination of water bodies through rainwater runoff through those channels.
Construction activities have a potential to introduce pollutants into surface waters including sediment, fuel and lubricants. These compounds directly impact the physical and chemical quality status of the water and indirectly influence the living organisms in water.

Suspended solids may also originate in products such as concrete, betonies etc. used in the construction of road structures i.e., bridges, which are either accidentally released or dumped during cleaning of the equipment that has held the products. The washout from concrete mixing plants or ready-mix concrete Lorries is particularly damaging due to the highly alkaline nature of uncured concrete. The release of significant volumes of sediments to the water bodies by storm water runoff or direct disposal, can lead to changes in the flow patterns of the water course will be affected as well, but this effect is addressed with the impacts on fauna).

The rivers pollution and hydrological impacts are considered to be low to moderate as a result of the project activities.

6.5.5.2 Operation Phase

During the operational phase, there is an increasing concern about water pollution by diffuse emissions of various environmental hazards emitted by transportation activities. Road transportation is associated with the diffuse release of inorganic and organic substances into the environment. These substances may pollute the groundwater or the surface water entering through the roadside drainage system along the tracks. Some of these contaminants include: copper, zinc, chromium and polycyclic aromatic hydrocarbons (PAH), lubricants and herbicide substances.

6.5.6 Impact on Groundwater (-ve)

6.5.6.1 Construction Phase

Construction of the road is expected to have short-term impacts to groundwater resources primarily related to construction activities that may cause potential groundwater contamination. Potential pollution of groundwater could occur as a consequence of leaks or accidental spills at the construction site of hydrocarbons from construction vehicles and machinery, as well as of other hazardous chemicals handled for various purposes in executing the construction works (e.g., lubricants, solvents, acids, paints, resins).
Accidental leaks and spills of hazardous materials may also occur at product storage areas and hazardous waste storage areas. Leaked or spilled hazardous contaminants most often will reach groundwater indirectly leaching through the soil or, for some construction activities, directly when the groundwater table is exposed to the atmosphere.

6.5.6.2 Operation Phase

With regards to the potential impacts on groundwater during operation, the same operational activities discussed for surface water may also create an impact on groundwater, as the substances released by these activities end up in the soil, from where the contaminants are transported downwards, through percolation of rain water, until reaching the groundwater table. The impact is considered to be of low magnitude.

6.5.7 Impact on Vegetation Coverage (-ve)

6.5.7.1 Construction Phase

During the construction phase, there will be clearance of vegetation along the RoW, however minimal, to pave way for construction activities. This will lead to the negative impacts to the environment. There will also be alteration of habitats owing to a number of acacia and eucalyptus trees' species observed along the road RoW at some sections. The clearance of vegetation will also affect the scenic beauty and ecological functioning of the areas. Also, the project will require large quantities of materials such as murram, stones, sand, gravel, and soil, among others. In addition, the contractors will install several material batching plants and work stations that will impacts on the environment, especially with smothering vegetation species around the camp sites. This impact will be low though there is necessity to clear vegetation existing in the road reserve.

6.5.8 Impact on Employment (+ve)

6.5.8.1 Construction Phase

The employment benefits during the construction phase are positive, since it relates to the project activities, induced by increased employee spending. Considering that a bigger proportion of the total population is economically inactive, the project will increase opportunities for a bigger percentage of the local population by giving them access to employment opportunities. The employment opportunities will be created for both skilled and non-skilled labor in the communities along the proposed roads for upgrading. The communities have the capacity to absorb the non-skilled employment opportunities arising during construction phase. During construction of the road, 150 employments will be generated mainly for construction workers.

Gender distributions in various construction sections are expected. Thus, it can be expected that women could be engaged within work camp/s and within administration of contractor/s or with supervisor. Thus, a positive spin off effect during the construction period on the local economy is expected.
It is expected the construction phase will create employment opportunities and will have a medium magnitude.

6.5.8.2 Operation Phase

After the construction period, it is estimated that a number of people who will find employment within the local communities mainly with the road operation and maintenance and on transport related services. Transportation will induce many employment positions along the road. Direct employment will be created, related with operation and maintenance of roads. Thus, long term business opportunities along the roads are likely to emerge. It is estimated that around 100 people may find employment with services linked with transport.

It is expected the operational phase will create employment opportunities and will have a medium magnitude.

6.5.9 Impact on Local & Regional Development (+ve)

6.5.9.1 Construction Phase

The roads sections in Songea Municipality are connecting roads to different wards within the Municipality, not only to the people along the proposed roads. The roads also serve as the connecting links for schools' children who attend schools located along the roads and workers to various economic sectors. The construction period will affect the aforementioned activities greatly.

This project shall use local resources such as sand and quarrying, in short term, may hinder the ability of local purposes to utilize it for other purpose. After completion of construction, further influx of outsiders and economic development may lead negative impact for local employment or business. (Utilization of local resources)

6.5.9.2 Operation Phase

One of the major outcomes from the proposed roads will be the increased business ventures and opportunities that the area will be exposed to, increased trade and commerce with neighboring areas and the state as a whole. The people along the subproject roads are expected to take advantage of the project in a positive manner.

6.5.10 Occupational Health & Safety Impacts (-ve)

Impact issues related to the workforce comprise on-site accommodation, off-site accommodation, reactivation of old facilities, activation of new facilities, security of workers accommodation, accommodation standards, occupational health and safety, worker's right, rules and obligations and employment standards. Impacts arising from the influx of a workforce in the communities include community tensions, community health, safety and security.

It is expected that a substantial part of the workforce will be recruited locally by contractor/s. For the workforce coming from outside the region, workers accommodation camps will be constructed. Smaller camp/s for temporary accommodation of specialist workers may also be required. There is a high possibility that these camps will be located on-site, i.e., outside the communities. In order to avoid and prevent potential adverse impact on the local communities caused by workforce influx, there will be low occurrence of off–site accommodation, i.e., within the communities. The roads' subproject shall require land acquisition for the construction of camp/s

6.5.10.1 Construction Phase

Normally, construction workers face some of the most dangerous employment conditions. Even though construction workers are trained and know basic safety measures, accidents can still happen. The risks taken every day during regular construction work make it difficult for job sites to remain accident-free.
Accidents on site could be caused by accidental falls, malfunctioning of tools and equipment such as cranes, conveyors and other equipment. Accidents can result in serious injuries or death.

It is expected that this impact could potentially result in effects on workers of a potentially high magnitude when they occur.

6.5.11 Improved Local Trade (+ve)

6.5.11.1 Mobilization & Construction Phase

Direct and indirect business opportunities will potentially increase significantly for local contractor/s and especially subcontractor/s during construction works. Food and some construction materials will be supplied locally and thus increase local trade. The local economy will also experience opportunities for providing skilled services from e.g. Like craftsmen, security guards and equipment operators.

6.5.11.2 Operation Phase

During the operational phase, the local economy will benefit through some employment opportunities through development of local economic activities like bussiness etc. due to better access to newly opened markets locally and nationally. Passengers should save money due to the cheaper transport.

6.5.12 Spread of disease such as Covid-19 and HIV/AIDS (-ve)

6.5.12.1 Construction Phase

Several studies revealed basic conditions created by roads' construction projects that contributed to the spread of HIV/AIDS.

1. The concentration of men (single and married) living away from their families at road construction sites.
2. The movement of people along new road networks the spread of HIV within populations was due to the same set of activities unprotected sex, sex with multiple partners.
3. The combination of disposable cash, leisure time, and distance from home drew workers to commercial sex establishments. Either, the flow of people to and from cities/town raised the risk of HIV infection, but, more specifically, men who used the roads frequently, such as truck drivers or migrant workers, were more likely to visit commercial sex establishments and spread HIV.

The construction sector has a predominantly migratory labor force, making it a prime contributor to the spread of HIV/Aids. Labor camps/ offices are a breeding ground for the spread of HIV/Aids and Sexually Transmitted Infections (STIs), this being compounded by the situation where migrant workers on contract generally ignore or are ignorant of the consequences of casual sexual relationships.

The construction sector has the potential to play an important role in the country's inter-sectoral approach to coping with the epidemic. The sector also provides entry-level local jobs, which may be crucial to the survival of youth-headed households and extended families in areas hard hit by the epidemic. Construction sites can accordingly provide a convenient location for Covid-19 and HIV/Aids programmers to both construction workers and rural communities."

6.5.13 Skills transfer to locals (+ve)

6.5.13.1 Construction phase

When the local people are employed during roads construction, they will acquire skills in construction activities which they can use in future. By employing as many local as possible there will be skills transfer.

The impact is positive, long-term and of moderate significance

6.5.14 Destruction of Public Utilities & Access

6.5.14.1 Construction Phase

Electric Power Supply lines, television cable, water supply pipes, and TTCL telephone lines are expected to be affected by the proposed construction since the utilities run alongside and crossing the proposed roads for upgrading. These shall cause disruption of services during construction caused by moving of the utilities outside the corridor of impact.

During the installation of new subsurface infrastructure, it is very easy to damage existing service cables and pipelines or temporarily interrupt supplies to consumers. Investigations during ESIA suggest there are few services within the vicinity of of roads' sections for upgrading in Songea Municipality. SOUWASA water supply pipes installed underground while most TANESCO power lines, television cables and TTCL telephone cables are above ground. A small number of TTCL poles will need to be moved and disruption of services shall be minimal.

6.5.15 Waste Generation (-ve)

6.5.15.1 Operation Phase

Construction of the road project and related infrastructure is associated with production of wastes. These wastes can either be solid waste or liquid waste. The waste streams are Construction activities and Domestic activities of the workers at the camp, office and site. The solid waste includes, Spoil, rubbles, Tree logs, metals, glasses, papers etc. while the liquid waste include Sewage, oils etc. The quantities are provided in chapter two of this report. These wastes if not well handled can change the aesthetic nature of the project area and can even lead to water pollution in case of improper disposal of oils.

Although demolition waste from existing structures within RoW is generally considered as less harmful to the environment since they are composed of inert materials, there is growing evidence that large quantities of such waste may lead to release of certain hazardous chemicals into the environment. In addition, even the generally non-toxic chemicals such as chloride, sodium, sulphate and ammonia which may be released as a result of leaching of demolition waste, are known to lead to degradation of groundwater quality.

6.5.16 Gender based violence (GBV) (-ve)

6.5.16.1 Construction phase

The proposed project is not exception from others as will involve employment of both men and women from within the project area and outside. During construction phase, GBV shall be expected to those who seek for employment. The demand of employment will influence sex corruption in exchange of employment, moreover workers may use their income to seduce people's wives and school girls which migh result in families' misunderstanding and violence.
This is considered negative impact, short term with low magnitude

6.5.17 Effect of Child labor & Child abuse

6.5.17.1 Construction phase

Child labour and Child abuse is still a global challenge especially in developing countries. The child can be forced to work or adopt the culture from the society, Children learn a sense of responsibility and take pride in carrying out tasks that help a family to survive. By observing and working with others, children learn skills and gain knowledge that will help them in their later lives. Work in this sense becomes a door to the world of adult work and earning and is part of the progression from childhood to adulthood. Unfortunately, many children do work which, far from having a positive effect on their lives, actually impedes their growth and development, moreover, they become more vulnerable to child abuse from adults in the workforce. The proposed subproject is expected to experience this kind of impact to the communities.

6.5.18 Climate Change Risks

- **Temperature:** Extreme increase of temperatures expected in the future; roads will be subjected to temperature loads and cause road pavement to soften and expand. This can create rutting and potholes, particularly in high-traffic areas and can place stress on bridge joints.

- **Rainfall:** Extreme rains may result in floods, which could disrupt traffic and weaken or wash out the soil and other infrastructures that support roads, tunnels, and bridges. Exposure to flooding events also shortens the life expectancy of roads. The stress of water may cause damage, requiring more frequent maintenance, repairs, and rebuilding.

- **Wind Speed:** The average hourly wind speed in Songea experiences significant seasonal variation over the course of the year. Being located in a densely populated area, the proposed subproject is likely not to be affected by wind pressure.

7. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

7.1 Overview

The proposed mitigation measures provide the basis for the development of environmental management plan and monitoring plan for the roads' subproject is required to meet World Bank's and NEMC's environmental approval and permitting requirements.

Mitigation measures proposed herein are the result of process that took place between the environmental impacts prediction by the ESIA consultant and the engineering design team. Based on environmental impact results, further mitigation measures were incorporated into the design of the Project to ensure the protection of the physical, biological and human environments.

A mitigation measure for this project implies good engineering practice that shall be adhered to during the design and construction phases. PO-RALG is committed to the implementation of mitigation measures contained in this report.

7.2 Objective and Components of the ESMP

The basic objectives of the EMSP are to:

- To ensure that all mitigation measures and monitoring requirements will actually be carried out at different stages of project implementation and operation, pre-construction, construction, operation and maintenance;
- Recommend a plan of action and a means of testing the plan to meet existing and projected environmental and social problems;
- Establish the roles and responsibilities of all parties involved in the project's environmental and social management;
- Describe mitigation measures that shall be implemented to avoid or mitigate adverse environmental and social impacts and maximizing the positive ones;
- Ensure implementation of recommended actions aimed at environmental and social management and its enhancement;
- Ensure that the environment and its surrounding areas are protected and developed to meet the needs of the local people, other stakeholders and safeguard the interests of the common people.
- Ensure sufficient stakeholder engagement activities to mitigate communities and project itself against the various risks; and
- Include specific measures and ensure views from vulnerable groups (e.g., children, women, disabled and elderly) have been incorporated into the project's design.

7.3 Capacity Building & Training

Capacity building programs will be conducted to all the Project staff including engineers and relevant stakeholders during initial stages of the Project implementation to sensitize them on the management of environmental and social issues of the Project, and to build the requisite capacities.

Within the project's area, the municipal/districts' departments have got at least one (1) environmental officer who solely deals with environmental issues on daily basis. Otherwise, other staff in these departments and whole Councils has limited knowledge of newly operating WB safeguard requirements and generally lack experience in environmental and social issues

Such low capacity represents a risk to the implementation of environmental and social requirements as contained in the ESMPs and as required by the WB's Environmental and social Framework (ESF) of 2018. It is therefore necessary to address this weakness through capacity building through technical assistance that will support the Municipal and districts' Councils during the implementation of the

ESMPs. The technical assistance will specifically provide the necessary support to districts in their work with contractors as well as other entities involved in the implementation of the ESMPs.
The technical assistance will include support to experts and training that will cover:

- General knowledge of environmental and social requirements and project procedures, and
- Important specific knowledge in environmental and social procedures and requirements for project staff, consultants, and national contractors.

Specifically, the above will include: assistance with the preparation of documents and implementation of training programs on E&S management and monitoring for contractors and relevant staff of the project's municipal/districts to perform their tasks. It will also include assisting municipal/districts' environment and social staff with the review of contract documents to ensure compliance with the ESMPs. It will further provide general guidance as requested by districts to enhance overall project environmental and social implementation and performance.

Given the nature, locations, and scale of construction, it is anticipated that the safeguard technical assistance support and training will be provided at least during the first 1 year of the project implementation. The WB safeguard specialists will support this in the capacity building program, in particular in the training activities as appropriate.

7.4 Awareness and Education

The Contractor should encourage environmental awareness among his foremen before and during implementation of the road project. The education will include:

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

The main Contractor needs to be aware that he/she is responsible for education and informing all Sub-Contractors (if any).

7.5 Gender Based Violence and Sexual Exploitation Abuse/Sexual Harassment

7.5.1 Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) Response and Prevention Action Plan

To mitigate these risks the project Contractor will develop and implement a Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) Prevention and Response Action Plan with an Accountability and Response Framework as part of the C-ESMP. The SEA/SH Action Plan will follow guidance on the World Bank's Good Practice Note for Addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) in Investment Project Financing involving Major Civil Works (February 2020). The SEA/SH Action Plan will include how the project will ensure necessary steps are in place for:

- Prevention of SEA/SH: Integrate provisions related to sexual harassment and sexual exploitation and abuse in the employee Code of Conducts (COCs) and ongoing sensitization of staff on responsibilities related to the COC and consequences of non-compliance; project-level IEC materials.
- Response to SEA/SH: including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting

mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management.

- Engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of Prevention SEA/SH awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their PSEA/SH -related rights.
- Management and Coordination: including integration of prevention and response to SEA/SH in job descriptions, employments contracts, performance appraisal systems, etc.; development of contract policies related to SEA/SH, including whistle-blower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated PSEA/SH focal points in the project and trained community liaison officers.
- Ensure clear human resources policy against sexual harassment that is aligned with national law.
- Ensure appointed human resources, environmental, social and health and safety personnel is well trained on PSEA/SH;
- Mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women;
- Informing workers about national laws that make sexual harassment and gender-based violence a punishable offence which is prosecuted;
- Introducing a Worker Code of Conduct as part of the employment contract, and including sanctions for non-compliance (e.g., termination), and
- Contractor to adopt a policy to cooperate with law enforcement agencies in investigating complaints about SEA/SH.

7.5.2 Prevention and Mitigation of Gender Based Violence (GBV) at the community

The contractor will implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including:

- Effective and on-going community engagement and consultation, particularly with women and girls;
- Review of specific project components that are known to heighten GBV risk at the community level, e.g., compensation schemes; employment schemes for women; etc.
- Specific plan for mitigating these known risks, e.g., sensitization around gender equitable approaches to compensation and employment; etc

The contractor will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation

Table 7-1: Institution Responsibility

Institution	Overall Responsibilities	
PO-RALG	The council is responsible for the overall implementation, administration and enforcement of the recommendations of the ESIA and the ESMP Report.	• Ensure that the ESMP provisions are included in tender documents issued for construction work and activities on site and shall monitor/enforce that the Tenderers/Contractors abides by the specifications • Coordinating the implementation of the ESMP among the three district authorities TARURA, SOUWASA TANESCO, MEM and other agencies and contractors; • Conducting training for institutional capacity building; • Provide NEMC with reports on environmental and social compliance as part of their annual progress reports and annual environmental monitoring reports; • Report to World Bank on the status of safeguard matters through submission of annual progress reports.
Songea Municipal Council	The local authorities are crucial for successful implementation of ESMP once some of the mitigation measures are better undertaken by local communities with the support of the local government authorities. It is therefore important that Municipal Councils be involved in the implementation of ESMPs (through the PIU environmental and social specialists and districts' Environmental Management Officers). The PIU environmental specialist has the responsibility to oversee and monitor adherence to, and implementation of ESMP by the Contractors (which includes compliance with the relevant obligations contained in the ESMPs).	Specifically, districts' authorities' responsibilities include the following: • Visit and inspect major project site regularly, to ascertain the level of compliance of works and report back environmental issues; • Maintain inspection reports on files; • Working with the Resident Engineers who have day-to-day interaction through supervisory staff; • Ensures the Contractor/s have all plans, procedures, approvals, and documentation in place to ensure ESMP compliance prior to commencement of any work; • Verifying Environmental compliance and issuing of penalties for contraventions of the ESMPs; • Ordering the removal of person(s) and/or equipment not complying with the ESMP specifications; • Taking decisions in case severe non-compliances to the ESMPs are detected; • Providing input for internal review of the ESMPs; • Stopping works in case of emergency or if significant environmental impacts are apparent or imminent; • Monitoring and verifying that environmental impacts are kept to minimum;
Contractor	The Contractor will be responsible for construction works and ensuring compliance with ESMP requirements. The Contractor shall appoint a Site Engineer.	Contractor shall: • Ensure that the environmental and social specifications of the ESIA and ESMP (including any revisions, additions or amendments) are effectively implemented; • Ensure environmental awareness among his/her employees and subcontractors so that they are fully aware of, and understand the environmental and social requirements and the need for them; • Report and record all accidents and incidents resulting in major injuries or death; • Inform SOUWASA, TANESCO TTCL and other relevant agencies of problems arising when implementing the ESMP and ways of improving the ESMP; • Undertake rehabilitation of all areas affected by construction activities in order to restore them to

Institution	Overall Responsibilities	
		their original state, as determined by the Engineer; • Undertake the required works within the designated working areas. • Contractor shall designate competent environmental, health and safety management staff throughout the construction period, and • Allocate adequate budget for environmental, health and safety management, including self-monitoring.
Construction Supervision Consultant	The Supervision Consultant will be appointed by Municipality and will be responsible for monitoring and supervision of the construction works including implementation of ESMP. The Supervision Consultant will appoint a Resident Engineer. For supervision and monitoring of the implementation of ESMP throughout the construction phase, the implementing agency can engage an Independent Environmental Consultant.	Supervision activities will comprise: • Environmental compliance and monitoring, including checking, verifying and validating the overall environmental performance of the project through regular audits, inspection and review of project submissions. Monitoring activities by the resident engineer will comprise: • Visual observation during site inspection carried out at the same time as the engineering supervision activities, • Site inspections that will take place with emphasis on early identification of any environmental problems and the initiation of suitable remedial action; • Review of the project GRM, including labour-related mechanism. • Where remedial actions have been required on the part of the Contractor, further checks will need to be made to ensure that these are actually being implemented to the agreed schedule and in the required form.

Table 7-2: Environmental & Social Management Plan for Upgrading of Urban Roads (9.5km) to Bitumen Standard in Songea Municipality

Phase	S/No	Impact	Mitigation Ref #	Proposed Mitigation Measure	Linked Mitigation	Unit	Responsibility	Cost/Year TShs	Cost in USD
MOBILISATION AND CONSTRUCTION	1	Loss of Habitat	M1.1	For any of the conserved tree's species be damaged, cut or removed off-site, a permit shall be obtained from the responsible Institution before construction	Permit from Ministry of Natural resources	N/A	Songea Municipal Council	1,000,000	431.00
			M1.2	The development footprint should be rehabilitated and returned to an ecological functional state. Recommendations for rehabilitation must be provided in the ESMP	Vegetation covers and planting of trees shall be done	No	Songea Muncipal Council	10,000,000	4,310.35
	2	Visual impact	M2.1	Control clearing on the area in the construction limits and quick vegetation upon completion of construction;	Refer to M1.2	No	Songea Muncipal Council	Covered in M1.2	Covered in M1.2
			M2.2	Planting mixtures of grass, shrubs and trees should be tailored to help re-establish the original site flora.	Refer to M1.2	No	Songea Municipal Council	Covered in M1.2	Covered in M1.2
			M2.3	All the exposed areas should be planted with grass once construction activities are complete. This should be undertaken in phases; grassing activities should be undertaken on a section by section basis to bind the loose soils together preventing accelerated rates of soil erosion.	Refer to M1.2	No	Songea Municipal Council	Covered in M1.2	Covered in M1.2
			M2.4	Adopt landscape design principles e.g. Building must be in harmony with existing landscape thus landscape to blend and follow the surrounding topography without excessive cuts and fill;	Design	NA	Songea Municipal Council	Included in design	Included in design
	3	Employment opportunities and Source of Income	M3.1	Sensitization of communities on the existing work opportunities in the project	Facilitation for both Sensitization Meetings and training	No	Songea Municipal Council	7,000,000	3,017.24
			M3.2	Training in entrepreneurship skills	Training materials	No	Songea Municipal Council	2,500,000	1,077.59
			M3.3	Gender Policy shall be implemented as it also provides guidelines to ensure gender sensitive plans, programmes and strategies are highly committed to road works and activities	Preparation of Gender Policy	No	Songea Municipal Council	500,000	215.52

Phase	S/No	Impact	Mitigation Ref #	Proposed Mitigation Measure	Linked Mitigation	Unit	Responsibility	Cost/Year TShs	Cost in USD
			M3.4	Promote labour-based construction works to employ unskilled local people from the villages	NA	NA	Songea Municipal Council	NA	NA
			M3.5	Advertise the jobs locally to attract skilled labour resident to the areas	Posting Through MEOs, WEO & City Council's Notice Boards	NA	Songea Municipal Council	500,000	215.52
			M3.6	Remuneration for all employees shall be not less than the minimum Tanzanian Government Scale	NA	NA	Songea Municipal Council	500,000	215.52
	4	Solid Waste Generation (Including spoil material, Overburden and Stripped Vegetation).	M4.1	Any other top soil remaining should be stored and used in landscaping for grassing and tree planting.	Restoration	NA	Songea Municipal Council	10,000,000	4,310.35
			M4.2	Waste will have to be sorted into degradable and non-degradable e.g., metals etc.	Proper solid waste management system	NA	Songea Municipal Council	5,000,000	2,155.17
			M4.3	Waste management hierarchy (3 or 4Rs – reduce, reuse, recycle (and recover) which is an acceptable guide for prioritizing waste management practices should be considered	Refer to M4.2	NA	Songea Municipal Council	5,000,000	2,155.17
	5	Contamination and disruption of water source/s	M5.1	Material stock pile should be located away from the watercourses.	Proper Storage	NA	Songea Municipal Council	1,000,000	431.00
			M5.2	Maintenance of vehicles and equipment should be done in designated areas (workshop) and not in water ways	Maintenance area	NA	Songea Municipal Council	3,000,000	1,293.10
			M5.2	Drums used for oil storage should be placed on top of wooden structures during loading and offloading and these can be kept well for further use to minimize the extent of spilling oil in several locations	Proper Storage	NA	Songea Municipal Council	2,000,000	862.00
			M5.4	Vehicles should be well serviced to minimize leakage	Maintenance Services	NA	Songea Municipal Council	5,000,000	2,155.17
	6	Noise Generation	M6.1	Construction equipment should be well maintained to minimize cracking noise from exhaust pipes	Refer to M5.4	NA	Songea Municipal Council	Covered in M5.4	Covered in M5.4

Phase	S/No	Impact	Mitigation Ref #	Proposed Mitigation Measure	Linked Mitigation	Unit	Responsibility	Cost/Year TShs	Cost in USD
			M6.2	Proper guidelines for workers will be put in place as a need to maintain order and minimizing noise concerns.	Refer to M3.3	NA	Songea Municipal Council	Covered in M3.3	Covered in M3.3
			M6.3	Noisy construction operations to be executed during the day (before 6pm)	Refer to M3.3	NA	Songea Municipal Council	Covered in M3.3	Covered in M3.3
			M6.4	Provide hearing protection devices to all workers exposed to excessive noise	Provision of ear plugs	No	Songea Municipal Council	3,500,000	1,508.62
			M6.5	Proper maintenance of construction equipment.	Refer to M5.4	NA	Songea Municipal Council	Covered in M5.4	Covered in M5.4
			M6.6	Establishment of barricading at the area (s) such as nearby school within 10m alongside the proposed road St Joseph Secondary School & Centenary Primary School (Kilimo Mseto-Mjimwema-Lizaboni Roads) Mashujaa Adult Education (Kilimo Mseto-Mjimwema-Lizaboni Roads) Matarawe primary School (Kilimo Mseto-Mjimwema-Lizaboni Roads) TAG Misufini Pre-Primary School (Manyara-Misufini Roads) Majengo Primary School (Majengo-Mchekanae Roads)	Education to Road users/Road Safety Issues	No	Songea Municipal Council	20,000,000	8,620.69
	7	Land and water pollutions from poor construction waste management	M7.1	The project proponent and Contractor shall make sure that they establish good and efficient solid waste disposal and collection system within the premises by contracting to the licensed and experience waste management contractor;	Availability of dustbins	No	CONTRACTOR	30,000,000	12,931.03
			M7.2	Use of durable, long- lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generating over time;	Nature of the material used	NA	CONTRACTOR	Covered in M7.1	Covered in M7.1
			M7.3	Provision of facilities for proper handling and storage of construction materials to reduce the amount of waste caused by damage or exposure to the elements;	Purchase of Empty Plastic Barrels for Storage of Used Oils	No	CONTRACTOR	Covered in M7.1	Covered in M7.1
			M7.4	Purchase of perishable construction materials such as paints incrementally to ensure reduced spoilage of un used materials;	NA	NA	CONTRACTOR	Covered in M7.1	Covered in M7.1

Phase	S/No	Impact	Mitigation Ref #	Proposed Mitigation Measure	Linked Mitigation	Unit	Responsibility	Cost/Year TShs	Cost in USD
			M7.5	Use of building materials that have minimal packaging to avoid the generation of excessive packaging waste;	NA	NA	Songea Municipal Council	Covered in M7.1	Covered in M7.1
			M7.6	Use of construction materials containing recycled content when possible and in accordance with accepted standards;	NA	NA	Songea Municipal Council	Covered in M7.1	Covered in M7.1
			M7.7	Wastes which will be inadvertently dumped in unauthorized locations will be removed immediately and disposed at an approved site;	Waste transportation	No	Songea Municipal Council	Covered in M7.1	Covered in M7.1
			M7.8	The contractor shall have adequate facilities for handling the construction waste. A large Skip Bucket shall be provided at the campsite;	Types of waste collector facility used	No	Songea Municipal Council	Covered in M7.1	Covered in M7.1
			M7.9	The skip bucket shall be collected and disposed to dumpsite	Disposal techniques	No	Songea Municipal Council	Covered in M7.1	Covered in M7.1
	8	Deterioration of ambient air quality by dust and fumes	M8.1	Speed of vehicles should be controlled to reduce dust by use of speed calming devices e.g., rumble strips/humps	Humps	No	Songea Municipal Council	2,500,000	1,077.59
			M8.2	Water should be sprinkled (3-4 times a day) to suppress dust especially in the dry season not only where the works are on-going but in all the affected roads	Water truck/Bowzer	Lts	Songea Municipal Council	6,000,000	2,586.21
			M8.3	All trucks carrying the granular material should be covered	Cover	No	Songea Municipal Council	4,000,000	1,724.14
			M8.4	Minimize vegetation clearing around all work sites including proposed campsite	NA	NA	Songea Municipal Council	NA	NA
			M8.5	Construction equipment and vehicles should be maintained to minimize gaseous emissions	Refer to M5.4	NA	Songea Municipal Council	Covered in M5.4	Covered in M5.4

Phase	S/No	Impact	Mitigation Ref #	Proposed Mitigation Measure	Linked Mitigation	Unit	Responsibility	Cost/Year TShs	Cost in USD
			M8.6	Provision of dust respirator with filters to employees exposed directly during vegetation clearance excavations, transportation as well as Gravel mining and stone quarry operations	Availability of N95 Respirator	NA	Songea Municipal Council	4,000,000	1,724.14
	9	Influx of People into the Area	M9.1	Local labour should be given priority for employment as this will solve many of the problems associated with influx of people.	Refer to M3.4	NA	Songea Municipal Council	Covered in M3.4	Covered in M3.4
			M9.2	There should be sensitization of the workers in cultural values and norms of the area.	Refer to M3.1	NA	Songea Municipal Council	Covered in M3.1	Covered in M3.1
			M9.3	The project should plan for additional infrastructure to cater for increased population for example, water sanitation and health facilities.	Availability of all necessary infrastructure	No	Songea Municipal Council	5,000,000	2,155.17
			M9.4	Local authorities shall need to be strengthened in order to deal with the increased cases of indiscipline brought about by the increased population influx, and any disputes that are likely to ensue;	Community cultural respect	NA	Songea Municipal Council	3,000,000	1,293.10
			M9.5	Project should set up internal controls and security systems for its materials	Fence and Security company	NA	Songea Municipal Council	2,000,000	862.00
	10	Increased Risk of Diseases	M10.1	The project should work closely with respective government departments, local NGOs, and/or faith based organizations, and local communities involved in Covid-19, HIV and reproductive health	Provision of health and Safety education	No	Songea Municipal Council	12,000,000	5,172.41
			M10.2	Mega awareness campaigns on Covid-19, HIV/AIDS and other STDS should periodically be organized	Refer to M10.1	No	Songea Municipal Council	Covered in M10.1	Covered in M10.1
			M10.3	Counselling and testing services to the workers and community members should constantly be made available.	Refer to M10.1	No	Songea Municipal Council	Covered in M10.1	Covered in M10.1
			M10.4	There is need for continuous sensitization of the workers and community members about Covid-19, HIV/AIDS and other STDs.	Refer to M10.1	No	Songea Municipal Council	Covered in M10.1	Covered in M10.1

Phase	S/No	Impact	Mitigation Ref #	Proposed Mitigation Measure	Linked Mitigation	Unit	Responsibility	Cost/Year TShs	Cost in USD
	11	Health and Safety	M11.1	Regular maintenance of equipment, engines and electrical installations; maintaining clean and tidy workplace, providing guard rails, signals and lighting; providing work site rules, safe working procedures and allocating appropriate places to carry out the work.	Security of the area and safety working place	NA	Songea Municipal Council	15,000,000	6,465.52
			M11.2	Contractor should locate stores to reduce risks to workers on site and arrangements for the safe use, handling, storage, transport and disposal of articles and substances are made before work starts to the satisfaction of the engineer.	Good House Keeping	NA	Songea Municipal Council	4,000,000	1,724.14
			M11.3	The Contractor should provide relevant protective clothing and safe equipment to all staff and labour engaged on the Works sites to the satisfaction of the engineer. These will include; high visibility vests, protective boots, gloves, masks, protective footwear and hard hats.	Availability of Proper PPE	NA	Songea Municipal Council	10,000.000	4,310.35
			M11.4	The Contractor should designate a full time Safety Officer qualified to handle the specific tasks.	Presence of Qualified HSE Officer	No	Songea Municipal Council	8,000,000	3,448.28
			M11.5	All employees shall be trained in how to ensure their own safety and reduce risks at work site	Training	No	Songea Municipal Council	5,000,000	2,155.17
			M11.6	Contractor should provide and maintain access to all work places in the condition that will reduce risks.	Diversion/Accessibility	No	Songea Municipal Council	15,000,000	6,465.52
			M11.7	Contractor should provide adequate waterborne sanitation, and refuse collection and disposal complying with the laws of Tanzania or By-laws.	Safe drinking water	L	Songea Municipal Council	25,000,000	10,775.86
			M11.8	Latrines and other sanitary arrangements should be put in place where work is in progress.	Clean sanitary facilities	No	Songea Municipal Council	10,000,000	4,310.35
			M11.9	Contractor shall comply with Government regulations in case of epidemic outbreaks.	Refer to M10.1	NA	Songea Municipal Council	Covered in M10.1	Covered in M10.1
			M11.10	The Contractor should manage the risk of spreading of contagious diseases.	Refer to M10.1	NA	Songea Municipal Council	Covered in M10.1	Covered in M10.1

Phase	S/No	Impact	Mitigation Ref #	Proposed Mitigation Measure	Linked Mitigation	Unit	Responsibility	Cost/Year TShs	Cost in USD
			M11.11	Contractor shall reduce occupational health hazards	Ergonomic hazards shall be considered	NA	Songea Municipal Council	3,000,000	1,293.10
			M11.12	Ensure full stocks of anti-malaria in the project clinic.	First Aid kit	No	Songea Municipal Council	500,000	215.52
			M11.13	Provision of treated mosquito nets to workers	Availability of mosquito net	No	Songea Municipal Council	2,000,000	862.00
	12	Gender Based Violence (GBV)	M12.1	Ensure effective and on-going community engagement and consultation, particularly with women and girls;	Complaints Register Book	No	Songea Municipal Council	5,000,000	2,155.17
			M12.2	Review of specific project components that are known to heighten GBV risk at the community level, e.g. compensation schemes; employment schemes for women; etc.	Refer to M12.1	No	Songea Municipal Council	Covered in M12.1	Covered in M12.1
			M12.3	Develop and implement GBV action plan	Refer to M12.1	No	Songea Municipal Council	Covered in M12.1	Covered in M12.1
			M12.4	Specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to compensation and employment; etc.	Refer to M12.1	No	Songea Municipal Council	Covered in M12.1	Covered in M12.1
			M12.5	The contractor will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation	Refer to M12.1	No	Songea Municipal Council	Covered in M12.1	Covered in M12.1
	13	Child Labour	M13.1	Due diligence and regular monitoring to ensure the non-employment of minors in the supply chain and supporting services;	Prohibition of child labour	No	Songea Municipal Council	3,000,000	1,293.10
			M13.2	Contractor comply with the labour laws of Tanzania that prohibits employing people of the age below 18 years e.g. Employment and Labour Relations Act, 2004 Part II Sub-part A Child Labour;	Refer to M13.1	No	Songea Municipal Council	Covered in M13.1	Covered in M13.1

Phase	S/No	Impact	Mitigation Ref #	Proposed Mitigation Measure	Linked Mitigation	Unit	Responsibility	Cost/Year TShs	Cost in USD
			M13.3	The Contractor is required to prepare and sign a code of conduct which has clear prohibitions on Child Abuse and Exploitation and a Code of Conduct for Gender Based Violence and report on its implementation in the course of project implementation;	Refer to M13.1	No	Songea Municipal Council	Covered in M13.1	Covered in M13.1
			M13.4	Contractor to develop and implement a Children Protection Strategy that will ensure minors are protected against negative impacts associated by the Project;	Refer to M13.1	No	Songea Municipal Council	Covered in M13.1	Covered in M13.1
			M13.5	Wherever possible, ensure that another adult is present when working in the proximity of children;	Refer to M13.1	No	Songea Municipal Council	Covered in M13.1	Covered in M13.1
			M13.6	Not invite unaccompanied children to workers' home, unless they are at immediate risk of injury or in physical danger; and	Refer to M13.1	No	Songea Municipal Council	Covered in M13.1	Covered in M13.1
			M13.7	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.	Refer to M13.1	No	Songea Municipal Council	Covered in M13.1	Covered in M13.1
	14	Destruction of Public Utilities	M14.1	Early notice must be given to the community/ies before any service interruption	Utilities	No	Songea Municipal Council	6,000,000	2,586.20
	15	Land Acquisition & Resettlement	M15.1	All feasible alternative project designs should be explored to avoid or at least minimize physical and /or economic displacement. The design/road construction corridor and RAP should be within required distance of RoW in detailed designs.	Affected Properties	No	Songea Municipal Council	100,000,000	43,103.45
			M15.2	Primarily through negotiated settlement at full replacement cost	Affected Properties	No	Songea Municipal Council	Covered in M15.1	Covered in M15.1
			M15.3	Additional assistance to be provided to the people who will be resettled for restoring their standards of living and further improvement for them;	Affected People	No	Songea Municipal Council	Covered in M15.1	Covered in M15.1
			M15.4	Resettlement Action Plan to be prepared by a suitably qualified specialist approved by Architects & Quantity Surveyors Registration Board (AQRB) for each section based on Expropriation Studies, socio-economic surveys and a census. The RAP are to be compliant with World Bank requirements and approved by Tanzania Government Chief Valuer in advance of any land acquisition.	Consultancy Service	No	Songea Municipal Council	Covered in M15.1	Covered in M15.1

Phase	S/No	Impact	Mitigation Ref #	Proposed Mitigation Measure	Linked Mitigation	Unit	Responsibility	Cost/Year TShs	Cost in USD
			M15.5	Any grievances are resolved on a timely basis, with evidence of formal and infor mal communication retained.	NA	NA	Songea Municipal Council	Covered in M15.1	Covered in M15.1
			M15.6	Affected persons shall be given the opportunity to participate in the negotiation of the compensation packages, eligibility requirements, resettlement assistance, suitability of proposed resettlement sites if any and the proposed timing. Socio-economic survey needs to be undertaken in order to recognize the real situation for all project affected people, taking into consideration those without legal rights over properties and belongings. This survey should take into consideration the previous Expropriation Study (if any).	Sensitization Meetings and Surveys	No	Songea Municipal Council	Covered in M15.1	Covered in M15.1
			M15.6	People who have not vacated their houses which were previously expropriated (if any) should be advised in good time about the Project and the risk of remaining nearby the line so they can move out prior to displacement and With any additional resettlement assistance needed	Affected People	No	Songea Municipal Council	Covered in M15.1	Covered in M15.1
			M15.7	Census to be conducted in line with World Bank's ESS5 requirements in order to facilitate the process and successful outcomes of resettlement	Socioeconomic Survey/Census		Songea Municipal Council	Covered in M15.1	Covered in M15.1
			M15.8	The Project shall comply with and implement RAP's and ensure all affected owners / users of land (including those who are using land informally) are appropriately informed, consulted and compensated for their assets and any losses:	Sensitization Meetings	No	Songea Municipal Council	Covered in M15.1	Covered in M15.1
OPERATION	16	Improved Economy	M16.1	Periodic and routine maintenance of the road and its facility should be properly streamlined.	Conducted Road Maintenance	No	Songea Municipal Council	20,000,000	8,620.69
	17	Traffic Accidents	M17.1	Signs and symbols shall be established at all potential black spots on the access roads;	Presence of Road sings	No	Songea Municipal Council	8,000,000	3,448.28
			M17.2	Awareness and education shall be provided to drivers and the general public;	Education to Road users/Road Safety Issues	NA	Songea Municipal Council	3,000,000	1,293.10
			M17.3	Establishment of appropriate and understandable signage	Refer to M15.1	No	Songea Municipal Council	Covered in M15.1	Covered in M15.1

Phase	S/No	Impact	Mitigation Ref #	Proposed Mitigation Measure	Linked Mitigation	Unit	Responsibility	Cost/Year TShs	Cost in USD
			M17.4	Establishment of barricading at the area (s) which is prone to the accidents	Education to Road users/Road Safety Issues	No	Songea Municipal Council	8,000,000	3,448.28
	18	Climate Change Risks (Floods and Heat Factors)	M18.1	Minimize the occurrence of flooding or reduce its magnitude by increasing infiltration within the catchment area draining through the hydraulic structures, or diverting high flows to drainage systems with a higher drainage capacity	Design & Construction of adequate hydraulic structures/culverts	No	Songea Municipal Council	Shall be included in designs	Shall be included in designs
			M18.2	Raising Road Level is one solution to adapt to climate change events, especially flooding. The road surface level will be raised to an elevation higher than expected flood level to reduce risk of road damage and to prevent an inaccessible road during flood event.	Design & Construction of Raised road	No	Songea Municipal Council	Shall be included in designs	Shall be included in designs
			M18.3	Side slope should be adjusted from 1:2 to 1:3 or flatter to prevent flood damage and erosion from road surface runoff.	Design dimensions	NA	Songea Municipal Council	Shall be included in designs	Shall be included in designs
			M18.4	Double bituminous surface dressing (DBST), should be used on the proposed roads	Design dimensions	NA	Songea Municipal Council	Shall be included in designs	Shall be included in designs
			M18.5	Construct bridge deck expansion joints to mitigate the impacts of higher temperature	Construction of Expansion Joints	No	Songea Municipal Council	Shall be included in designs	Shall be included in designs
			M18.6	Use paving materials that are more resistant to expansion in extreme heat conditions	Resistant Paving Material	NA	Songea Municipal Council	Shall be included in designs	Shall be included in designs
			M18.7	Build small-scale bridges with heat resistant materials or use coatings	Coating Material	NA	Songea Municipal Council	Shall be included in designs	Shall be included in designs

7.6 ESMP Sub-Plans for the Project

The Contractor shall prepares specific Health and Safety Management Plan (HSMP), Specific Environmental and Social Management Plan (ESMP), HIV/AIDS awareness programme, Road Safety Awareness Programme, Traffic Management Plan (TMP) and Borrow pit, Occupational Health and Safety Awareness Programme of the proposed Upgrading of roads sections project prior to the actual execution of the construction works based on the ToRs, Design and Environmental and Social Impact Assessment Report. General Requirements for plans are proposed as below.

Specific plans will be prepared by civil work contractor based on the latest design, and its consultation.

7.6.1 Health and Safety Management Plan (HSMP)

The plan should detail the measures taken by the project Contractor to manage the hygiene conditions and medical care in each of the workers camps. It should also address occupational health & safety in alignment with Labour law of Tanzania, ILO recommendations, Good Industry Practices. This plan should include (but not limited to) the following topics: (i) Health and safety policy and commitment from management, (ii) Description of organization; human resources, definition of roles and responsibilities, (iii) workers accommodation, hygiene facilities and food supply, (iv) Description of material resources including Personal Protective Equipment (PPE) to be used by workers, (v) Health and safety procedures, (vi) Risk assessment , (vii) Pollution prevention and protection, (viii) Health and safety training, (ix) Monitoring of health and safety performance, and (x) Medical checks.

7.6.2 Gender Based Violence (GBV) Action Plan

Gender-based violence (GBV) undermines the health, dignity, security and autonomy of its victims, yet it remains shrouded in a culture of silence. Victims of violence can suffer sexual and reproductive health consequences, including forced and unwanted pregnancies, unsafe abortions, traumatic fistula, sexually transmitted infections and HIV, and even death. (*https://tanzania.unfpa.org/en/topics/gender-based-violence-10*)

The Gender Based Violence Action Plan should form part of the ESMP for the project objectively to provide guidance to mitigate, prevent and respond to gender based violence during project's construction and post construction phases. The action plan should include but not limited to: communities' participation in ending GBV, healthcare for GBV survivors, mental health & psychosocial support to GBV survivors, safety and security of GBV survivors, justice and legal aid, social economic empowerment and referral systems.

7.6.3 Air Quality Management Plan

A detailed Air Emissions and Dust Control Management Plan should be prepared and implemented as part of the construction ESMP. The plan should detail all site-specific measures the project Contractor will implement during the construction period to identify and manage and reduce all nuisances caused by air emissions and dust production resulting from the construction activities including from project's traffic along the access roads. The plan should also include specific measures for the reduction of the greenhouse gas emissions in compliance with the national standards and proportionate to the potential impacts referring to greenhouse gas emissions.

7.6.4 Noise & Vibration Management Plan

A detailed Noise & Vibration Control Plan should be prepared and implemented as part of the construction ESMP. The plan should describe how the project Contractor will minimise and manage noise and vibration impacts during construction.

7.6.5 Effluent Management Plan

Effluents consist of liquid discharges from Worksite, transporting a pollutant (dissolved, colloidal or particles). A detailed Effluent Management Plan should be prepared and implemented as part of the

construction ESMP. The plan should detail all site-specific measures the project Contractor will implement during the construction period to identify, drain and treat all effluents generated on site from the construction activities.

7.6.6 Waste Management Plan

A detailed Waste Management Plan should be prepared and implemented as part of the construction ESMP. The plan should detail all site-specific measures the project Contractor will implement during the construction phase to identify, collect, transport and treat all waste produced on the Worksites by its personnel. The plan should reflect consultations and agreements achieved with the local authorities.

7.6.7 Hazardous Materials Management Plan

A detailed Hazardous Materials Handling and Storage Management Plan should be prepared and implemented as part of the construction ESMP. The plan should detail all site-specific measures the Contractor will implement during the construction phase to identify and manage hazardous materials planned for use on the Worksite and their disposal.

7.6.8 Soil Erosion & Vegetation Management Plan

A detailed Soil Erosion & Vegetation Management Plan should be prepared and implemented as part of the construction ESMP. The plan should detail all site-specific measures the project Contractor will implement during the construction phase to minimize vegetation clearing and prevent an increase in sediment loads being exported from the site.

7.6.9 Materials Management and Spoil Disposal Plan

The project Contractor should prepare and submit a Materials Management Plan that documents how excavated soils and materials are to be handled.

7.6.10 Borrow Areas Management Plan

A detailed Borrow Areas Management Plan ((including storm water management, OHS safety management, soil erosion and sediment control, progressive rehabilitation of all the disturbed area, and consultation with local communities and landowners) should be prepared and implemented for areas planned to be exploited for rockfill material, aggregates and rip rap material as well as for the other borrow areas (sand, gravel) that details all the environmental and social measures to be implemented for the operation of these sites.

The Borrow Areas Plan should also include rehabilitation/closure plan which should have following major elements:

7.6.11 Borrow Pit Description

- Overview of Borrow Pit Operation (including site description, maps, operation history, pending environmental, health and safety issues etc.);
-

7.6.12 Legal Requirements

Objectives

For example:

- Safety: ensure the quarry site is left in a safe and stable condition;
- Reintegration of the site into the surrounding area;
- Sustainability of post-closure land use;

7.6.12.1 Action Plan

Detailed action plans should be developed to determine how the objectives are to be achieved. These action plans should cover:

- What is to be done? describe actions to be done, e.g., stability of slopes; soil conservation; re-vegetation; re-establish natural drainage pathways; infrastructure, equipment, temporary structures to be removed; waste at site to be disposed of appropriately…
- Who is responsible?
- The resources required
- Timeline for delivery

7.6.12.2 Consultation of Stakeholders

Quarry rehabilitation/closure plan must address stakeholder expectations/the needs of stakeholders (e.g., landowners, communities, Conservation and Environment Protection Authority). Describe the consultation process, feedbacks, and whether the feedback/concerns have been properly addressed in the rehabilitation/closure plan.

7.6.13 Grievance Redress Mechanism (GRM) plan

GRMs are defined as organizational systems and resources established by national government agencies (or, as appropriate, by regional or municipal agencies) to receive and address concerns about the impact of their policies, programs and operations on external stakeholders. The stakeholder input handled through these systems and procedures may be called "grievances," "complaints," "feedback," or another functionally equivalent term.

GRMs are intended to be accessible, collaborative, expeditious, and effective in resolving concerns through dialogue, joint fact-finding, negotiation, and problem solving. They are generally designed to be the "first line" of response to stakeholder concerns that have not been prevented by proactive stakeholder engagement. GRMs are intended to complement, not replace, formal legal channels for managing grievances (e.g., the court system, organizational audit mechanisms, etc.). Stakeholders always have the option to use other, more formal alternatives, including legal remedies. It is important to emphasize that national GRMs are not intended to replace the judiciary or other forms of legal recourse. The existence of a GRM should not prevent citizens or communities from pursuing their rights and interests in any other national or local forum, and citizens should not be required to use GRMs before seeking redress through the courts, administrative law procedures, or other formal dispute resolution mechanisms

7.6.14 Traffic Management Plan

A detailed Traffic Management Plan should be prepared and implemented as part of the construction ESMP. The plan should (i) define the characteristics of the construction fleet of vehicles and site machinery, (ii) describe the expected Project's traffic (frequency of trips between Worksites, working hours, convoys) and (ii) detail all site specific measures the project Contractor will implement during the construction period to minimize the nuisances to neighbourhood generated by its fleet and reduce the risk of accident.

7.6.15 Site Rehabilitation Plan

A detailed Site Decommissioning and Rehabilitation Plan should be prepared and implemented as part of the construction ESMP. The plan should detail all site-specific measures the project Contractor will implement at the end of the construction period to rehabilitate all temporary areas disturbed by the works. Site rehabilitation should be considered as an integral part of the road project by incorporation throughout the planning, design, construction and maintenance phases. It is equally important that the rehabilitation process be budgeted for in each of these phases.
Issues that need to be addressed during the restoration phase should include:

- Identification of safety issues – this involves the application of road requirements and standards to landscape plans to ensure that proposed treatments will not impede safety.
- Selection of appropriate species - species mixes need to be formulated with regard to the aim of the restoration program and the intrinsic environmental values of adjacent areas.
- Development of an appropriate establishment technique – this could include seeding, seedling planting etc.

7.6.16 Community Safety Plan

The project contractor should prepare and implement Community Safety Plan, which includes regular community meetings on safety & construction hazards, announcement in advance of heavy construction activities, restriction of access to working sites, awareness campaigns on traffic related risks, including school children.

7.6.17 Recruitment and Local Labour Management Plan

A detailed Recruitment and Labour Management Plan should be prepared and implemented as part of the construction ESMP and TACTIC Labour Management Procedures. The plan will detail the manpower needs for the entire construction period, the local recruitment process and the approach planned to maximize local employment and local content opportunities.

7.6.18 Environmental Permitting

The project Contractor should conduct the environmental and social investigations required to obtain the environmental permit and any other authorizations as required by the authorities for the Project components that might not be covered by the ESIA or the construction permit. It should include: - but does not limit to – (i) the electrical transmission lines (ii) SOUWASA pipelines

7.6.19 Emergency Preparedness Plan

A detailed Emergency Preparedness Plan will be prepared and implemented as part of the construction ESMP. The EPP for Common Hazards and Emergency Situations during construction should be structured as such but not limited to:

- Identification of potential emergencies based on hazard assessment
- Procedures to respond to the identified emergency situations;
- Procedures to shut down equipment;
- Procedures to contain and limit pollution;
- Procedures for decontamination;
- Procedures for rescue and evacuation, including a designated meeting place outside the construction camps;
- Location of alarms and schedule of maintenance;
- List and location of equipment and facilities for employees responsible for responding to the emergency (fire-fighting equipment, spill response equipment, personal protection equipment for the emergency response teams, first aid kits and stations);
- Protocols for the use of the emergency equipment and facilities;
- Schedule for periodic inspection, testing and maintenance of emergency equipment;
- Clear identification of evacuation routes and meeting points;
- Schedule of trainings (drills), including with local emergency response services (e.g. fire fighters);
- Procedures for emergency drills;
- Emergency contacts and communication protocols, including with affected communities when necessary, and procedures for interaction with the government authorities;
- Procedures for periodic review and update of emergency response plans.

7.6.20 Communication Strategy

The plan shall provide a communication direction for the project team and the contractor to ensure a steady flow of accurate and timely information, engagement of stakeholders and to reduce incorrect information from other sources. The aim will be to minimise negative issues and enhance communities' support for the project.

The plan should be prepared to at least contain but not limited to the; list of stakeholders, communication methods and responsibilities of each stakeholder.

7.6.21 ESMP Implementation Cost

The cost of implementing the ESMP is summarized on the table below. The cost covers: (i) expenditures on works/environmental and social protection measures (works and sensitization); these expenditures are included in the project cost; (ii) the cost of follow-up measures during the road operation; and (iii) the cost for capacity building

8. ENVIRONMENTAL MONITORING PLAN

8.1 Introduction

Monitoring refers to the systematic collection of data through a series of repetitive measurements over a long period of time to provide information on characteristics and functioning of environmental and social variables in specific areas over time. There are four types of monitoring that are also relevant to this ESIA.

- **Baseline monitoring**-the measurement of environmental parameters during a pre-project period and operation period to determine the nature and ranges of natural variations and where possible establish the process of change.
- **Impact/effect monitoring**: involves the measurement of parameters (performance indicators) during establishment, operation and decommissioning phase in order to detect and quantify environmental and social change, which may have occurred as a result of the project. This monitoring provides experience for future projects and lessons that can be used to improve methods and techniques.
- **Compliance monitoring**: takes the form of periodic sampling and continuous measurement of levels of compliance with standards and thresholds – e.g. for waste discharge, air pollution.
- **Mitigation monitoring**: aims to determine the suitability and effectiveness of mitigation programmes, designed to diminish or compensate for adverse effects of the project.

8.1.1 Objectives of Environmental Monitoring

The overall objectives of the monitoring activities are to:

- Ensure regulatory requirements are met;
- Check that impacts do not exceed national environmental standards
- Verify predictions made in the ESIA by obtaining real time measurements;
- Verify that mitigation measures are effective and implemented in the manner described in Chapter 7;
- Provide early warning of potential environmental impacts; and
- Inform future operations and contribute to continuous improvement in the management of environmental and social issues related to the project.

Monitoring will be carried out by the project contractor pursuant to her contractual obligations to undertake inspections, monitoring and reporting

8.2 Internal & External Monitoring and Auditing Programmes

On-going monitoring should be a continuous control, monitoring both process and method to detecting compliance risk issues associated with project's operations. Ongoing monitoring programs are shall be the contractor's responsibility. Program responsibilities include keeping current with changes in rules, regulations, and applicable laws; developing internal controls, policies, and procedures to comply with them; training staff on these rules; and taking steps in monitoring or verifying compliance with new guidelines.

Monitoring programs should be designed to test for inconsistencies, duplication, errors, policy violations, missing approvals, incomplete data, or other possible breakdowns in internal controls. Monitoring techniques may include sampling protocols that permit program managers to identify and review variations from an established baseline.

Auditing entails reviewing the on-going monitoring process and verifying it is effective in achieving the desired outcome. When it comes to high-risk compliance areas within an operation, audit objectives are to:(1) verify that contractor is meeting her obligations for on-going monitoring; and (2) validate that the

process is achieving desired outcomes. This includes confirming that controls are in place and functioning as intended or identifying weaknesses in the program that need to be addressed.
An audit must be an independent and objective review, which means it should be done by people external to the project area to be audited. External reviewers can be used, such as consultant experts or project auditors. In any case, the project implementor should ensure that both the monitoring and auditing is taking place and doing what it should be doing.

8.2.1 Project's Inspections and Monitoring

The following four types of inspections and monitoring must be employed.

Inspections planned and conducted on a regular basis to ensure that mitigation measures and commitments are properly maintained and implemented, and that specific management procedures are followed.

Receptor monitoring undertaken to verify predictions made in the ESIA and to confirm that the activities at the site are not resulting in an unacceptable deterioration i.e., Monitoring disturbance to affected residents through a grievance mechanism).

Compliance monitoring involving periodic sampling or continuous recording of specific environmental quality indicators or discharge levels to ensure compliance of discharges and emissions with project standards.

Auditing (internal and external) to assess compliance of the site activities with both regulatory and site management system requirements.

Monitoring results will be presented in regular reports and reviewed at monthly and quarterly site meetings. The results of the inspection and monitoring activities will be reported to PO-RALG.

8.3 Reporting Procedure

The Contractor for Upgrading of the Urban roads (9.5km) to Bitumen Standard in Songea Municipality will be required to report any environmental or social incidents to the (PO-RALG) safeguard focal officer) through the project Engineer. The proponent Manager through the Project Engineer, will advise the contractor about appropriate mitigation measures and will direct the contractor to undertake these mitigation measures. If there are complaints from the public during the construction phase, the proponent Manager is to be notified immediately. The following information should be recorded by the Project Engineer/Consultant.

- Time, date and nature of the incident / report;
- Type of communication (e.g., telephone, personal meeting);
- Contact details with telephone number of people making the complaint. If this person wishes to remain anonymous then "not identified" is to be recorded;
- Details of response and investigation undertaken as a result of the incident / complaint;
- Name of person undertaking investigation of the incident / complaint;
- Corrective action taken as a result of the incident / complaint.

The Project Engineer/Consultant will prepare and submit weekly, monthly and quarterly monitoring reports to the PO-RALG Manager.

To ensure that mitigation measures are properly done, monitoring is essential. Table 8.1 provides details of the attributes to be monitored, frequency, and institutional responsibility and estimated costs. These

costs are only approximations and therefore indicative. Costs that are to be covered by the developer should be included in the project cost

Table 8-1Environmental and Social Monitoring Plan for Upgrading of the CBD roads (9.5km) to Bitumen Standard at Songea Municipal

Phase	Potential Impact	Parameter to Monitor	Monitoring Area	Monitoring Frequency	Measurement Unit	Responsibility	Estimated Costs (TShs)
Construction Phase	Loss of Habitat	Size and Type/Specie	Project site	Quarterly during construction	M3/Nos	Contractor/Songea Municipal Council	8,000,000
	Employment opportunities and Source of Income	Life style	Project area	Bi Annually	Nos	Contractor/Local Authorities	
	Solid Waste Generation of (Including spoil material, Overburden and Stripped Vegetation)	Quantities generated	Project site	Weekly	M3	Contractor/Local Authorities	6,000,000
	Contamination and disruption of water source	Turbidity, TDS, Nitrates Oil, Grease, color	Project area	Monthly	NTU, mg/L, Hazen	Contractor/ Ministry of Water & Irrigation	10,000,000
	Noise Generation	Noise level	Project site	Continually	Dba	Contractor	15,000,000
	Air Pollution	Concentration of pollutants in ambient air (dust, noxious gas)	Project site	Continually	NOX, SOX,PM10,	Contractor	25,000,000
	Influx of People into the Area	Increased number of people, Crimes incidences, Supply of Social services	Project Area	Once every six months	Nos	Contractor/Local Authorities	
	Increased Risk of Diseases (HIV), Covid-19	Number of affected individuals & Awareness Campaigns	Project Area	Once every six months	Numbers	Contractor/Local Authorities	8,000,000
	Health and Safety	Provisional of PPEs & Training	Project area	Continually	Number of employees	Contractor/Local Authorities/OSHA	
	Traffic & Road Impacts	Road Accidents & Road signs	Project area	Quarterly	Number of Accidents & Road Signs	Traffic Police/Municipal & Districts Councils	4,000,000
Operation phase	Improved Economy	Increased economic activities	Regional area	Annually	Regional GDP	Local Authorities	6,000,000

Phase	Potential Impact	Parameter to Monitor	Monitoring Area	Monitoring Frequency	Measurement Unit	Responsibility	Estimated Costs (TShs)
	Land and surface water pollutions due to mismanagement of solid waste	Facilities for disposal of solid wastes	Project area	Monthly	Visual	Project proponent	8,000,000
	Occupational Health & Safety Impacts	Adhere to safety regulations PPEs/sanitation & accommodation facilities	Project site	Continually	Quality of PPEs/Accommodation facilities and Safety Measures Provided	Contractor/Municipal & Districts Health Departments/OSHA	7,000,000
DECOMMISSIONING PHASE	Air pollution (Dust and exhaust emissions)	Dust pollution (PM10)	Project site			Proponent	8,000,000
	Loss of Employment	Pension Fund remittance	Project area		Number of employees registered with fund	Proponent	2,000,000
	Land Pollution due to solid waste such as hazardous oil	Soil parameter (pH)	Project area		Incidences		12,000,000
	Workers accidents and hazards during demolition	Availability of PPEs; types of people employed with their training background; Working conditions			Incidences		8,000,000

9. COST-BENEFIT ANALYSIS

9.1 Overview

The objective of a benefit-cost analysis is to translate the effects of an investment into monetary terms and to account for the fact that benefits generally accrue over a long period of time while capital costs are incurred primarily in the initial years. The primary transportation-related elements that can be monetized are travel time costs, vehicle operating costs, safety costs, on-going maintenance costs, and remaining capital value (a combination of capital expenditure and salvage value

9.2 Project Benefits

Benefits ofroads' upgrading are the direct, positive effects of that subproject; e.g., the improvement may reduce the number or severity of crashes, eliminate long delays during peak hours, or provide a shorter route. In road projects' benefit cost analysis, the usual procedure is that benefits are first estimated in physical terms and then valued in economic terms.

The benefits of Road upgrading project have been estimated by comparing the amount of travel time, vehicle kilometre travelled and expected number of crashes for the Alternative to the Base Case.

9.2.1 Estimation of Benefits in Physical Terms

- Estimate the number of crashes eliminated
- Travel time saved
- Vehicle-kilometres reduced

9.2.2 Translating of Physical Benefits into Monetary Values

- **Travel-Time Savings**: The valuation of travel time savings is calculated using standardized cost-per-hour-per-person figures for different vehicles (auto or truck).
- **Vehicle Operating Cost Savings**: The number of vehicle-kilometres- travelled (VKT) is the most common variable that affects vehicle operating costs. Once the change in vehicle kilometres is estimated, the valuation of vehicle operating costs is calculated using standardized cost-per-kilometre figures for different vehicles (auto or truck)
- **Safety Benefits**: Are one of the principal benefits that can result from road improvements. Benefits occur when the number of crashes is reduced and/or the severity of the crashes is reduced on a road.

9.3 Project Cost

In economic terms, the cost of a road investment is the value of the resources that must be consumed to bring the project about. The total value of design review, environmental study, tendering, construction, environmental & social impact mitigation, environmental & social monitoring and any additional maintenance costs must be estimated.

- **Engineering Design Cost**: Makes up the cost for road infrastructure design
- **Environmental & Social Study Cost**: Makes up the cost for conducting ESIA study and certification of the project by NEMC
- **Environmental & Social Impacts Mitigation and Monitoring Cost**: Makes up the cost for road project's environmental and social impacts management and monitoring
- **Capital Cost**: Makes up the total investment required to prepare a highway improvement for service, from engineering through landscaping. These include: engineering, right of way, major structures, grading and drainage, sub-base and base, surfacing, and miscellaneous items.
- **Major Rehabilitation Costs**: May be needed to maintain the serviceability of a major transportation facility e.g., pavement overlay. The cost of overlays or other major preservation

activities should be included in the analysis and allocated to the year when they are anticipated to occur.

- **Routine Annual Maintenance Costs**: It is important to account for the future operating and maintenance costs of the facility. Bridges require preventive maintenance, and roadway lanes have to be ploughed and patched each year.
- **Remaining Capital Value (RCV):** The remaining capital value is calculated by determining the percentage of useful life remaining beyond the analysis period, and multiplying that percentage by the construction cost for that component. The estimate of the remaining capital value at the end of the analysis period is then converted to a present value and subtracted from the initial capital cost.

9.4 Discounting

In construction projects, costs are incurred in the initial years, while the benefits from the project/investment accrue over years into the future. When assessing the costs and benefits it is necessary to take into account the time value of money by converting the costs and benefits that take place in different years into a common year.

The present value (PV) of a future cost or benefit has been determined using the formula:

PV=AByi/(1+r)(yi-yo)

Where:

PV =Present Value

AB (or AC) = Annual Benefit (or Annual Cost)

r = Discount Rate

yi = the year in which the benefit or cost occurs

yo = the year of analysis (i.e., the year to which the future dollars are discounted)

In an economic analysis all costs and benefits are given in constant dollars (no inflation) and are discounted to the year of analysis. The year of analysis is usually the current year.

9.5 Cost-Benefit Analysis Planning

9.5.1 Analysis Time Frame & Pertinent Years

Benefit-Cost Analysis includes time-dependent elements that must be defined and held consistent throughout the analysis. These elements are:

- Analysis time frame
- Years of construction
- First year of benefits
- Final year of analysis/year of remaining capital value (RCV)
- Number of days in a year

9.5.2 Timeframe

Is the period of time for which project benefits and related costs are compared and evaluated. An analysis period of 30 years is typical for market improvement projects, because the use and demographic information is generally available for this timeframe

9.5.2.1 Years of Construction

Construction cost has been assigned to the year or years in which they are anticipated to occur. The cost of construction has been divided evenly between the year 2022 and 2023. Construction cost has also discounted to the year of analysis.

9.5.2.2 First Year of Benefits

The first year of benefits is the first full year after construction of the Alternative is complete. Therefore for this project is 2023

9.5.2.3 Final Year of Analysis/Year of Remaining Capital Value (RCV)

The final year of analysis and year of remaining capital value are the same. For 20-years benefit-cost analysis (2022 to 2042), the final year of analysis and year of remaining capital value is 2042.

9.5.2.4 Number of Days in a Year

The number of days in a year over which benefits accrue depends on the upgrading of roads sections characteristics and the proposed improvements. Since the market shall have high-level investor's engagements, 365 days have been used in the analysis.

9.6 Environmental Cost Benefit Analysis

Environmental cost benefit analysis is assessed in terms of the negative versus positive analysis. Furthermore, the analysis is considering whether the impacts can be ameliorated and the costs of mitigating the impacts are reasonable. As it has been demonstrated in the previous chapter, the benefits of the project, in terms of financial and social benefit are substantial, the environmental impacts can be mitigated and the financial resources needed to mitigate the impacts are relatively reasonable compared to the actual capital investment. The EIA study revealed that there is potential for pollution of the environment due to from construction, operation and maintenances activities. However, proper implementation of the ESMP provided in this report shall help in the mitigation of the negative impacts on the environment.

10.DECOMMISSIONING PLAN

10.1 Overview

As decommissioning is not anticipated to take place in the remote future, the specific conditions for mitigation are generally inherently uncertain. In view of this, specific mitigation measures pertaining to environmental impacts of decommissioning works cannot be proposed at the moment with a reasonable degree of certainty.

A detailed decommissioning plan that takes environmental issues into consideration shall be prepared by the developer prior to the decommissioning works. Should it be done, decommissioning may entail change of use (functional changes) or demolition triggered by change of land use. Therefore what is presented here is just a Preliminary Decommissioning Plan which give light to what shall be done if the needs for decommissioning arise.

This Plan will be used as a reference document that provides the framework to ensure that demolition activities on the site do not adversely affect the health, safety, traffic or the environment of the public and neighbouring properties.

10.2 Demolition Methods

Demolition methods shall include the following

- The strip out and removal of non-structural elements will be undertaken utilising manual labour and small plant including – excavators, tipper trucks, metal cutters e.tc.
- The materials will be removed from site using small to medium sized trucks.
- The structures will be demolished using larger plant and equipment including hydraulic excavators equipped with rock breakers,
- During the demolition process erosion control measures will be established. These will include treatment of dust and potential discharges into water sources at bridges sections.

10.3 Demolition Activities

The following are the typical of activities for Upgrading of the urban roads (9.5km) to Bitumen Standard in Songea Municipality during decommissioning;

- Removal of road furniture.
- Block entrance. Put signs and blockage to the areas of the roads that is decommissioned.
- The entire road surface is then scarified or de-compacted (using an excavator) to encourage water infiltration and re-establish vegetation on the road surface
- All remaining materials and hazardous waste will be removed
- All waste will be disposed of in an appropriate manner; and reusable materials will be resold or recycled
- Revegetate the roads' surfaces, crossings, and disturbed areas. The roads are then vegetated with local native grasses, tree seedlings are planted at stream crossings, and a physical closure are constructed at the entrance to the roads.
- Install and implement roads' closure both physical and legal. The closure usually includes a large berm backed up by a ditch to prevent vehicles from driving over it. Legal closure on roads, because many people will still try to drive on it.

10.4 Borrow Pits' Decommissioning Activities

After approval of a reclamation plan, progressive reclamation may commence during operations. A progressive approach will reduce time and closure costs.
Reclamation shall involve:

- remove all foreign material (e.g., debris, structures, or equipment)

- Bury coarse material within pit or utilize for slope reconstruction.
- Re-contour and grade overburden to eliminate stockpiles
- Contours should not disrupt drainage
- Reconstruct slopes to restore natural drainage
- Drainage ditches maintain grade and capacity for diverting runoff from reclaimed site to aid vegetation establishment.
- Spread topsoil evenly over disturbed area
- Roughen surface to provide micro-sites for revegetation
- Natural revegetation optimizes native species and prevents invasive plants
- Reclaim access roads

10.5 Impacts Associated with Decommissioning Activities

Below are the impacts that are anticipated during decommissioning phase

- Potential impacts on site geology and soils may occur from the excavation, storage, reuse and disposal of soils
- There is the potential for personal injury and significant damage to machinery and equipment if inappropriate levels of consideration are given to health and safety issues,
- The noise impacts of the decommissioning activities
- Impact on air quality due to dust during cutting and filling and removal of tarmac.
- Waste materials on site during decommissioning with potential to be classified as hazardous i.e, oils and lubricants. That are disposed of inappropriately, have the potential to represent a significant risk to health and contamination of the local environment.

10.6 Mitigation Measures for Anticipated Impacts

- All disturbed areas shall be rehabilitated and re-vegetated;
- Native flora shall be used to re-vegetate the rehabilitated sites;
- Roadway will be scarified; and natural drainage patterns will be reinstated where practical
- The soils and materials excavated during the decommissioning phases of the proposed development will be stored in accordance with Good Practice Guidelines
- All health and safety regulations and best practice guidelines will be followed during the decommissioning of the proposed road development to ensure that risks to personal safety and equipment on site are minimized.
- Obtaining all necessary permits and/or authorizations to gain access to sites and to conduct work
- Consultation with representatives and communities to inform and get opinions to ensure safety measures.

10.7 Decommissioning Cost

The cost for undertaking Mitigation measures during decommissioning is estimated to be TShs 250,000,000.

Environmental cost benefit analysis is assessed in terms of the negative versus positive analysis. Furthermore, the analysis is considering whether the impacts can be ameliorated and the costs of mitigating the impacts are reasonable. As it has been demonstrated in the previous chapter, the benefits of the project, in terms of financial and social benefit are substantial, the environmental impacts can be mitigated and the financial resources needed to mitigate the impacts are relatively reasonable compared to the actual capital investment. The EIA study revealed that there is potential for pollution of the environment due to from construction, operation and maintenances activities. However, proper implementation of the ESMP provided in this report shall help in the mitigation of the negative impacts on the environment.

11.SUMMARY AND CONCLUSION

11.1 Summary

Songea Municipality is among twelve (12) Municipalities and Cities selected under Tier 1 for TACTIC project to be financed on upgrading its 9.5km roads' infrastructure by the World Bank. PO-RALG on behalf of the Government of Tanzania is the main implementing agency.

Selected roads are key for economic development within the Municipality to be upgraded to bitumen standard. Norplan, the Consultant has conducted ESIA study for the proposed infrastructure upgrading as required by EMA,2004, EIA & Audit Regulations 2005 and its amendments of 2018 and the World Bank's Environmental and Social Standards (ESS1-ESS10).

The study involved stakeholders' engagement, field studies and literature reviews including relevant national policies, legislations and international conventions ratified by Tanzania.
Various impacts during mobilization and construction, operation and maintenance and decommissioning phases have been identified and evaluated. These include: air pollution, noise generation, safety risks, change of land use, water pollution, GBV, child labor, employment, HIV transmission and climate change risks to mention the few.

All the assessed/evaluated impacts' are of low to moderate significance and can be reduced or mitigated upon implementation of mitigation measures and monitoring plan as outlined in chapter 7 and 8 of this document.

Generally, the proposed roads' upgrading subproject shall improve the wellbeing of Songea people and the nation all together. In a long lasting the project shall contribute the national effort towards poverty alleviation, hence attaining objectives of the Millennium Development Goals (MDGs) and the National Strategy for Growth and Reduction of Poverty (NSGRP, 2005).

11.2 Conclusion

Although implementation of the proposed urban roads' upgrading subproject has negative impact to the people and surrounding environment, it is still beneficial to Songea communities for their economic growth. Analysis from the costs and benefits indicates the benefits outweigh the cost and thus it is feasible for implementation. However, during construction, closer follow-ups on implementation of ESMP should be of high priority to both PO-RALG and contractor through supervising consultant.

REFERENCES AND BIBLIOGRAPHY

Tanzania Bureau of Standards, 2008; National Environmental Standards Compendium

World Bank (2007): Environmental, Health, and Safety Guidelines for Airlines, IFC/World Bank, 2007 UNOPS (East Africa Hub) (August, 2015): Tanzania Sea Wall Construction Project – Drainage Works Reconnaissance Mission Report.

National Environmental Management Council (2005). *Environmental Impact Assessment and Audit Regulations.* Government Printers, Dar es Salaam, Tanzania

List of Appendices

Appendix A: APPROVAL SCREENING LETTER

THEUNITED REPUBLIC OF TANZANI '

VICE PRESIDENT'S OFFICE
UNION AND ENVIRONMENT

NATIONAL ENVIRONMENT MANAGEMENT COUNCIL
(NEMC)

In reply please quote:
Ref: **EC/EIA/2022/8343**

Date: **08/06/2022**

Songea Municipal Council,
P.O. Box14,
SONGEA.

RE: **SCOPING REPORT AND TERMS OF REFERENCE FOR THE PROPOSED ENVIRONMENTAL IMPACT ASSESSMENT FOR UPGRADING THE URBAN ROADS (9.5KM) TO BITUMEN STANDARD IN SONGEA MUNICIPALITY, RUVUMA REGION**

2. The National Environment Management Council (NEMC) receved of your application attached with Scoping Report submitted with draft Terms of Reference (ToR) for undertaking Environmental Impact Assessment (EIA) study of the aforementioned project.

3. The Terms of Reference have been reviewed and found to be satisfactory to guide the EIA study. However, you will be required to ensure that;-

i. Task ii of the ToR, information about source of the construction materials, quarry sites, borrow pits should be added in the ToR and clearly discussed in the EIS;

ii. According to contradiction in task ii of ToR and section 2.11 page 9 of scoping report, the EIS should clearly show the summary of the status of land acquisition where applicable;

iii. The EIS should clearly describe the characteristics of all solid, liquid and hazardous waste to be generated and its management for each project phase;

iv. The EIS should clearly provide the preliminary engineering design of the road and its appurtenances, design period of the project, man power, machinery/equipment, technologies as well as source of utilities to be used during project phases;

v. The EIS should clearly show the disposal locations of the overburden/ demolished materials, disposal site characteristics/conditions as well as nature of the disposed materials;

vi. All key stakeholders mentioned in task v of ToR are consulted and their views and concerns addressed. Records of meetings, communication and comments should be provided. Consultation forms should bear date and each consulted stakeholder should sign against his/her names. Submission of documents which do not observe this requirement will be sent back to the proponent for corrections;

vii. Name of the Proponent that will be responsible to implement the EMP of this project has to appear on the cover page i.e. Songea Municipal Coucil;

viii. Accoring to Section 34 (i) of EMA (Registration and Practice Of Environmental Experts) Regulations, 2021, the foreign firm of environmental experts wishing to practice as a firm of environmental experts in Tanzania shall apply for practicing permit. Contrary to the above, TYPSA and Urban Solution Limited are not allowed to appear in this document;

ix. Provide the specific title for this particular project on the cover page and to all the coming correspondences with the Council.

4. Upon Submission of the EIS, the Council will arrange for a technical review of the document by Technical Advisory Committee (TAC). Prior to this review, representatives of the Council will visit the project site to verify the adequacy of the report with respect to the proposed project site and surrounding environment. Upon submission of the EIS you will be required to as well pay to the Council a review cost though control number to be generated by the system.

5. Thank you for your good cooperation.

A. N. Sembeka
For: Director General.

Cc: NORPLAN Tanzania Limited,
P.O. Box 2820,
DAR ES SALAAM.

Appendix B: DRAFT FOR TERM OF REFERENCE

DRAFT TERMS OF REFERENCE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED UPGRADING OF CBD ROADS (9.5KM) TO BITUMEN STANDARDS IN SONGEA MUNICIPALITY, RUVUMA REGION. (TACTIC ZONE 3)

1.0 BACKGROUND

The Government of the United Republic of Tanzania through The President's Office - Regional Administration and Local Development (PO-RALG) has received a credit from the Word Bank towards in implementing projects-financed Tanzania Cities Transforming Infrastructure and Competitiveness Project (TACTIC), which will be, implemented through the President's Office - Regional Administration and Local Development (PO-RALG).

NORPLAN Tanzania Ltd was awarded the contract by PO-RALG to conduct; Feasibility Study, Urban Design, Detailed Engineering Design, Environmental and Social Due Diligence, Preparation of Cost Estimates and Bidding Documents for Urban Infrastructure Investments for Songea Municipal Council. Songea is among four (4) Municipalities under TACTIC-Zone 3; others include Sumbawanga. Morogoro and Mbeya.

The good road network for the transportation of goods and passengers within the Municipality shall contribute to the social and economic development. Roadwork under TACTIC project Zone "3" in Songea Municipal shall involve the Upgrading the 9.5km urban roads to Bitumen standard. Upgrading of the roads will facilitate in improvement of infrastructures in Songea Municipality, enhance connectivity with other roads, and increase accessibility to schools, public facilities and businesses at Songea urban area which is currently hampered by poor roads conditions especially during the rainy seasons. Implementation of selected urban roads shall facilitate safer and timely movement of the people and vehicles from their destinations to various areas within the Municipality.

In order to upgrade the proposed sub-projects, PO-RALG commissioned Norplan Tanzania Ltd to undertake the detailed engineering designs for the envisaged upgrading works, including carrying out of Environmental Impact Assessment (EIA) for the proposed roads' subproject.

2.0 SCOPE OF CONSULTANCY SERVICES

The Consultant shall carry out the environmental and social impact assessment for the proposed project road. The Consultant shall review all available and relevant documents, maps, previous studies if any, and conduct the environmental and social impact assessment study, field investigations and other related works herein described to attain the stated objectives.

The consultancy services will be carried out in accordance with these Terms of References which are in accordance with the requirements of the applicable National Legislations. The Environmental and Social Impact Assessment will be conducted and ESMP and RAP will be developed. In this regard, the Environmental and Social Impact Assessment (ESIA) and development of ESMP and RAP will be in line with the requirements of:

(i) The Environmental Management Act Cap 191;
(ii) Environmental Impact Assessment and Audit regulations, 2005;
(iii) The Land and Village Land Acts (1999); and

The Consultant shall perform all impact analyses related to services as described therein with due care and diligence to attain the objective of the assessment, among others, the Consultant will perform the following tasks:

Task 1: ESIA Scoping and Registration

The Consultant shall carry out scoping exercise and prepare Scoping Report for screening and approval by the National Environment Management Council together with dully filled forms no:1 & 4. The Scoping Report should include the following:

- Background of the project and objective of the assignment;
- Project description;
- An outline of how the scoping exercise was undertaken;
- Identification of issues and problems;
- Synthesis of results of Scoping exercise (potential positive and negative impacts);
- Project boundaries in terms of spatial, temporal and institutional aspects;
- Stakeholder's consultation. This will cover all levels of stakeholders' identification, record their concerns and indicate how they were involved. This list of stakeholders consulted should be appended in the Scoping Report;
- Project alternatives;
- Cost of the implementation of the project.

In the undertaking of scoping exercise, the Consultant has to refine the Terms of Reference (TOR) in consultation with various stakeholders to cover environmental issues which may emerge from the consultation during the scoping exercise. The TOR should be appended to the Scoping Report. The Scoping Report shall be submitted for review and submission to the NEMC for further review/screening and approval.

Task 2: Environmental and Social Impact Assessment

Sub-Task (i): Description of Project Background

The Consultant shall provide a brief description or profile of the Developer, background to the project proposal and its justification, need and purpose of undertaking the study, ESIA and RAP study methodologies and approaches applied and structure of the report.

Sub-Task (ii): Description of the Proposed Project

The Consultant shall describe project components and activities to be implemented in each phase of project life i.e., pre-construction or mobilization, construction, operation and post-construction (demobilization). This part is meant to give a general idea of what the project will entail. To avoid unnecessary details, focus on the project activities based on project phases i.e., mobilization or pre-construction phase, construction phase, operation phase and demobilization phase. The description shall include the following information:

- ***Background information***

Background information shall include: Title of the proposed project and developer; Project justification and objectives; Funds and source of funding or financier(s); Project location including maps of appropriate scale; Project design, size, and capacity; Area of influence of the project works; Project life span and Project components; Land size required;

a) Project Activities

Description of project activities shall be based on phases of project life cycle i.e., mobilization or pre-construction, construction, operation and maintenance, demobilization and decommissioning phases:

- ***Mobilization or Pre-construction activities*;**

Describe activities pertaining to land acquisition; construction camp if required and site workshop; project design; land dispossession and property valuation; relocation and compensation arrangements;

- ***Construction Activities;***
  Describe all associated activities during construction work such as extraction of construction materials and water indicating its types and sources; blasting; cut and fill; land clearance; soil and gravel compaction and leveling, demolition of structures along the project reserve; types, sources and amount of liquid and solid waste generation and including their disposal; dust etc.

- ***Operation and maintenance activities;***
  Identify and describe all the associated activities to be conducted during project operation and maintenance such as project health and safety measures, operation and management of project facilities along the project such as public toilets, etc.

- ***Demobilization Activities;***
  Identify and elaborate on the activities to be conducted during demobilization or decommissioning of the project including movement and demolition of construction facilities, restoration of borrow pits, termination of the temporary workers' employment, waste management, etc.

b) Project Requirements

Identify all types, sources and quantities of construction materials, equipment and chemicals required by the project. Source and quantities of water, energy, manpower (Staffing and support) and other facilities and services required in each phase of project life etc.

Sub-Task (iii): Provide Baseline Condition or Description of the Physical, Biological, and Socio-Economic and Cultural Environment

In order to forecast the impacts, it will be necessary to determine the initial reference or baseline state. It is therefore, required to describe the existing environment that would be directly and/or indirectly affected by the construction of the proposed project. The 'environment' to be affected must be based on the project definition of the term that would include physical, biological socio-economic, cultural and historical factors. Only those environmental factors that are necessary to understand the impacts of the planned development should be considered. Assemble, evaluate, and present baseline data on the relevant environmental characteristics of the study area. Include information on any changes anticipated before the project commences.

(a) **Physical environment:** This shall cover geology; topography; soils; climatic conditions and meteorology; ambient air quality; surface and groundwater hydrology; existing sources of air emissions; existing water pollution discharges; receiving water quality; traffic data etc.;

(b) **Biological environment**: flora, fauna, rare, threatened or endangered species, ecologically important or sensitive habitats, including available forest reserves, significant natural sites; species of commercial importance; and species with potential to become nuisances, vectors, or dangerous (of project site and potential area of influence of the project); and

(c) **Socio-economic and socio-cultural environment**: population; land use; planned development activities; community structure; employment; livelihood means, distribution of income, goods and services; recreation; public health; Gender issues and HIV/AIDS, cultural/historic properties; tribal peoples; and customs, aspirations, and attitudes to the project.

The Consultant shall indicate sources of data and methodologies used to acquire data. The relevant international and national standards of noise levels, water and air quality etc. must be applied when comparing between the existing and anticipated impact of project.

Sub-Task (iv): Describe the Policy, Legal and Institutional Framework

Describe the policy, legal, institutional framework as well as regulations, strategies, standards, international conventions and treaties that are of relevance to the environmental management and the proposed undertaking in particular. They should be those, which relate to but not limited to environmental quality, health and safety, protection of sensitive areas and protection of endangered species, land and land use. A description of the World Bank environmental and social safeguard policies to be triggered by the project should be provided. The objective of this section is to show compliance of the developer with the existing policies, laws administrative/institutional conditions both at national and international levels.

The following, but not limited to, are the relevant policies and legislation to be cited in relation to the proposed project undertakings.

Relevant policies and legislation to the proposed projects	
Policies, Regulations and Guidelines	**Legislation**
• National Environmental Policy (1997); • National Water Policy (2002); • The Wildlife Policy of Tanzania (2007); • National Gender Policy (2000) • National Transport Policy (2011) • National Land Policy (1995) • National Mineral Policy (2009) • National Energy Policy (2015) • National Human Settlement Development Policy (2002) • National Policy on HIV/AIDS (2001) • Construction Industry Policy (2003) • National Agricultural Policy (2013) • National Employment Policy (2008) **<u>Regulations, Strategies and Guidelines:</u>** • Environmental Impact Assessment and Audit Regulations (2005); • Mining (Environmental management and Protection) Regulation (1999) • Environmental Assessment and Management Guidelines in the Road Sector (2011); • Land Regulation (2001); and • National Strategy for Growth and Reduction of Poverty (NSGRP - MKUKUTA -2010) • Environmental Code of Practice for Road Works (2009); • Tanzania Development Vision 2025 (2000) • Road Sector Compensation and Resettlement Guidelines (2009) • Environmental Management (Air quality standards) Regulations, 2007 • National Environment (Noise standards and Control) Regulations 2015 • Environmental Management (Water quality	• Road Act (2007); • Environmental Management Act (2004); • Energy and Water Utilities Authority (EWURA) Act (2001) • Water Resources Management Act No 11 of (2009), • Mining Act 2010; • Occupational Health and Safety Act (2003) • HIV and AIDS (prevention and Control) Act No. 28/08 (2008) • Local Government Laws (Miscellaneous Amendments), No. 13 (2006); • Village and Urban Land Acts (1999); • Land Act No. 2/04 (2004), amendment of the Land Act (1999); • Antiquities Act (1964), Rules 1999 • The Standards Act No. 2 of 2009 • Land Acquisition Act 1967, Revised in 2012 • Contractors Registration Act (1997) • Engineers Registration Act 1997 (Amendments 2007) • The Industrial and Consumer Chemical (management and Control) Act, 2003 • Employment and Labour Relations Act (2004) • The petroleum Act of 2015 • Explosives Act (1963) • Urban Planning Act (2007) • Land Use Planning Act (2007) • Worker's Compensation Act (2008)

standards) Regulations, 2007 • Environmental Management (Hazardous waste Control) Regulations, 2021 • TANROADS HIV/AIDS at Work Place Policy (2015)	

International Obligations/Treaties:

The International Conventions/Treaties to be reviewed include:

(v) International Convention on Trade of Endangered Species (CITES);
(vi) Convention on Biological Diversity (1996); and
(vii) United Nations Convention to Combat Desertification (1997);
(viii) Basel Convention on Control on the Trans-Boundary Movement of Hazardous Waste and Disposal.

Furthermore, the Consultant shall clearly describe the linkage between the functions of the relevant institutional or administrative frameworks in Tanzania and the proposed project undertakings. The Consultant shall assess the capacity of the project implementing entities on the management of environmental and social issues under the project. On the social side, the Consultant shall assess the institutional arrangements for the implementation of the RAP, including the processes involve with identification and valuation of the affected assets, the different stakeholders involved and their roles and responsibilities.

Sub-Task (v): Stakeholder Consultations and Public Involvement.

The Consultant shall identify and consult all the relevant stakeholders at national, regional and local levels. These include the Government Agencies, local NGOs, affected groups and other interested parties in order to obtain their views regarding the proposed project implementation arrangement. Indicate who they are, where they are, why they are important in this project, which issues are critical to them and how they will be involved in the ESIA study. Particular attention shall be paid to the disadvantaged groups (e.g., children, people with disabilities, the elderly and women) that may be affected by the proposed project.

The Consultant shall describe methodology applied during stakeholder consultations and public participation such as consultative meetings, household, focus groups interviews and other most appropriate methods to establish public views on the proposed project. Meetings with local authorities and the public shall be held to obtain their views on the project and its implication to the environment and social aspects.

Consultant shall propose public consultation Programme during the ESIA and development of RAP and the most appropriate methods to establish public views should be used. The consultation process should be open and transparent to ensure that the views of interested and affected parties are incorporated in the project design. A summary of issues and response in table form indicating sections which address them should be prepared.

There should be evidence in the Environmental Impact Statement (EIS) to the effect that there were stakeholders' consultations at all levels. Photographs, minutes of the meetings, names and signatures of consulted people could be necessary in this regard.

Among others, the key stakeholders consulted during the study are the following:

1. Ruvuma region and Songea Municipal (Regional Secretariat and Municipal Council).
2. Government public agencies/institutions (TARURA,TANESCO, SUOWASA, TTCL, Fire and rescue force, Ruvuma and Southern Coast river basin)
3. Wards and mitaa committees
4. Non-Governmental Organisation (Bus Companies, Students, women, Community groups, People with Disabilities (SHIVYIWATA) and other agencies like religious institutions)

Sub-Task (vi): Analysis of Alternatives to the Proposed Project

The Consultant shall describe different project alternatives that were examined in the course of designing the proposed project and identify other alternatives, which would achieve the same objectives. Including the 'No action' alternative to demonstrate environmental and social conditions without the project, consideration of alternatives should extend to sitting, design, technology, construction techniques, phasing and schedule, and operating and maintenance procedures alternatives.

Compare alternatives in terms of potential environmental and social impacts; capital and operating costs; suitability under local conditions; and institutional, training, and monitoring requirements. When describing the impacts, indicate which are irreversible or unavoidable and which can be mitigated. To the extent possible, quantify the costs and benefits of each alternative, incorporating the estimated costs of any associated mitigating measures. Various environmental and social criteria should be developed to select the best project alternatives.

Sub-Task (vii): Impact Identification and Assessment

The Consultant shall identify, analyze and assess environmental and social impacts (positive and negative) of the proposed project works on natural resources, human beings and the ecosystems based on the phases of project life cycle i.e., mobilization or pre-construction phase, construction phase, operation phase and decommissioning and demobilization phase. Aspect of climate change should be considered in impact identification throughout the project cycle. Methods applied in impact identification and the criteria used in evaluating the levels of impacts significance of the proposed project works must be specified.

The impacts analysis should focus on both positive and negative impacts and be able to state whether the impacts are positive or negative; direct or indirect; short term or long term; reversible or irreversible. The Assessment should focus on the potential for negative environmental and social impacts of the proposed project on the access to business, community/common facilities, human settlements; potential impacts caused by planned and unplanned (spontaneous) in-migration of people; clearing of forest lands for agriculture; increased pressure on fuel wood, fodder and water resources; social disruptions and conflicts; and threats to woodlands and wildlife species composition and habitats.

The assessment should also examine the potential for linear resettlement that usually involves projects producing linear patterns of land acquisition. An overview shall be provided of different groups of people and their cultural, ethnic, and socio-economic characteristics, and how they are likely to benefit and/or be negatively affected by the project. Negative impacts may include but not be limited to physical relocation, loss of land or other physical assets, or loss of access to livelihood.

Sub-Task (viii): Valuation of Properties to be Affected

The Consultant should identify the properties along the proposed project which will be affected by the implementation of the project. The valuation of properties to be affected should be in line with requirements of Road Management Regulations of 2009. The types and numbers of the properties to be affected should be indicated. Furthermore, the names and address of the properties' owners should be indicated. The Consultant shall utilize the information from the Valuer to address resettlement issues and develop Resettlement Action Plan. The Resettlement Action Plan shall be developed as per attached guidelines.

The ESIA study should clearly identify and analyze cumulative, residue and trans-boundary impacts. Wherever possible, describe impacts quantitatively, in terms of environmental components affected (area, number), environmental and social costs and benefits. Assign economic values when feasible. Characterize the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with the predicted impacts.

The Consultant should take into consideration existing by-laws, national and international environmental standards, legislation, treaties, and conventions that may affect the significance of identified impacts. The Consultant shall use the most up to date data and methods of analyzing and assessing environmental and social impacts. Uncertainties concerning any impact shall be indicated.

Sub-Task (ix): Propose Impact Mitigation Measures

The Consultant shall suggest cost-effective measures for minimizing or eliminating adverse impacts of the proposed project works. Measures for enhancing positive or beneficial impacts should also be recommended. The costs of implementing these measures shall wherever possible be estimated and presented.

One of the mitigation measures for the resettlement impact is compensation. The Consultant is therefore required to conduct property valuation for those properties to be affected by the project implementation to effect compensation and development of Resettlement Action Plan.

The Consultant shall review the ongoing measures on HIV/AIDS awareness creation within the project area and propose for the mitigation measures. The proposal shall include a plan of action which will identify responsible key implementers, time frame and expected output.

The proposed mitigation measures shall be properly designed and specified with clear Pay Items in the Bidding Documents. The cost estimate shall be included in the Tender Documents for the project and should also include cost of supervision for the implementation of mitigation measures. Also measures to address emergencies should be covered.

Sub-Task (x): Resource Evaluation or Cost Benefit Analysis.

The Consultant shall review the economic study undertaken during the Preliminary Engineering Design to ascertain the economic viability taking into account the environmental and social issues. The Economic Internal Rate of Return (IRR) and Net Present Value (NPV) of the project at recommended discount rate of 12% should be calculated and interpretation of the results be provided.

Sub-Task (xi): Development of the Environmental and Social Management Plan (ESMP)

The Environmental and Social Management Plan focuses on three generic areas: implementation of mitigation measures, institutional strengthening and training, and monitoring. The Consultant shall prepare Environmental and Social Management Plan which will include proposed work Programme, budget estimates, schedules, staffing and training requirements and other necessary support services to implement the mitigation measures. Institutional arrangements required for implementing this management plan shall be indicated. The cost of implementing the monitoring and evaluation including staffing, training and institutional arrangements must be specified. Where monitoring and evaluation will require inter-agency and inter-Governments collaboration, this should be indicated.

Identify institutional needs to implement environmental assessment recommendations. Review the authority and capability of institutions at local, regional, and national levels and recommend how to strengthen the capacity to implement the environmental and social management and monitoring plans. The recommendations may cover such diverse topics as new laws and regulations, new agencies or agency functions, inter-sectoral arrangements, management procedures and training, staffing, operation and maintenance training, budgeting, and financial support.

ESMP shall specify impact mitigation plan and environmental monitoring plan requirement. The costs, responsibility and timeframe for mitigating each impact and monitoring of each environmental parameter should be provided. Impact Mitigation plan and monitoring plan should be based on the project phases i.e., mobilization or Pre-construction, Construction, Operation, Demobilization and Decommissioning phase.

Sub-Task (xii): Reporting

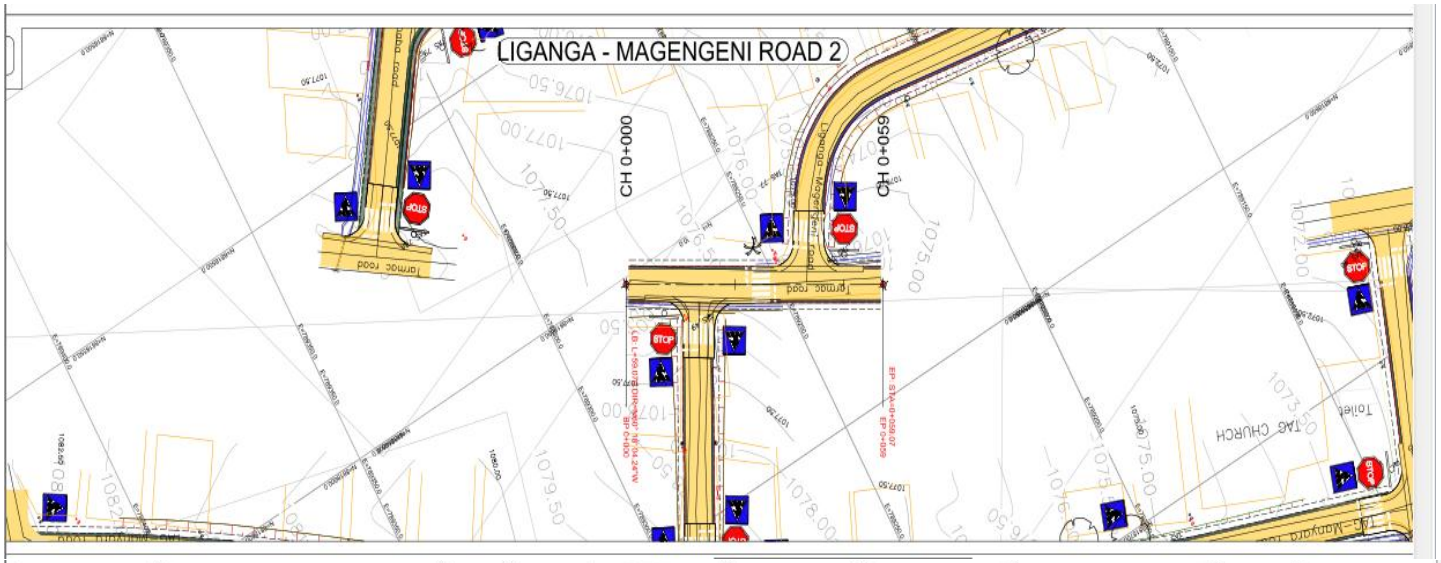
Notwithstanding the above requirements, the contents and the structure of the Environmental and Social Impact Assessment Report should be in accordance with the Environmental and Impact Assessment and Audit Regulations, 2005.

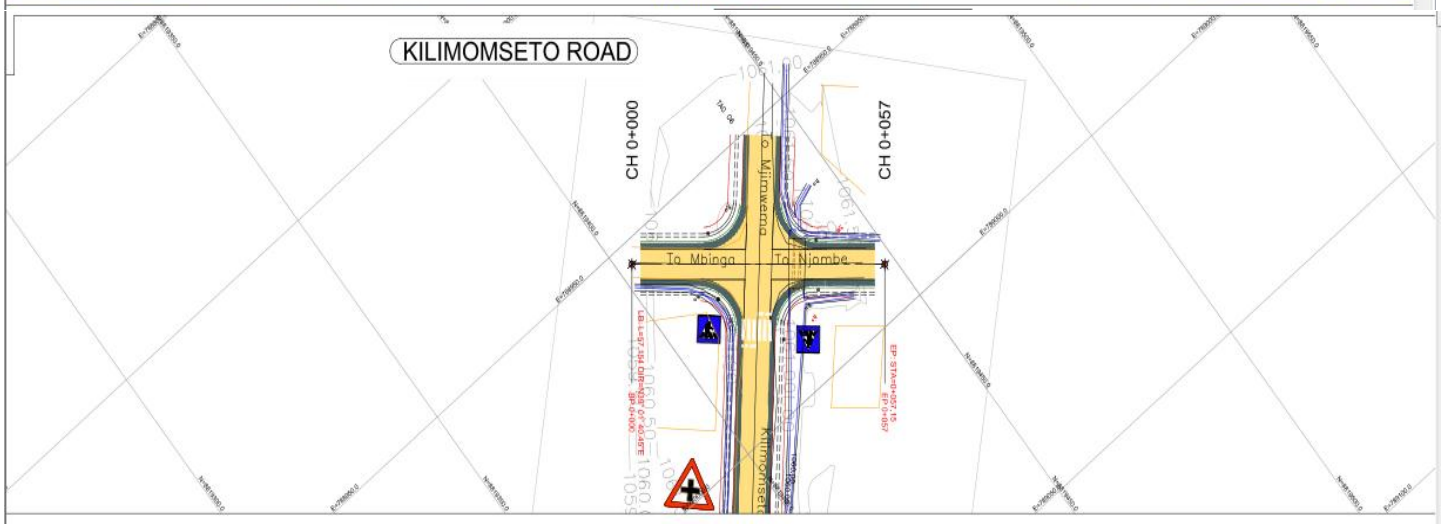
The ESIA should be concise and limited to significant environmental and social Issues. The main text should focus on actions supported by summaries of the data collected and citations for any references used in interpreting data. Detailed or un-interpreted data are not appropriate in the main text and should be presented in appendices or a separate volume. Unpublished documents used in the ESIA may not be readily available and should also be assembled in appendices.

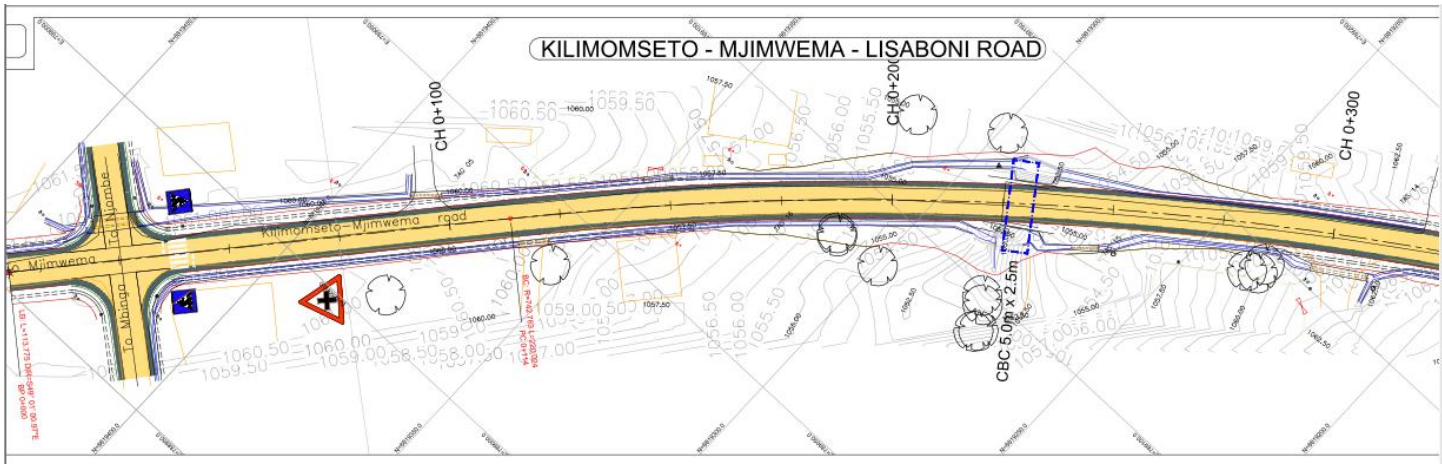
3.0 STAFFING

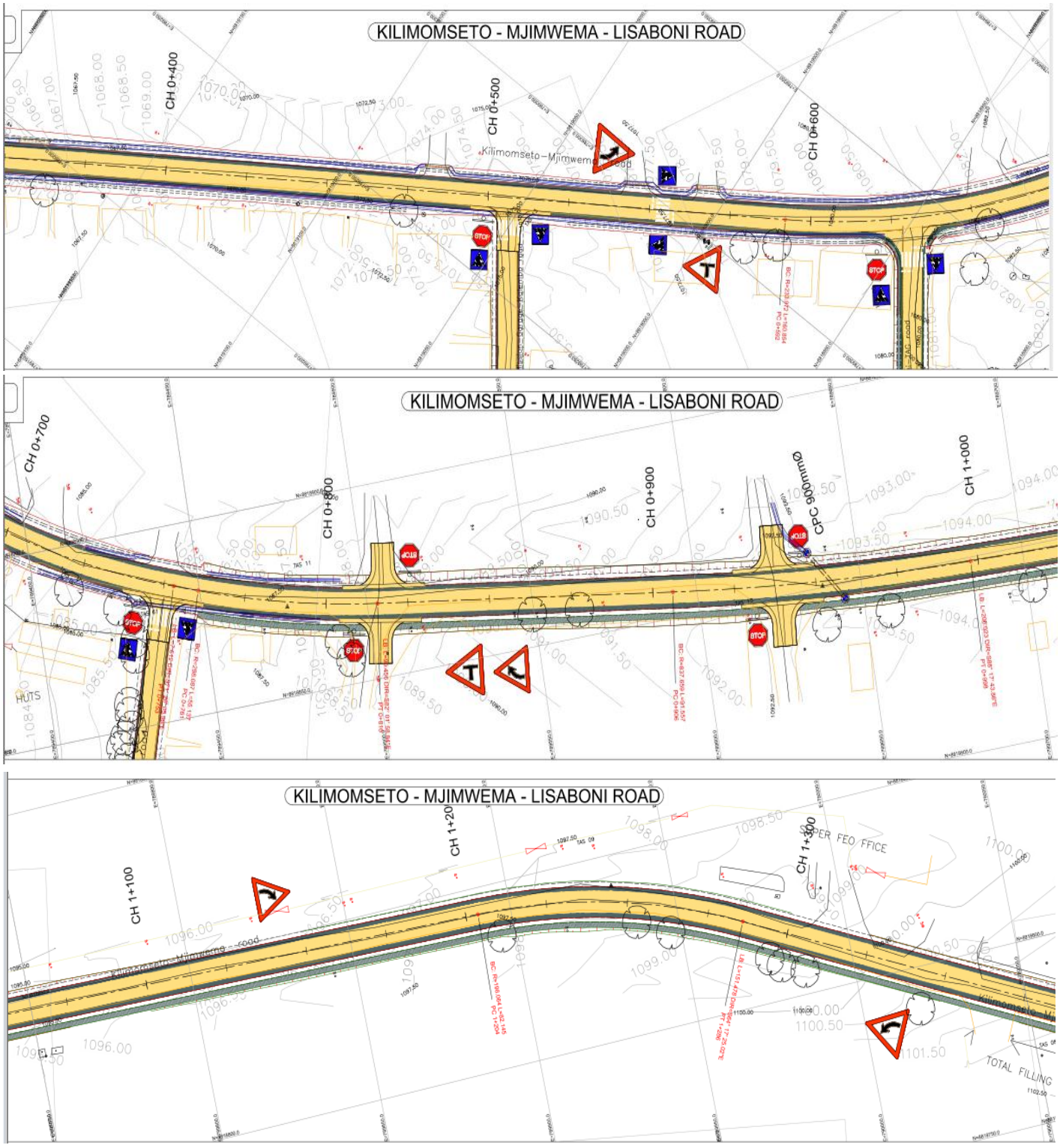
The consultancy services will be carried out by four key staff. These include ESIA Team Leader/Environmental Expert, Sociologist, Valuer, the team shall also comprise of Support Staff on all key specialties for the study.

APPENDEX C PLAN/ARCHITECTURAL DRAWINGS





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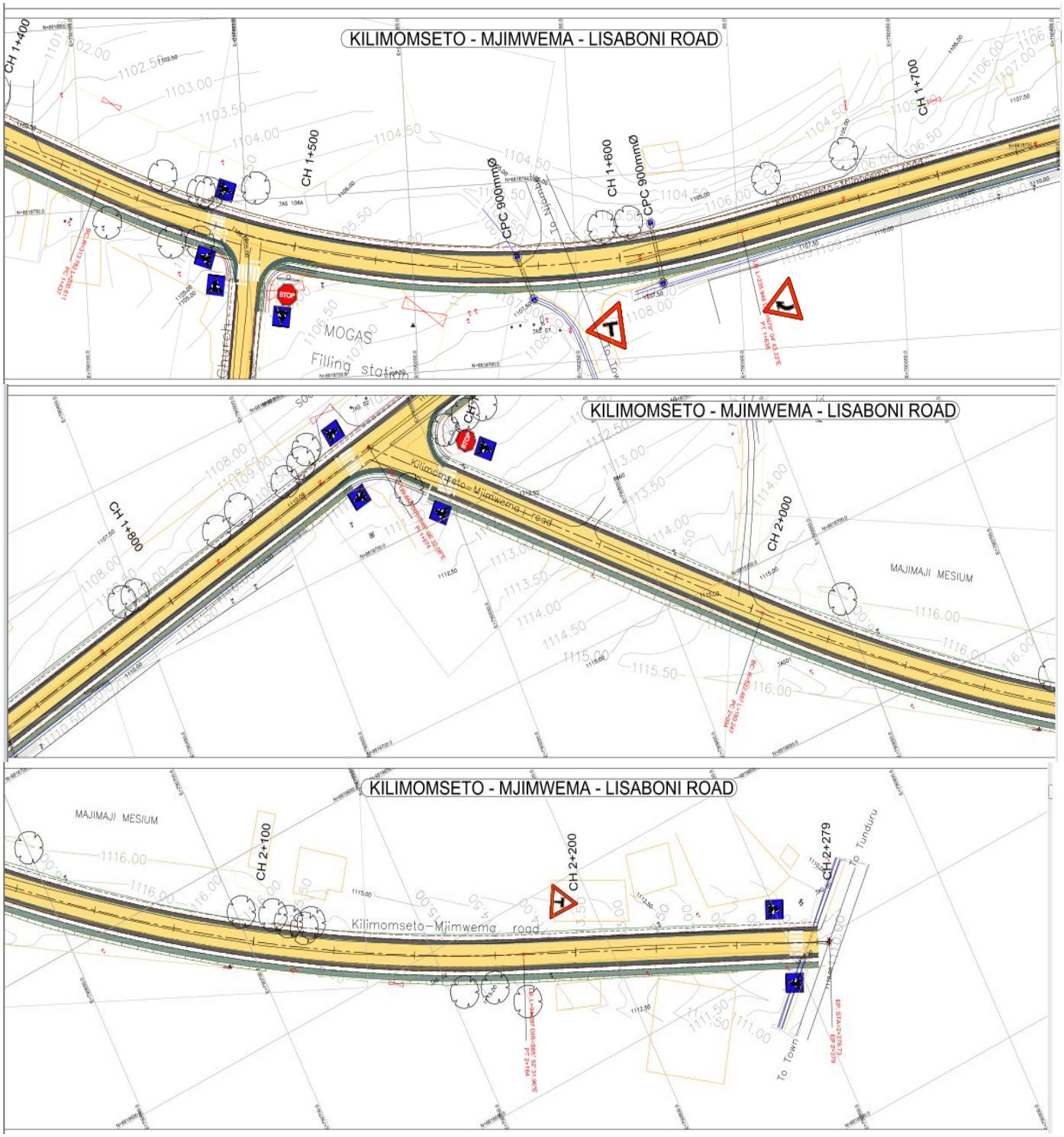
CH 0+600
CH 0+700
CH 0+800
CH 0+900
CH 1+000
CH 1+100
CH 1+200
CH 1+300
CPC 900mmØ
HUTS
TOTAL FILLING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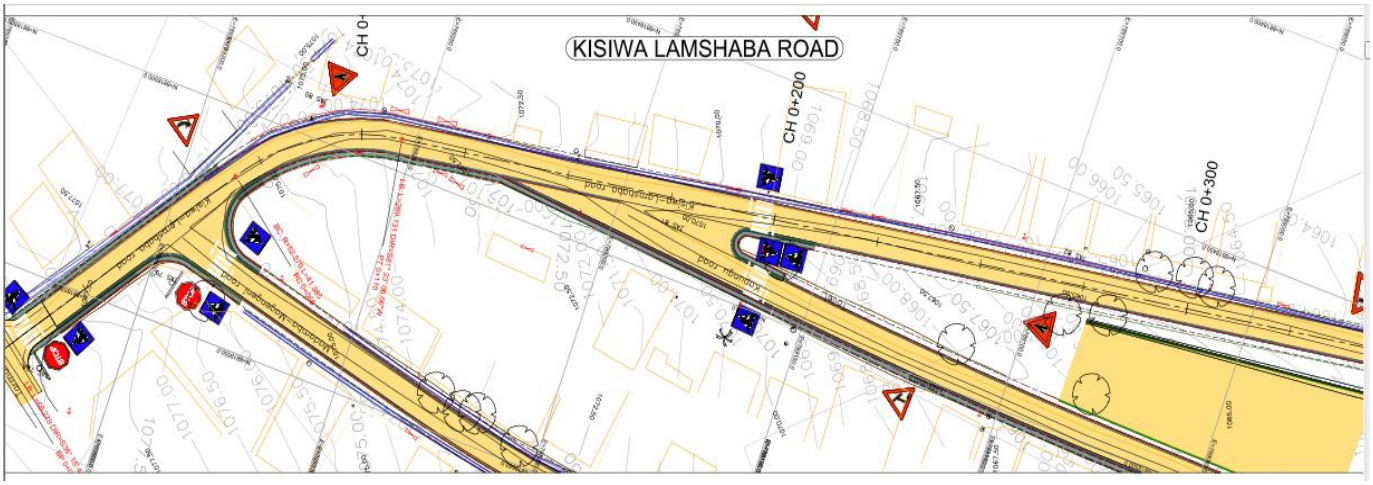
CH 1+400
CH 1+500
CH 1+600
CH 1+700
CPC 900mmØ
CPC 900mmØ
MOGAS
Filling station
STOP
KILIMOMSETO - MJIMWEMA - LISABONI ROAD
CH 1+800
CH 2+000
MAJIMAJI MESIUM
Kilimomseto-Mjimwema road
KILIMOMSETO - MJIMWEMA - LISABONI ROAD
MAJIMAJI MESIUM
CH 2+100
CH 2+200
CH 2+279
Kilimomseto-Mjimwema road
To Tunduru
To Town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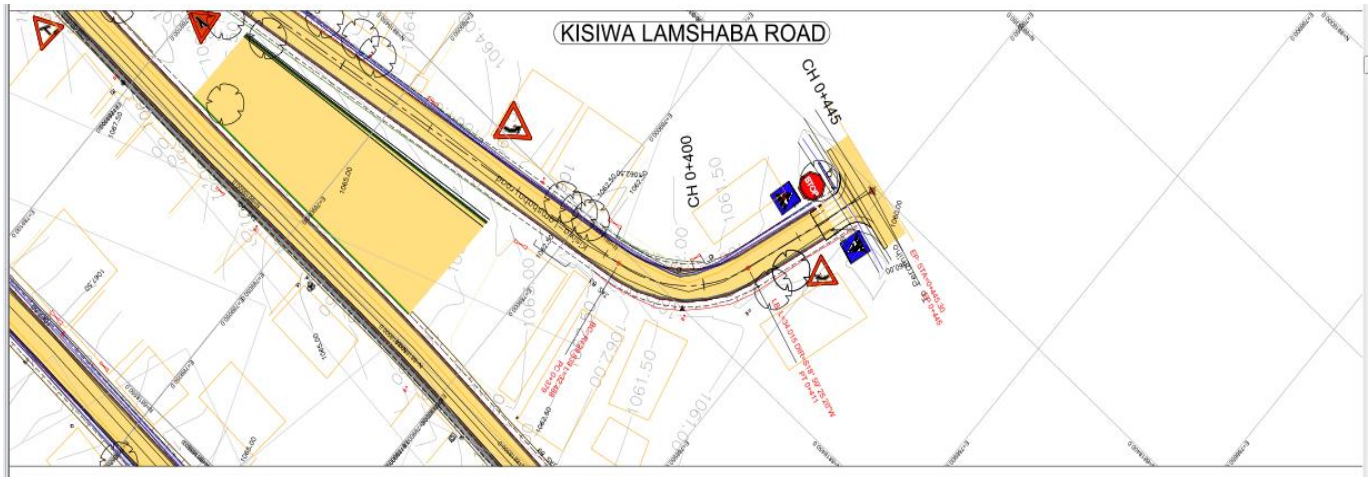
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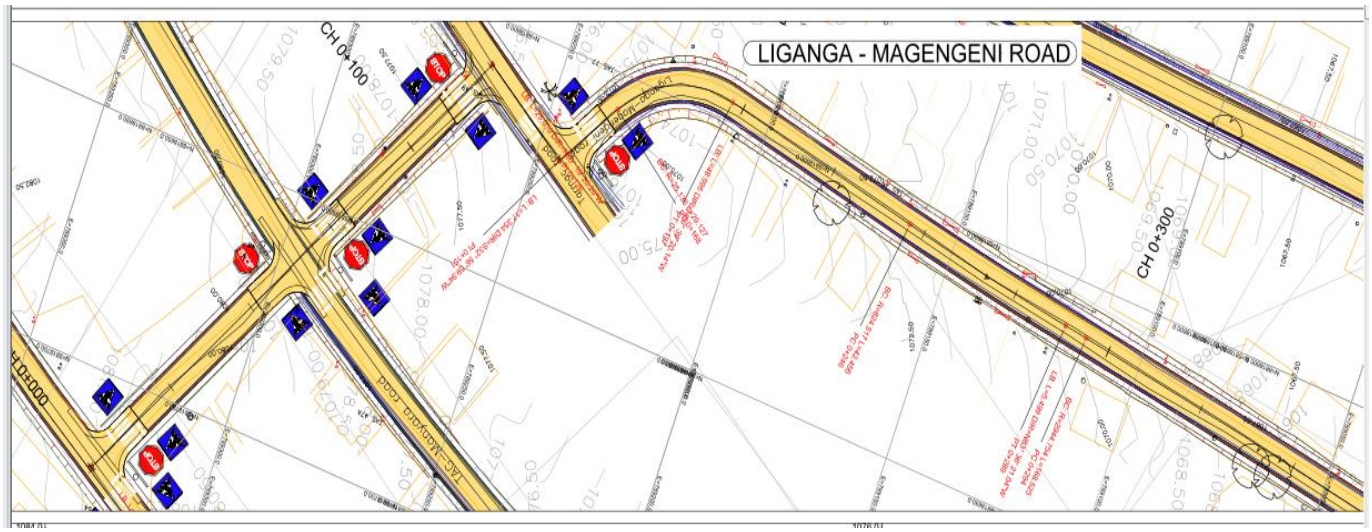
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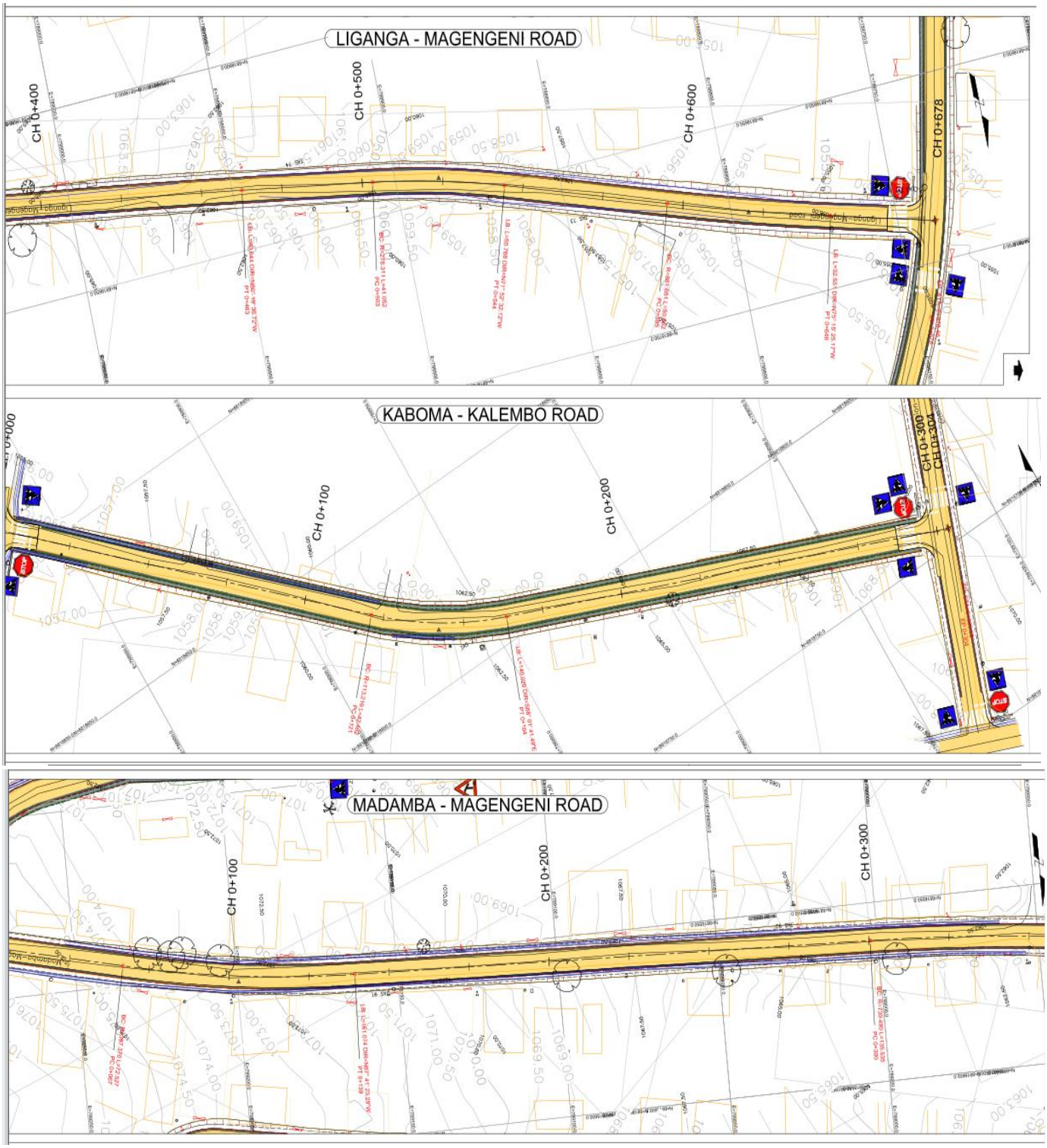
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CH 0+600
CH 0+678
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CH 0+300
MADAMBA - MAGENGENI ROAD
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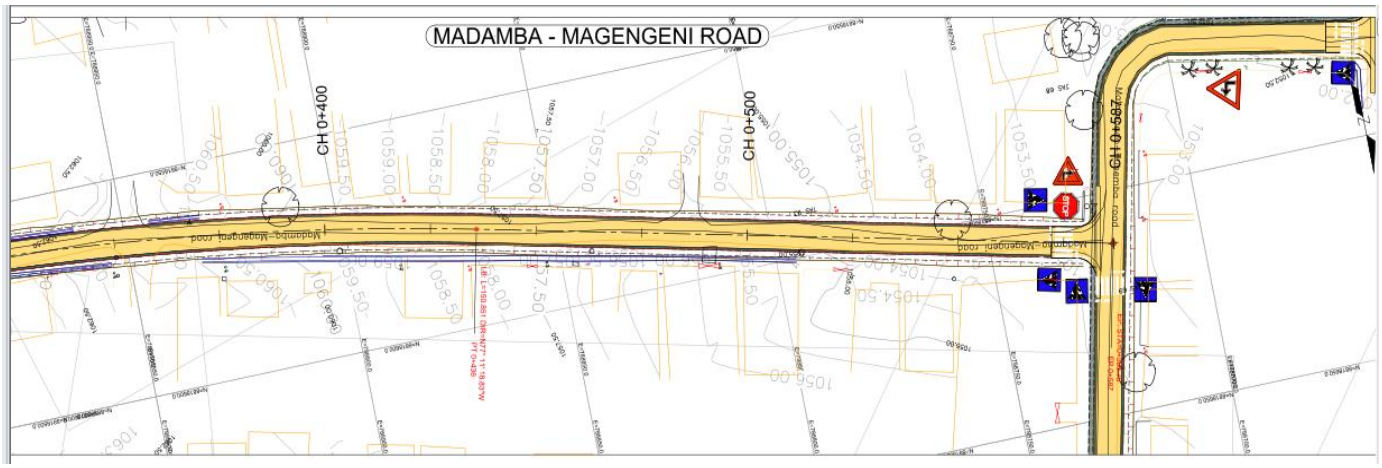
CH 0+300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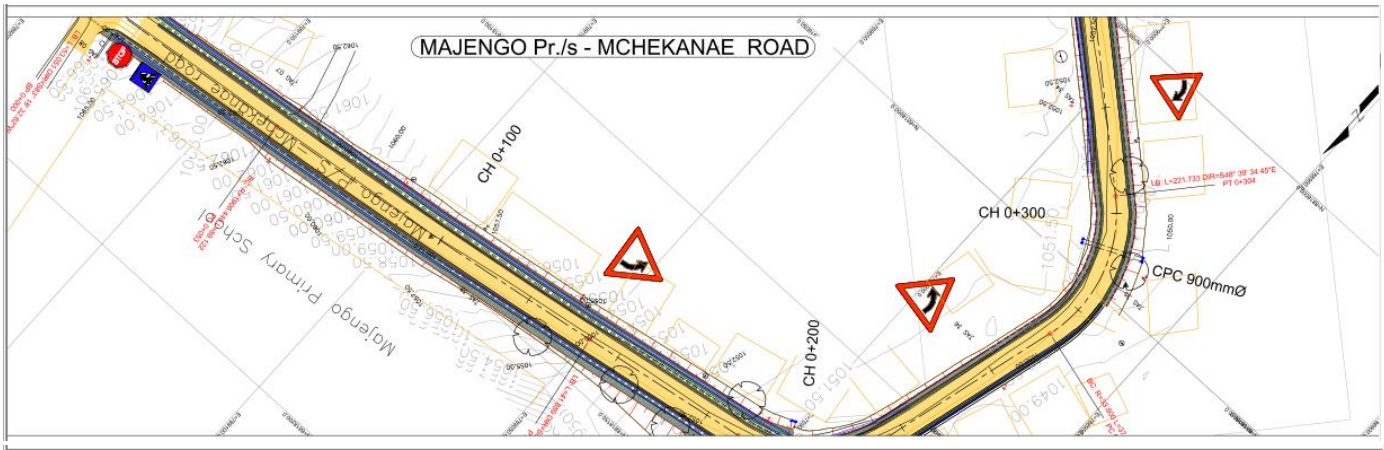
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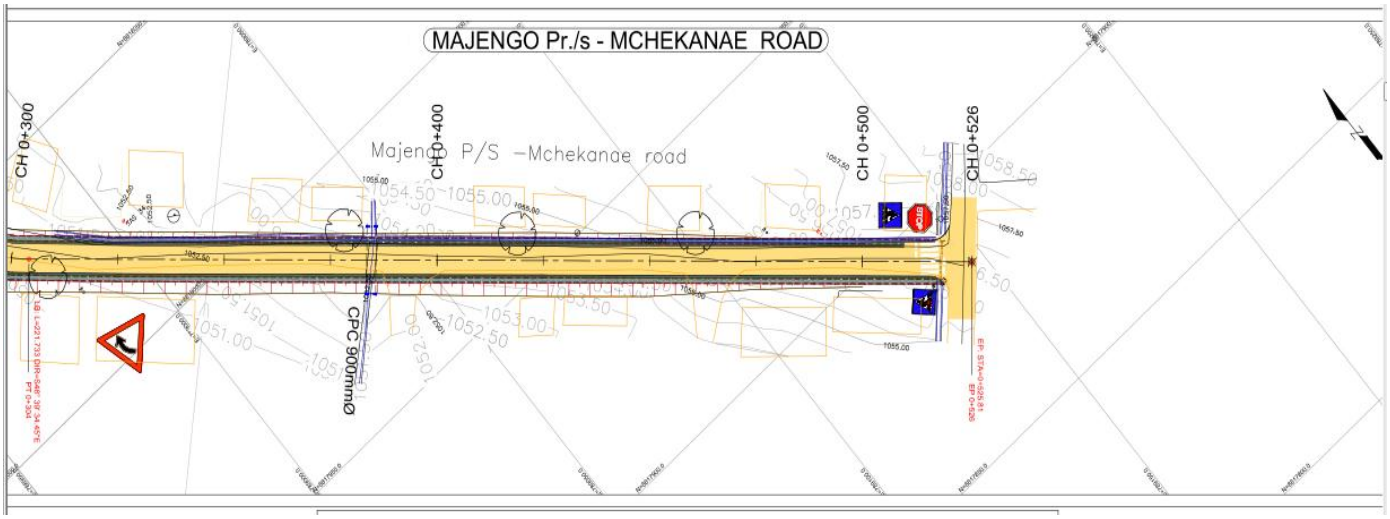
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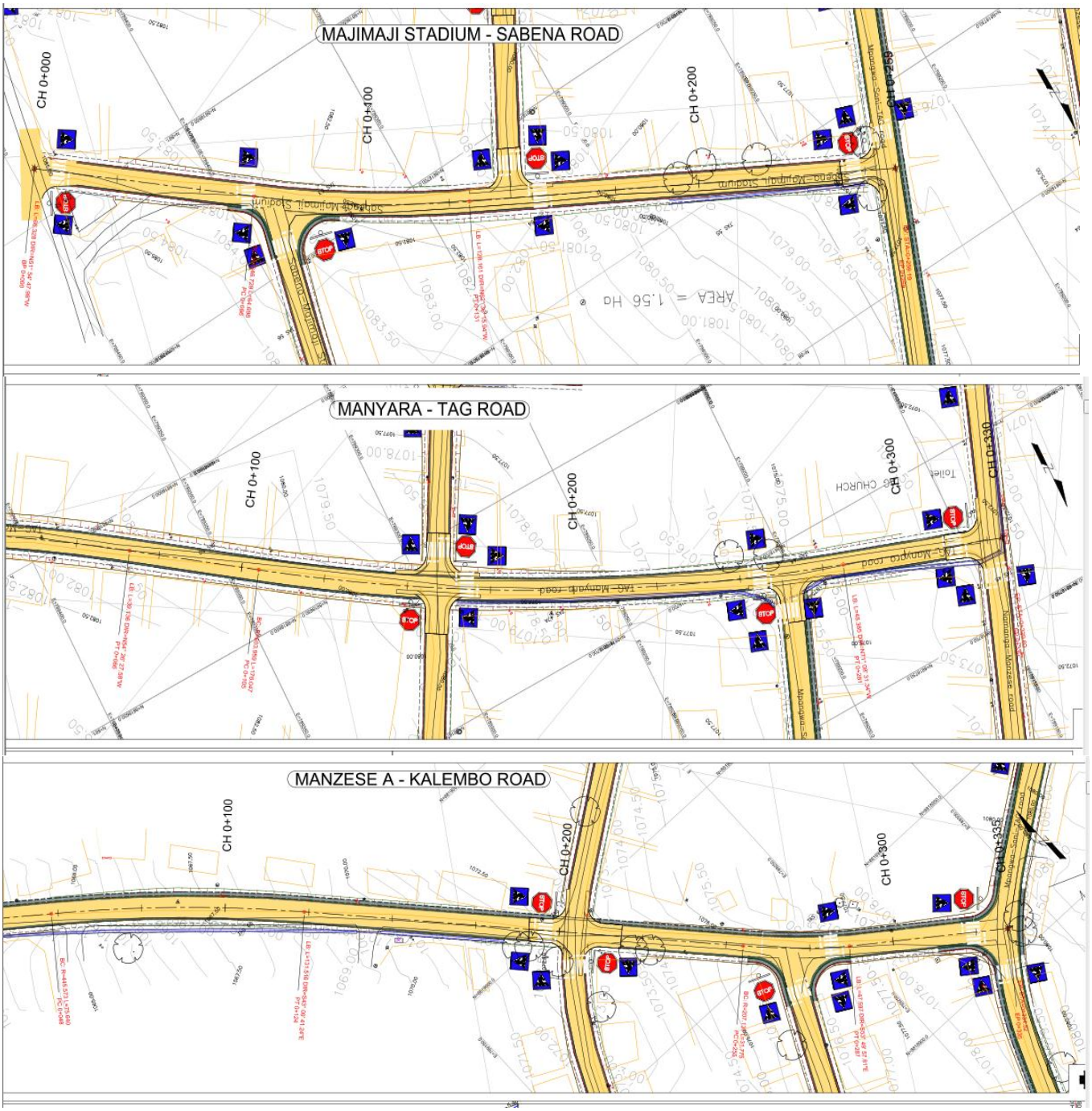
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CH 0+269
MANYARA - TAG ROAD
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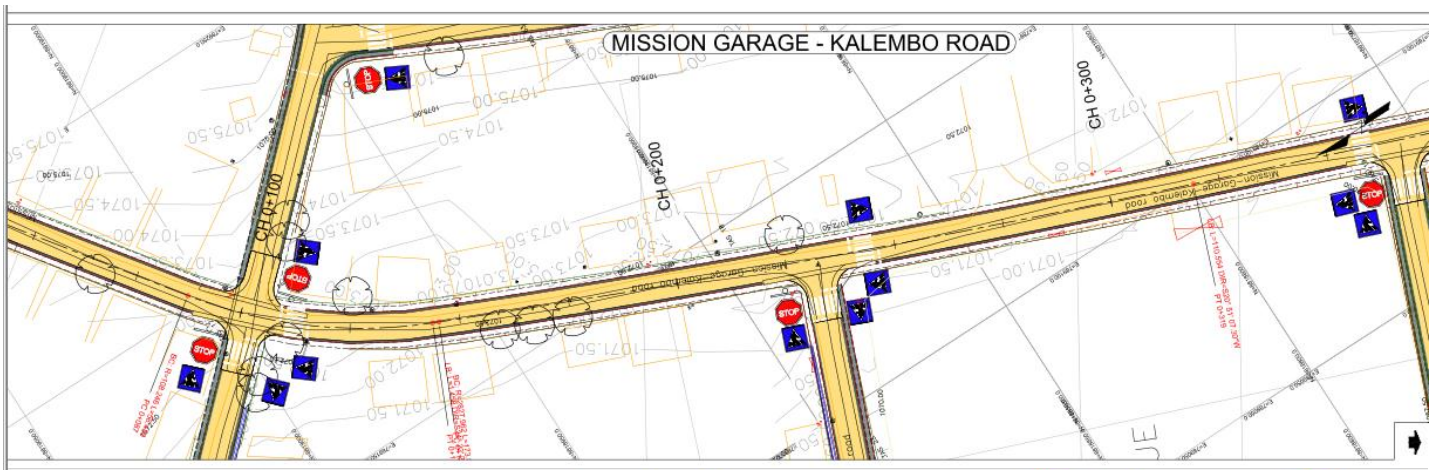
CH 0+335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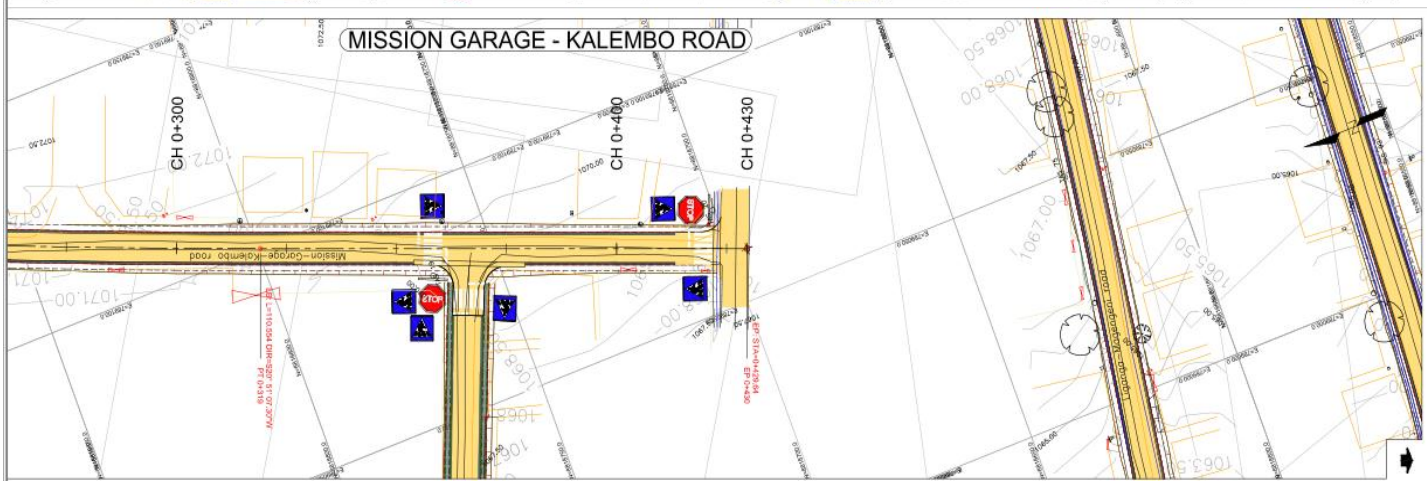
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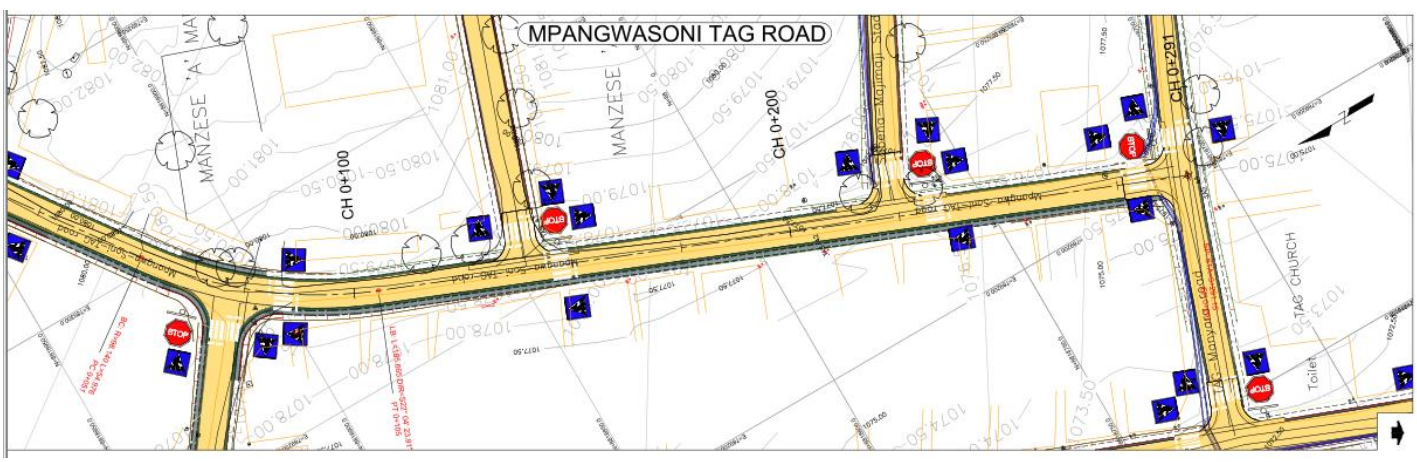
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MANZESE
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TAG CHURCH
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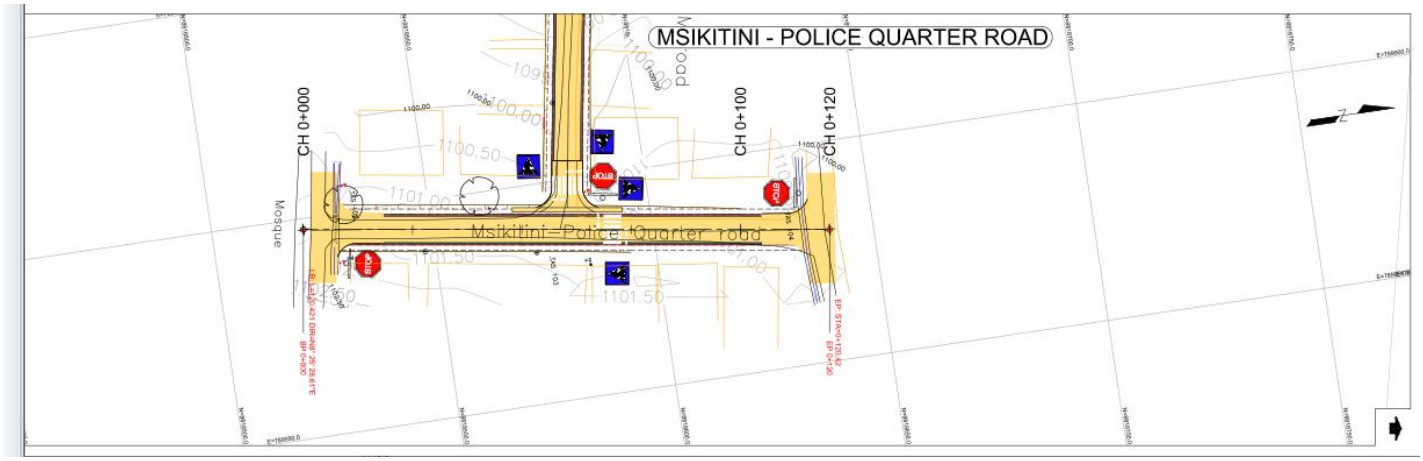
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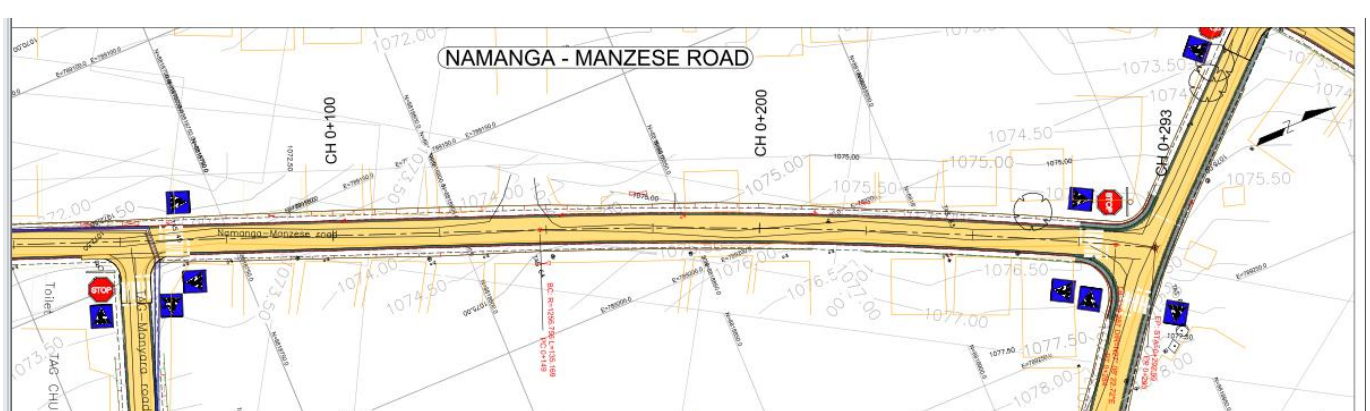
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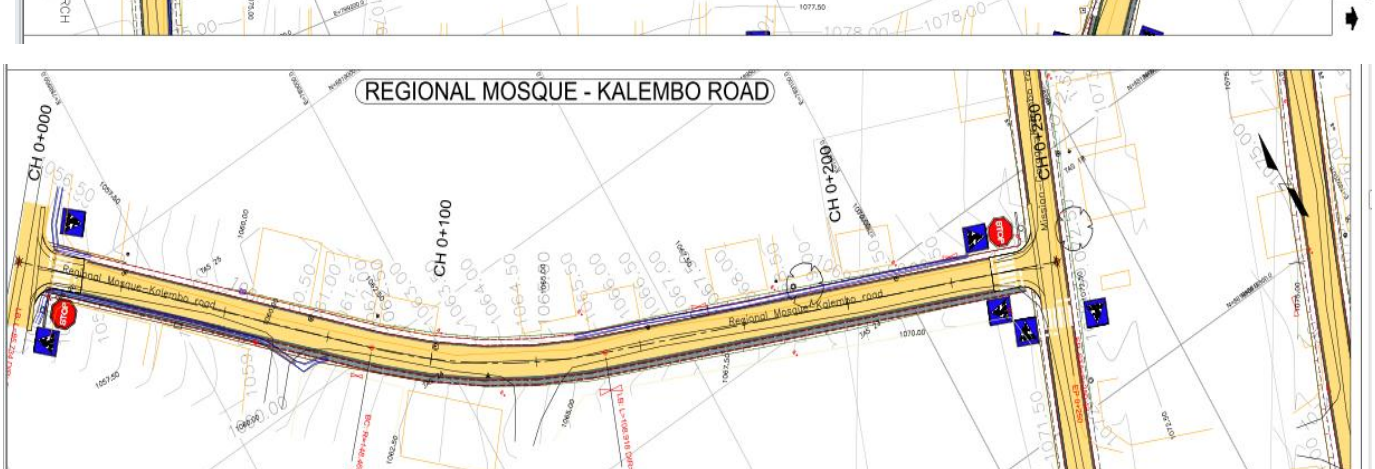
Toilet
TAG - Manyoro road
TAG CHURCH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CH 0+200
CH 0+250
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SABENA - MAJIMAJI STADIUM ROAD
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CH 0+215
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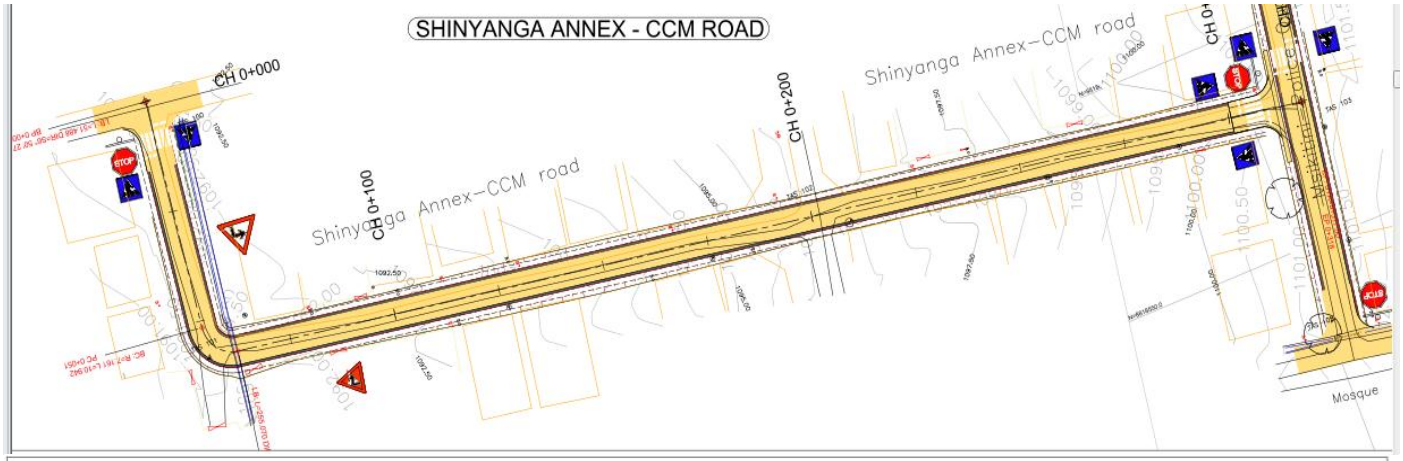
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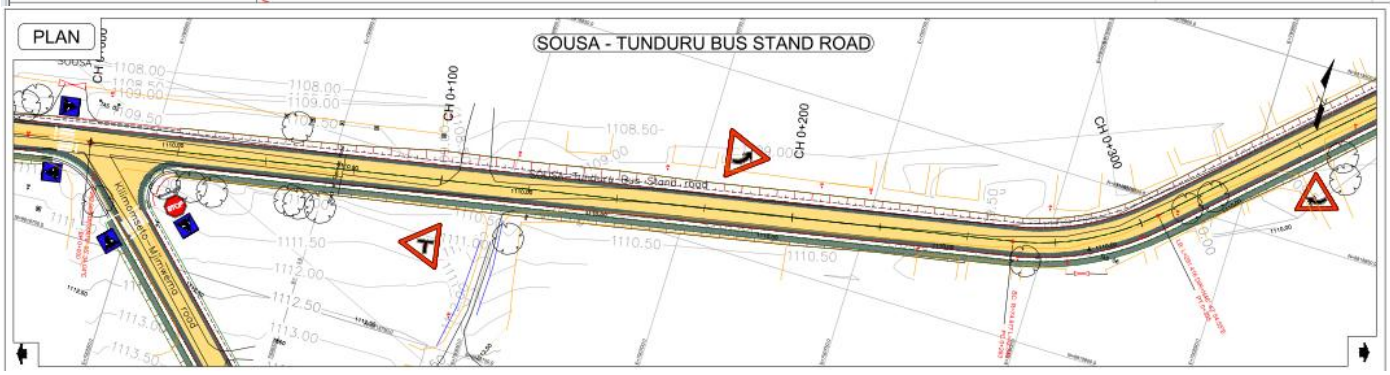
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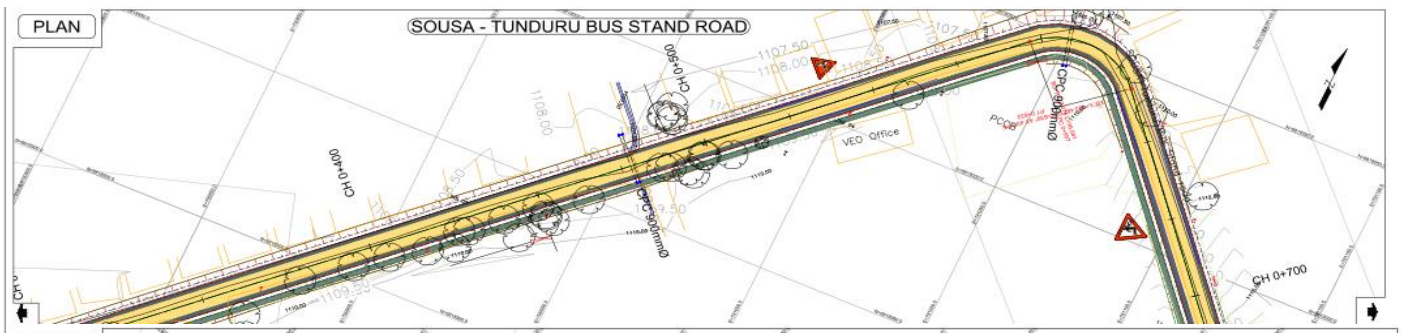
CH 0+200
CH 0+300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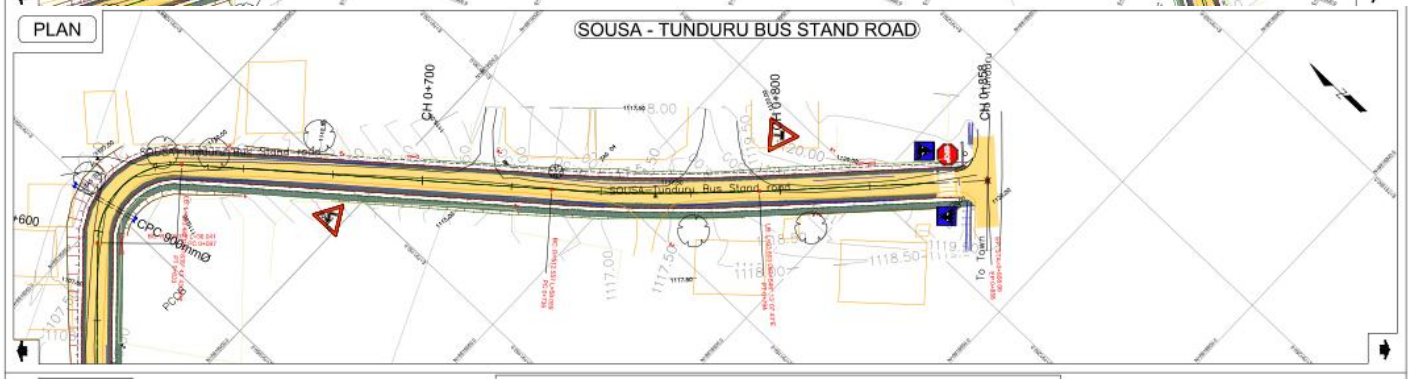
CH 0+500
CH 0+700
VEO Office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SOUSA - TUNDURU BUS STAND ROAD
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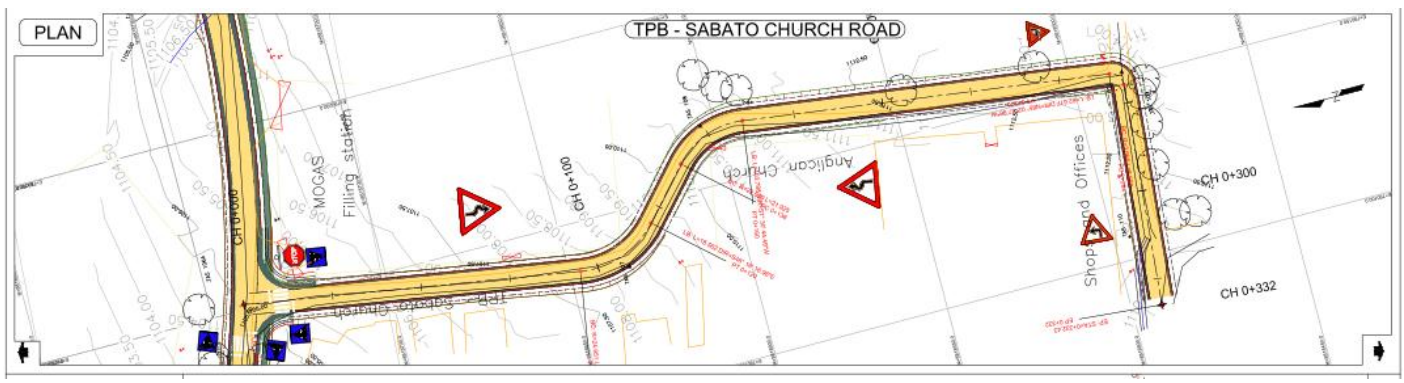
CH 0+800
To Town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TPB - SABATO CHURCH ROAD
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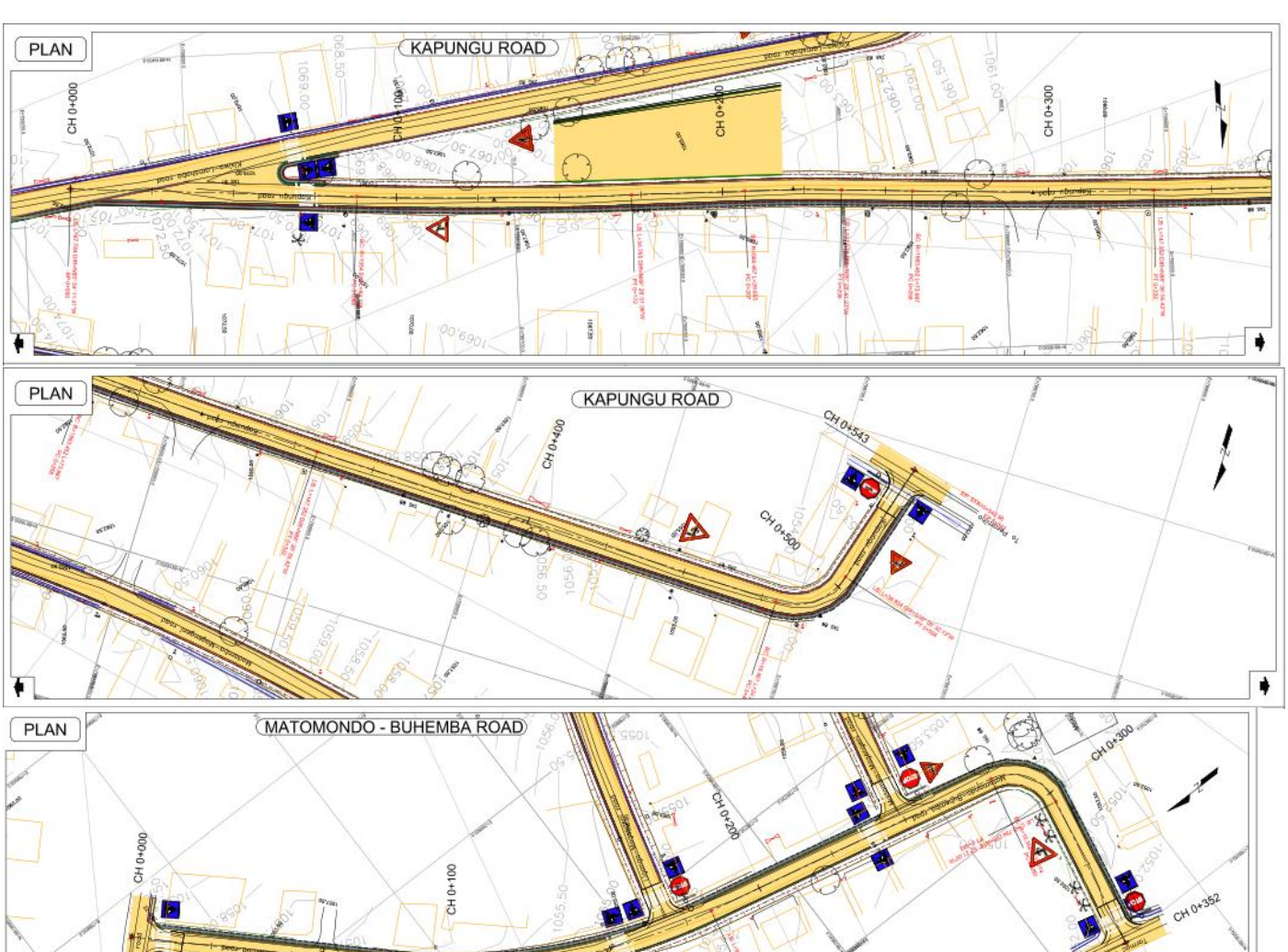
CH 0+300
CH 0+332
MOGAS Filling station
Anglican Church
Shops and Offices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KAPUNGU ROAD
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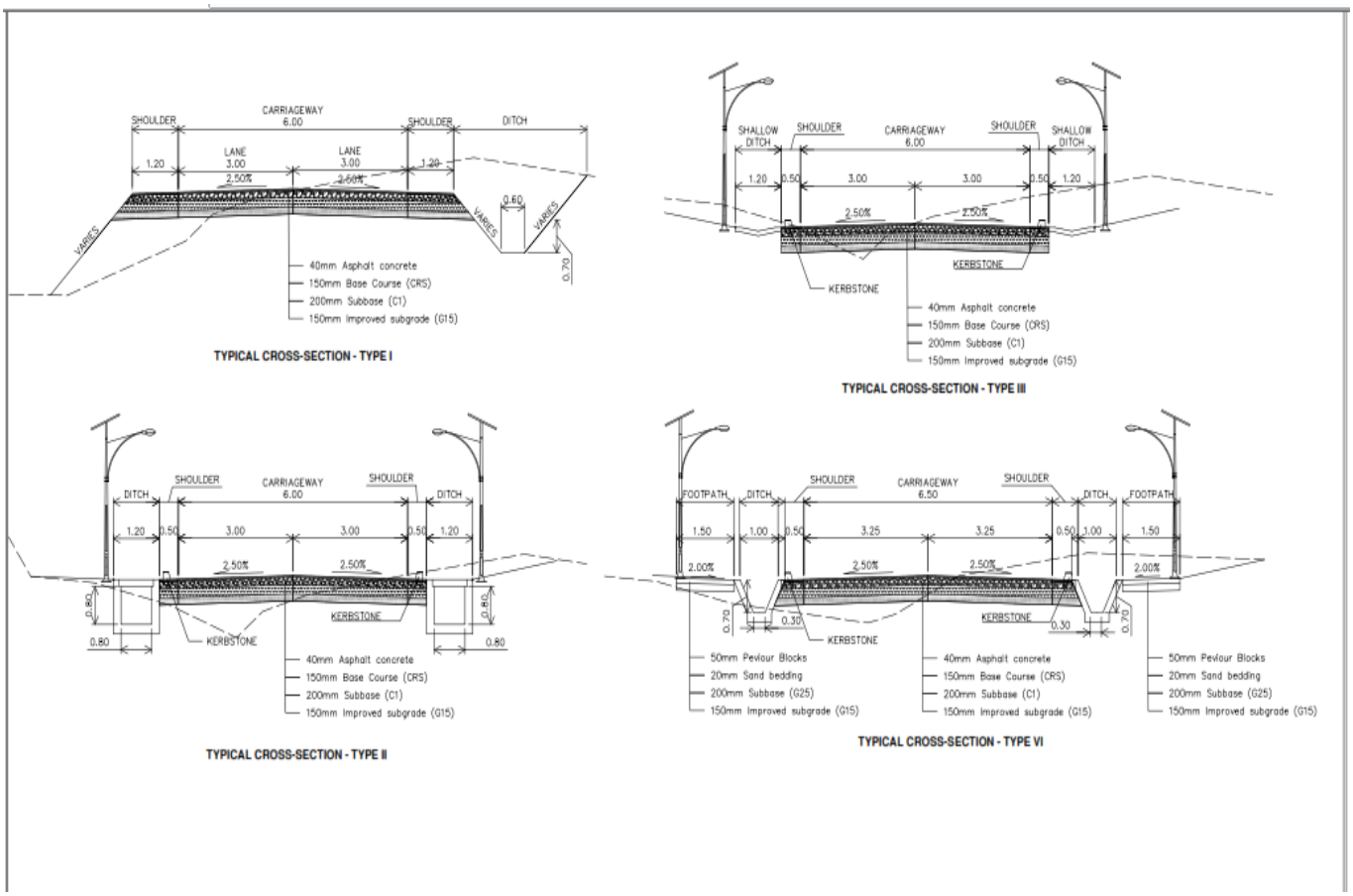
Section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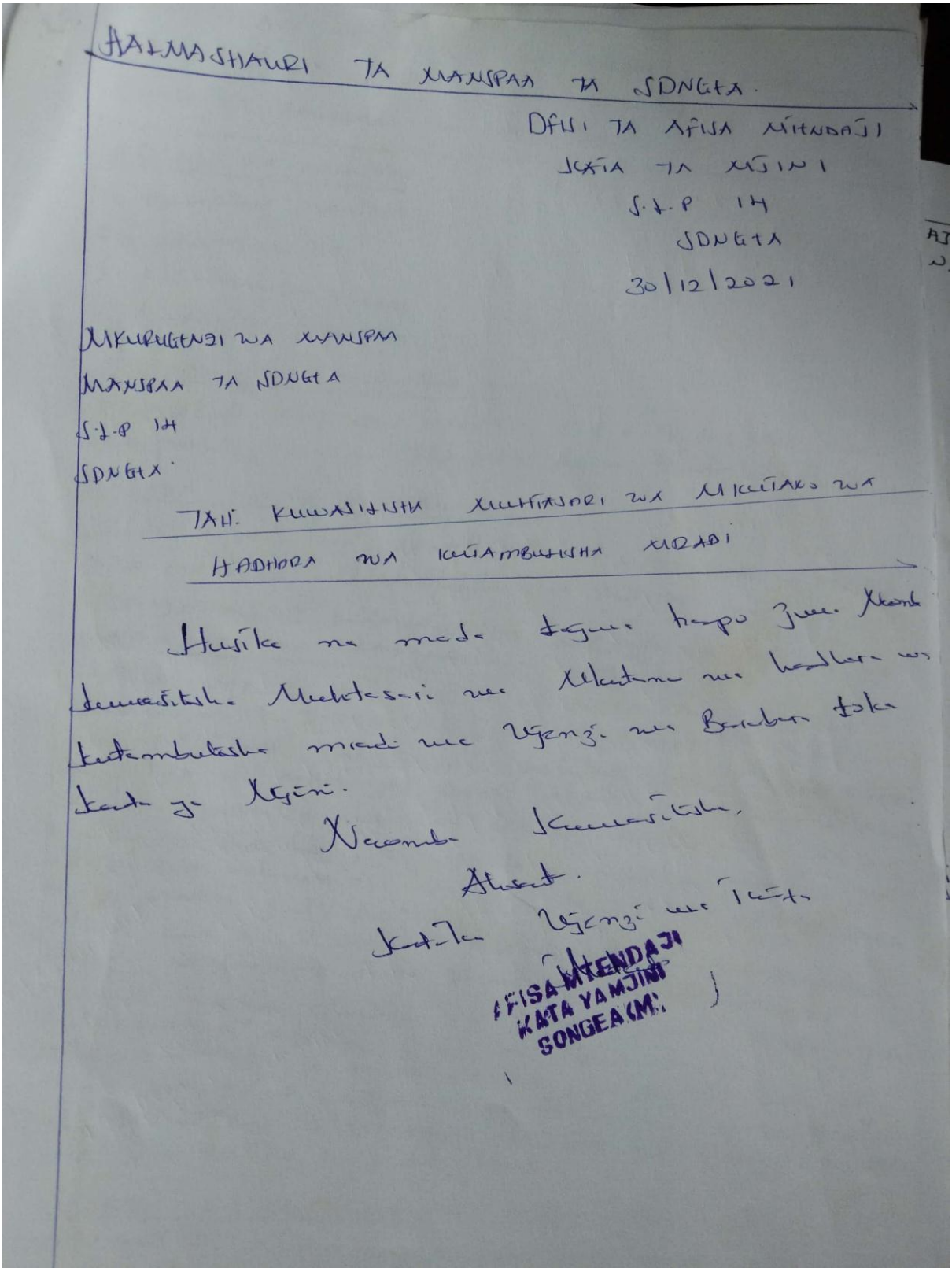
CARRIAGEWAY 6.00
SHOULDER
DITCH
LANE 3.00
LANE 3.00
1.20
2.50%
2.50%
1.20
0.60
VARIES
VARIES
VARIES
0.70
40mm Asphalt concrete
150mm Base Course (CRS)
200mm Subbase (C1)
150mm Improved subgrade (G15)
TYPICAL CROSS-SECTION - TYPE I
SHALLOW DITCH
SHOULDER
CARRIAGEWAY 6.00
SHOULDER
SHALLOW DITCH
1.20
0.50
3.00
3.00
0.50
1.20
2.50%
2.50%
KERBSTONE
KERBSTONE
40mm Asphalt concrete
150mm Base Course (CRS)
200mm Subbase (C1)
150mm Improved subgrade (G15)
TYPICAL CROSS-SECTION - TYPE III
DITCH
SHOULDER
CARRIAGEWAY 6.00
SHOULDER
DITCH
1.20
0.50
3.00
3.00
0.50
1.20
2.50%
2.50%
0.80
0.80
KERBSTONE
KERBSTONE
0.80
40mm Asphalt concrete
150mm Base Course (CRS)
200mm Subbase (C1)
150mm Improved subgrade (G15)
TYPICAL CROSS-SECTION - TYPE II
FOOTPATH
DITCH
SHOULDER
CARRIAGEWAY 6.50
SHOULDER
DITCH
FOOTPATH
1.50
1.00
0.50
3.25
3.25
0.50
3.00
1.50
2.00%
2.50%
2.50%
2.00%
0.70
0.30
KERBSTONE
KERBSTONE
0.30
0.70
50mm Pevlour Blocks
20mm Sand bedding
200mm Subbase (G25)
150mm Improved subgrade (G15)
40mm Asphalt concrete
150mm Base Course (CRS)
200mm Subbase (C1)
150mm Improved subgrade (G15)
50mm Pevlour Blocks
20mm Sand bedding
200mm Subbase (G25)
150mm Improved subgrade (G15)
TYPICAL CROSS-SECTION - TYPE VI

Provision of Consultancy Services for Feasibility Study, Urban Design, Detailed Engineering Design, Environmental and Social Due Diligence, Preparation of Cost Estimates and Bidding Documents for Urban Infrastructure Investments in Morogoro, Songea, Mbeya and Sumbawanga Cities/Municipalities (Tactic Zone 3)

Provision of Consultancy Services for Feasibility Study, Urban Design, Detailed Engineering Design, Environmental and Social Due Diligence, Preparation of Cost Estimates and Bidding Documents for Urban Infrastructure Investments in Morogoro, Songea, Mbeya and Sumbawanga Cities/Municipalities (Tactic Zone 3)

Provision of Consultancy Services for Feasibility Study, Urban Design, Detailed Engineering Design, Environmental and Social Due Diligence, Preparation of Cost Estimates and Bidding Documents for Urban Infrastructure Investments in Morogoro, Songea, Mbeya and Sumbawanga Cities/Municipalities (Tactic Zone 3)

APPENDIX D Minutes of meeting



HALMASHAURI YA MANISPAA YA SONGEA.

OFISI YA AFISA MIPANGO JIJI

KIKAO CHA MJINI

S.T.P 14

SONGEA

30/12/2021

MKUTANO WA MANISPAA

MANISPAA YA SONGEA

S.T.P 14

SONGEA.

YAH: KUWASILISHA MAPENDEKEZO YA MIKAKATI YA

MADHARA YA KIGAMBUSHA MDADI

Husika na mada tajwa hapo juu. Kwanza

tunawashukuru Mkandarasi wa kushirikiana na Halmashauri ya

kutambulisha mradi wa Uzingi wa Barabara toka

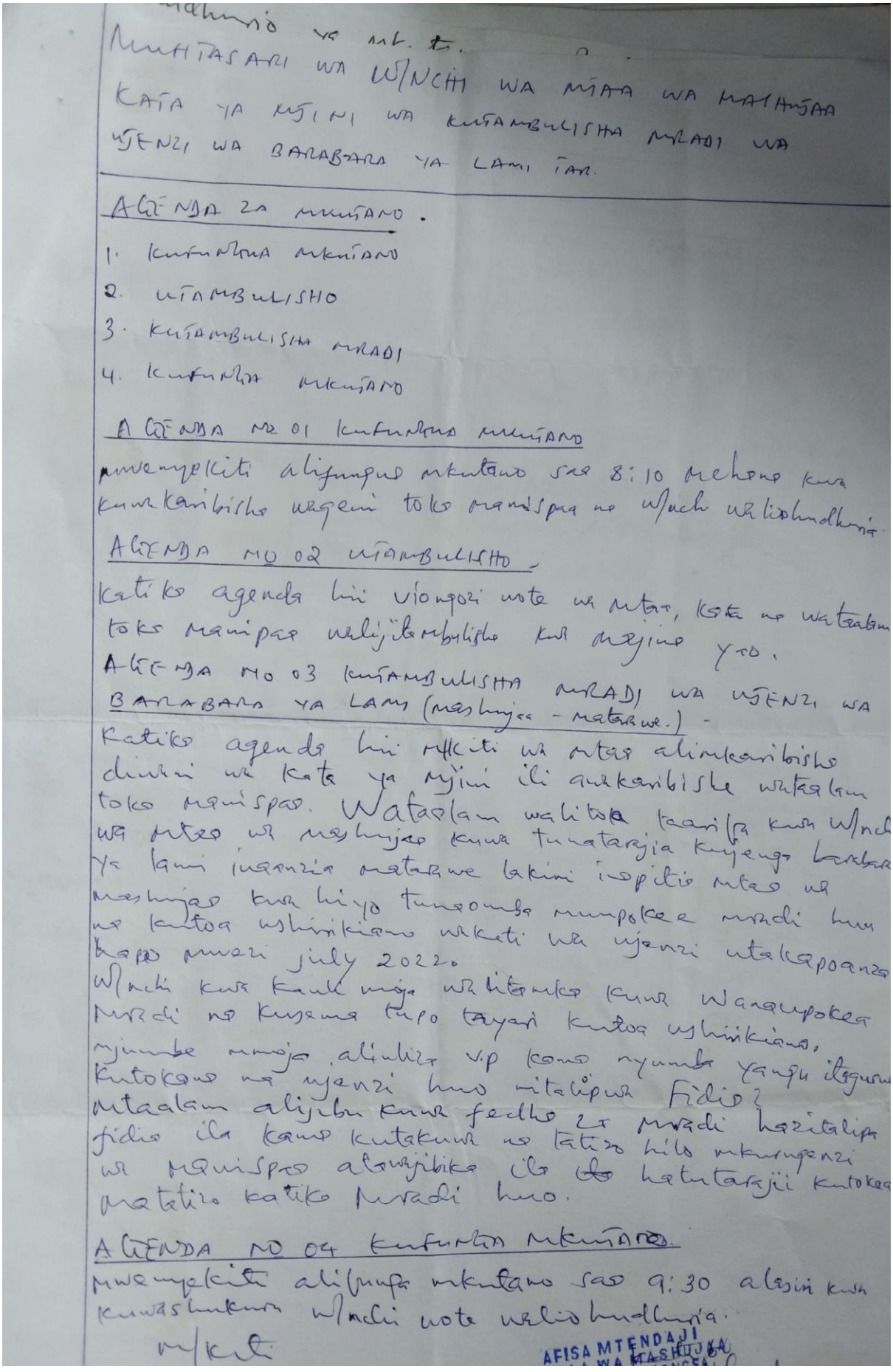
kata ya Ugoni.

Wasomaji Wawasilishaji.

Ahsante.

Kata ya Uzingi wa Ilete.

AFISA MIPANGO
KATA YA MJINI
SONGEA (M)



Mahudhurio ya wajumbe.

MUHTASARI WA W/NCHI WA MJAA WA MAENDELEO KATIA YA MJINI WA KUTAMBULISHA MRADI WA UJENZI WA BARABARA YA LAMI IAM.

AGENDA ZA MKUTANO.

1. Kufunguwa mkutano
2. UTAMBULISHO
3. KUTAMBULISHA MRADI
4. Kufunga mkutano

AGENDA NO 01 Kufunguwa mkutano

Mwenyekiti alifungua mkutano saa 8:10 mchana kwa kumkaribisha mgeni toka manispaa na w/nchi wakiendelea.

AGENDA NO 02 UTAMBULISHO.

Katika agenda hii viongozi wote wa mtaa, kata na wataalam toka manispaa walijitambulisha kwa majina yao.

AGENDA NO 03 KUTAMBULISHA MRADI WA UJENZI WA BARABARA YA LAMI (Mashujaa - Matarawe.)

Katika agenda hii mkiti wa mtaa alimkaribisha diwani wa kata ya Mjini ili amkaribishe mtaalam toka manispaa. Wataalam walitoa taarifa kwa w/nchi wa mtaa wa mashujaa kwa tunatarajia kujenga barabara ya lami inayoanzia matarawe lakini inapitia mtaa wa mashujaa kwa hiyo tunaomba mumpokee mradi huu na kutoa ushirikiano wakati wa ujenzi utakapoanza hapo mwezi july 2022.

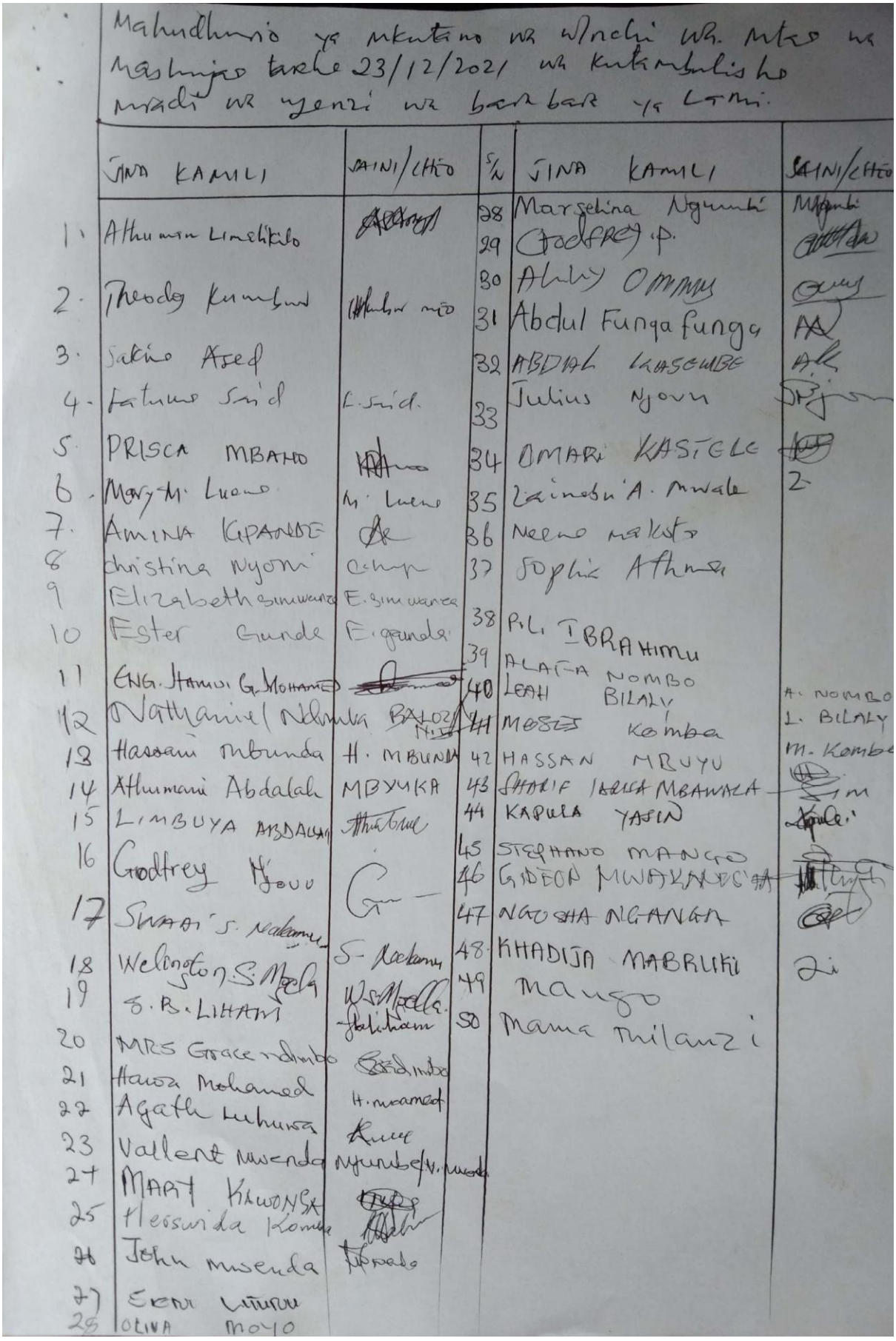
W/nchi kwa kauli moja wakitamka kwa Wanampokea mradi na kusema tupo tayari kutoa ushirikiano, ajira kwa vijana, alikiba v.p kama nyumba yangu itaguswa kutokana na ujenzi huo nitalipwa fidia? Mtaalam alijibu kwa fedha za mradi hazitalipa fidia ila kama kutakuwa na tatizo hilo mkurugenzi wa manispaa atawajibika ila kwa hatua za kutokana matatizo katika mradi huo.

AGENDA NO 04 Kufunga mkutano.

Mwenyekiti alifunga mkutano saa 9:30 alasiri kwa kuwashukuru w/nchi wote walihudhuria.

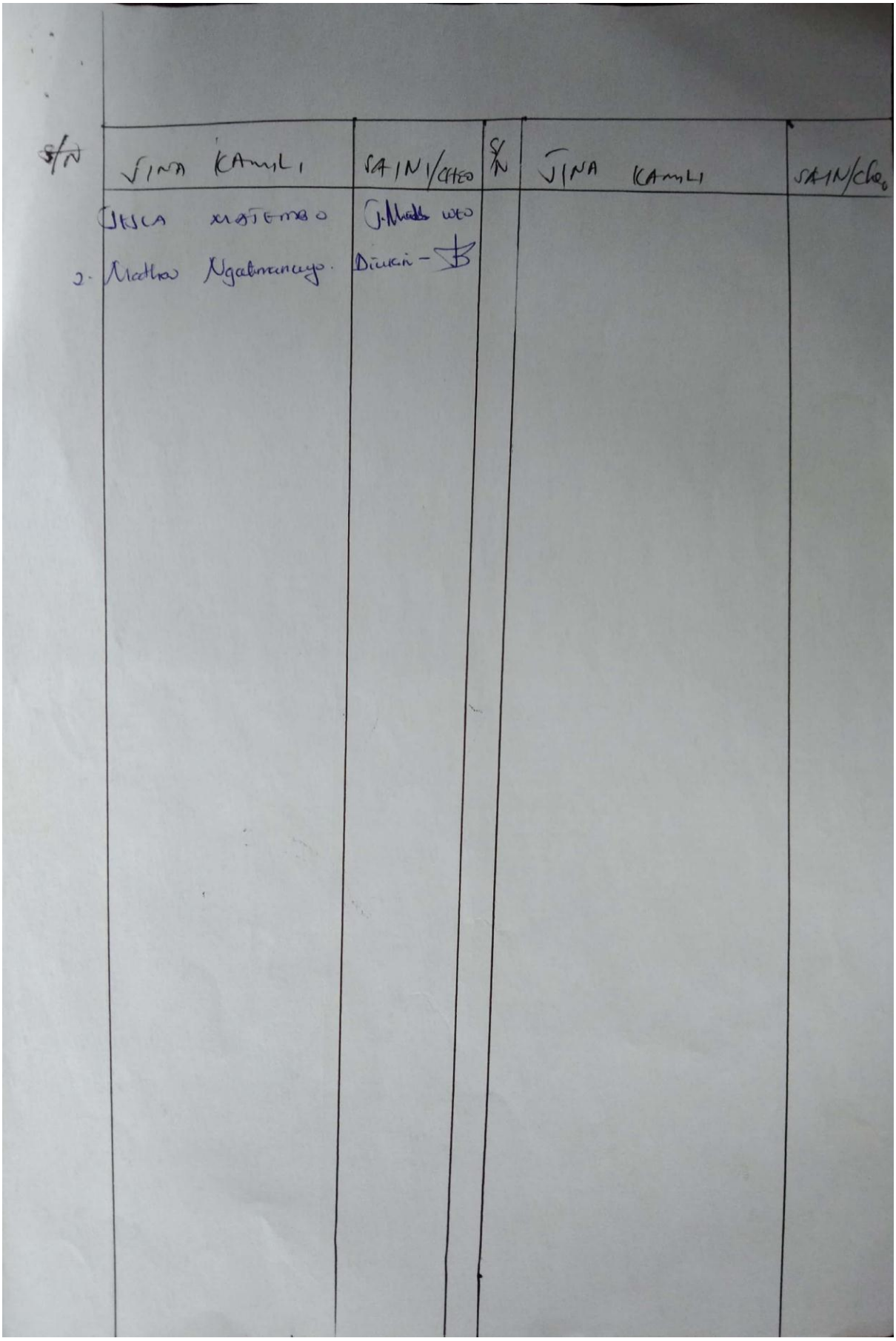
m/kiti

AFISA MTENDAJI



Mahudhurio ya mkutano wa w/mchi Wa. Mtaa wa Mashujaa tarehe 23/12/2021 wa kutambulisha miradi wa ujenzi wa barabara ya Lami.

	JINA KAMILI	SAINI/CHEO	S/N	JINA KAMILI	SAINI/CHEO
1.	Athuman Limelikilo		28	Marselina Ngumbi	
			29	Godfrey P.	
2.	Theodo Kumbwi		30	Alulu Omary	
			31	Abdul Funga funga	
3.	Sakina Aseif		32	ABDAL LAMSOMBE	
4.	Fatuma Said	F. Said.	33	Julius Njovu	
5.	PRISCA MBATHO		34	OMARI KASIGILE	
6.	Mary M. Luano	M. Luano	35	Zainabu A. Mwale	2.
7.	AMINA KIPANDE		36	Neeno makota	
8	christina Nyoni		37	Sophia Athuman	
9	Elizabeth Simwanza	E. Simwanza			
10	Ester Gunda	E. gunda	38	P.L. IBRAHIMU	
11	ENG. HAMIS G. MOHAMED		39	ALAFA NOMBO	
12	Nathaniel Ndimila	BALOZI	40	LEAH BILALY	A. NOMBO
			41	MOSES Komba	L. BILALY
13	Hassani Mbunda	H. MBUNDA	42	HASSAN MBUYU	M. Komba
14	Athumani Abdallah	MBYUKA	43	SHARIF ISSA MBAWALA	
15	LIMBUYA ABDALLAH		44	KAPULA YASIN	
16	Godfrey Njovu		45	STEPHANO MANGO	
			46	GIDEON MWAKANDE	
17	Swabri S. Nakamula	S. Nakamula	47	NGUSHA NGANGA	
18	Welington S. Mbelwa		48	KHADIJA MABRUKI	
19	S. B. LIHAMI	Lihami	49	Mango	
20	MRS Grace Mwambo		50	Mama Milanzi	
21	Hawa Mohamed	H. mohamed			
22	Agatha Luhunga				
23	Valent Mwenda	Mwenda/V. Mwenda			
24	MARY KILWONGA				
25	Hassuida Komba				
26	John Mwenda				
27	EKDA LITUNDU				
28	OLIVA MOYO				



S/N	JINA KAMILI	SAINI/CHEO	S/N	JINA KAMILI	SAINI/CHEO
	JESCA MASIEMBO	G. Mbeya WEO			
2.	Mathew Ngabinamungo.	Diwani - B			

HALMASHAURI YA MANISPAA YA SONGEA.

OFISI YA AFISA MTENDAJI
KATA YA MISUFINI,
S.L.P 14
SONGEA.
31/12/2021

MKURUGENZI WA MANISPAA,
MANISPAA YA SONGEA,
S.L.P 14
SONGEA

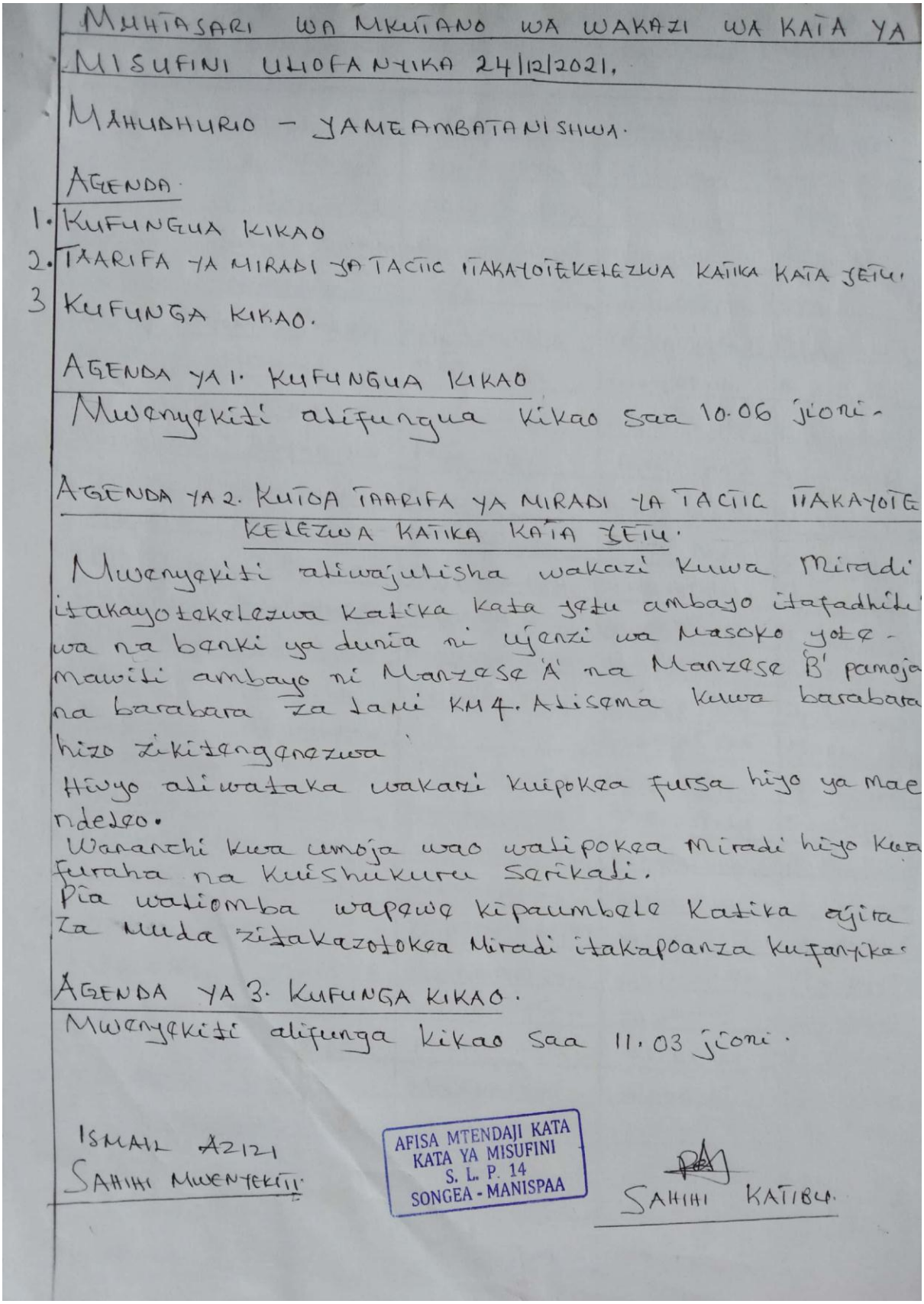
YAH:- KUWASILISHA MUHTASARI WA MKUTANO WA HADHARI WA KUTAMBULISHA MRADI.

Husika na mada tajwa hapo juu, Naomba kuwa silisha muhtasari wa Mkutano wa hadhara wa kutambulisha Miradi ya TACIC itakayofanyika katika kata ya Misufini, itakayogharamiwa na benki ya dunia.

Naomba kuwasilisha.

AFISA MTENDAJI KATA
KATA YA MISUFINI
S. L. P. 14
SONGEA - MANISPAA

APUSIATIA NJELEKELA



MUHTASARI WA MKUTANO WA WAKAZI WA KATA YA MISUFINI ULIOFANYIKA 24/12/2021.

MAHUDHURIO – YAMEAMBATANISHWA.

AGENDA.

1. KUFUNGUA KIKAO
2. TAARIFA YA MIRADI YA TACTIC ITAKAYOTEKELEZWA KATIKA KATA YETU.
3. KUFUNGA KIKAO.

AGENDA YA 1. KUFUNGUA KIKAO

Mwenyekiti alifungua kikao saa 10.06 jioni.

AGENDA YA 2. KUTOA TAARIFA YA MIRADI YA TACTIC ITAKAYOTEKELEZWA KATIKA KATA YETU.

Mwenyekiti aliwajulisha wakazi kuwa Miradi itakayotekelezwa katika kata yetu ambayo itafadhiliwa na benki ya dunia ni ujenzi wa Masoko yote. mawili ambayo ni Manzese 'A' na Manzese 'B' pamoja na barabara za lami KM 4. Alisema kuwa barabara hizo zikitengenezwa
Hivyo aliwataka wakazi kuipokea fursa hiyo ya maendeleo.
Wananchi kwa umoja wao walipokea Miradi hiyo kwa furaha na kuishukuru Serikali.
Pia walitoa wapewe kipaumbele katika ajira za muda zitakazotokea Miradi itakapoanza kufanyika.

AGENDA YA 3. KUFUNGA KIKAO.

Mwenyekiti alifunga kikao saa 11.03 jioni.

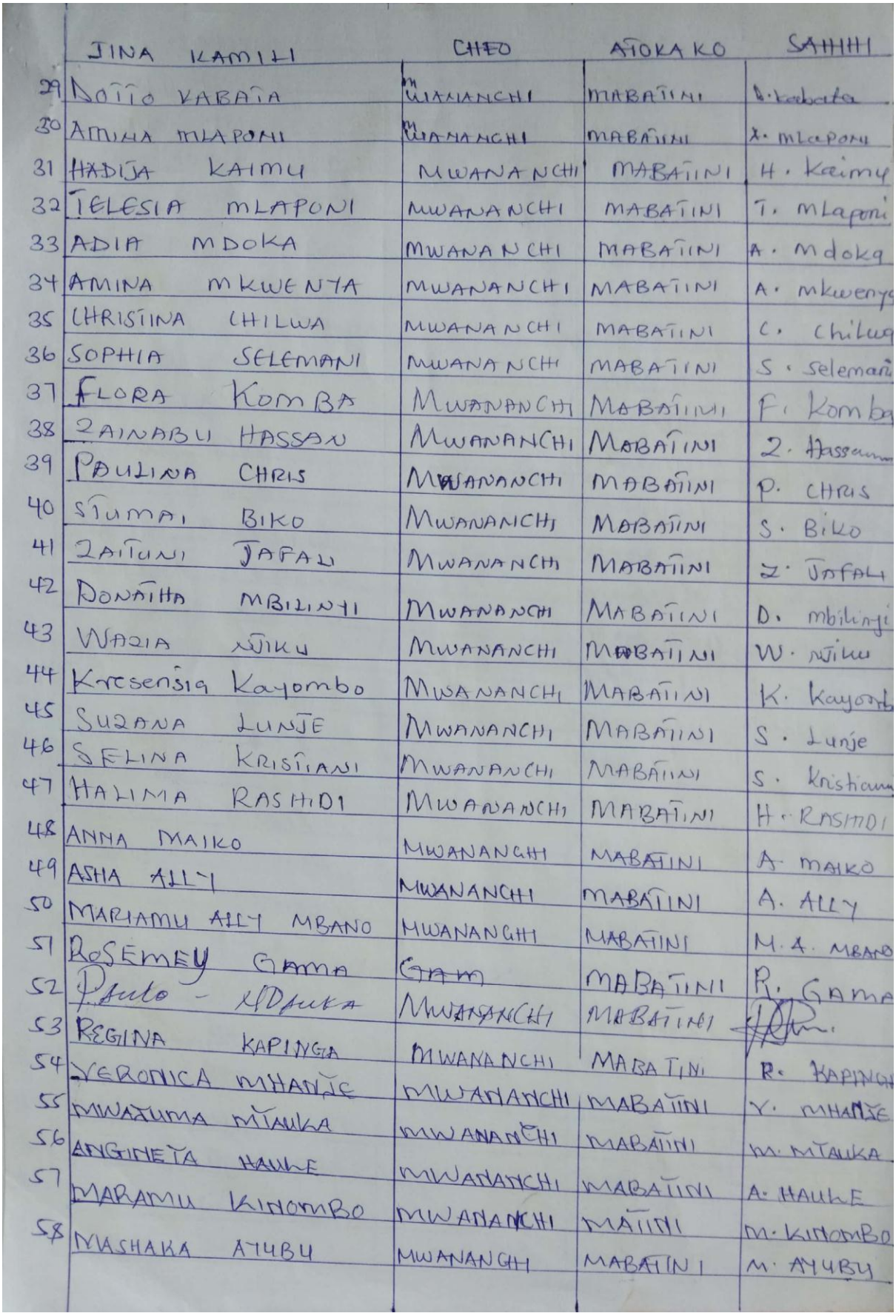
ISMAIL AZIZI
SAHIHI MWENYEKITI.

AFISA MTENDAJI KATA
KATA YA MISUFINI
S. L. P. 14
SONGEA - MANISPAA

SAHIHI KATIBU.

MAHUDHURIO YA KIKAO CHA WANANCHI WOTE WA KATA YA MISUFINI KILICHOFANYIKA LEO TAREHE 24/12/2021.

	JINA KAMILI	CHEO	ANAKAKO	SAHIHI
1	ISMAIL AZIZ FAKIR	MH/DIWANI	MISUFINI	0717613984
2	ANUSIATA .R. NJELEKELA.	MTENDAJI KATA	MISUFINI	
3	HUSNA KAZUMARI CHIPONDA	MTENDAJI MTAA	MABATINI	Chiponda.
4	HASHIMU NIAKARIKI	M/KITI	MABATINI	H.Niakariki
5	ROSE P. NAMPEMBE	MJUMBE	MJUMBE	
6	AWADI NCHIMBI	MJUMBE	MABATINI	A. Nchimbi
7	KONDOLADA NGURUWE	MJUMBE	MSIKITINI	K. nguruwe
8	MWAJUMA KAMBIKIA	MJUMBE	MAJI MAJI	M. Kambikia
9	HAMADI S. MATEKA	M/KITI	MAJI MAJI	H. Mateka
10	CHRISIA KISITE	MJ UMBE	MAJI MAJI	C. Kisite
11	PAMELA NGOMA	MWANA NCHI	MABATINI	P. ngoma
12	JUDITH KADAMBE	MWANA NCHI	MABATINI	J. kadambe
13	MUNGAHO MAKINDA	MWANA NCHI	MABATINI	M. Makinda
14	HAPPY HYERA	MWANA NCHI	MABATINI	H. Hyera
15	BIDHALI NDUMBARO	"	MABATINI	B. Ndumbaro
16	AJANASIA KOMBA	MJUMBE	MSIKITINI	A. Komba
17	FATUMA SEFU	MWANA NCHI	MSIKITINI	F. Sefu
18	RICHARD MAPUNDA	KIB CCM KATA	MABATINI	R. Mapunda
19	KASSIM .H. KOMBA.	MWANANCHI	MSIKITINI	K. KOMBA
20	ASHA ABDUL	MWANANCHI	MSIKITINI	A. ABDUL
21	ZUWENA AJUAYE	MWANANCHI	MSIKITINI	Z. AJUAYE
22	HALIFA SAIDI	MWANANCHI	MSIKITINI	H. SAID
23	ALLY RASHIDI.	MWANANCHI	MSIKITINI	A. RASHIDI
24	MKUMBA MAIEI	MWANANCHI	MSIKITINI	M. Maiei
25	CHRISTIAN MUMBA	MWANANCHI	MSIKITINI	C. Mumba
26	STUMAI ISSA	MWANANCHI	MSIKITINI	S. ISSA
27	ALLY. MALAWI	MWANANCHI	MSIKITINI	A. Malawi
28	SWALEHE ABDALA	MWANANCHI	MABATINI	



	JINA KAMILI	CHEO	AIOKAKO	SAHIHI
29	DOTTO KABAIA	MWANANCHI	MABATINI	D. kabata
30	AMINA MLAPONI	MWANANCHI	MABATINI	A. MLAPONI
31	HADIJA KAIMU	MWANANCHI	MABATINI	H. Kaimu
32	TELESIA MLAPONI	MWANANCHI	MABATINI	T. Mlaponi
33	ADIA MDOKA	MWANANCHI	MABATINI	A. Mdoka
34	AMINA MKWENYA	MWANANCHI	MABATINI	A. mkwenya
35	CHRISTINA CHILWA	MWANANCHI	MABATINI	C. Chilwa
36	SOPHIA SELEMANI	MWANANCHI	MABATINI	S. Selemani
37	FLORA KOMBA	MWANANCHI	MABATINI	F. Komba
38	ZAINABU HASSAN	MWANANCHI	MABATINI	Z. Hassan
39	PAULINA CHRIS	MWANANCHI	MABATINI	P. CHRIS
40	STUMAI BIKO	MWANANCHI	MABATINI	S. BIKO
41	ZAITUNI JAFALI	MWANANCHI	MABATINI	Z. JAFALI
42	DONATHA MBILINYI	MWANANCHI	MABATINI	D. mbilinyi
43	WADIA NJIKU	MWANANCHI	MABATINI	W. Njiku
44	Kresensia Kayombo	MWANANCHI	MABATINI	K. Kayombo
45	SUZANA LUNJE	MWANANCHI	MABATINI	S. Lunje
46	SELINA KRISTIANI	MWANANCHI	MABATINI	S. Kristiani
47	HALIMA RASHIDI	MWANANCHI	MABATINI	H. RASHIDI
48	ANNA MAIKO	MWANANCHI	MABATINI	A. MAIKO
49	ASHA ALLY	MWANANCHI	MABATINI	A. ALLY
50	MARIAMU ALLY MBANO	MWANANCHI	MABATINI	M. A. MBANO
51	ROSEMEY GAMA	GAMA	MABATINI	R. GAMA
52	Paulo - MDOKA	MWANANCHI	MABATINI	
53	REGINA KAPINGA	MWANANCHI	MABATINI	R. KAPINGA
54	VERONICA MHANJE	MWANANCHI	MABATINI	V. MHANJE
55	MWAZUMA MTAUKA	MWANANCHI	MABATINI	M. MTAUKA
56	ANGINETA HAULE	MWANANCHI	MABATINI	A. HAULE
57	MARIAMU KINOMBO	MWANANCHI	MABATINI	M. KINOMBO
58	MASHAKA AYUBU	MWANANCHI	MABATINI	M. AYUBU

	JINA KAMILI	CHEO	AFIOKAKO	SAHIHI
59	PENDO KOMBA	MWANANCHI	MABATINI	P. Komba
60	AVELINA MBELE	MWANANCHI	MABATINI	A. mbele.
61	MWAJUMA LEMU	"	MABATINI	M. Lemu
62	SALMA SIMONI KOMBA	"	MABATINI	S. Komba
63	WINFRIDA KOMBA	"	MABATINI	W. Komba
64	KAWALE MSENDA	"	MABATINI	K. msenda
65	CHRISTINA MUHAGAMA	"	MABATINI	C. muhaga
66	TATU LUOGA	"	MABATINI	T. Luoga
67	RUKIA KASSIM	"	MABATINI	R. kassim
68	AMINA NASSORO	"	MABATINI	A. Nassoro
69	ASHA AFIHUMANI	"	MABATINI	A. Afhuman
70	PRISKA EZEKIELI	"	MABATINI	P. Ezekiel
71	JULIANA MKINGA	"	MABATINI	J. mKinga
72	MWAMINI ADAMU	"	MABATINI	m. Adamu
73	CATHERINI HERI	"	MABATINI	C. HERI
74	FATUMA ABEDI	"	MSIKITINI	F. ABEDI
75	MWAJUMA JUMA	"	MABATINI	M. Juma
76	SIWAJIBU SAIDI	"	MABATINI	S. Saidi
77	LUCY MBELE	"	MABATINI	L. Mbele
78	MAIMUNA NCHIMBI	"	MABATINI	M. nchimbi
79	LUKIA SITAMBULI	"	MABATINI	L. Stambuli
80	RUCY BALA	"(Rukusa)	MSIKITINI	R. BALA
81	DEVOTA MILANZI	"(Rukusa)	MABATINI	D. milanzi
82	ZENA KALINGA	"	MAJI MAJI	Z. Kalinga
83	TEKLA HAULE	"	MABATINI	T. Haule
84	TERESIA NALI	"	MABATINI	T. Nali
85	ZAINDA MUSTAPHA	"	MABATINI	Z. Mustapha
86	HAPPY GWAMKUU	"	MABATINI	H. gwamkuu
87	HUSNA RASHIDI	"	MABATINI	H. Rashid

	JINA	KAMILI	CHEO	ATOKAKO	SAHIHI
88	HALANA	NYONI	11	MABATINI	H. Nyoni
89	DESDELIA	GOLIAMA	11	MABATINI	D. goliama
90	BATRISA	TINDWA	11	MABATINI	B. tindwa
91	AMINA	SAIDI	11	MABATINI	A. Saidi
92	SHARIFA	MITITUMA	11	MABATINI	S. mtituma
93	CATERINA	MKUDE	11	MABATINI	C. Mkude
94	TEDY	NDUNGURU	11	MABATINI	T. ndunguru
95	ASUNTA	MILANZI	11	MABATINI	A. milanzi
96	TAISA	MWAIPOPO	11	MABATINI	T. mwaipopo
97	AGAITHA	SHAWA	11	MABATINI	A. Shawa
98	[illegible]NIA	INJEWERE	11	MABATINI	L. injewele
99	REHEMA	NASORO	11	MSIKITINI	R. Nasoro
100	ANNA	VUMA	11	MABATINI	A. Vuma
101	MWANAIDI	SALUMU	11	MABATINI	M. Salum
102	MARIA	MAPUNDA	11	MABATINI	M. Mapunda
103	JUMA	SHAIBU	11 Rukwa	MSIKITINI	J. Shaibu
104	MARY	E SAU	11 Rukwa	MSIKITINI	M. Esau
105	CONSOLATA	NGUWILO	11 Rukwa	MSIKITINI	C. nguwilo
106	GASPA	MKOWE	11	MABATINI	G. mkowe
107	GROLIA	CHIPETA	11	MABATINI	G. Chipeta
108	ASHA	ZUBERI	11	MABATINI	A. Zuberi
109	CONDOLADA	NGURUWE	11	MSIKITINI	C. nguruwe
110	DAMASIA	TEGETE	11	MABATINI	D. tegete
111	EMILI	PILLY	11	MSIKITINI	E. PILLY
112	MUHAMADI	HAMISI	11	MABATINI	M. hamisi
113	ASHURA	NGINDO	11	MABATINI	A. ngindo
114	AMINA	HAMISI	11	MABATINI	A. Hamisi
115	ZENA	RASHIDI	11	MABATINI	Z. Rashidi
116	MAITHA	SOKO	11	MABATINI	M. Soko

	JINA KAMILI		CHEO	ANWANI	SAHIHI
117	ASHURA	SELEMANI	MWANA NCHI	MSIKITINI	A. Seleman
118	SALUMA	MUYAO	"	MSIKITINI	S. Muyao
119	AJIBU	KAWONGA	"	MABATINI	A. Kawonga
120	OMARI	NIGA	"	MABATINI	O. Niga
121	ZUBEDA	DADI	"	MABATINI	Z. dadi
122	REHEMA	KIWILI	"	MABATINI	R. Kiwili
123	MORADA	NGONYANI	"	MSIKITINI	H. ngonyani
124	ZEITUNI	MWAMEDI	"	MSIKITINI	Z. Mwamedi
125	FATUMA	MILAJI	"	MABATINI	F. Milaji
126	BRIGIA	HOKOLOLO	"	MABATINI	B. Hokololo
127	MARIAM	ATHUMANI	" Rukwa	MABATINI	M. Athumani
128	SOFIA	NCHIMBI	"	MABATINI	S. nchimbi
129	HIDAYA	ANYA	"	MAJI MAJI	H. Anya
130	SHARIFA	BAKARI	"	MSIKITINI	S. bakari
131	Rabia	KIFARU	"	MSIKITINI	R. kifaru
132	BIMWANA	ODARI	"	MABATINI	B. Odari
133	ZAINABU	SANDARI	"	MABATINI	Z. Sandary
134	HALIMA	NJAIDI	"	MABATINI	H. Njaidi
135	AMINA	AMIRI	"	MAJI MAJI	A. Amiri
136	SHANI	MUSTAFA	"	MABATINI	S. Mustafa
137	MASHA	SIMBA	"	MABATINI	M. Simba
138	SIGILA	KOMBA	"	MABATINI	S. Komba
139	FLORENA	LUHOGA	"	MABATINI	F. Luhoga
140	Rehema	NDUNGURU	"	MABATINI	R. ndunguru
141	SAUDA	DANIKENI	"	MABATINI	S. ndanken
142	FRANK	SHAMBALE	"	MABATINI	F. Shambale
143	SALUM	LIKWATA	"	MSIKITINI	S. Likwata
144	ESHA	KISONGA	"	MSIKITINI	E. Kisonga
145	SHAMILA	ALLY	"	MSIKITINI	S. Ally

	JINA KAMILI		CHEO	AFOKAKO	SAHIHI
146	JAMHURI	MAYONO	MWANANCHI	MSIKITINI	J. mayono
147	MAIRIDA	MLOWE	11	MABATINI	M. Mlowe
148	ZEINABU	ALLY	11	MABATINI	Z. Ally
149	FADHILI	NACHELE	11	MSIKITINI	F. Nachele
150	ERICK	MDETE	11	MABATINI	E. Mdete
151	ZAINABU	NACHELE	11	MSIKITINI	Z. Nachele
152	ANNA	MANDE	11	MABATINI	A. Mande
153	HALIMA	RASHIDI	11		
154	ARUSI	HALIFA	11		
155	~~CHEISI~~				
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HALMASHAURI YA MANISPAA YA SONGEA

OFISI YA AFISA MTENDAJI
KATA YA MISUFINI,
S.L.P 14
SONGEA.
31/12/2021

MKURUGENZI WA MANISPAA,
MANISPAA YA SONGEA,
S.L.P 14
SONGEA

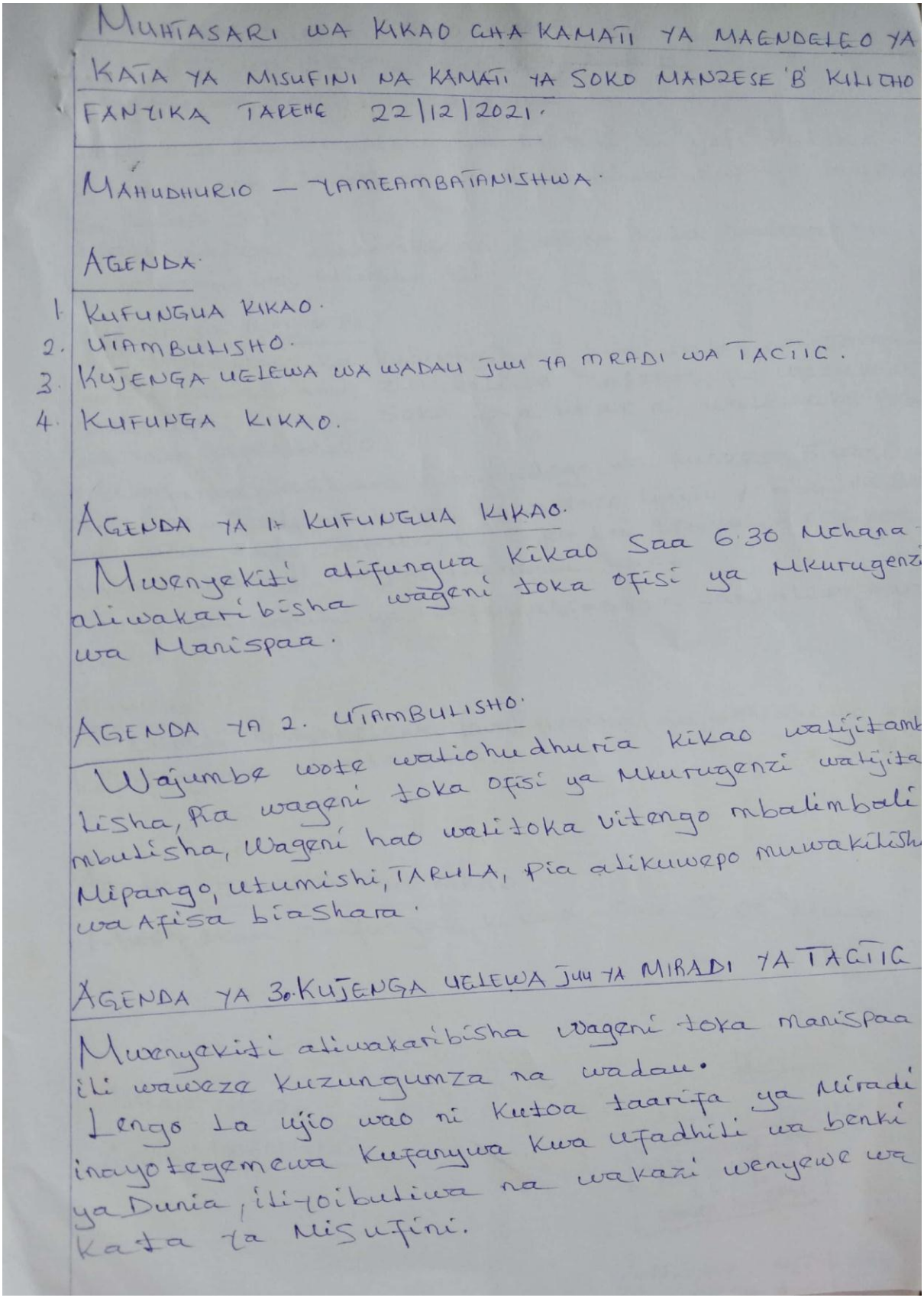
YAH:- KUWASILISHA MUHTASARI WA KIKAO CHA KAMATI YA MAENDELEO YA KATA.

Husika na mada tajwa hapo juu, Naomba kuwasilisha Muhtasari wa kikao cha kamati ya Maendeleo kata ya Misufini cha kutambulisha Miradi ya TACTIC itakayotanyika katika kata ya Misufini itakayogharamiwa na benki ya Dunia.

Naomba kuwasilisha.

AFISA MTENDAJI KATA
KATA YA MISUFINI
S. L. P 14
SONGEA - MANISPAA

ANUSIATA NJELEKELA



MUHTASARI WA KIKAO CHA KAMATI YA MAENDELEO YA KATA YA MISUFINI NA KAMATI YA SOKO MANZESE 'B' KILICHO FANYIKA TAREHE 22/12/2021.

MAHUDHURIO — YAMEAMBATANISHWA.

AGENDA.

1. KUFUNGUA KIKAO.
2. UTAMBULISHO.
3. KUJENGA UELEWA WA WADAU JUU YA MRADI WA TACTIC.
4. KUFUNGA KIKAO.

AGENDA YA 1. KUFUNGUA KIKAO.

Mwenyekiti alifungua kikao Saa 6:30 Mchana aliwakaribisha wageni toka ofisi ya Mkurugenzi wa Manispaa.

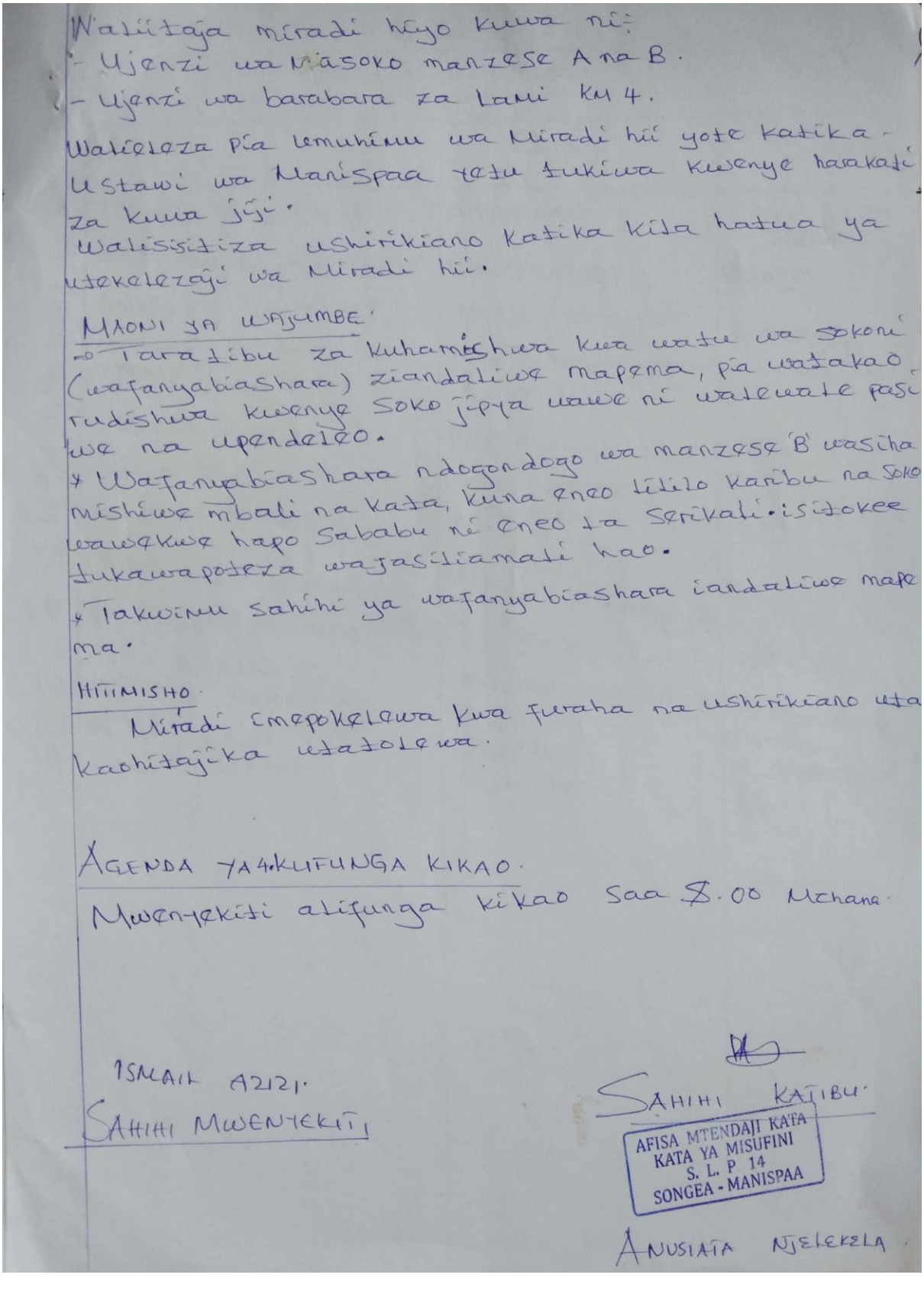
AGENDA YA 2. UTAMBULISHO.

Wajumbe wote waliohudhuria kikao walijitambulisha, pia wageni toka ofisi ya Mkurugenzi walijitambulisha, Wageni hao walitoka Vitengo mbalimbali Mipango, Utumishi, TARURA, pia alikuwepo mwakilishi wa Afisa biashara.

AGENDA YA 3. KUJENGA UELEWA JUU YA MIRADI YA TACTIC

Mwenyekiti aliwakaribisha wageni toka Manispaa ili waweze kuzungumza na wadau.

Lengo la ujio wao ni kutoa taarifa ya Miradi inayotegemewa Kufanywa Kwa ufadhili wa benki ya Dunia, iliyoibuliwa na wakazi wenyewe wa Kata ya Misufini.



Waliitaja miradi hiyo kuwa ni:
- Ujenzi wa Masoko manzese A na B.
- Ujenzi wa barabara za Lami Km 4.

Walieleza pia lemuhimu wa Miradi hii yote katika Ustawi wa Manispaa yetu tukiwa kwenye harakati za kuwa jiji.
Walisisitiza ushirikiano katika kila hatua ya utekelezaji wa Miradi hii.

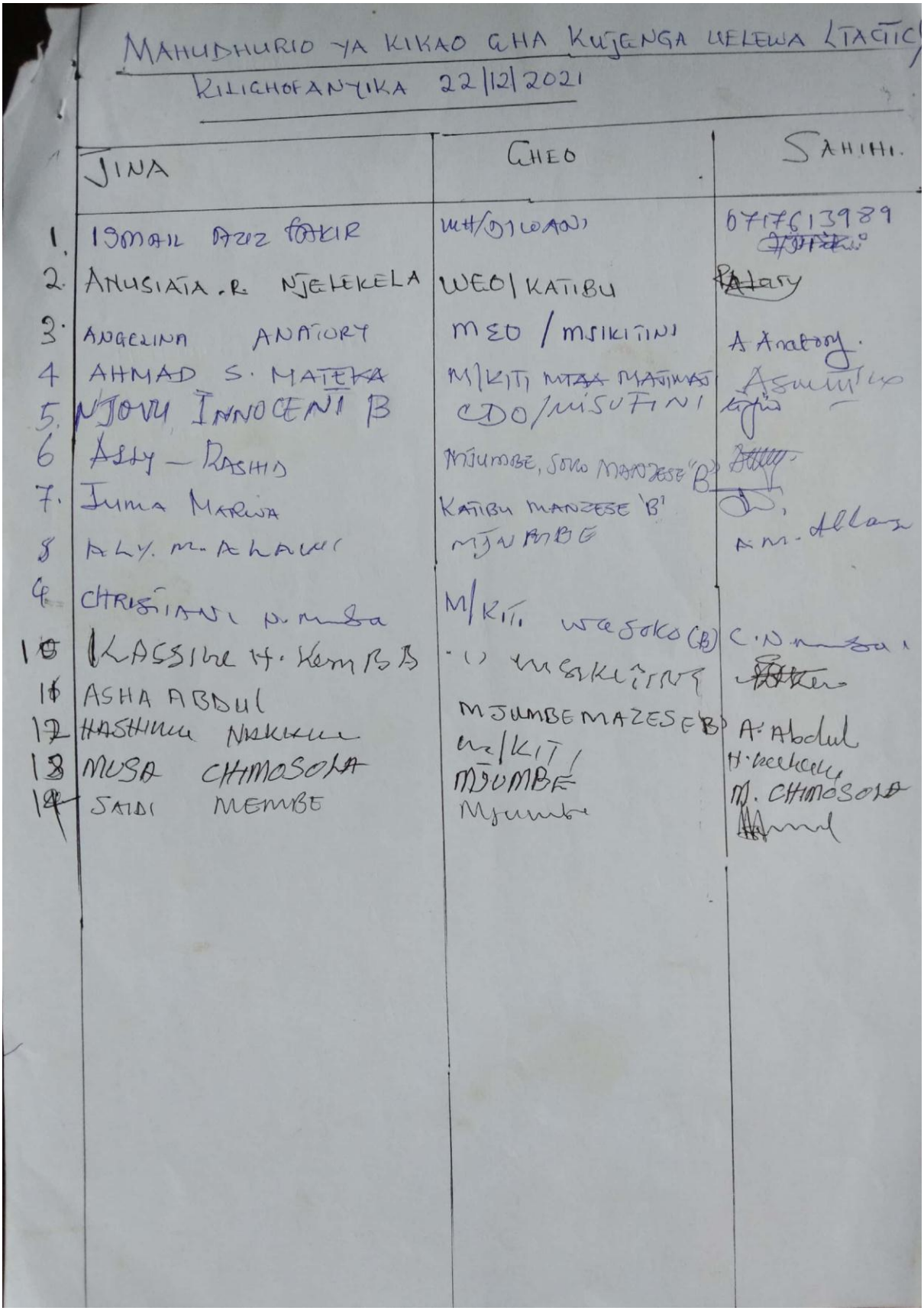
MAONI YA WAJUMBE.
- Taratibu za kuhamishwa kwa watu wa sokoni (wafanyabiashara) ziandaliwe mapema, pia watakao rudishwa kwenye Soko jipya wawe ni watewate pasi we na upendeleo.
* Wafanyabiashara ndogondogo wa manzese 'B' wasiha mishiwe mbali na kata, kuna eneo lililo karibu na Soko wawekwe hapo Sababu ni eneo la Serikali. isitokee tukawapoteza wajasiliamali hao.
* Takwimu sahihi ya wafanyabiashara iandaliwe mapema.

HITIMISHO.
Miradi imepokelewa kwa furaha na ushirikiano uta kaohitajika utatolewa.

AGENDA YA 4. KUFUNGA KIKAO.
Mwenyekiti alifunga kikao Saa 8.00 Mchana.

ISMAIL A2121.
SAHIHI MWENYEKITI.

SAHIHI KATIBU.
AFISA MTENDAJI KATA
KATA YA MISUFINI
S. L. P. 14
SONGEA - MANISPAA
ANUSIATA NJELEKELA.



MAHUDHURIO YA KIKAO CHA KUJENGA UELEWA LTACTIC/
KILICHOFANYIKA 22/12/2021

	JINA	CHEO	SAHIHI.
1.	ISMAIL ABDU FAKIR	WEO/OLOMOLI	0717613989
2.	ANUSIATA .R NJELEKELA	WEO/KATIBU	
3.	ANGELINA ANATORY	MEO / MSIKITINI	A Anatory.
4	AHMAD S. MATEKA	M/KITI MTAA MATINAS	
5.	NJOVU INNOCENTI B	CDO/MISUFINI	
6	ALLY – RASHID	MJUMBE, SOKO MANZESE "B"	
7.	JUMA MARWA	KATIBU MANZESE 'B' MJUMBE	
8	ALY. M. AHALWI		A.M. Allay
9	CHRISTIANI P. MUSA	M/KITI WA SOKO (B)	C.N Musa
10	KASSIM H. KAMBA	MWENYEKITI	
11	ASHA ABDUL	MJUMBE MAZESE B	A. Abdul
12	HASHIMU NAKUKU	M/KITI MJUMBE	H. Nakuku
13	MUSA CHIMOSOLA	Mjumbe	M. CHIMOSOLA
14	SAIDI MEMBE		

HALMASHAURI YA MANISPAA YA SONGEA.

OFISI YA AFISA MITENDAJI

KATA YA MJINI

S.L.P 14

SONGEA

30/12/2021

MKURUGENZI WA MANISPAA

MANISPAA YA SONGEA

S.L.P 14

SONGEA.

YAH: KUWASILISHA MUHTASARI WA KIKAO CHA KAMA

TI YA MAENDELEO (WDC) KATA YA MJINI CHA KUTAMBU

KUSHA MRADI TOKA BENKI YA DUNIA

Husika na mada tajwa hapo juu. Naomba

kuwasilisha. Muhtasari wa kikao cha kamati ya ma

endeleo ya kata (WDC) cha kutambulisha mradi wa

vijenzi wa barabara toka benki ya Dunia.

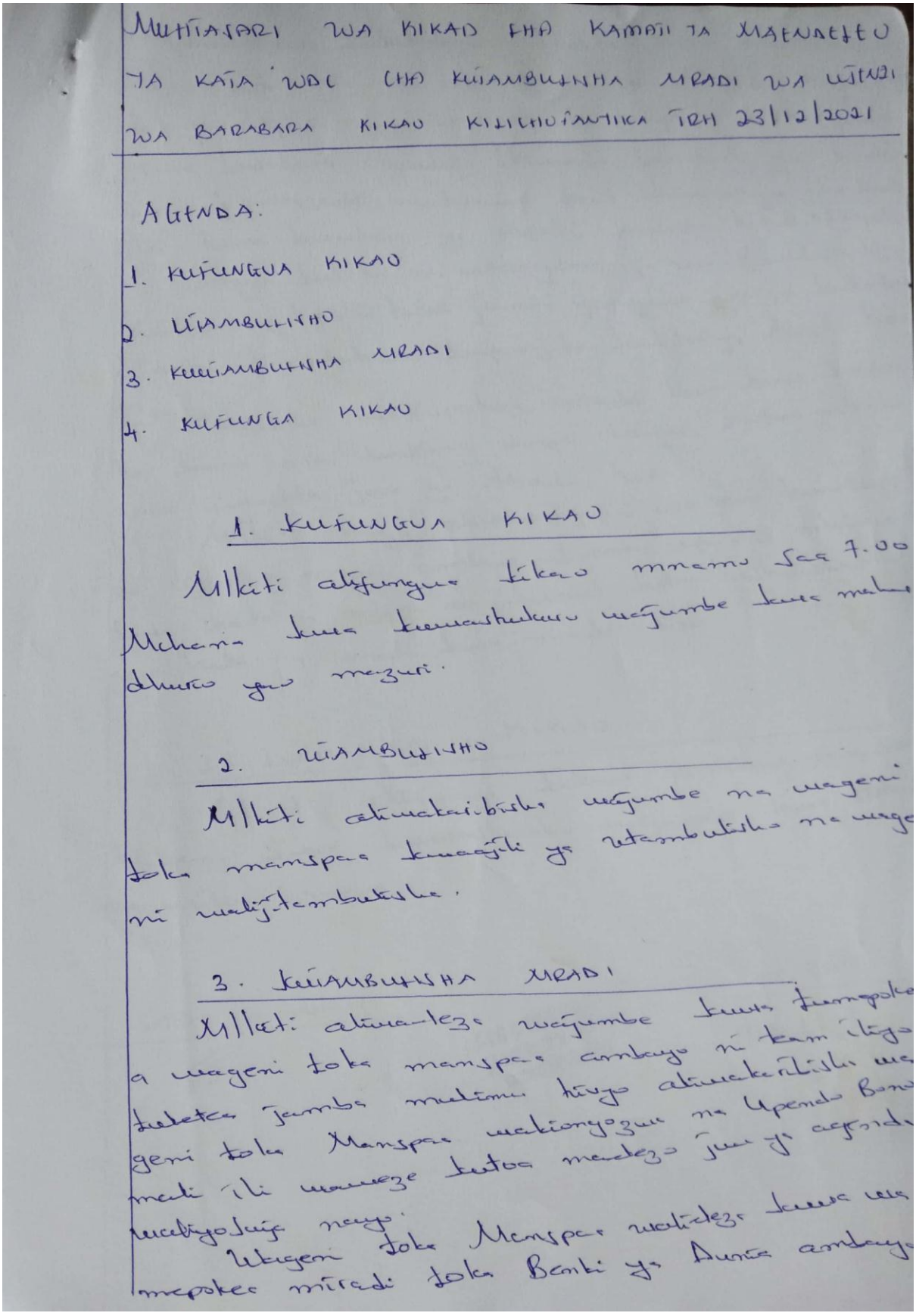
Naomba Kuwasilisha.

Ahsante.

Katibu Mtendaji wa Kata

J. Mateso.

AFISA MTENDAJI
KATA YA MJINI
SONGEA (M)



MUTIASARI WA KIKAO CHA KAMATI YA MAENDELEO YA KATA WOTE CHA KUJAMBULISHA MRADI WA UJENZI WA BARABARA KIKAO KILICHOFANYIKA TAR 23/12/2021

AGENDA:

1. KUFUNGUA KIKAO
2. UJAMBULISHO
3. KUJIAMBULISHA MRADI
4. KUFUNGA KIKAO

1. KUFUNGUA KIKAO

Mkiti alifungua kikao mnamo saa 7.00 Mchana kwa kumshukuru mungu kwa mahudhurio yao mazuri.

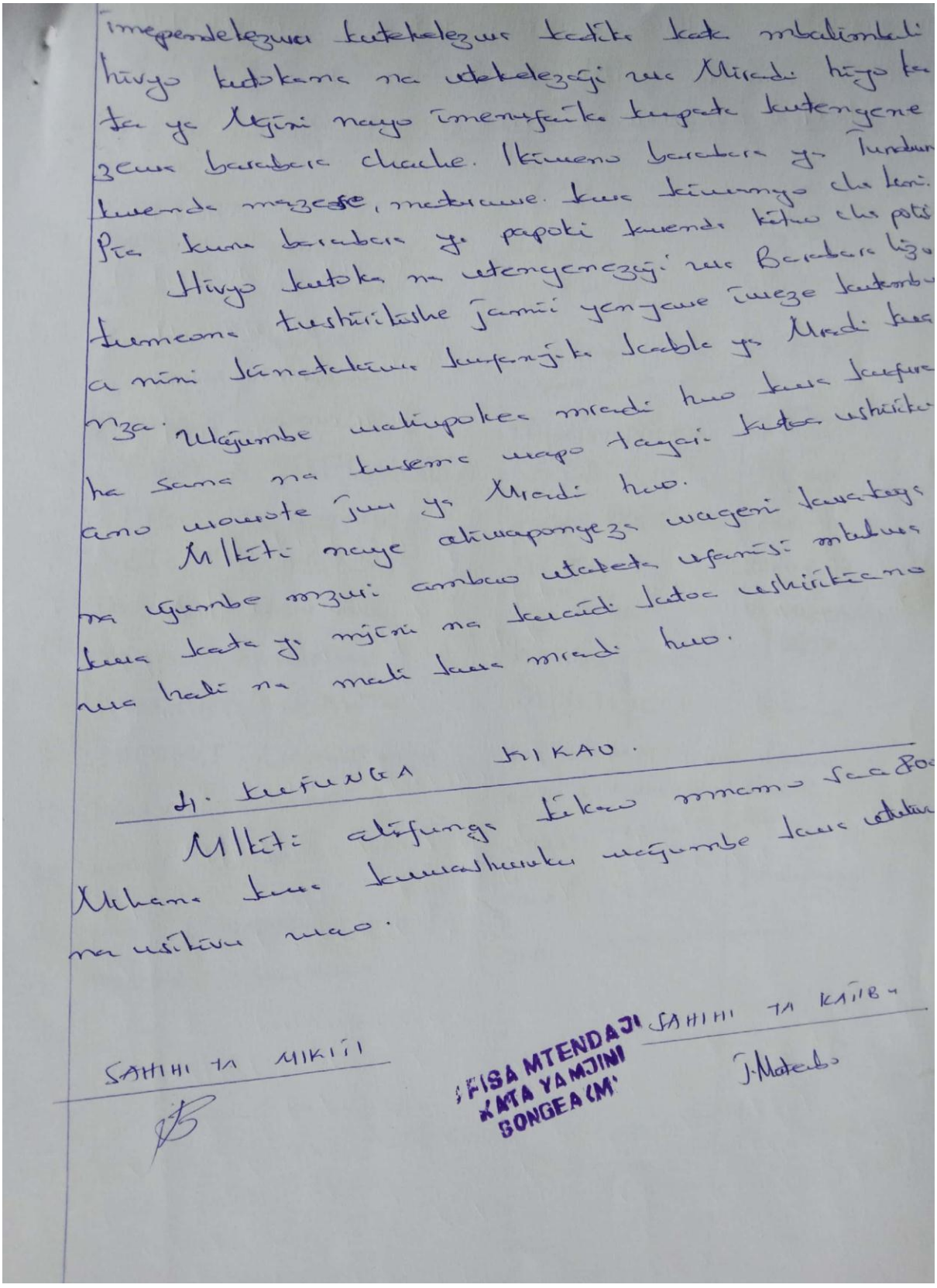
2. UJAMBULISHO

Mkiti alimkaribisha mgeni toka manispaa kwaajili ya utambulisho na wageni wa mradi kutambulisha.

3. KUJIAMBULISHA MRADI

Mkiti: alimtaja mgeni kwa kumpokea wageni toka manispaa ambayo ni kama ifuatavyo Jumba matimu kiuyo alimkaribisha mgeni toka Manispaa mkurugenzi na Upendo Bonaventure ili waweze kutoa mrejesho juu ya agenda mradi wa ujenzi wa barabara.

Ukigeni toka Manispaa walitoa kwa mapokeo miradi toka Benki ya Dunia ambayo



imegpendekezwa kutekelezwa kadiri kadi mbalimbali
hivyo kubkana na utekelezaji wa Miradi hiyo ka
ta ya Kigini nayo imenufaika kupata kutengenez
wa barabara chache. Ikiwemo barabara ya Tundu
kwenda magereza, mchangani kwa kimwanya cha kati
Pia kwa barabara ya papoki kwenda kituo cha poli
Hivyo kutoka na utengenezaji wa Barabara hiz
kwamba kusaidia jamii yenyewe kuweza kukamb
a nini kinachokwa kupenjika kadhi ya Miradi kwa
nza. Ulipaji umelipokea miradi hiyo kwa kuipo
ka sana na kwamba wapo tayari kutoa ushirik
ano wowote juu ya Miradi hiyo.
Mkiti naye akiwapongeza wageni kwa kuja
na ujumbe mzuri ambao utaleta ufanisi mkubwa
kwa kata ya mjini na kwamba kutoa ushirikiano
wa hali na mali kwa miradi hiyo.

A. KIFUNGA KIKAO.

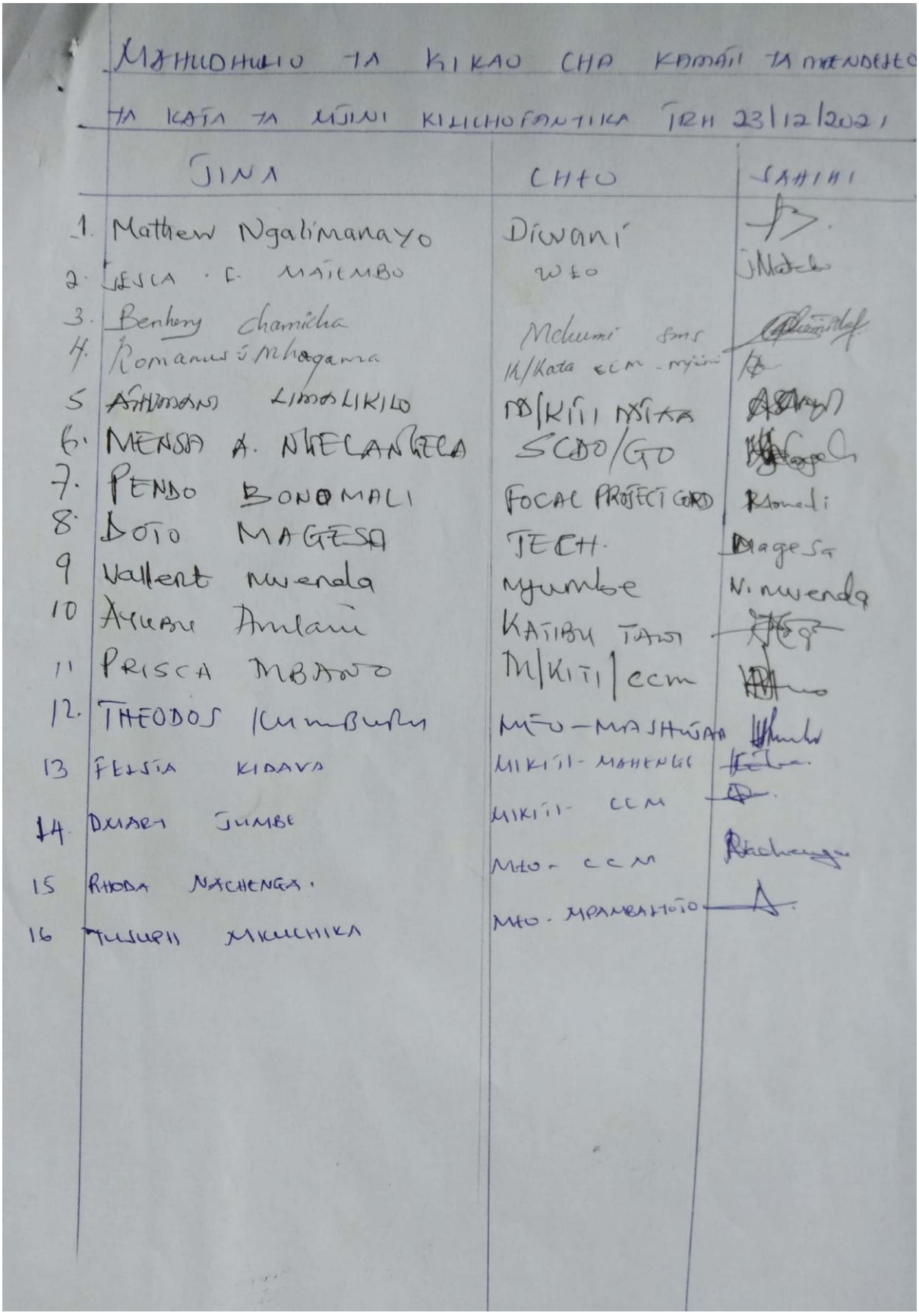
Mkiti alifunga kikao mara Saa Po
Mkuu kwa kumshukuru ujumbe kwa ushiri
na usikivu wao.

SAHIHI YA MKITI

SAHIHI YA KATIBU

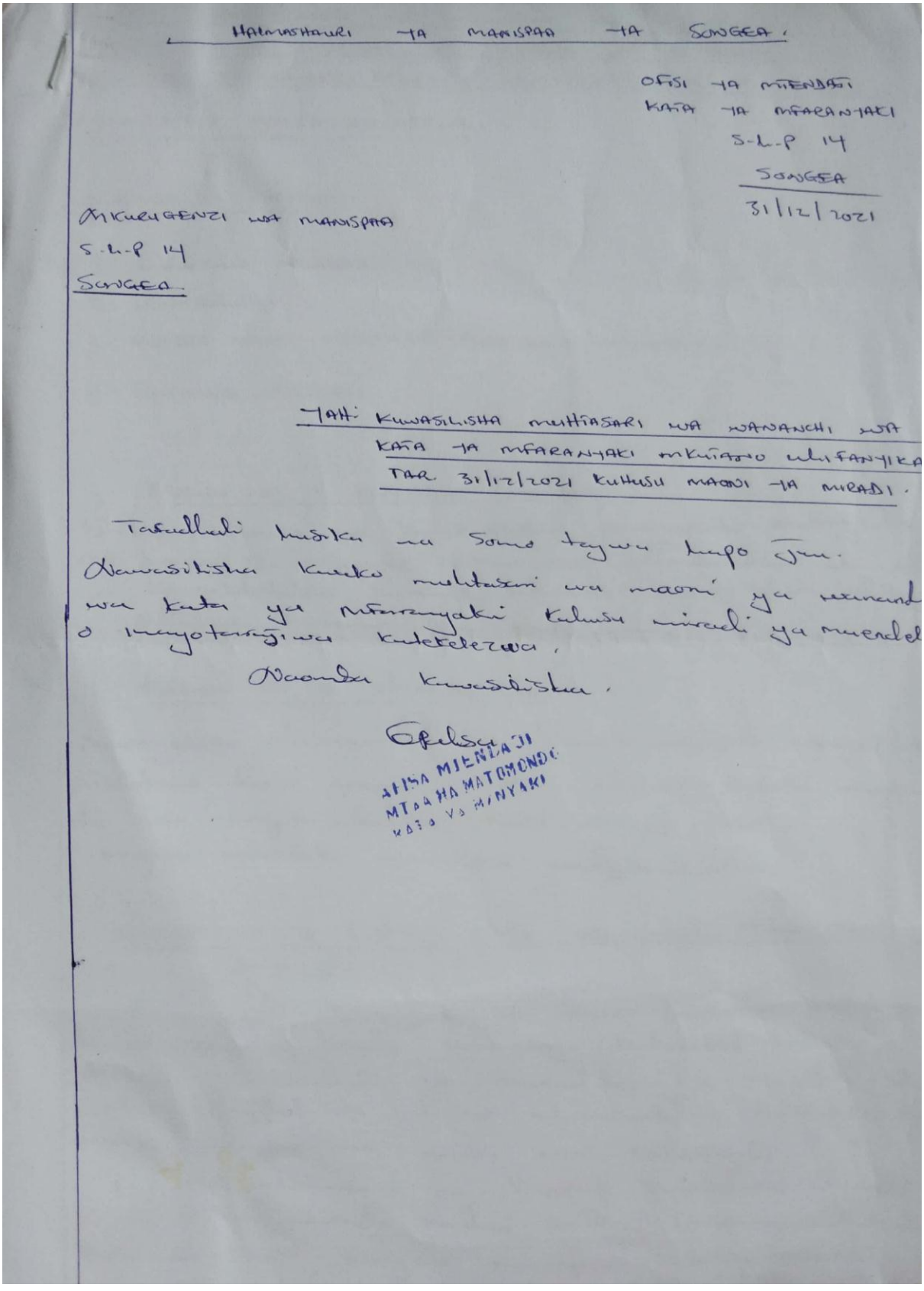
J. Mateb

OFISA MTENDAJI
KATA YA MJINI
SONGEA (M)



MATHUDHURIO YA KIKAO CHA KAMATI YA MRADI
YA KATA YA MJINI KILICHOFANYIKA TAREHE 23/12/2021

	JINA	CHEO	SAHIHI
1.	Mathew Ngalimanayo	Diwani	
2.	JESCA . F. MAKEMBO	W.E.O	
3.	Benhery Chamicha	Mchumi SMS	
4.	Romanus Mhagama	K/Kata CCM - Mjini	
5	ASHIMANI LIMOLIKILO	MB/KITI MJINI	
6.	MENSA A. NKELANGECA	SCDO/GO	
7.	PENDO BONOMALI	FOCAL PROJECT CORD	
8.	DOTO MAGESA	TECH.	
9	Vallent Nwenda	Nyumbe	
10	Ayubu Amlani	KATIBU TAWI	
11	PRISCA MBANO	M/KITI/CCM	
12.	THEODOS KUMBULA	MEO - MASHUJAA	
13	FELISIA KIDAVA	MIKITI - MAHENGE	
14.	DUSAN JUMBE	MIKITI - CCM	
15	RHODA NACHENGA.	MEO - CCM	
16	YUSUPH MKUCHIKA	MEO - MPAMBATOTO	



HALMASHAURI YA MANISPAA YA SONGEA.

OFISI YA MTENDAJI
KATA YA MFARANYAKI
S.L.P 14
SONGEA
31/12/2021

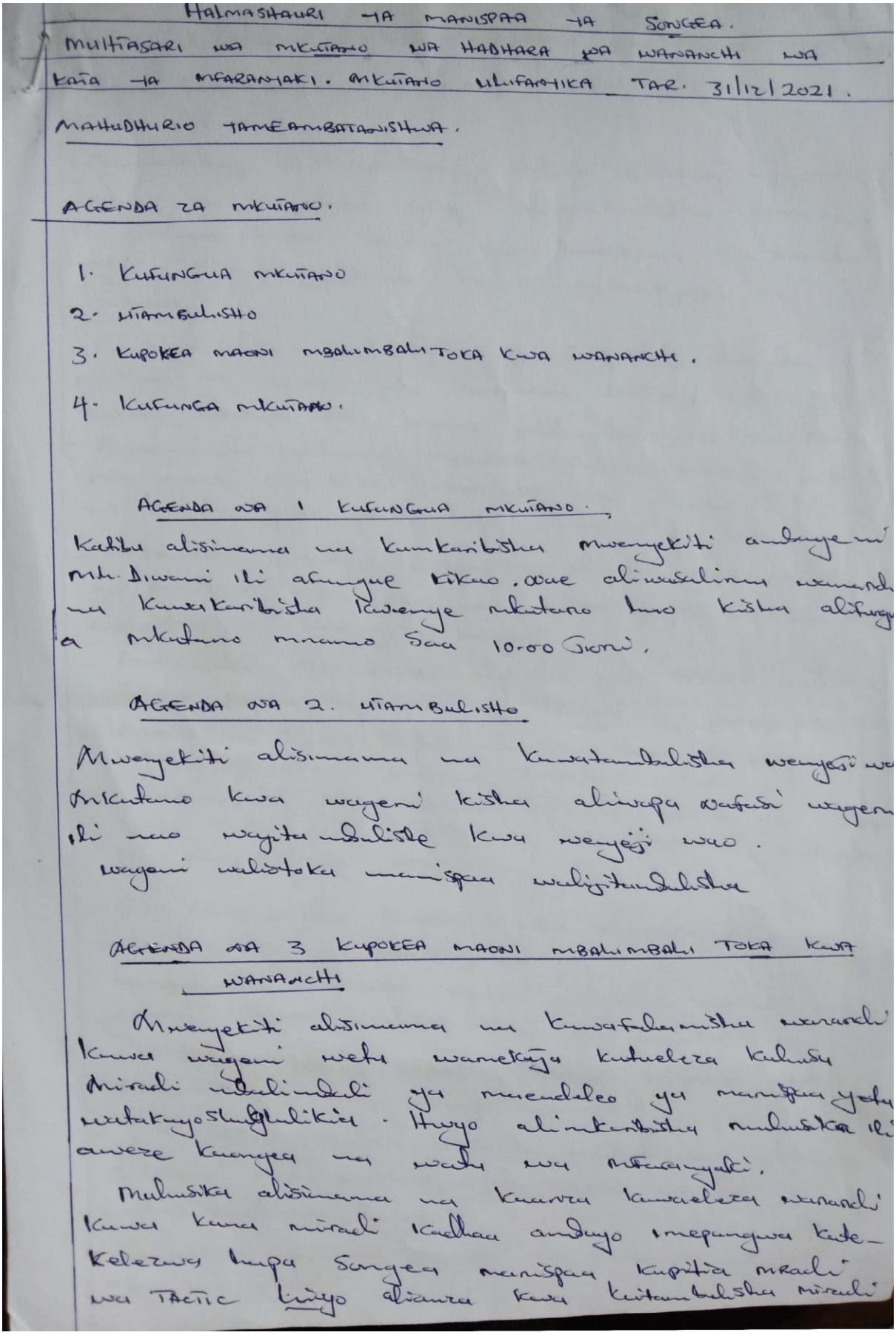
MKURUGENZI WA MANISPAA
S.L.P 14
SONGEA.

YAH: KUWASILISHA MUHTASARI WA WANANCHI WA KATA YA MFARANYAKI MKUTANO ULIFANYIKA TAR. 31/12/2021 KUHUSU MAONI YA MRADI.

Tafadhali husika na somo tajwa hapo juu.
Nawasilisha kwako muhtasari wa maoni ya wananch wa kata ya Mfaranyaki kuhusu miradi ya mueneleo o inayotarajiwa kutekelezwa.

Naomba kuwasilisha.

Gratsy
AFISA MTENDAJI
MTAA HA MATOMONDO
KATA YA MFARANYAKI



HALMASHAURI YA MANISPAA YA SONGEA.

MULITASARI WA MKUTANO WA HADHARA WA WANANCHI WA KATA YA MFARANYAKI. MKUTANO ULIFANYIKA TAR. 31/12/2021.

MAHUDHURIO YAMEAMBATANISHWA.

AGENDA ZA MKUTANO.

1. KUFUNGUA MKUTANO
2. UTAMBULISHO
3. KUPOKEA MAONI MBALIMBALI TOKA KWA WANANCHI.
4. KUFUNGA MKUTANO.

AGENDA YA 1 KUFUNGUA MKUTANO.

Katibu alisimama na kumkaribisha Mwenyekiti aendeshe Mkutano Diwani ili afungue kikao. Ame alimwalikimu mwandishi na Kumkaribisha Mwenye mkutano huo kisha alifunga mkutano mnamo Saa 10:00 Asubuhi.

AGENDA YA 2. UTAMBULISHO

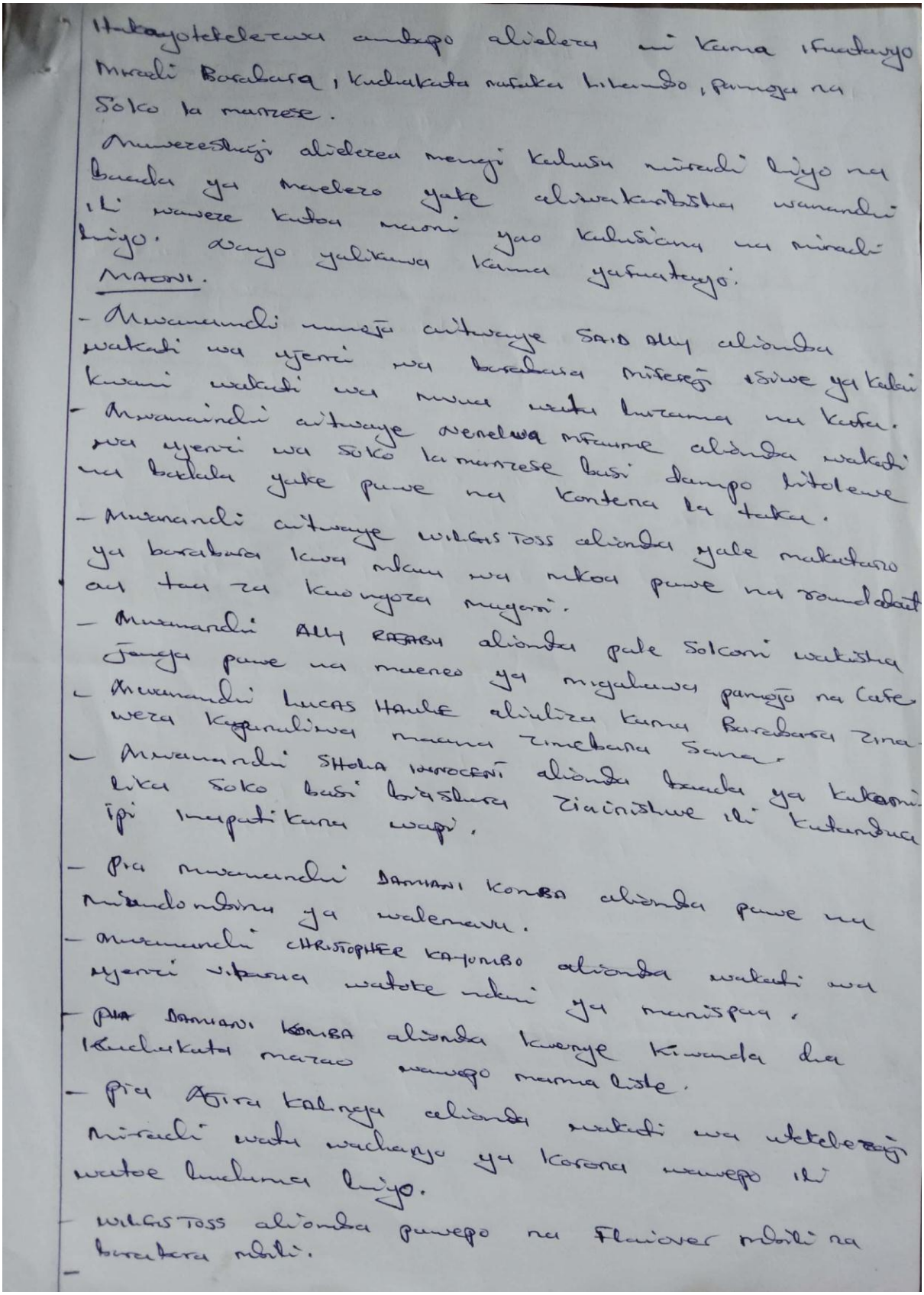
Mwenyekiti alisimama na kuwatambulisha wenyeji wa mkutano kwa wageni kisha alivaa wafuri wageni ili nao wajitambulishe kwa wenyeji wao.

Wageni waliotoka manispaa walijitambulisha

AGENDA YA 3 KUPOKEA MAONI MBALIMBALI TOKA KWA WANANCHI

Mwenyekiti alisimama na kuwafahamisha wananchi kuwa wageni weta wametuja kutueleza kuhusu miradi mbalimbali ya maendeleo ya manispaa yeta watakayoshughulikia. Huyo alimkaribisha mshauri ili aweze kuanza na watu wa mfaranyaki.

Mshauri alisimama na kuanza kuwaeleza wananchi kuwa kuna miradi kadhaa anayo mepanga kutekeleza kupa Songea manispaa kupitia mradi wa TACTIC kuyo alianza kwa kutambulisha miradi

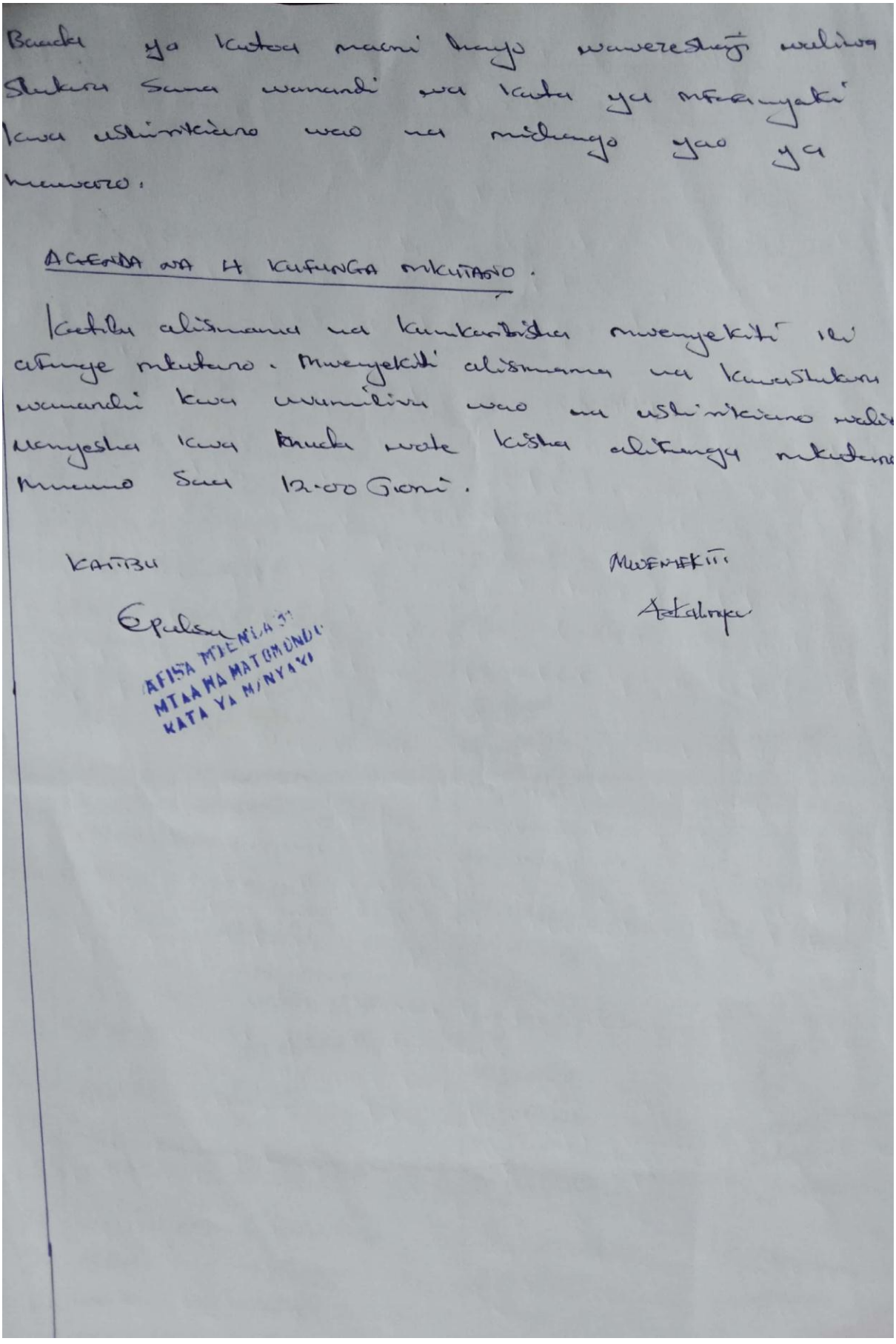


Hakuyotekeleza ambapo alieleza ni kama ifuatavyo Mkuu Barabara, kuhakikisha matuta linamba, Pungu na Soko la manzese.

Mwenyekiti alieleza mengi kuhusu miradi hiyo na bunda ya maelezo yake aliwakaribisha wanachi ili wapate kuona maoni yao kuhusiana na miradi hiyo. Kayo yalikuwa kama yafuatayo:

MAONI.

- Mwananchi mmoja aitwaye SAID ALLY alionda wakati wa ujenzi wa barabara mifereji isiwe juu kuliko kwani wakati wa mvua watu hutama na kufa.
- Mwananchi aitwaye Nenelwa mfaume alionda wakati wa ujenzi wa Soko la manzese basi dampo litolewe na bakuli yake pawe na kontena la taka.
- Mwanachi aitwaye WILGIS TOSS alionda yale makutano ya barabara kwa mkuu wa mkoa pawe na roundabout au taa za kuongoza mugani.
- Mwananchi ALLY RAMBU alionda pale Solomi wakishuka Jangwa pawe na mwanga ya migahawa pamoja na Cafe.
- Mwananchi LUCAS HAULE aliuliza kuwa Barabara zina weza kupanuliwa maana zimebana Sana.
- Mwananchi SHOLA MOROCHI alionda bunda ya kukamilika Soko basi bajaji zisiruhusiwe ili kutunduka ipi inputikana wapi.
- Pia mwananchi DAMIANI KOMBA alionda pawe na miundombinu ya walemavu.
- Mwananchi CHRISTOPHER KAYOMBO alionda wakati wa ujenzi vibanda watoke ndani ya manispaa.
- Pia DAMIANI KOMBA alionda kuweka kiwanda cha kuchakata marao wawepo mama lishe.
- Pia Agira Kahenga alionda wakati wa utekelezaji miradi watu wachanjo ya Korona wawepo ili watoe huduma hiyo.
- WILGIS TOSS alionda pawepo na flaiover mbili na barabara mbili.
-



Baada ya kutoa maoni hayo wawezeshaji waliwa shukuru sana wananchi wa kata ya Mfaranyaki kwa ushirikiano wao na mchango yao ya mawazo.

AGENDA ya 4 KUFUNGA mkutano.

Katibu alishauri na kukubaliwa mwenyekiti ili afunge mkutano. Mwenyekiti alishauri na kuwashukuru wananchi kwa uvumilivu wao na ushirikiano waliwa wapeshwa kwa kuchukua muda kisha alifunga mkutano mnamo saa 12:00 Jioni.

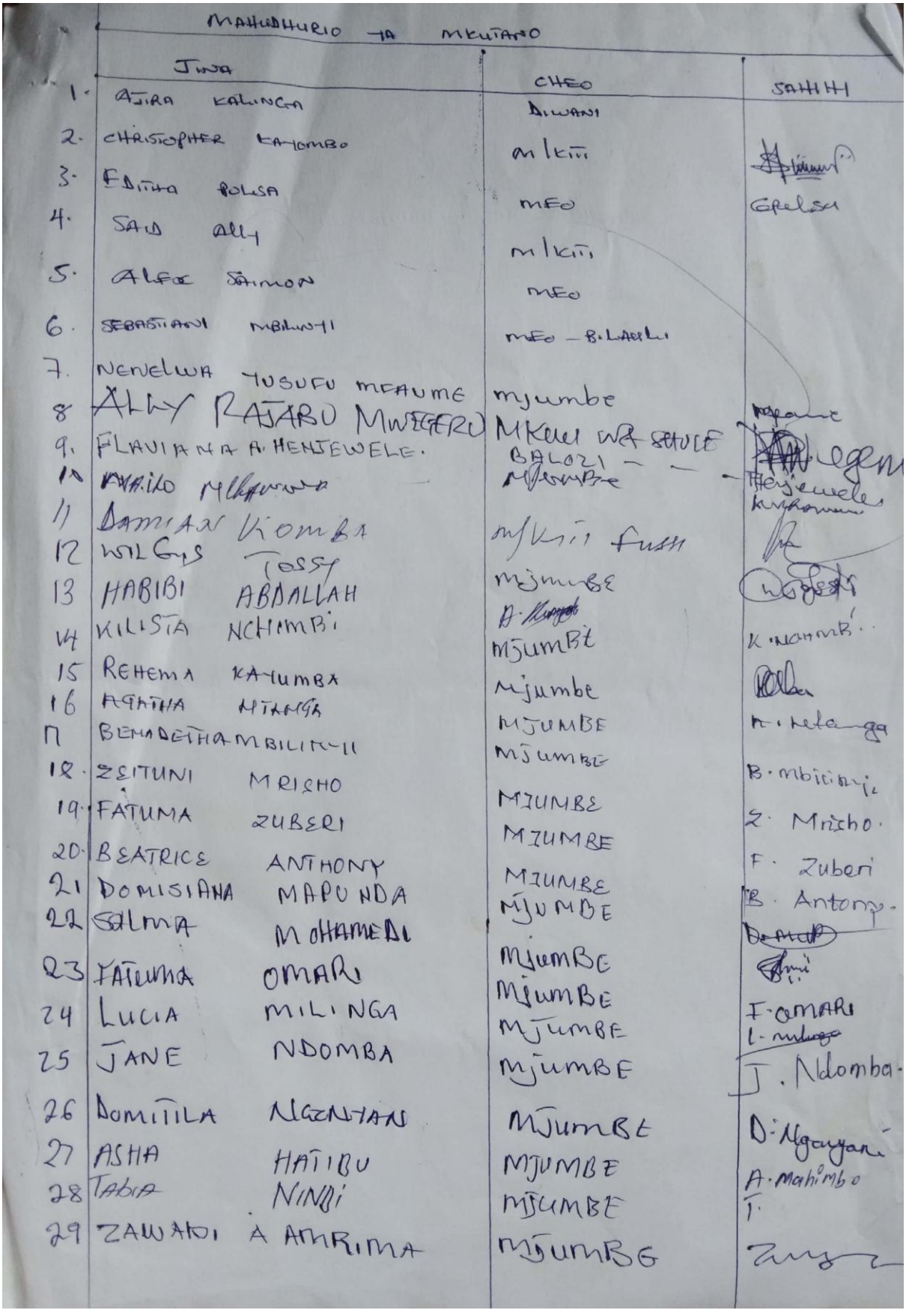
KATIBU

Epulsa M[illegible]

AFISA MIENDA
MTAA WA MATOMONDO
KATA YA MJINYA'KI

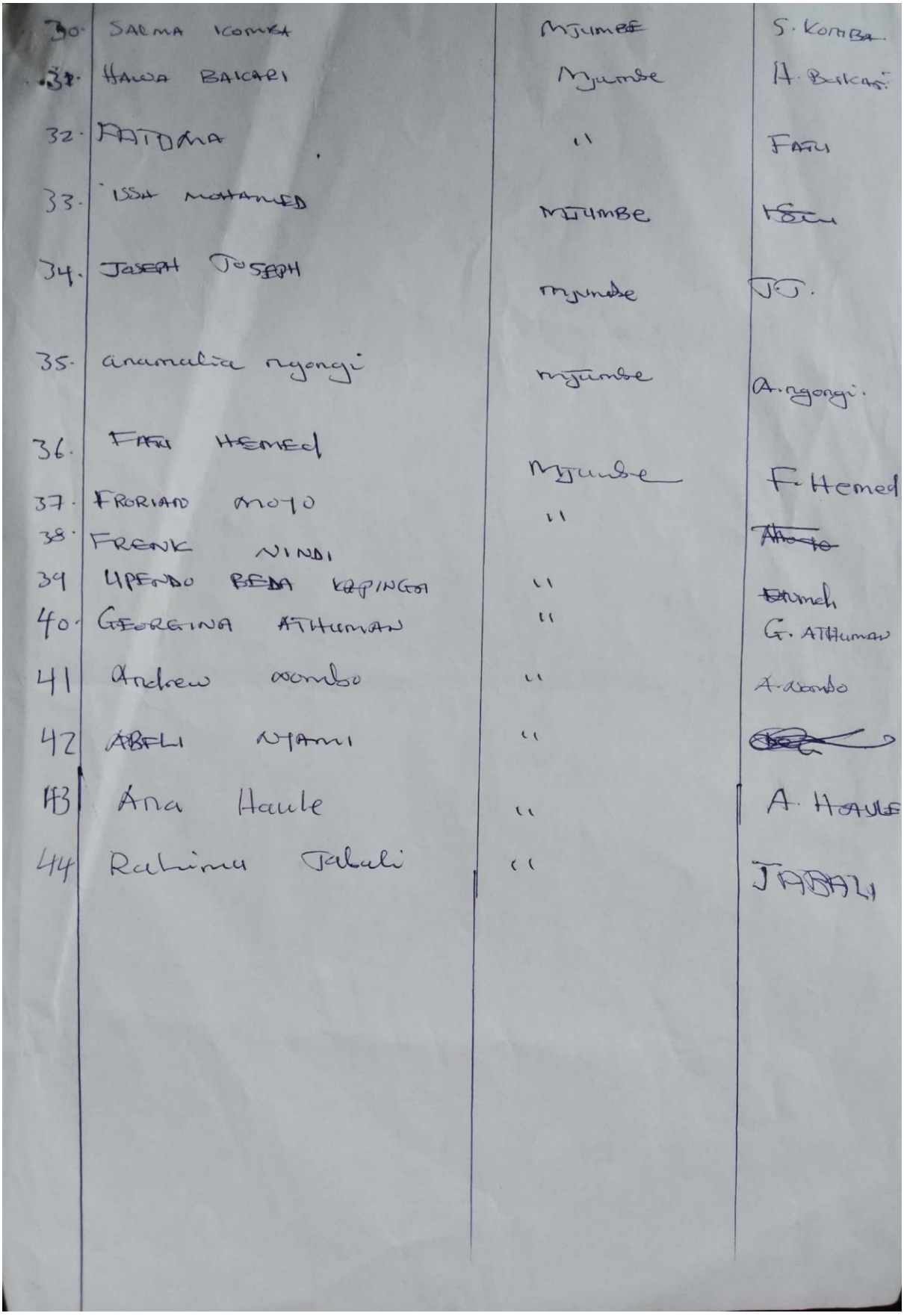
MWENYEKITI:

Ackalinga



MAHUDHURIO YA MKUTANO

	JINA		CHEO	SAHIHI
1.	AJIRA	KALINGA	DIWANI	
2.	CHRISTOPHER	KAHOMBO	M/KITI	
3.	EDITHA	BOLISA	MEO	
4.	SAID	ALLY	M/KITI	
5.	ALEX	SIMON	MEO	
6.	SEBASTIANI	MBILUNYI	MEO – B.LAELI	
7.	NENELWA	YUSUFU MFAUME	mjumbe	
8	ALLY	RAJABU MWEGERU	MKUU WA SHULE	
9.	FLAVIANA	A. HENJEWELE.	BALOZI –	
10	[illegible]	[illegible]	[illegible]	
11	DAMIAN	KIOMBA	M/KITI FUSH	
12	WILGIS	TOSSY	MJUMBE	
13	HABIBI	ABDALLAH	B. [illegible]	
14	KILISTA	NCHIMBI	MJUMBE	
15	REHEMA	KAHUMBA	MJUMBE	
16	AGATHA	MINAGA	MJUMBE	
17	BERNADETHA	MBILINYI	MJUMBE	
18.	ZEITUNI	MRISHO	MJUMBE	
19.	FATUMA	ZUBERI	MJUMBE	
20.	BEATRICE	ANTHONY	MJUMBE	
21	DOMISIANA	MAPUNDA	MJUMBE	
22	SALMA	MOHAMEDI	MJUMBE	
23	FATUMA	OMARI	MJUMBE	
24	LUCIA	MILINGA	MJUMBE	
25	JANE	NDOMBA	MJUMBE	
26	DOMITILA	NGENYANI	MJUMBE	
27	ASHA	HATIBU	MJUMBE	
28	TABIA	NINGI	MJUMBE	
29	ZAWADI	A ATHRIMA	MJUMBE	



30.	SALMA KOMBA	MJUMBE	S. KOMBA
31.	HAWA BAKARI	Mjumbe	H. Bakari
32.	FATUMA	"	FATU
33.	ISSA MOHAMED	MJUMBE	
34.	JOSEPH JOSEPH	mjumbe	J.J.
35.	anamalia ngongi	mjumbe	A. ngongi.
36.	FATU HEMED	Mjumbe	F. Hemed
37.	FRORIAN MOYO	"	
38.	FRENK NINDI		
39	UPENDO BEDA KAPINGOT	"	
40.	GEORGINA ATHUMAN	"	G. ATHuman
41	Andrew asombo	"	A. asombo
42	ABELI NYAMI	"	
43	Ana Haule	"	A. HAULE
44	Rahima Jabali	"	JABALI

APPENDIX E Stakeholder attendance sheet

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

HALMASHAURI YA MANISPAA/JIJI: Songea MSHAURI:..... NORPLAN

MTAA/KATA..... Mjimi (Matetuaa Maa)

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	HASSANI LWAMBO		TIC	0712570 01		30-12-2021
2	MKEGANI MBAWARA			0782815363		
3	MUSSA HENRY		MUCEA MMA	0826892379	M. H	30-12-202
4	BMZDMMZ		DEREVA	0712121374		30/-12-2021
5	SENGA		DEREVA	0717488302	Dmuq.	30-12-2021
6	STANLEY CHAKAYUU		MFANYA BIASHARA			30-12-2021
7	MWASHABANI PASHIDI				M. Pashidi	30-12-2021
8	FARAJI SOLEMAN					30-12-2021
9	JAFAR MWEGERU		DEREVA	0717483302	Dmuq	30-12-2021
10	HASSANI MBUYUNGA			0764		

MUNICIPAL COMMUNITY DEVELOPMENT OFFICER
P. O. BOX 124
SONGEA

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA
MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

MSHAURI:..... NORPLAN

HALMASHAURI YA MANISPAA/JIJI: ...SONSEA.....

MTAA/KATA...MJINI (MASHUJAA).....

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	NGELINGEJA HAULE	MWANANJCHI	MWAZI	0746-446503		30/12/2021
2	IDD IKIPANDI	MWANACHI	MWAZI	0769502661		30/12/2021
3	Zaida Njozi	Mwananchi	Mkazi	0689623469		30/12/2021
4	Mary Kaombwa	11	11	0754484813		30/12/2021
5	Mwanima Mkwe	11	11	0755741555		30/12/2021
6	FATIMA AMIDU	11	11	0767175886		30/12/2021
7	UBY MASUDI	11	11	0654571625		30/12/2021
8	AMAN NINYAKU	11	11	0758034068		30/12/2021
9	HAPELS HAULE	11	11			30/12/2021
10	ANA KAGENGE	11	11			

MUNICIPAL COUNCIL
P. O. BOX
SONGEA

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA
MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

HALMASHAURI YA MANISPAA/JIJI: SONGEA

MSHAURI:..... NORPLAN

MTAA/KATA..... MISUFINI

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	TUMWEBAZE THOMAS	NORPLAN	MTAALAM JAMII	0754439826		31/12/2021
2	JOYCE YESSE	NORPLAN	MBOBEZAJI MAZINGIRA	0742768976		31/12/2021
3	ISMAIL AZIZ FAKIR	MISUFINI	MWE/DIWANI	0717-613989		31/12/2021
4	ANGELINA ANTONY	MISUFINI	KAIMU MTENDAJI KATA	0766-192204		31/12/2021
5	BENHERY CHAMICUM	SMC MCHUMI	MCHUMI	0763162008		31/12/2021
6	AGRIPINA GUMBA	MISUFINI		—	—	
7	CHRISTIANI N. KOMBA	M/SOLO MAZESA	MWENYEKITI	0659651588	C N Komba	31/12/2021
8	ASHA KOMBA	MISUFINI		0752609345	A. Komba	
9	ALLY M. BASHIA	MJUMBE/MANZ. B.	MJUMBE	0758086311		31/12/2021
10	FATUMA J. MSAFIRI	MISUFINI	MJUMBE			31/12/2021

AFISA MTENDAJI
KATA YA MISUFINI
S.L.P 14 SONGEA
MTAA WA MSIKITINI
31/12/2021

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA
MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

HALMASHAURI YA MANISPAA/JIJI: SONGEA

MSHAURI:..... NORPLAN

MTAA/KATA..... MSUFINI

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	ASHA ABDUL	MANZESE 'B'	MJUMBE	0767491967	A. Abdul	31/12/2021
2	SYDNEY LAMECK	KALEMBO	MKULIMA		S.Mande	31/12021
3	Agripina	Gumba				
4	MUSA CHIMASOLA	JUWASOMA	MJUMBE	0677549043	M. CHIMASOLA	31/12/2021
5	SWALEHE ABDALLAH	MIAA-MABATINI	" "	0719132376		31/12/2021
6	JUMA MARWA	KATIBU - MANZESE 'B'	KATIBU	0675629486		31/12/2021
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AFISA MTENDAJI
MJI WA MSUFINI
S.L.P 14 SONGEA
OFISI WA MSIKITINI
31/12/2021

TANZANIA CITIES TRANSFORMING INFRASTRUCTURE AND COMPETITIVENESS PROJECT (TACTIC)
(TACTIC)

FEASIBILITY STUDY, URBAN DESIGN, DETAILED ENGINEERING DESIGN, ENVIRONMENTAL AND SOCIAL DUE DILIGENCE, PREPARATION OF COST ESTIMATES AND BIDDING DOCUMENTS FOR URBAN INFRASTRUCTURE INVESTMENTS FOR
MOROGORO, SONGEA, SUMBAWANGA AND MBEYA COUNCILS (TACTIC ZONE 3)

ATTENDANCE REGISTER FOR: MEETINGS, FOCUS GROUP DISCUSSIONS, INTERVIEWS

PROJECT LGA: SONGEA

CONSULTANT: NORPLAN

MTAA/WARD: MATARAWE

S/No	NAME	INSTITUTION	POSITION	PHONE NO	SIGNATURE	DATE
1	Ahmad H. Kibaona	Matarawe	Mkuu wa Kitongoji	0754562717		28/12/2021
2	Abubakar M. Lugoa	Matarawe	Mwenyekiti Mtaa (Sale	0785766005		28/12/2021
3	Esther-G. Kosa	Matarawe	VEO	0753107222		28/12/2021
4	Fridaah Lumbisano	Mataraw	Mjumbe wa mtaa	0740872112		29/12/2021
5	S. Ugonolo	Mataraw	Mzee	0754120488		
6	Sheck Mwamwe	Mataraw	Mzee	0752202880		28/12/2021
7	Khalifa Msinga	Mataraw	Mwenyekiti wa	0655793848		28/12/2021
8	Reba Tumaiemba	Maiaha we	Mwalecm Kaia	0713-861108		28/12/2021
9	Frowi Dominga	Maiathawe	Bzo2e	0768-308961		28/12/2021
10	Safari Nindi	Mataraw	Balozi	0713005022		29/12/2021

MWENYEKITI
KAA YA MATARAWE
SONGEA (M)

TANZANIA CITIES TRANSFORMING INFRASTRUCTURE AND
COMPETITIVENESS PROJECT (TACTIC)
(TACTIC)

FEASIBILITY STUDY, URBAN DESIGN, DETAILED ENGINEERING DESIGN, ENVIRONMENTAL AND SOCIAL DUE DILIGENCE, PREPARATION OF COST ESTIMATES AND BIDDING DOCUMENTS FOR URBAN INFRASTRUCTURE INVESTMENTS FOR
MOROGORO, SONGEA, SUMBAWANGA AND MBEYA COUNCILS (TACTIC ZONE 3)

ATTENDANCE REGISTER FOR: MEETINGS, FOCUS GROUP DISCUSSIONS, INTERVIEWS

PROJECT LGA: SONGEA CONSULTANT:..... NORPLAN

MTAA/WARD..... MATARAWE

S/Na	NAME	INSTITUTION	POSITION	PHONE NO	SIGNATURE	DATE
1	ZAINABU KHALIFA		MATARAWE		KHALIFA	28/12/2021
2	LUCY NYIKENDA		MATARAWE	0758117781	L. NYIKENDA	28/12/2021
3	SHANI SELEMANI		MATARAWE	0786 842519	Selemani	28/12/2021
4	AGNES MAHUNDA		MATARAWE	0762264511		28/12
5	HIDAYA JARUFU		MATARAWE	0763374443	H'Jarufu	28/12/2021
6	FATUMA SAIDI		MATARAWE		F. saidi	28/12/2021
7	AMINA RASHIDI		MATARAWE		A. Rashidi	28/12/2021
8	EMILIANA DUWE		MATARAWE	06542962	E. DUWE	28/12/2021
9	LEOKADIA MUHENGE		MATARAWE	0758532009	L. Muhenge	28/12/2021
10	FATUMA MDABWA		MATARAWE	0763678669	F. Mdabwa	28/12/2021

AFISA MTENDAJI
KATA YA MATARAWE
SONGEA (MC)

TANZANIA CITIES TRANSFORMING INFRASTRUCTURE AND
COMPETITIVENESS PROJECT (TACTIC)
(TACTIC)

FEASIBILITY STUDY, URBAN DESIGN, DETAILED ENGINEERING DESIGN, ENVIRONMENTAL AND SOCIAL DUE DILIGENCE, PREPARATION OF COST ESTIMATES AND BIDDING DOCUMENTS FOR URBAN INFRASTRUCTURE INVESTMENTS FOR
MOROGORO, SONGEA, SUMBAWANGA AND MBEYA COUNCILS (TACTIC ZONE 3)

ATTENDANCE REGISTER FOR: MEETINGS, FOCUS GROUP DISCUSSIONS, INTERVIEWS

PROJECT LGA: SONGEA

CONSULTANT:..... NORPLAN

MTAA/WARD..... MATARAWE

S/Na	NAME	INSTITUTION	POSITION	PHONE NO	SIGNATURE	DATE
1	AVALINA KOMBA	MATARAWE	-		A. Komba	28/12/2021
2	FELISTAS FILIPHO	MATARAWE			F. Filipho	28/12/2021
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AFISA MTENDAJI
KATA YA MATARAWE
SONGEA (W)

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA
MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

MSHAURI:..... NORPLAN

HALMASHAURI YA MANISPAA/JIJI: ...SONGEA.....

MTAA/KATA.....MFARANYAKI.....

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	HOSANA MAGUNDE	Mfaranyaki	Mtendaji	0752924631	Hmagunde	31/12/2021
2	SESILIA NDOMBA		Mjumbe		S.Ndomba	31/12/2021
3	ASHA HAMIDU	Mwanamchi		0712278886	A. Hamidu	31/12/2021
4	AMINA ALLY	Mwanamchi			A. A	31/12/2021
5	Fatuma bakari	Mama etc		0744785926	F. B	31/12/2021
6	Damiana	Mwanamchi		0672490246	D. Mangasi	31/12/2021
7	Salma Duwa	Mwanamchi		0767156238		31/12/2021
8	Fatuma Omari	Mwanamchi			F. Omari	31/12/2021
9	Mwanaisha Mustafa	Mwanamchi			M. Mustafa	31/12/2021
10	SHORASIKA KIBUMO	Mwenamchi		0689760719	sikibumo	31/12/2021

AFISA MTENDAJI
MTAA WA MATUMBO
SOTA YA M/NYAKI

TANZANIA CITIES TRANSFORMING INFRASTRUCTURE AND COMPETITIVENESS PROJECT (TACTIC)

FEASIBILITY STUDY, URBAN DESIGN, DETAILED ENGINEERING DESIGN, ENVIRONMENTAL AND SOCIAL DUE DILIGENCE, PREPARATION OF COST ESTIMATES AND BIDDING DOCUMENTS FOR URBAN INFRASTRUCTURE INVESTMENTS FOR MOROGORO, SONGEA, SUMBAWANGA AND MBEYA COUNCILS (TACTIC ZONE 3)

ATTENDANCE REGISTER FOR: MEETINGS, FOCUS GROUP DISCUSSIONS, INTERVIEWS

PROJECT LGA: SONGEA

CONSULTANT:..... NORPLAN

MTAA/WARD..... MATARAWE

S/No	NAME	INSTITUTION	POSITION	PHONE NO	SIGNATURE	DATE
1	TUMWEBAZE THOMAS	NORPLAN	SOCIAL EXPERT	0757139826		28/Dec/2021
2	LUCAS LUOTIKO	NORPLAN	MTHAMAJI	0763484879		28/12/2021
3	Domonar Kadondoro	NorPlan	EIA Expert	0746165078		28.12.2021
4	BERTRAM NTELEREA	SONGEA MC	MEMO	0762831604		28/12/2021
5	MENSA-A-NKRANGECA	SONGEA MC	SCDO	0625-344502		28/12/2021
6	BENHERY CHAMICHA	SONGEA MC	Mthumi	0769162008		December 28th, 2021
7	THEODORA ILONDO	MATARAWE	CDO	0764204128		28/12/2021
8	FRANCIS JOSEPH	MATARAWE	MEO	0756536668		28/12/2021
9	JOYCE YESE	NORPLAN	SIA EXPERT	0742685726		28/12/2021
10						

ABISA MTEMBAJI
KATA YA MATARAWE
SONGEA

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA
MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

MSHAURI:..... NORPLAN

HALMASHAURI YA MANISPAA/JIJI: SONGEA

MTAA/KATA..... MFARANYAKI

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	MAIKO MKANILA	M/NYAKI	MJUMBE/MKAZI	0752114551		31/12/2021
2	ALEX SAIMON	M/Nyaki	MEO	062122196		31/12/2021
3	Said Ally	M/Nyaki	M/Kiti	0686579641		31/12/2021
4	CHRISTOPHER KATOMBO	M/NYAKI	M/KITI	0653137712		31/12/2021
5	DOMISIANA MAPONDA		MJUMBE	0756218387		31/12/2021
6	DAMIANI KOMBA	M/NYAKI	M/Kiti fussi	0756491451		31/12/2021
7	WILGIS TOSSY	MFARANYAKI	MJUMBE	0758010075		31/12/2021
8	RITODA DENNIS	MFARANYAKI		0765913586		31/12/2021
9	ZAINABU AGUSTINO	MFARANYAKI	MJUMBE		Z. Agustino	31/12/2021
10	LUCIA MILINGA	M/NYAKI	MJUMBE		L. milinga	31/12/2021

AHSA MJENJAJI
MTAA WA MATOMONDO
WATA WA M/NYAKI

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA
MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

HALMASHAURI YA MANISPAA/JIJI: SONGEA

MSHAURI:..... NORPLAN

MTAA/KATA... MFAPA NYAKI

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	ASIRA Q. KALIMBA	[illegible]	DIWANI	0685405600		31/12/2021
2	EDINA R. POLISA	MEO	MEO	0762785536		31/12/2021
3	MAGDALENA B. [illegible]		MEO	0756328799		31/12/2021
4	SEBASTIAN Edward Mwinyi		MEO	0758681015		31/12/2021
5	NENELWA YUSUFU MFAUME		MWANACHI	0765648242		31/12/2021
6	Fausta Luoga		mwanaichi	0757189667	Luoga	31/12/2021
7	Firomena ndaula		mwanaichi	—	F. ndaula	31/12/2021
8	FLAVIANA HENJEWELE.		BALOZI	0752153756	Henjewele.	31/12/2021.
9	MELDA M. MHAGAMA		MWANAICHI		M.MHAGAMA	31/12/2021
10	SEMEN H. MUSTAFA		MWANANCHI	0652378620		31/12/2021

AFISA MTENDAJI
MTAA WA MATOMONDO
KATA YA M/NYAKI

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

MSHAURI:..... NORPLAN

HALMASHAURI YA MANISPAA/JIJI:.....

MTAA/KATA.....

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	NURU ALI	MSANANCHI	MSANANCHI	0753 7596 44	N. Ali	31/12/2021
2	AGATHA NTANGA	MWENYEKITI	MWENYEKITI	0754187942	A. Ntanga	
3	Lucas Hassani	Mwenyekiti	Mwenyekiti	0755768167		31/12/2021
4	BEATRICE ANTHONY	MWANANCHI	MWANANCHI	0769914791	B. Anthony	31/12/2021
5	FATUMA ZUBERI	MWANANCHI	MWANANCHI	0784576374	F. Zuberi	31/12/2021
6	KETUNI MBISHO	MWANANCHI	MWANANCHI	0655295072	K. Mbisho	31/12/2021
7	REHEMA RASHIDI	MWANANCHI	MWANANCHI	0699161168	R. RASHIDI	31/12/2021
8	BAKARI ISSA	MWANANCHI	MWANANCHI	0694134862	B. ISSA	31/12/2021
9	SIKUDHANI SAID	MWANANCHI	MWANANCHI	0620294562	S. SAIDI	31/12/2021
10	RAHIA NKINGA	MWANANCHI	MWANANCHI	0655086265	R. Nkinga	31/12/2021

Afisa Mtendaji
Mtaa wa Matomondo
Kata ya Mnyaki

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

MSHAURI:..... NORPLAN

HALMASHAURI YA MANISPAA/JIJI: ..... SONGEA .....

MTAA/KATA..... MFARANYAKI .....

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	HAPPY MAKUMBI	MFARANYAKI	MJUMBE	0710898443	H.MAKUMBI	31/12/2021
2	HASHA. SAIDI	MFARANYAKI	MJUMBE	0692997417	H. SAIDI	31/12/2021
3	FATUMA. MIRANZI	MFARANYAKI	MJUMBE		F. MIRANZI	31/12/2021
4	JENISIA. NDOMBA	MWANANCHI			J. Ndomba	31/12/2021
5	MWAJABU MKWEPO	MFARANYAKI	MWANANCHI	0719035588	M.MKWEPO	31/12/2021
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OFISA MTENDAJI WA MTAA WA MFARANYAKI
KATA YA MJINDO

TANZANIA CITIES TRANSFORMING INFRASTRUCTURE AND COMPETITIVENESS PROJECT (TACTIC)

(TACTIC)

FEASIBILITY STUDY, URBAN DESIGN, DETAILED ENGINEERING DESIGN, ENVIRONMENTAL AND SOCIAL DUE DILIGENCE, PREPARATION OF COST ESTIMATES AND BIDDING DOCUMENTS FOR URBAN INFRASTRUCTURE INVESTMENTS FOR MOROGORO, SONGEA, SUMBAWANGA AND MBEYA COUNCILS (TACTIC ZONE 3)

ATTENDANCE REGISTER FOR: MEETINGS, FOCUS GROUP DISCUSSIONS, INTERVIEWS

PROJECT LGA: SONGEA CONSULTANT: NORPLAN

MTAA/WARD: CENTENARY SECONDARY SCHOOL

S/No	NAME	INSTITUTION	POSITION	PHONE NO	SIGNATURE	DATE
1	Bl. Telesphor Zenda	Shule	Director	0755551361	T. Zenda	29/12/2021
2	DENNIS NDUNGURU	CENTENARY SS	MKUU	0692705200	DNdunguru	29/12/2021
3	BERTRAM NDELEKELA	SONGEA M.C	MUNICIPAL ENVIRON MGT OFFICER	0762831604		29/12/2021
4	MENSA A. NGELANGELA	SONGEA MC	SCDO/GO	0625-344502		29/12/2021
5	BENHERY CHOMICHA	SONGEA MC	ENGINEER	0769162008		29/12/2021
6	JOSEPH MTHAMBA	ST. JOSEPH P/S	MKUU	0763884572		29/12/2021
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THE DIRECTOR ST JOSEPH AND CENTENARY SCHOOLS PO BOX 152 SONGEA

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA
MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

HALMASHAURI YA MANISPAA/JIJI: SONGEA

MSHAURI:..... NORPLAN

MTAA/KATA..... CENTENARY SECONDARY SCHOOL

Na	JINA	TAASISI	WADHIFA	JINSI ~~SIMU Na:~~	DARAJA	SAHIHI	TAREHE	UMRI
1	HIJRA · C. FLINGA FLINGA	CENTENARY · SEC ·	MWANAFUNZI	KE	Form 4	H · flingaflinga	29/12/21	16
2	NICHOLAUS S. NJIWA	CENTENART SEC.	MWANAFUNZI	ME	Form 4	N. Njiwa	29/12/2021	17
3	AMOGASTO 'M' MPONDA	CENTENARY SEC	MWANAFUNZI	ME	Form 4	A · Mponda	29/12/2021	18
4	Hagai - T. msigwa	CENTENARY SEC	MWANAFUNZI	ME	Form I	H. Msigwa	29/12/2021	14
5	Emmanuely · A · KIFARU	CENTENARY · SEC	MWANA FUNZI	ME	Form I	E. A. KIFARU	29-12-2021	16
6	JOSEPH · L · KOMBA	CENTENARY · SEC	MWANAFUNZI	ME	Form I	J. L. Komba.	29-12-202	15
7	VANESSA · A · KAFYOLILO	CENTENARY · SEC	MWANAFUNZI	KE	Form I	V. A. KAFYOLILO	29-12-202	13
8	NURU. S. MHAGAMA	CENTENARY · SEC	MWANAFUNZI	KE	Form I	N. S. MHAGAMA	29-12-202	14
9	LILIAN S. LUOGA	CENTENARY SEC.	MWANAFUNZI	KE	Form 4	L. S. Luoga	29-12-202	16
10	CLAUDIA G KOMBA	CENTENARY SEC	MWANAFUNZI	KE	form 4	C. G KOMBA	29-12-2021	15
11	OLIVA · J. NKOMA	CENTENARY SC	MWANAFUNZI	KE	Form I	O. J. Nkoma	29-12-2021	15
12	EMMANUEL · F. BURA	CENTENARY SEC	MWANAFUNZI	ME	Form I	E : F. Bura	29-12-2021	13
13	JOSEPH MARCEL LUCAS			ME	Form I	J. M. L	29.12.202	14

MUNICIPAL COMMUNITY DEVELOPMENT
P. O. BOX 44
SONGEA

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA
MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

MSHAURI:..... NORPLAN

HALMASHAURI YA MANISPAA/JIJI: ..... SONGEA .....

MTAA/KATA..... TANESCO .....

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	FLORENCE MWAMBELE	Tanesco	Meneja	0683 907986	REGIONAL MANAGER	30/12/2021
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MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

MSHAURI:..... NORPLAN

HALMASHAURI YA MANISPAA/JIJI: ..... SONGEA

MTAA/KATA..... TTCL .....

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	HABIL MWAIMU	TTCL	Ag: Regional Manager	0738262418		30/12/2021
2						
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TANZANIA TELECOMMUNICATIONS CORPORATION
REGIONAL MANAGER
RUVUMA
P.O. Box 733, SONGEA

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

MSHAURI:..... NORPLAN

HALMASHAURI YA MANISPAA/JIJI: ..... SONGEA.

MTAA/KATA..... SOKOINE, WATER QUALITY, TARURA

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	Eng. JAPHET YOHANA	SOUWASA	MENEJA Ufundi	0752781332		29 YAMAJI SAFI NA MAZINGIRA
2	FULGENCIO PANYANGOSO	HUDUMA ZA UBORA WA MAJI (M)	KAIMU MENEJA	0753643802		USAFI WA MAZINGIRA
3	MZOND, Issah T	" — " —	CHEMIST	0712-737364		29/12/2021
4	Eng. John M. Ambrose	TARURA	DISTRICT ENGINEER	0783-601708		29/12/2021
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MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

MSHAURI:..... NORPLAN

HALMASHAURI YA MANISPAA/JIJI: ...SONGEA.....

MTAA/KATA.....POLICE FORCE.....

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	AINSF - NF - LWAMBATH	POLICE	I/C TR - OPP Ruvuma.	0654635508		5/12/2021.
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P. O. BOX 143
SONGEA

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MKUTANO, USHAURI NA MAHOJIANO

MSHAURI:..... NORPLAN

HALMASHAURI YA MANISPAA/JIJI:..SONGEA.....

MTAA/KATA.....POLICE TRAFFIC FORCE, FIRE FIGHT and RESCUE

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	SP Saana Lobru	Police	OCS Songea	0677002176		30/12/2021
2	WSP A. Mwapa	POLICE	DTO (Ag)	0754[illegible]		
3						
4	Philip Jackson Mahali	FIRE	DFO - Songea	0757[illegible]		31.12.2021
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MKUU WA KITUO
LA ZIMAMOTO NA UOKOAJI
SONGEA

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

HALMASHAURI YA MANISPAA/JIJI: SONGEA

MSHAURI:..... NORPLAN

MTAA/KATA: SHIVANGATA KA Association of unions of people with disabilities Tanzania

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	ATHANAS NGURU	SHIVYA NATAW	M/KITI	0764-907866		01/01/2022
2	ERICK H. NYONI	SHIVYAWATA(W) M/KITI		0752054822		01/01/2022
3	ALLY Y. KIPONDA	SHIVYAWATA(W)	KATIBU	0718-723125		01/01/2022
4	MARIANA MPONJI	SHIVYAWATA	MJUMBE	0716727791	M. MPONJI	01/01/2022
5	SIWEMA V. KIMWILI	SHIVYAWATA	MJUMBE	0745209081	S. KIMWILI	01/01/2022
6	ABDUL POMERA	SHIVYAKATA	M. HAZINA	0853252544	Abdul	01/01/2022
7						
8						
9						
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SONGEA

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA
MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

MSHAURI:..... NORPLAN

HALMASHAURI YA MANISPAA/JIJI: SONGEA

MTAA/KATA..... Consultation with transporters / workers.

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	EZEKIA JOHN MGAYA	SUPER FEO	MENEJIN	0758255448		30/12/204
2	HARUNA MSIGWA	"	"	0626475445	MSigwa	30/12/2021
3	Francis-A. Sengo.	Selous Fm	Meneja	0755198935		30/12/2021
4	IRENE MATHIAS	SUPER FEO	MHASIBU	0768900889	I. Kaldeg	30/12/2021
5	Mwanahi BAKARI	SIDO	Bodaboda			30=07
6	AIDAN. MLAYA	SIDO	Bodaboda	0752604781		30/12 2021
7	ALLY Linyama	SIDO	Bodaboda	0768901287		30/12/2021
8	Selemani Rashidi	Sido	Bodaboda	0768111201	S. Rashidi,	30/12/2021
9	KENNY SALVATORY	Sido	fundmagari	0674164966		30/12/2021
10	THOBIAS [illegible]	Sido	Boda	0768431035		30/12/202
	[illegible] NGAO	Sido	fund maged	0623380430		30/12/2021
	FRANCISS KIDAVA	Sido	Fund Magal	0677701921		30/12/2021

MUNICIPAL COMMUNITY DEVELOPMENT OFFICER
P. O. BOX
SONGEA

MRADI WA USHINDANI KATIKA UBORESHAJI WA MIUNDOMBINU KWENYE MIJI YA TANZANIA
(TACTIC)

UPEMBUZI YAKINIFU, USANIFU, TATHMINI ZA ATHARI KWA MAINGIRA NA JAMII, UANDAAJI WA GHARAMA ZA MRADI NA UANDAAJI WA ZABUNI KWA AJILI YA UBORESHAJI WA MIUNDOMBINU KATIKA HALMASHAURI ZA MANISPAA ZA
MOROGORO, SONGEA, SUMBAWANGA NA MBEYA (TACTIC KANDA Na: 3)

MAHUDHURIO KWA AJILI YA: MIKUTANO, USHAURI NA MAHOJIANO

HALMASHAURI YA MANISPAA/JIJI: SONGEA MSHAURI:..... NORPLAN

MTAA/KATA..... MUSUTINI - Consultation with transporters

Na	JINA	TAASISI	WADHIFA	SIMU Na:	SAHIHI	TAREHE
1	Abel Maurus	Bodaboda	Dereva	062665589		31/12/2021
2	Abdia	RASHIDI	CHIO-	0762725333		
3	JOHN NABOTH	BODA FOUNDATION	DEREVA	0762785414		31/12/2021
4	PATRICK MWANWILA	BODABODA	DEREVA	0674795174		31/12/2021
5	Mafisango Ngonyani	Bodaboda	Dereva	0629073941		31/12/2021
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AFISA MTENDAJI
KATA YA MISUFINI
S.L.P 143 SONGEA
SAHIKITINI

APPENDIX F Geotechnical Study Summary Report

3. Subgrade Investigation

3.1 General

This section covers discussion on site investigations on all roads including access/ring roads to the proposed Agro-industrial park.

Investigations of alignment soils along the project roads was conducted through a combination of visual surveys and selective pitting as per requirements of the Tanzanian Pavement and Materials Design manual (PMDM)-1999 that establishes the in-situ strength profile down to a minimum depth of 1000mm. The soil sampling enables classification of the project roads corridor into preliminary homogeneous sections with homogeneous characteristics based on investigative approaches adopted initially.

Following requirements of PMDM, sampling from excavated test pits were therefore executed at the already identified preliminary homogeneous sections for laboratory testing enabling confirmation of the preliminary sections, and determination of design CBR values for the design of pavement layers.

The subgrade investigations undertaken comprise of:

- Initial reconnaissance field survey
- Detailed visual survey and selective pitting

Materials study was conducted based on information gathered from a preliminary geometric design of the alignment hence identifying critical areas for cut sections, fill sections and realignments.

At the proposed agro-industrial park area, the geotechnical investigation was conducted to determine the probable depths of the foundations for the buildings. The geotechnical approach adopted was the Dynamic Probing Super Heavy (DPSH) test. This test involved driving a disposable cone into the ground using a 63.5kg hammer falling through a height of 760mm. The number of blows were counted for each 20cm advance into the ground and recorded. The test was terminated when refusal was attained (100 blows) or at 12m into the ground. DPSH is useful in quick evaluation of the subsurface strata to determine the probable location of the foundations. DPSH was accompanied by trial pits which were excavated to a minimum of

2000mm at the proposed locations of the buildings. Geotechnical results and analysis are presented in chapter 5.

3.2 Site Investigations

3.2.1 Centerline soil surveys

These investigations were carried out in June 2022. The investigations were focused on all fill and cut areas. Since most of the areas in Songea municipality are built up areas, the alignment design on the roads have minor or no realignment from the existing alignments. Therefore, site investigations followed the existing alignments on the project roads.

As mentioned earlier, all project roads are within Songea municipality which most of the areas are built up. As per geometric design, no significant cuts and fills were considered during the design. This is to allow for easy access to property as well as avoiding using huge quantities in fills during construction. For these reasons, normal investigations adopted were by excavating standard test pits (1.0mx1.0mx1.0m depth) at predetermined intervals as per PMDM on the existing road alignments to obtain existing subsoil profiles, perform laboratory identification of the collected soil samples, grouping the alignment into homogeneous sections and obtaining laboratory CBR values through testing of samples collected from the excavated pit.

Generally, for each test pit the following was carried out:

- Recording of soil types and thickness of various subgrade layers,
- Taking a representative sample of the existing subgrade layer for subsequent laboratory testing,
- Recording the location for reference.

3.2.2 Laboratory Testing

The existing subgrade soil samples were subjected to the following laboratory tests for the determination of various soil characteristics:

- Particle size distribution
- Atterberg limits including linear shrinkage
- Compaction tests for determination of moisture/density relationship
- 3-point CBR tests (4-days soak)

The tests listed in Table 3-1 below, have been carried out on the subgrade materials at NORPLAN (T) LTD Materials testing laboratory in Dar es Salaam region.

Table 3-1, List of tests carried out on subgrade materials

Test Description	CML Reference	International Standard
Liquid Limit	CML 1.2	BS 1377:Part 2:1990
Plastic Limit & Plasticity Index	CML 1.3	BS 1377:Part 2:1990
Linear Shrinkage	CML 1.4	BS 1377:Part 2:1990
Particle Size Distribution (Wet Sieving)	CML 1.7	BS 1377:Part 2:1990
Compaction (BS Heavy)	CML 1.9	BS 1377:Part 4:1990
3-point CBR (tested after 4 days soaking)	CML 1.11	BS 1377:Part 4:1990 & TMH1:meth.A8:1986

The following section 3.3 provides summaries of the results obtained. Laboratory test results for alignment soils are presented in APPENDIX A of this report.

3.3 Findings of Investigations of the Alignment Soils

The summaries of laboratory test results for each road section is presented separately. On the other hand, the analysis of alignment soil laboratory test results will be done separately.

3.3.1 Alignment Samples

New alignment road sections subgrade soil types as evidenced by laboratory test results was dominated by CLAYEY SOILS, SILTY or CLAYEY GRAVEL and SAND as well as STONE FRAGMENTS GRAVEL and SAND.

The occurrence of the different subgrade soil types for each project road are as shown in Table 3-2 below.

Table 3-2, Test of subgradde characteristics along the project roads

Chainage	*Side*	*LL*	*PL*	*PI*	*Swell (%)*	*Class*	*90% CBR (%)*	*GM*
Kilimo Mseto – Mjimwema - Lizaboni road (2.2km)								
0+000	RHS	30.40	15.10	15.30	0.02	A-2-6	4.83	1.23
1+000	LHS	40.50	23.40	17.10	0.00	A-6	4.11	0.61
2+100	RHS	42.30	26.00	16.20	0.00	A-7-6	3.54	0.66

Chainage	*Side*	*LL*	*PL*	*PI*	*Swell (%)*	*Class*	*90% CBR (%)*	*GM*
SOUSA – Tunduru Bus Stand Road (0.85km)								
0+000	LHS	30.10	15.60	14.50	0.00	A-6	4.88	0.67
0+400	RHS	54.40	29.10	25.30	0.02	A-7-6	4.23	0.48
0+800	LHS	54.00	32.50	21.50	0.01	A-7-6	5.10	0.41
Majimaji Stadium – Sabena Road (0.300km)								
0+000	RHS	47.00	27.20	19.80	0.01	A-7-6	3.68	0.41
0+200	LHS	54.00	27.50	26.50	0.04	A-7-6	4.21	0.53
0+300	RHS	47.30	25.80	21.50	0.00	A-7-6	6.76	0.70
Mpangwa Soni – TAG road (0.30km)								
0+020	RHS	48.00	27.10	20.90	0.02	A-7-6	5.05	0.48
0+150	LHS	52.30	29.50	22.80	0.02	A-7-6	3.78	0.47
0+300	RHS	48.20	25.90	22.20	0.00	A-7-6	4.91	0.58
Manyara – TAG road (0.330km)								
0+050	LHS	51.50	27.80	23.60	0.02	A-7-6	4.09	0.62
0+150	RHS	46.10	21.40	24.60	0.04	A-7-6	4.32	0.51
0+300	LHS	45.20	26.10	19.10	0.01	A-7-6	4.28	0.55
Manzese A – Kalembo road (0.330km)								
0+000	RHS	50.50	29.60	20.90	0.09	A-7-6	4.09	0.47
0+150	LHS	42.80	25.10	17.70	0.02	A-7-6	3.41	0.54
0+320	RHS	51.10	27.00	24.10	0.02	A-7-6	3.39	0.54
Kaboma – Kalembo road (0.300km)								
0+000	RHS	51.10	25.60	25.50	0.05	A-7-6	5.35	0.47
0+150	LHS	41.60	22.30	19.30	0.04	A-7-6	5.29	0.53
0+300	RHS	47.30	25.80	21.50	0.00	A-7-6	6.76	0.70
Mission Garage – Kalembo road (0.430km)								
0+000	RHS	48.40	29.90	18.50	0.04	A-7-6	4.82	0.44
0+200	LHS	48.40	25.00	23.40	0.05	A-7-6	3.73	0.50
0+400	RHS	45.50	24.40	21.10	0.00	A-7-6	5.35	0.58
Regional Mosque – Kalembo road (0.250km)								
0+000	RHS	47.70	26.40	21.30	0.04	A-7-6	3.23	0.48
0+150	LHS	52.90	29.40	23.50	0.06	A-7-6	4.29	0.45
0+250	RHS	42.60	22.30	20.30	0.00	A-7-6	4.13	0.60
Kisiwa - Lamshaba road (0.450km)								
0+010	LHS	29.90	15.70	14.20	0.00	A-2-6	14.31	1.83
0+200	RHS	40.90	19.10	21.80	0.02	A-6	7.65	0.93

Chainage	*Side*	*LL*	*PL*	*PI*	*Swell (%)*	*Class*	*90% CBR (%)*	*GM*
0+450	LHS	45.70	22.50	23.20	0.01	A-7-6	4.51	0.70
Madamba- Magengeni road (0.580km)								
0+010	RHS	44.50	23.30	21.20	0.00	A-7-6	4.77	0.84
0+350	LHS	32.20	15.40	16.80	0.01	A-6	5.37	0.92
0+580	RHS	NP	NP	NP	0.00	A-1-b	14.33	1.68
Liganga Magengeni road (0.670km)								
0+000	RHS	48.00	23.00	25.00	0.00	A-7-6	5.46	0.48
0+270	RHS	36.20	16.40	19.80	0.00	A-6	4.99	0.80
0+530	RHS	NP	NP	NP	0.00	A-1-b	13.46	1.78
Motomondo – Buhemba 2 road (0.350km)								
0+000	RHS	NP	NP	NP	0.00	A-2-4	15.21	1.39
0+200	LHS	NP	NP	NP	0.00	A-2-4	23.96	1.19
0+320	RHS	NP	NP	NP	0.00	A-1-b	12.93	1.89
Majengo – Police Station – Mchekanae road (0.520km)								
0+000	LHS	47.30	24.60	22.70	0.00	A-7-6	5.30	0.56
0+260	RHS	NP	NP	NP	0.00	A-1-b	16.22	1.37
0+520	LHS	24.00	13.80	10.20	0.01	A-2-4	7.76	1.08
Osaka – Kisumapai road (0.500km)								
0+000	RHS	48.80	26.40	22.40	0.02	A-7-6	5.88	0.45
0+250	LHS	41.70	22.90	18.80	0.02	A-7-6	7.01	0.46
0+500	RHS	46.70	25.10	21.60	0.01	A-7-6	5.49	0.41
Shinyanga Annex – CCM road (0.320km)								
0+000	RHS	36.30	20.50	15.80	0.00	A-6	8.38	0.80
0+180	LHS	33.60	18.70	14.90	0.02	A-6	6.74	1.06
0+330	RHS	40.80	23.90	16.90	0.05	A-6	3.18	0.70
Msikitini – Police Quarter road (0.120km)								
0+000	LHS	42.10	23.30	18.80	0.01	A-7-6	5.42	0.74
0+060	RHS	44.20	22.80	21.40	0.02	A-7-6	3.76	0.71
0+120	LHS	45.30	24.70	20.60	0.02	A-7-6	5.08	0.67
TPB – Sabato Church road (0.330km)								
0+000	LHS	43.80	27.70	16.10	0.00	A-7-6	5.77	0.52
0+150	RHS	44.60	21.50	23.10	0.02	A-7-6	3.40	0.47
0+300	LHS	44.00	24.20	19.80	0.00	A-7-6	4.85	0.52
Kapungu road (0.540km)								
0+000	LHS	NP	NP	NP	0.00	A-2-4	17.26	1.27

Chainage	*Side*	*LL*	*PL*	*PI*	*Swell (%)*	*Class*	*90% CBR (%)*	*GM*
0+280	RHS	33.40	16.40	17.00	0.00	A-6	5.65	0.93
0+530	LHS	36.50	18.20	18.30	0.00	A-2-6	5.61	1.08
Namanga – Manzese A road (0.300km)								
0+000	RHS	44.70	25.10	19.60	0.01	A-7-6	3.34	0.58
0+150	LHS	46.80	26.30	20.50	0.06	A-7-6	4.06	0.57
0+300	RHS	48.20	27.50	20.70	0.01	A-7-6	3.10	0.56
Lilambo Industrial Area Access/Ring roads (1.37km)								
0+000	RHS	30.20	16.50	13.70	0.03	A-6	5.90	0.51
0+500	LHS	31.60	18.80	12.80	0.04	A-6	9.83	0.45
1+000	RHS	46.60	27.00	19.60	0.00	A-6	6.92	0.43
1+250	LHS	33.60	19.70	13.90	0.02	A-6	6.44	0.54
Lilambo Industrial Area Access/Ring roads (0.130km)								
0+000	C/L	33.00	19.40	13.60	0.00	A-6	5.72	0.42
0+080	C/L	33.80	19.80	14.00	0.00	A-6	6.20	0.41
0+130	C/L	33.70	19.40	14.30	0.03	A-6	5.71	0.49

3.3.2 Analysis of Test Results

The soils were found to exhibit predominantly low to medium plasticity with plasticity indices ranging between Non-plastic and 26.50 %. All subgrades have PI less or equal to 26.50%.

The subgrade soils have been classified in accordance with AASHTO soil classification system. From Figure 3-1, it can be seen that the existing soils are dominated by A-7-6 (Clayey soils), A-6 (Clayey soils), A-2-4 (Silty or Clayey Gravel and Sand), A-2-6 (Silty or Clayey Gravel and Sand) as well as A-1-b (Stone Fragments Gravel and Sand).

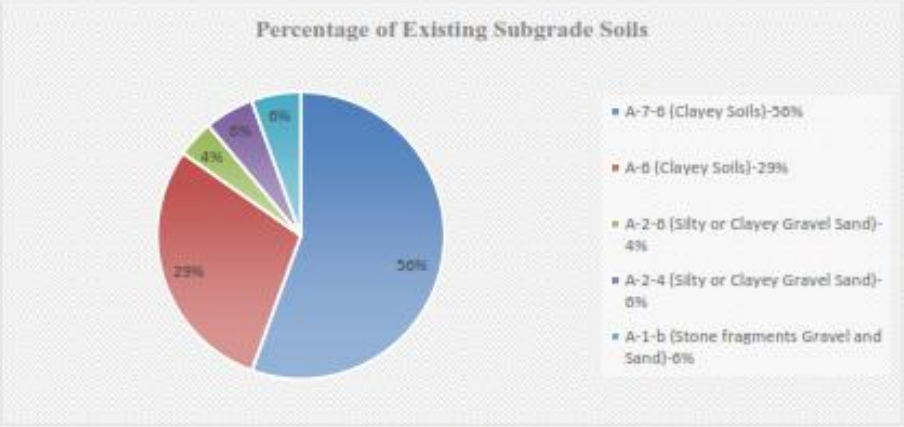


Figure 3-1, Percentage of each soil type on the Existing Subgrade along the project roads

In terms of quality of subgrade, it can be seen that existing subgrade soils consists of A-1-b (Stone Fragments Gravel and Sand)-6%, A-2-4 (Silty or Clayey Gravel and Sand)-6%, A-2-6 (Silty or Clayey Gravel and Sand)-6%, A-6 (Clayey Soils)-29% and A-7-6 (Clayey soils)-56%.

Generally, the quality of the subgrade soils is low, most of the project roads had more fine subgrade soils than granular soils along their alignments. As indicated in figure 3-1 above, more than 80% of subgrade soils along all project roads in Songea Municipality are Clayey soils of low to medium plasticity indices.

On the other hand, the quality of the subgrade soils in terms of CBR is low. More than 80% of the subgrade soils have CBR 90% MDD less than 7%. The plots of CBR 90% MDD for each project road are presented in figure 3-2(a) to 3-2(g)

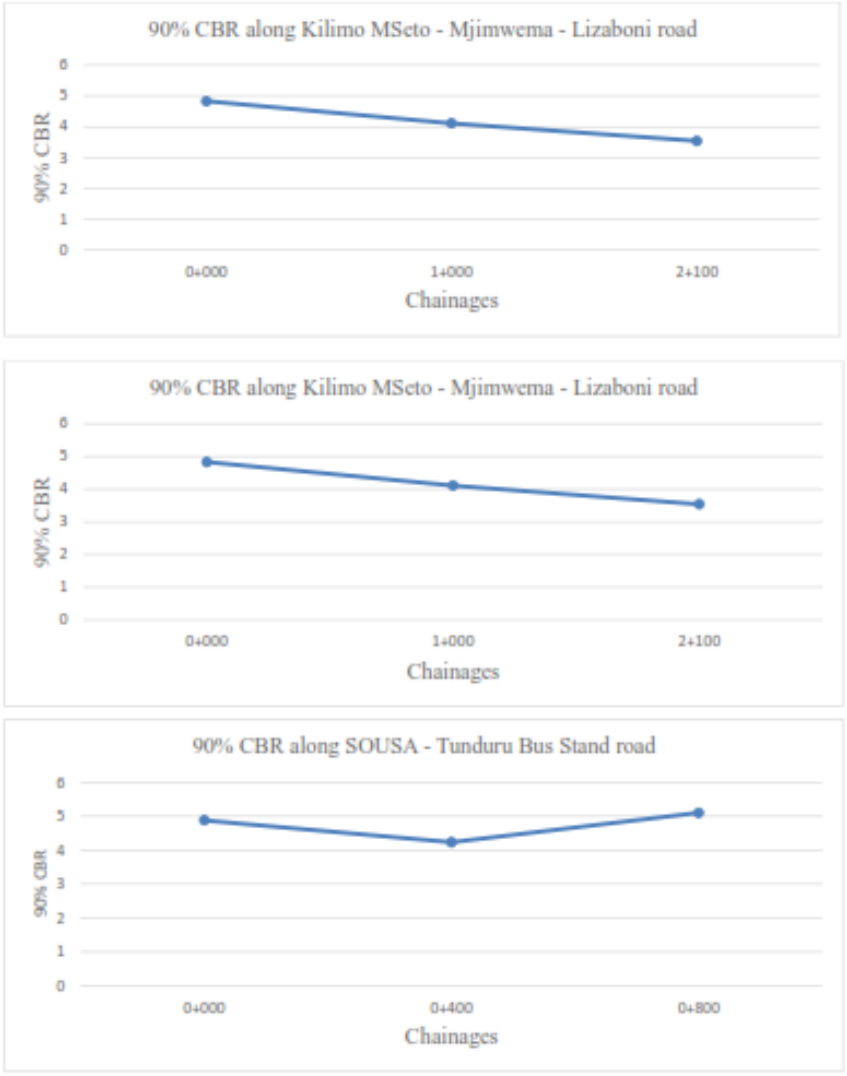
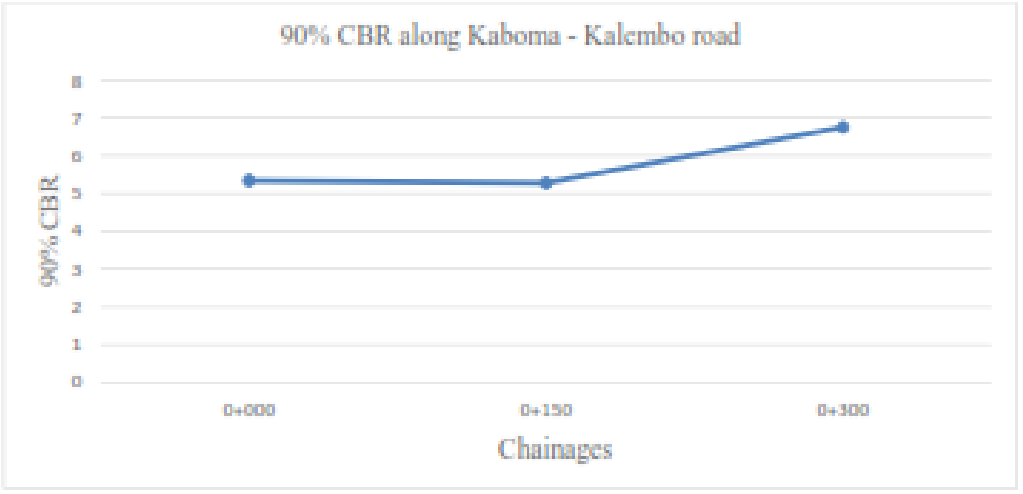
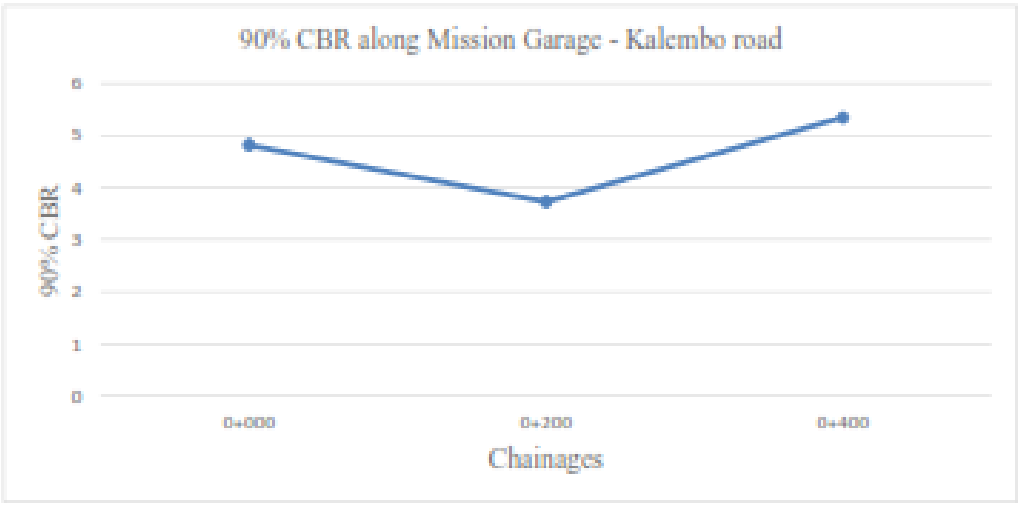


Figure 3-2(a) -CBR on the Existing Subgrade along the Project Roads

*Figure 3-**2(b)** -CBR on the Existing Subgrade along the Project Roads*





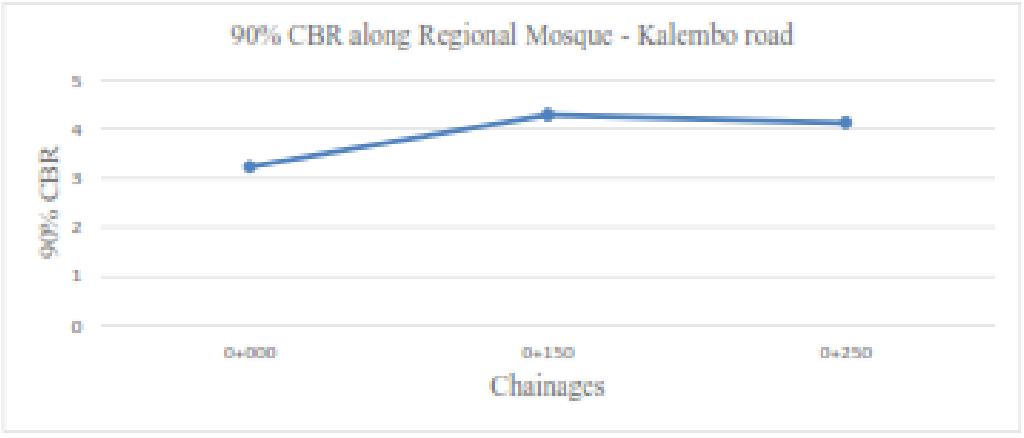


Figure 3-2(e) -CBR on the Existing Subgrade along the Project Roads

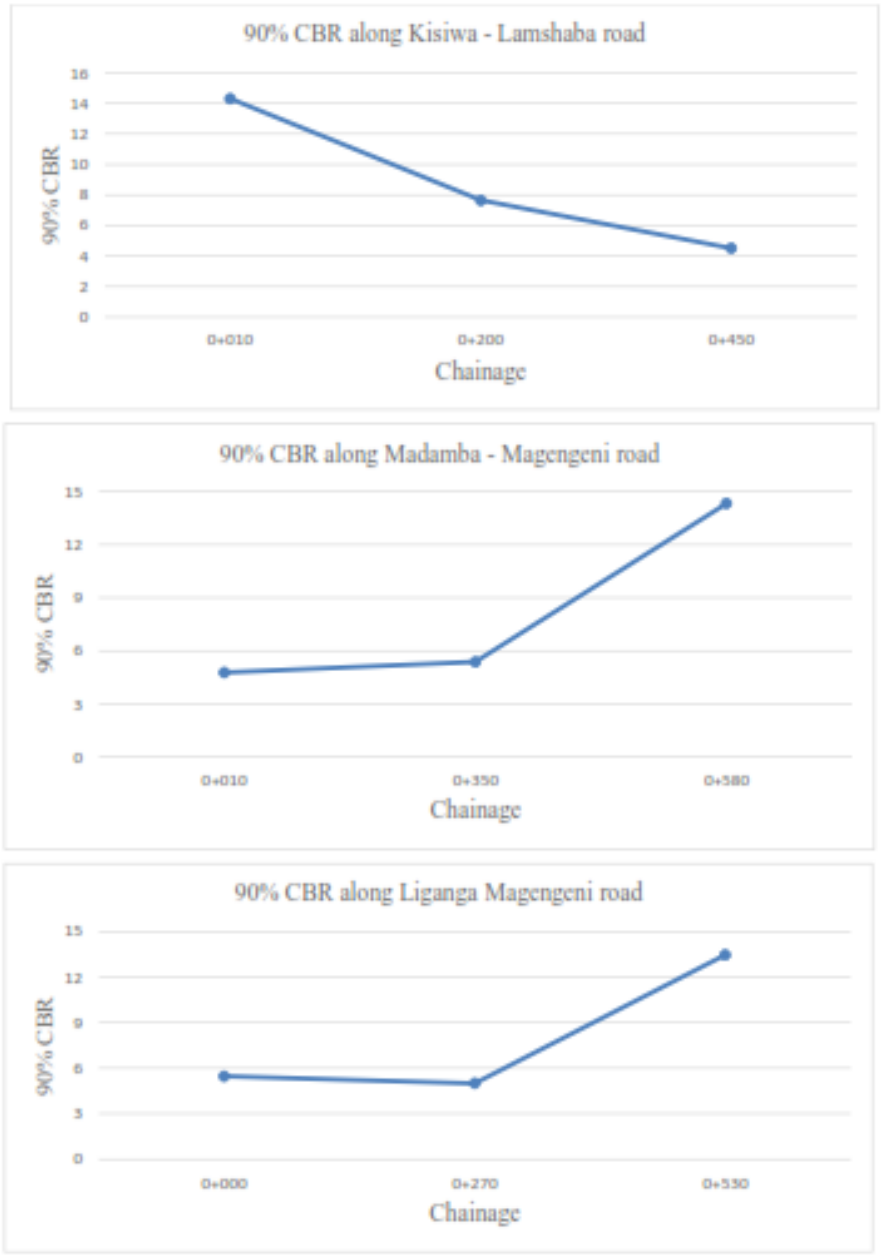
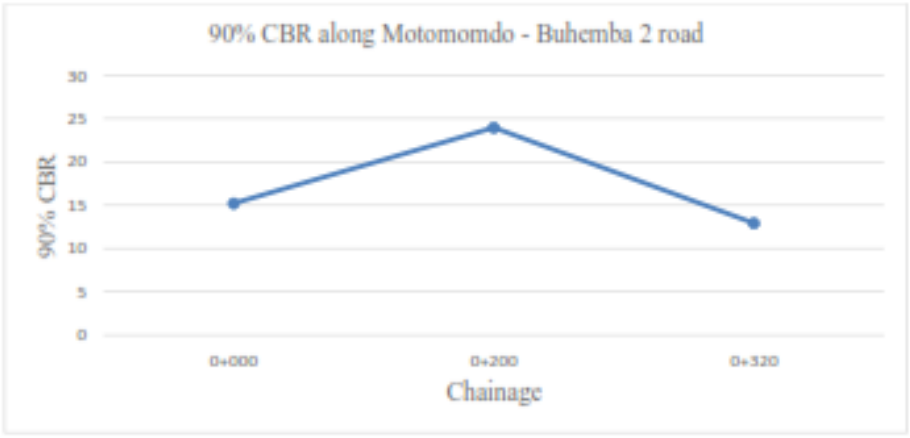
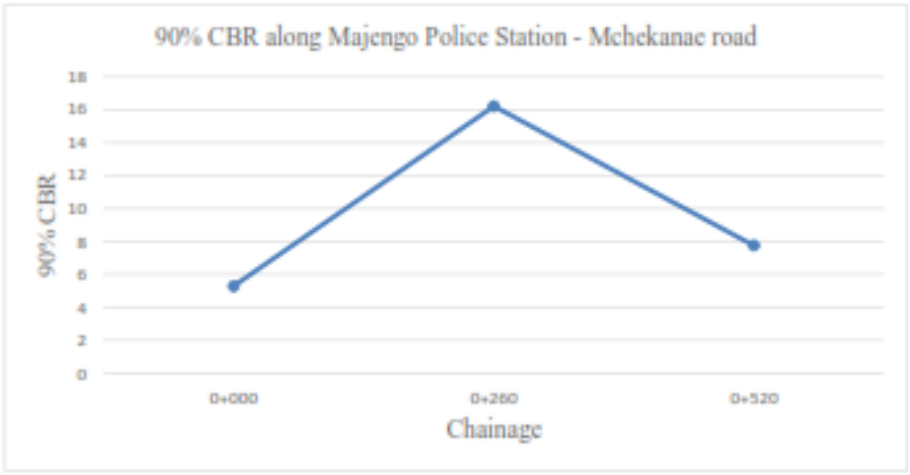


*Figure 3-**2(d)** -CBR on the Existing Subgrade along the Project Roads*





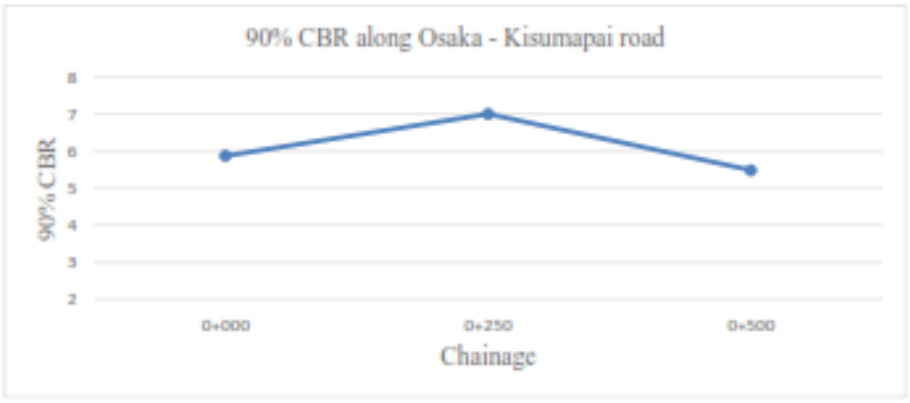


*Figure 3-**2(e)** -CBR on the Existing Subgrade along the Project Roads*

Figure 3-2(f) -CBR on the Existing Subgrade along the Project Roads

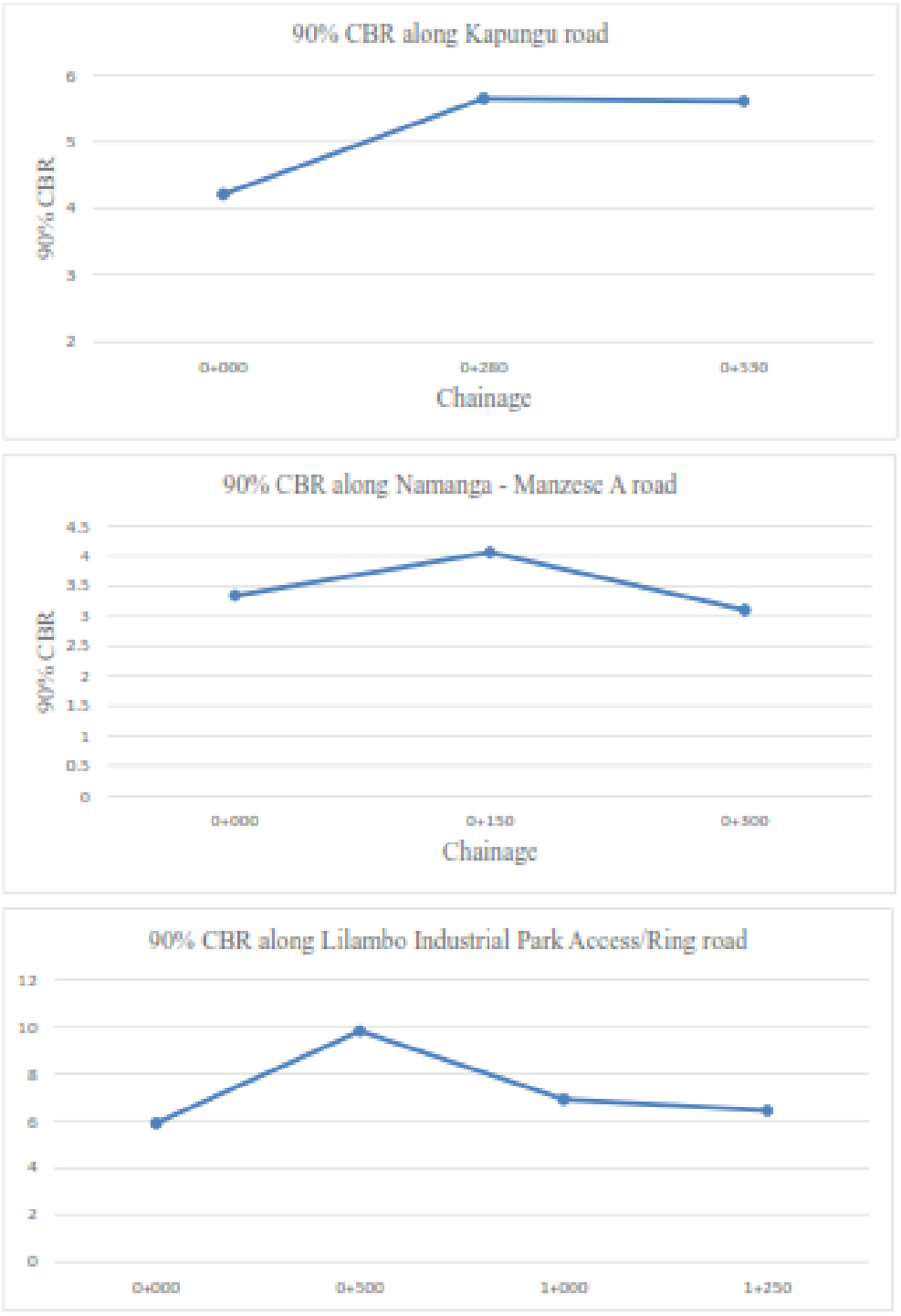


Figure 3-2(g) -CBR on the Existing Subgrade along the Project Roads

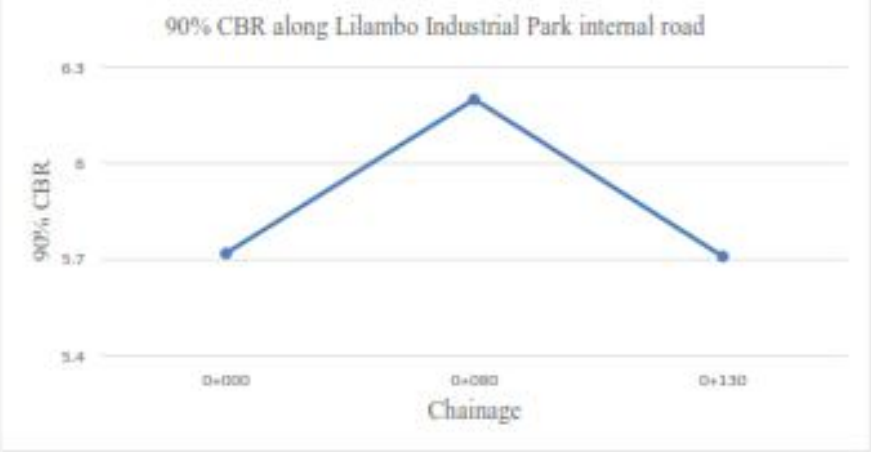


Figure 3-2(h) -CBR on the Existing Subgrade along the Project Roads

3.3.3 Homogeneous Sections

Homogeneous sections for each project road were determined using the "CUSUMs" method as stipulated in the AASHTO and Tanzanian ministry of works' Pavement and Materials Design Manual-1999. The CUSUMs method of determination homogenous sections is summarized in table 3-3 for each road. Figure 3-3 presents the CUSUM values plotted against changes for each project road.

Table 3-3: Classification for Homogeneous Sections along the Project Roads

S/N	Chainage	90% CBR%=B	Difference from Average=C(B-A)	CUSUMs (Accumulated Values of C)
Kilimo Mseto – Mjimwema - Lizaboni road				
1	0+000	4.83	0.67	0.67
2	1+000	4.11	-0.55	0.12
3	2+100	3.54	-0.62	-0.50
Average of CBR = A= 4.16				
SOUWASA – Tunduru Bus Stand road				
1	0+000	4.88	0.14	0.14
2	0+400	4.23	-0.51	-0.37
3	0+800	5.10	0.36	-0.01
Average of CBR = A=4.74				
Majimaji Stadium – Sabena road				
1	0+000	3.68	-1.20	-1.20

S/N	Chainage	90% CBR%=B	Difference from Average=C(B-A)	CUSUMs (Accumulated Values of C)
2	0+200	4.21	-0.67	-1.87
3	0+300	6.76	1.88	0.01
Average of CBR = A=4.88				
Mpangwa Soni – TAG road (0.30km				
1	0+020	5.05	0.47	0.47
2	0+150	3.78	-0.80	-0.33
3	0+300	4.91	0.33	0.00
Average of CBR = A=4.58				
Manyara – TAG road				
1	0+050	4.09	-0.14	-0.14
2	0+150	4.32	0.09	-0.05
3	0+300	4.28	0.05	0.00
Average of CBR = A=4.23				
Manzese A – Kalembo road				
1	0+000	4.09	0.46	0.46
2	0+150	3.41	-0.22	0.24
3	0+320	3.39	-0.24	0.00
Average of CBR = A=3.63				
Kaboma – Kalembo road				
1	0+000	5.35	-0.45	-0.45
2	0+150	5.29	-0.51	-0.96
3	0+300	6.76	0.96	0.00
Average of CBR = A=5.80				
Mission Garage – Kalembo road				
1	0+000	4.82	0.19	0.19
2	0+200	3.73	-0.90	-0.71
3	0+400	5.35	0.72	0.01
Average of CBR = A=4.63				
Regional Mosque – Kalembo road				
1	0+000	3.23	-0.65	-0.65
2	0+150	4.29	0.41	-0.24
3	0+250	4.13	0.25	0.01
Average of CBR = A=3.88				
Kisiwa - Lamshaba road				
1	0+010	14.31	5.49	5.49
2	0+200	7.65	-1.17	4.32
3	0+450	4.51	-4.31	0.01
Average of CBR = A=8.82				
Madamba- Magengeni road				

S/N	Chainage	90% CBR%=B	Difference from Average=C(B-A)	CUSUMs (Accumulated Values of C)
1	0+010	4.77	-3.39	-3.39
2	0+350	5.37	-2.79	-6.18
3	0+580	14.33	6.17	-0.01
Average of CBR = A=8.16				
Liganga Magengeni road				
1	0+000	5.46	-2.51	-2.51
2	0+270	4.99	-2.98	-5.49
3	0+530	13.46	5.49	0.00
Average of CBR = A=7.97				
Motomondo – Buhemba 2 road				
1	0+000	15.21	-2.16	-2.16
2	0+200	23.96	6.59	4.43
3	0+320	12.93	-4.44	-0.01
Average of CBR = A=17.37				
Majengo – Police Station – Mchekanae road				
1	0+000	5.30	-4.46	-4.46
2	0+260	16.22	6.46	2.00
3	0+520	7.76	-2.00	0.00
Average of CBR = A=9.76				
Osaka – Kisumapai road				
1	0+000	5.88	-0.25	-0.25
2	0+250	7.01	0.88	0.63
3	0+500	5.49	-0.64	-0.01
Average of CBR = A=6.13				
Shinyanga Annex – CCM road				
1	0+000	8.38	2.28	2.28
2	0+180	6.74	0.64	2.92
3	0+330	3.18	-2.92	0.00
Average of CBR = A=6.10				
Msikitini – Police Quarter road				
1	0+000	5.42	0.67	0.67
2	0+060	3.76	-1.29	-0.62
3	0+120	5.08	0.33	-0.29
Average of CBR = A=4.75				
TPB – Sabato Church road				
1	0+000	5.77	1.10	1.10
2	0+150	3.40	-1.27	-0.17
3	0+300	4.85	0.18	0.01
Average of CBR = A=4.67				

S/N	Chainage	90% CBR%=B	Difference from Average=C(B-A)	CUSUMs (Accumulated Values of C)
Kapungu road				
1	0+000	4.21	-0.95	-0.95
2	0+280	5.65	0.49	-0.46
3	0+530	5.61	0.45	-0.01
Average of CBR = A=5.16				
Namanga – Manzese A				
1	0+000	3.34	-0.16	-0.16
2	0+150	4.06	0.56	0.40
3	0+290	3.10	-0.40	0.00
Average of CBR = A=3.5				
Lilambo Industrial Area Access/Ring roads				
1	0+000	5.90	-1.41	-1.41
2	0+500	9.83	2.52	1.11
3	1+000	6.92	-0.39	0.72
4	1+250	6.44	-0.87	-0.15
Average of CBR = A=7.31				
Lilambo Industrial Area Internal roads				
1	0+000	5.72	-0.16	-0.16
2	0+080	6.20	0.32	0.16
3	0+130	5.71	-0.17	-0.01
Average of CBR = A=5.88				

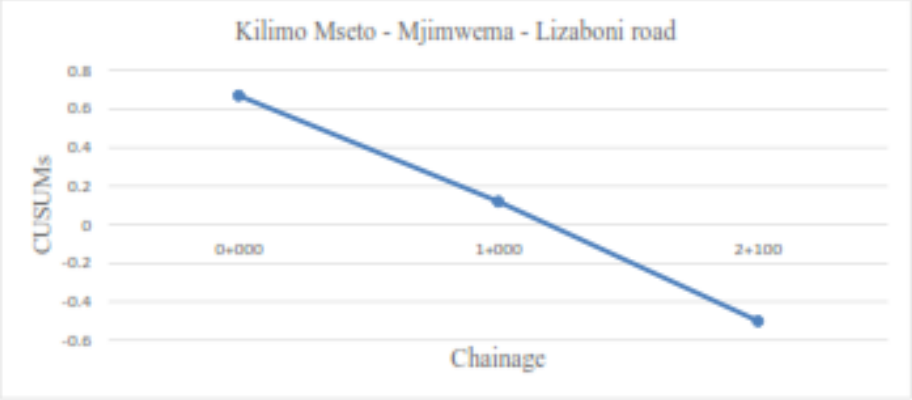
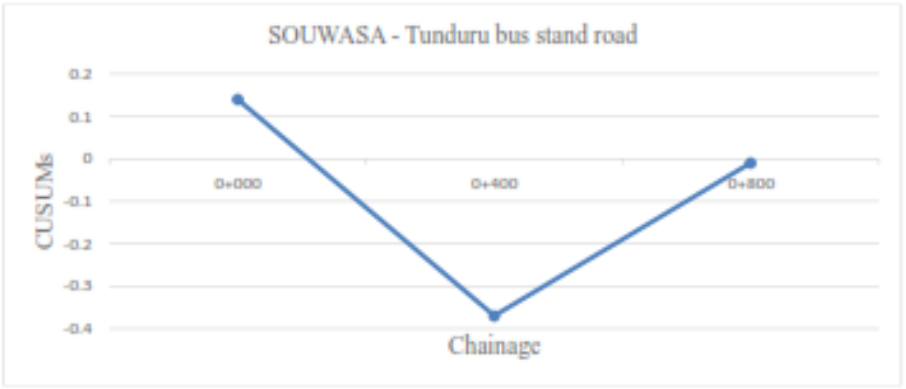
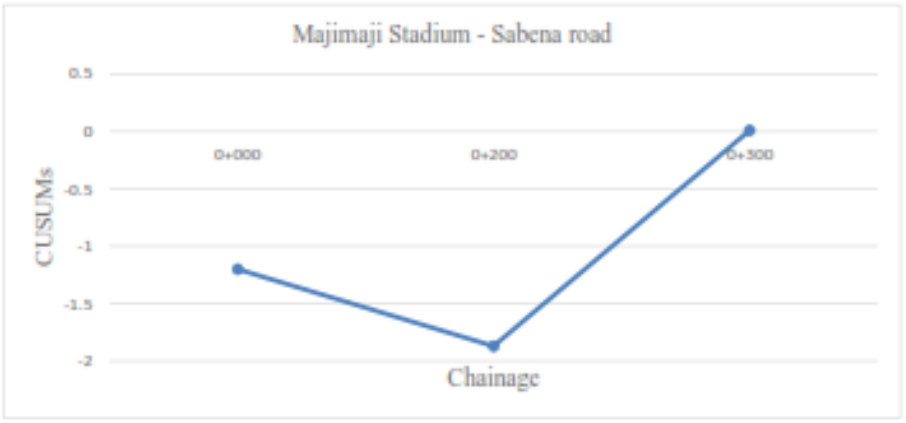


Figure 3-3(a), Homogeneous Sections along the Project Roads





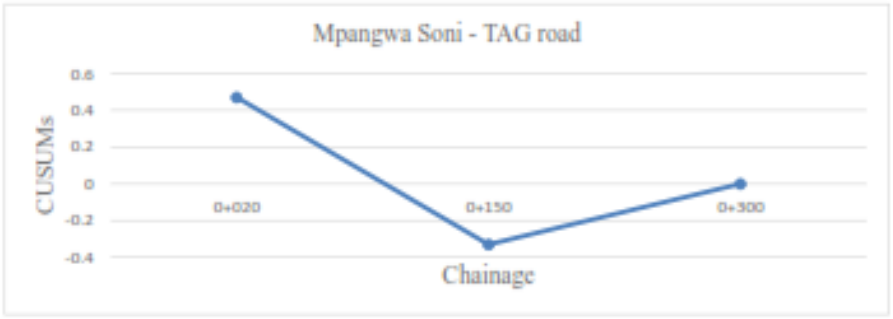


Figure 3-3(b), Homogeneous Sections along the Project Roads

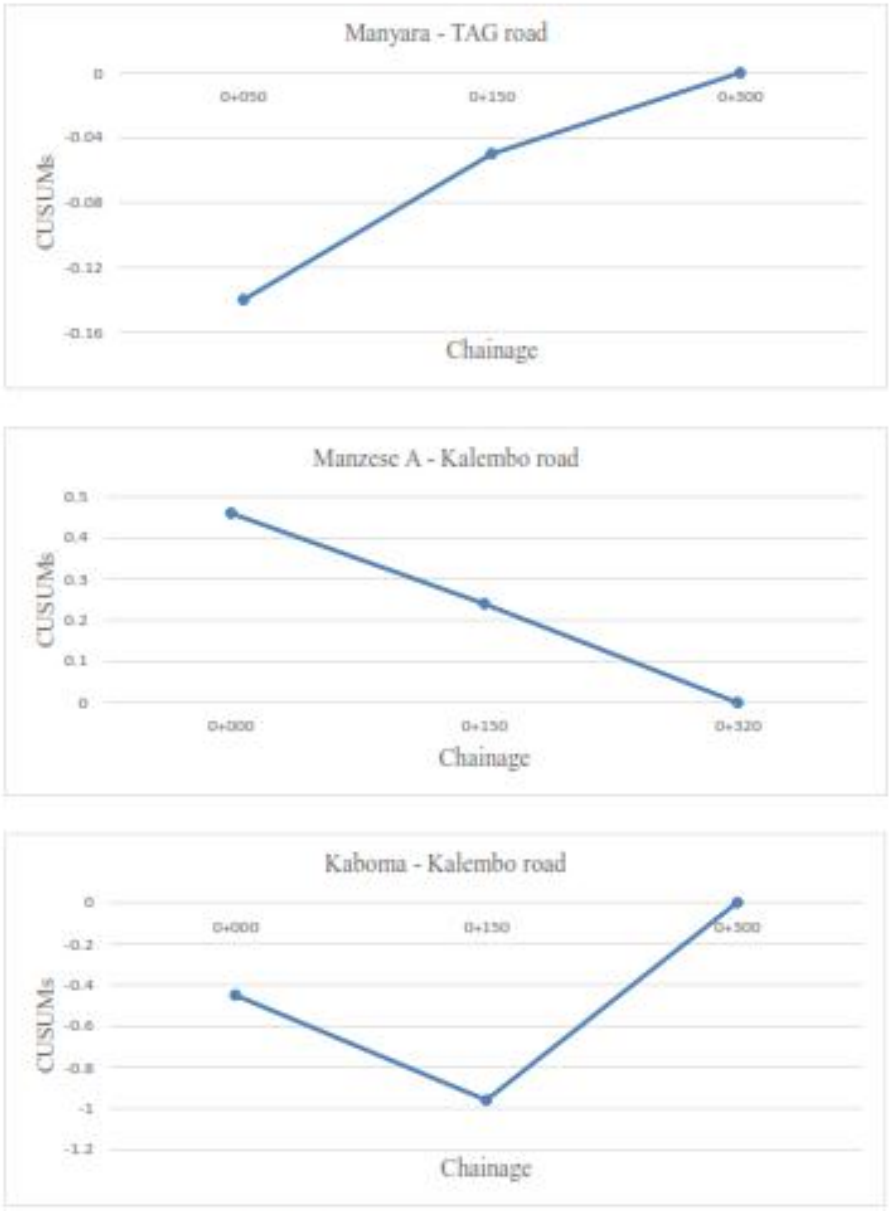
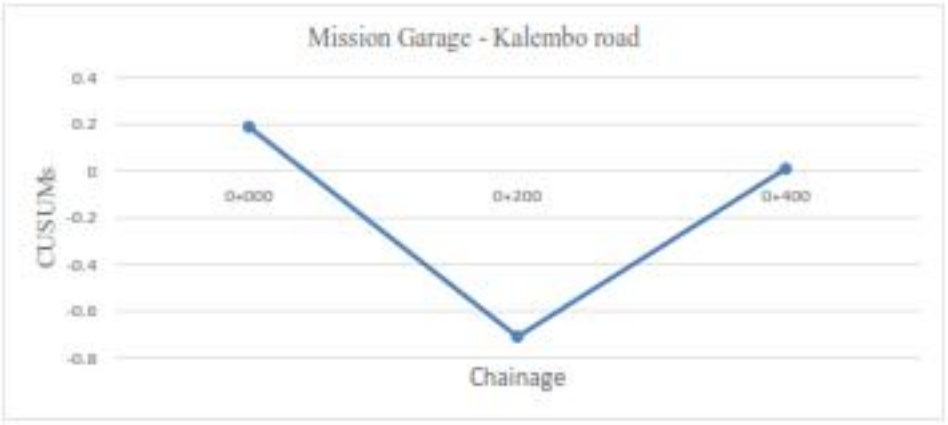


Figure 3-3(c), Homogeneous Sections along the Project Roads



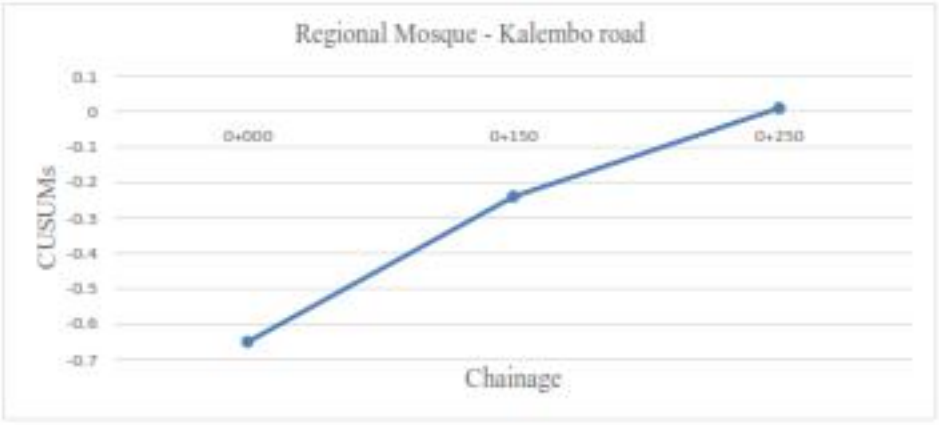
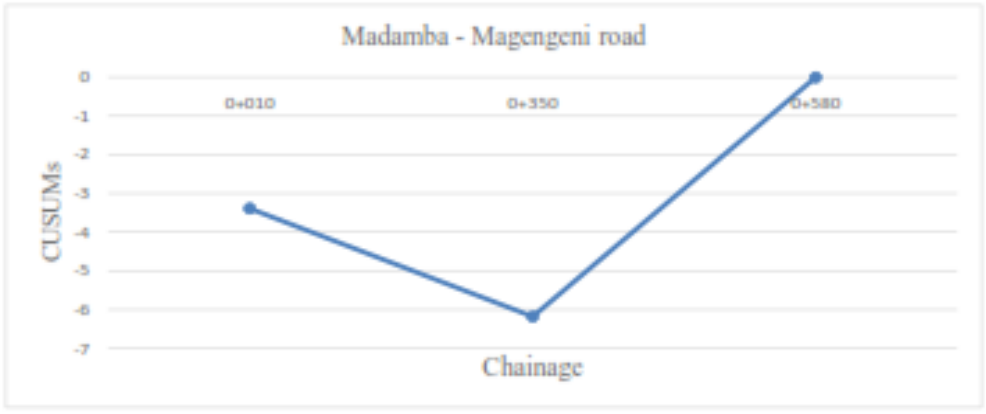
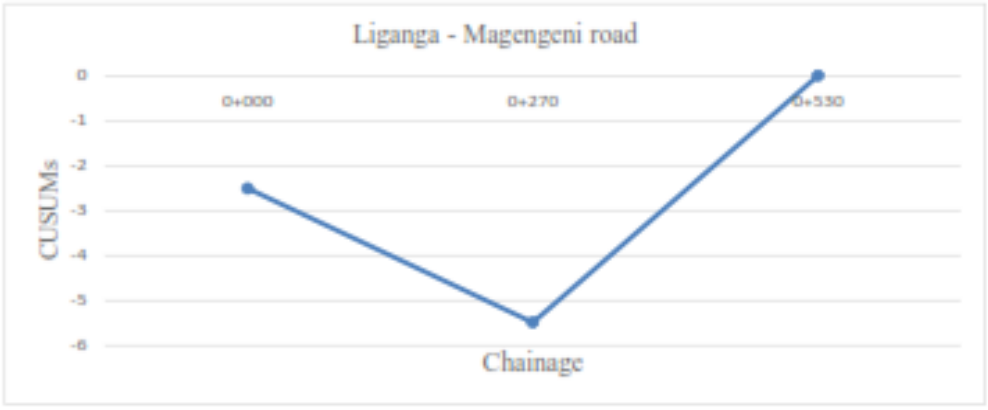


Figure 3-3(d), Homogeneous Sections along the Project Roads





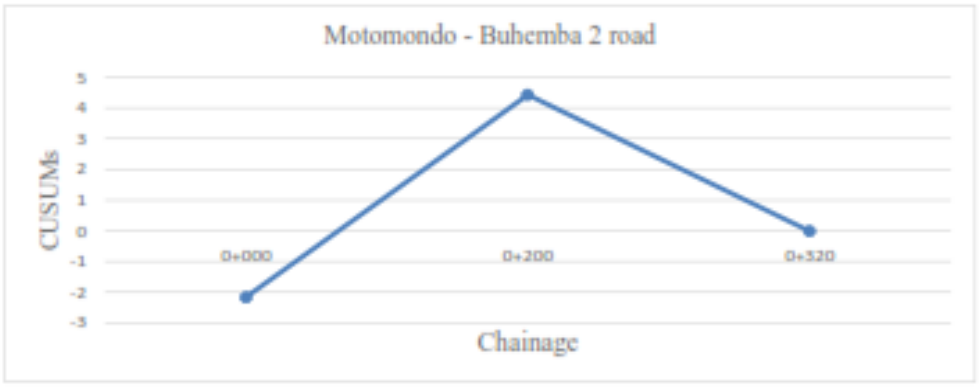


Figure 3-3(e), Homogeneous Sections along the Project Roads

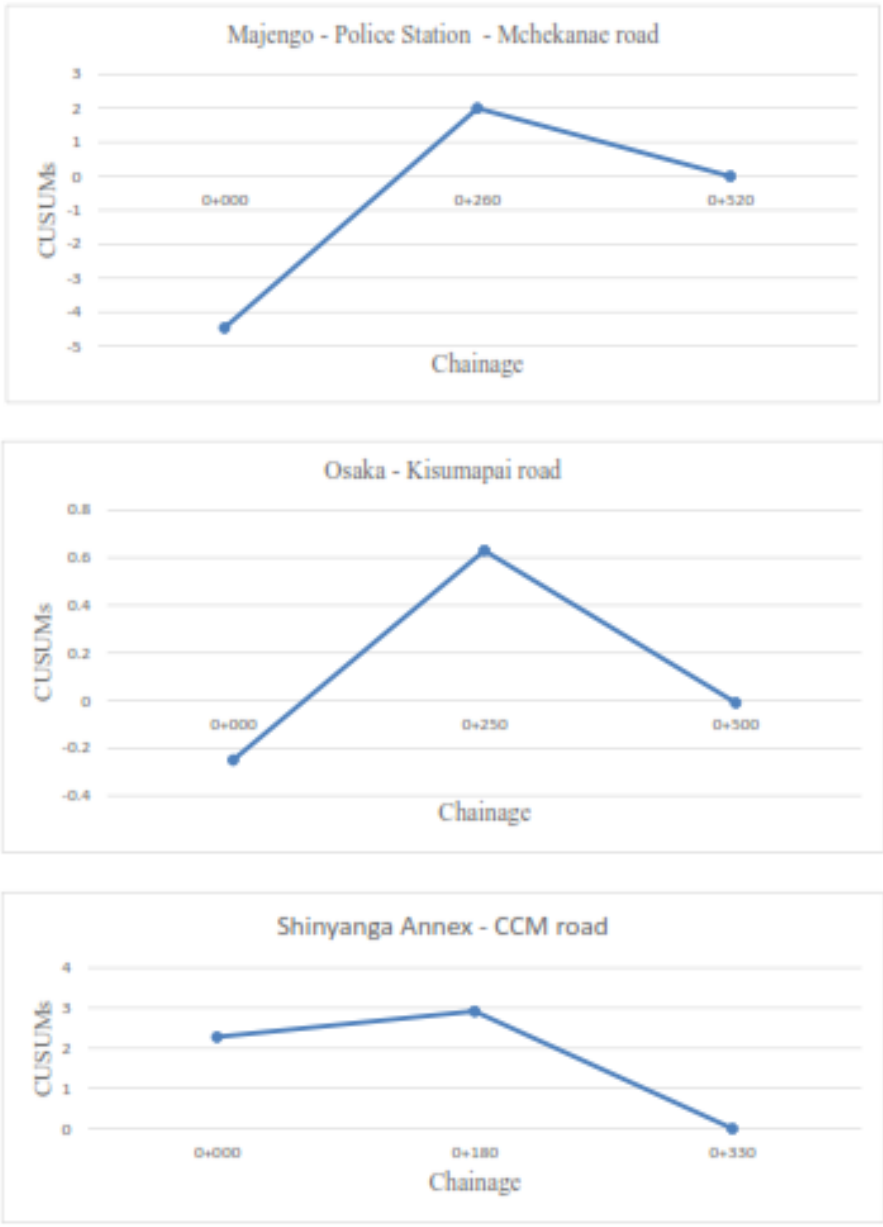
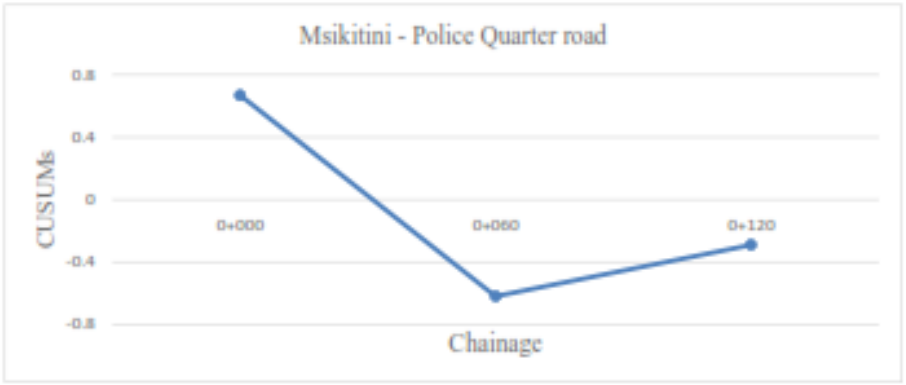
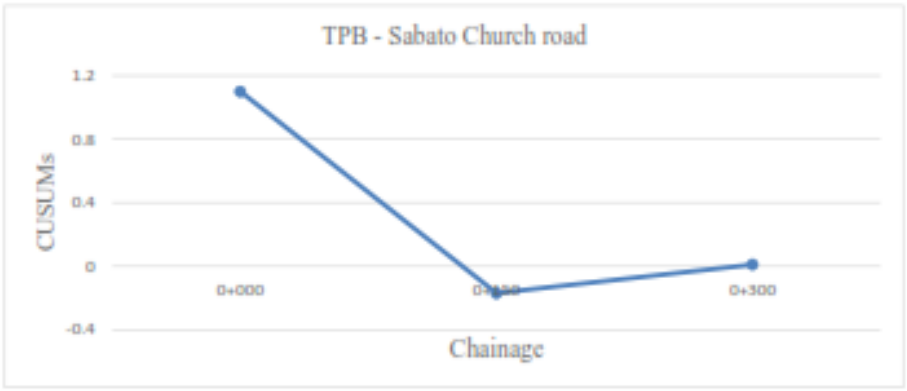


Figure 3-3(f), Homogeneous Sections along the Project Roads





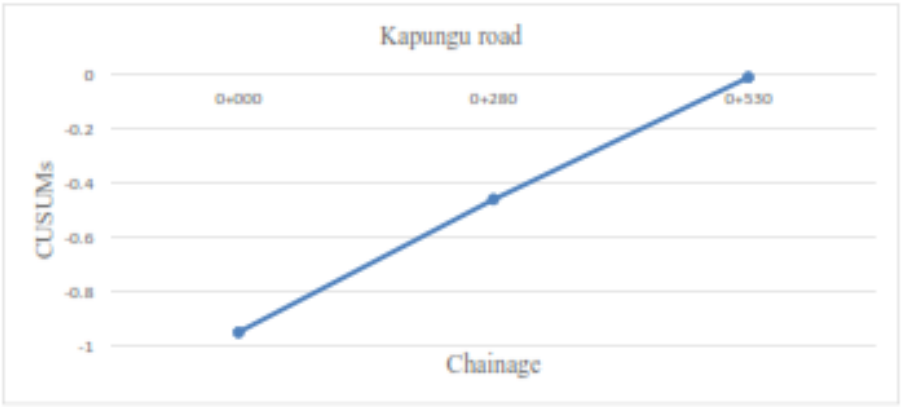
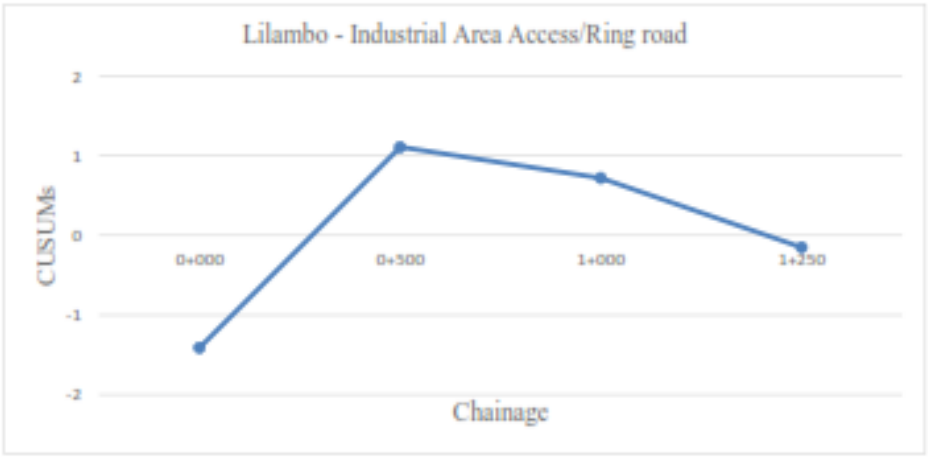


Figure 3-3(g), Homogeneous Sections along the Project Roads



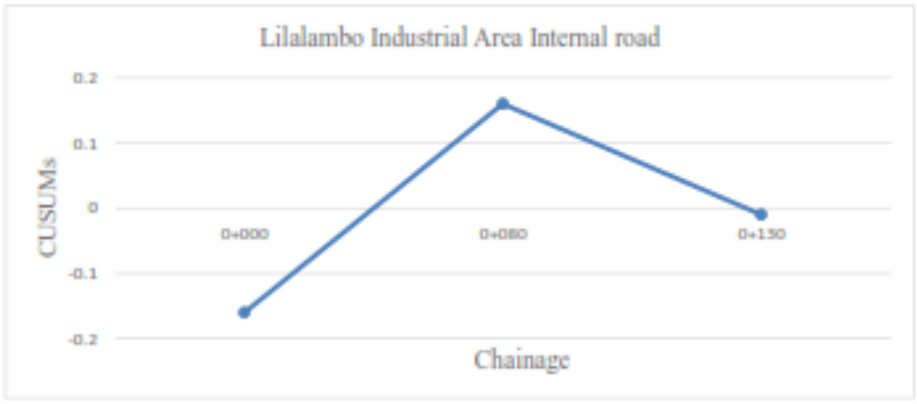


Figure 3-3(h), Homogeneous Sections along the Project Roads

Analysis of the results plotted in figure 3-3 above shows that the project roads can be grouped into several homogeneous sections as indicated in Table 3-4 below with various design CBR values. Homogeneous section plots and computations are presented in APPENDIX I of this report.

Table 3-4, Summary of Homogeneous Sections based on Laboratory CBR Results

Road Name	Chainage		Road	Homogeneous	Subgrade
	From	To	Length (km)	Design CBR (%)	Class
Kilimo Mseto – Mjimwema – Lizaboni	0+000	2+278	2.28	3.7	S3
SOUWASA – Tunduru Bus Stand	0+000	0+857	0.86	4.4	S3
Majimaji Stadium – Sabena	0+000	0+257	0.26	3.8	S3
Mpangwa Soni – TAG	0+000	0+291	0.29	4.0	S3
Manyara - TAG	0+000	0+329	0.33	4.1	S3
Manzese A – Kalembo	0+000	0+334	0.33	3.4	S3
Kaboma - Kalembo	0+000	0+303	0.30	5.5	S3
Mission Garage – Kalembo	0+000	0+429	0.43	4.0	S3
Regional Mosque – Kalembo	0+000	0+250	0.25	3.4	S3
Kisiwa - Lamshaba	0+000	0+200	0.20	4.9	S3
	0+200	0+445	0.25	8.1	S7
Madamba - Magengeni	0+000	0+586	0.59	5.0	S3
Liganga – Magengeni	0+000	0+678	0.68	5.0	S3
Motomondo – Buhemba 2	0+000	0+352	0.35	13.5	S7
Majengo – Police Station – Mchekanae	0+000	0+524	0.52	6.0	S3
Osaka – Kisumapai	0+000	0+508	0.51	5.5	S3
Shinyanga Annex – CCM	0+000	0+317	0.32	4.0	S3
Msikitini – Police Quarter	0+000	0.120	0.12	4.0	S3
TPB – Sabato Church	0+000	0+332	0.33	3.8	S3
Kapungu	0+000	0+542	0.54	5.6	S3
Namanga – Manzese A	0+000	0+292	0.29	3.2	S3
Lilambo Industrial Area Access/ring	0+000	1+365	1.37	6.0	S3
Lilambo Industrial Area Internal	0+000	0+130	0.13	5.7	S3

In terms of subgrade strength parameters, several homogeneous sections were finally identified as summarized in table 3-4 above. Each project road has one homogenous section. An appraisal of the identified homogeneous sections for each project road is given below.

3.3.3.1 Kilimo Mseto – Mjimwema - Lizaboni road

Subgrade materials along Kilimo Mseto – Mjimwema - Lizaboni road were found to comprise of mainly CLAY soils. SILTY or CLAYEY Gravel and SAND soils occasionally occur along this section. The bearing strengths (CBR at 90% MDD) along this road ranged from 3.54 % to 4.83%.

The design CBR 90% for this road is 3.7%. The subgrade material along this road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Kilimo Mseto – Mjimwema - Lizaboni road requires two or more improved subgrade layers .

3.3.3.2 SOUWASA – Tunduru Bus Stand Road

Subgrade materials along SOUWASA – Tunduru Bus Stand road were found to comprise of mainly CLAY soils.. The bearing strengths (CBR at 90% MDD) along this road ranged from 4.23 % to 5.10%.

The design CBR 90% for SOUWASA – Tunduru Bus Stand road is 4.4%. The subgrade material along this road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along SOUWASA – Tunduru Bus Stand road requires two or more improved subgrade layers .

3.3.3.3 Majimaji Stadium – Sabena Road

Subgrade materials along Majimaji Stadium - Sabena road were found to comprise of mainly CLAY soils. The bearing strengths (CBR at 90% MDD) along this road ranged from 3.68 % to 6.76%.

The design CBR 90% for Majimaji Stadium - Sabena road is 3.8%. The subgrade material along this road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Majimaji Stadium - Sabena road requires two or more improved subgrade layers.

3.3.3.4 Mpangwa Soni – TAG road

Mpangwa Soni - TAG road has one homogenous section. Subgrade materials along Mpangwa Soni - TAG road were found to comprise of mainly CLAYEY Soils. The bearing strengths for this road ranged from 6.23 % to 8.03%.

The design CBR 90% for this road is 4.0%. The subgrade material in this section can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade requires two or more improved subgrade layers.

3.3.3.5 Manyara - TAG road

Subgrade materials along Manyara – TAG road were found to comprise of mainly CLAY soils. The bearing strengths (CBR at 90% MDD) along this road ranged from 4.09 % to 4.32%.

The design CBR 90% for Manyara – TAG road is 4.1%. The subgrade material along this road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Manyara – TAG road requires two or more improved subgrade layers.

3.3.3.6 Manzese A - Kalembo road

Manzese A - Kalembo road has one homogenous section. Subgrade materials along this road were found to comprise of mainly CLAYEY soils. The bearing strengths (CBR at 90% MDD) for this road ranged from 3.39% to 4.09%.

The design CBR 90% for this road is 3.4 %.The subgrade material along Manzese A – Kalembo road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade requires two or more improved subgrade layers.

3.3.3.7 Kaboma – Kalembo road

Kaboma - Kalembo road has one homogenous section. Subgrade materials along this road were found to comprise of mainly CLAYEY soils. The bearing strengths (CBR at 90% MDD) for this road ranged from 5.29% to 6.76%.

The design CBR 90% for this road is 5.5 %.The subgrade material along Kalembo – Kalembo road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Kaboma - Kalembo road requires two or more improved subgrade layers.

3.3.3.8 Mission Garage – Kalembo road

Mission Garage - Kalembo road has one homogenous section. Subgrade materials along this road were found to comprise of mainly CLAYEY soils. The bearing strengths (CBR at 90% MDD) for this road ranged from 3.73% to 5.35%.

The design CBR 90% for this road is 4.0 %.The subgrade material along Mission garage – Kalembo road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Mission garage - Kalembo road requires two or more improved subgrade layers.

3.3.3.9 Regional Mosque - Kalembo road

Regional Mosque - Kalembo road has one homogenous section. Subgrade materials along this road were found to comprise of mainly CLAYEY soils. The bearing strengths (CBR at 90% MDD) for this road ranged from 3.23% to 4.29%.

The design CBR 90% for this road is 3.4 %.The subgrade material along Regional Mosque – Kalembo road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Regional Mosque - Kalembo road requires two or more improved subgrade layers.

3.3.3.10 Kisiwa – Lamshaba road

Kisiwa – Lamshaba road has two homogenous sections. First homogenous section is from km 0+000 to km 0+200, the second homogenous section from km 0+200 to km 0+450. Subgrade materials along the first homogenous section were found to comprise of Clayey and Silty / Clayey Gravel and Sand soils. For the second homogenous section, subgrade materials were found to comprise of mainly Clayey soils. The bearing strengths for this road ranged from 4.51% to 7.65% and 7.65 to 14.31% for the first and second homogenous sections respectively.

The design CBRs 90% for this road are 4.9 % for the first homogenous section and 8.1% for the second homogenous section. The subgrade material along this road can be classified as subgrade class S3 and S7 for the first and second homogenous sections respectively, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade requires two or more improved subgrade layers for the first homogenous section while for the second homogenous section, the subgrade requires one or more improved subgrade layers.

3.3.3.11 Madamba – Magengeni road

Madamba – Magengeni road has one homogenous section. Subgrade materials along this road were found to comprise of mainly CLAYEY soils. Stone Fragments Gravel and Sand soils occasionally occur along this road. The bearing strengths (CBR at 90% MDD) for this road ranged from 4.77% to 14.33%.

The design CBR 90% for this road is 5.0 %.The subgrade material along Madamba – Magengeni road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Madamba - Magengeni road requires two or more improved subgrade layers.

3.3.3.12 Liganga – Magengeni road

Liganga – Magengeni has one homogenous section. Subgrade materials along this road were found to comprise of mainly CLAYEY soils. Stone Fragments Gravel and Sand soils occasionally occur along this road. The bearing strengths (CBR at 90% MDD) for this road ranged from 4.99% to 13.46%.

The design CBR 90% for this road is 5.0 %.The subgrade material along Liganga – Magengeni road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Liganga - Magengeni road requires two or more improved subgrade layers.

3.3.3.13 Motomondo – Buhemba 2 road

Motomondo – Buhemba 2 road has one homogenous section. Subgrade materials along this road were found to comprise of mainly SILTY or CLAYEY GRAVEL and SAND soils. Stone Fragments Gravel and Sand soils occasionally occur along this road. The bearing strengths (CBR at 90% MDD) for this road ranged from 12.93% to 23.96%.

The design CBR 90% for this road is 13.5 %. The subgrade material along Motomondo – Buhemba 2 road can be classified as subgrade class S7, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Motomondo – Buhemba 2 road requires one or more improved subgrade layers.

3.3.3.14 Majengo – Police Station-Mchekanae Road

Majengo – Police Station - Mchekanae road has one homogenous section. Subgrade materials along this road were found to comprise of Clayey soils, Silty or Clayey Gravel and Sand, as well as Stone Fragments Gravel and Sand. The bearing strengths (CBR at 90% MDD) for this road ranged from 5.30% to 16.22%.

The design CBR 90% for this road is 6.0 %. The subgrade material along Majengo – Police Station - Mchekanae road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Majengo – Police Station - Mchekanae road requires two or more improved subgrade layers.

3.3.3.15 Osaka - Kisumapai road

Osaka - Kisumapai road has one homogenous section. Subgrade materials along this road were found to comprise mainly of CLAYEY soils.The bearing strengths (CBR at 90% MDD) for this road ranged from 5.49% to 7.01%.

The design CBR 90% for this road is 5.5 %. The subgrade material along Osaka - Kisumapai road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Osaka - Kisumapai road requires two or more improved subgrade layers.

3.3.3.16 Shinyanga Annex - CCM road

Shinyanga Annex - CCM road has one homogenous section. Subgrade materials along this road were found to comprise mainly of CLAYEY soils.The bearing strengths (CBR at 90% MDD) for this road ranged from 3.18% to 8.38%.

The design CBR 90% for this road is 4.0 %. The subgrade material along Shinyanga Annex - CCM road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Shinyanga Annex - CCM road requires two or more improved subgrade layers.

3.3.3.17 Msikitini – Police Quarter road

Msikitini – Police Quarter road has one homogenous section. Subgrade materials along this road were found to comprise mainly of CLAYEY soils.The bearing strengths (CBR at 90% MDD) for this road ranged from 3.76% to 5.42%.

The design CBR 90% for this road is 4.0 %. The subgrade material along Msikitini – Police Quarter road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Msikitini – Police Quarter road requires two or more improved subgrade layers.

3.3.3.18 TPB– Sabato Church road

TPB– Sabato Church road has one homogenous section. Subgrade materials along this road were found to comprise mainly of CLAYEY soils. The bearing strengths (CBR at 90% MDD) for this road ranged from 3.40% to 5.77%.

The design CBR 90% for this road is 3.8 %. The subgrade material along TPB– Sabato Church road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along TPB– Sabato Church road requires two or more improved subgrade layers.

3.3.3.19 Kapungu road

Kapungu road has one homogenous section. Subgrade materials along this road were found to comprise mainly of SILTY or CLAYEY GRAVEL and SAND soils. Clayey soils occasionally occur along this road. The bearing strengths (CBR at 90% MDD) for this road ranged from 5.61% to 17.26%.

The design CBR 90% for this road is 5.6 %. The subgrade material along Kapungu road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Kapungu road requires two or more improved subgrade layers.

3.3.3.20 Namanga – Manzese A road

Namanga – Manzese A road has one homogenous section. Subgrade materials along this road were found to comprise mainly of CLAYEY soils. The bearing strengths (CBR at 90% MDD) for this road ranged from 3.34% to 4.06%.

The design CBR 90% for this road is 3.2 %. The subgrade material along Namanga – Manzese A road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Namanga – Manzese A road requires two or more improved subgrade layers.

3.3.3.21 Lilambo Industrial Area access / Ring Road

Lilambo industrial area access / Ring road has one homogenous section. Subgrade materials along this road were found to comprise mainly of CLAYEY soils. The bearing strengths (CBR at 90% MDD) for this road ranged from 5.90% to 9.83%.

The design CBR 90% for this road is 6.0 %. The subgrade material along Lilambo industrial area access / ring road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Lilambo Iindustrial area access / ring road requires two or more improved subgrade layers.

3.3.3.22 Lilambo Industrial internal road

Lilambo industrial area internal road has one homogenous section. Subgrade materials along this road were found to comprise mainly of CLAYEY soils. The bearing strengths (CBR at 90% MDD) for this road ranged from 5.71% to 6.2%.

The design CBR 90% for this road is 5.7 %. The subgrade material along Lilambo industrial area internal road can be classified as subgrade class S3, with 4-days soak design CBR (Table 5.4: Pavement and Materials Design Manual, MoWTC - 1999).

According to minimum CBR requirement specified in the design manual, the subgrade materials along Lilambo Iindustrial area internal road requires two or more improved subgrade layers.

3.3.4 Design of improved subgrade layers

Based on the design CBR for the existing subgrade along the alignment, the following layers shall be provided to bring the CBR of the existing subgrade materials to a minimum of 15%

before placement of pavement layers. Table 3-5 below shows layers required for each road subgrade class identified;

Table 3-5, Improvement of Subgrade

Road Name	Road Length (Km)	Subgrade Class	Improved subgrade Layers
Kilimo Mseto – Mjimwema – Lizaboni	2.3	S3	150mm G15 and 300mm G7 Granular Materials
SOUWASA – Tunduru Bus Stand	0.86	S3	150mm G15 and 300mm G7 Granular Materials
Majimaji Stadium – Sabena	0.26	S3	150mm G15 and 300mm G7 Granular Materials
Mpangwa Soni – TAG	0.29	S3	150mm G15 and 300mm G7 Granular Materials
Manyara - TAG	0.33	S3	150mm G15 and 300mm G7 Granular Materials
Manzese A – Kalembo	0.33	S3	150mm G15 and 300mm G7 Granular Materials
Kaboma - Kalembo	0.30	S3	150mm G15 and 300mm G7 Granular Materials
Mission Garage – Kalembo	0.43	S3	150mm G15 and 300mm G7 Granular Materials
Regional Mosque – Kalembo	0.25	S3	150mm G15 and 300mm G7 Granular Materials
Kisiwa - Lamshaba	0.45	S3	150mm G15 and 300mm G7 Granular Materials
Madamba - Magengeni	0.59	S3	150mm G15 and 300mm G7 Granular Materials
Liganga – Magengeni	0.68	S3	150mm G15 and 300mm G7 Granular Materials
Motomondo – Buhemba 2	0.35	S7	150mm G15 Granular Materials
Majengo – Police Station – Mchekanae	0.52	S3	150mm G15 and 300mm G7 Granular Materials
Osaka – Kisumapai	0.51	S3	150mm G15 and 300mm G7 Granular Materials
Shinyanga Annex – CCM	0.32	S3	150mm G15 and 300mm G7 Granular Materials
Msikitini – Police Quarter	0.12	S3	150mm G15 and 300mm G7 Granular Materials

Road Name	Road Length (Km)	Subgrade Class	Improved subgrade Layers
TPB – Sabato Church	0.33	S3	150mm G15 and 300mm G7 Granular Materials
Kapungu	0.54	S3	150mm G15 and 300mm G7 Granular Materials
Namanga – Manzese A	0.29	S3	150mm G15 and 300mm G7 Granular Materials
Lilambo Industrial Area Access/ring	1.37	S3	150mm G15 and 300mm G7 Granular Materials
Lilambo Industrial Area Internal road	0.13	S3	150mm G15 and 300mm G7 Granular Materials

3.4 Road Sections with High Water Table

Field investigations were conducted during dry season (June - July). No project road/section was noted to exhibit high water table during investigations. Some roads/sections might exhibit high water table especially during rainy seasons. If during construction some sections will be noted that they exhibit high water table, considerations should be taken to combat the problem.

In order for the proposed pavement to perform properly within the design depth, during construction after site clearing and grubbing in discretion of the Engineer, one or combination of the following solutions should be adopted as follows; introduction of special drainage measures such as perforated pipes with permeable filter materials and geotextile fabrics, the use of geo-grids and geotextile.

3.5 Expansive Soils

As evidenced by test results on alignment soil samples collected along all project roads and based on the results and analysis presented in table 3.2 and 3.5, there is no project road/section with expansive soils. Based on this fact, there is no project road/section which requires special treatment for pavement foundation.

APPENDIX G Soil Study Summary Report

4. Materials Investigations

4.1 Introduction

Natural gravels for selected layers and fill, and densely graded crushed stone base material will be required for the new pavement. The granular materials for pavement layers; both subbase and base course layers has to satisfy strength, durability, grading and atterberg limits requirements. For this project, the C1 subbase layer will require gravels of at least G20 quality material (with modified requirements).

Materials investigations have been carried out along the project road within economic haulage distance. The investigations include sources of natural granular material (borrow pits), sources of hard rock to be used for base material, surface treatment and concrete works (quarries). Also, sources of sand for concrete works and water for construction were also investigated.

4.2 Fill Materials

It is recommended that the materials to be used for fill (of G3 class) or better for layers more than 300mm below the formation level, the fill material should be compacted to 90% BS-Heavy.

4.3 Gravel Sources

4.3.1 General Summary and Utilization

Two (2) gravel material sources in Songea Municipality which are within economic haulage distances were visited, and all gravel sources were investigated during preliminary investigation phase for their suitability and estimation of available quantities. Trial pits were excavated at each borrow pit to a depth of approximately 2.0m or to a hard stratum within the 2.0m depth. Visual assessment of the materials encountered was made and representative samples were taken for laboratory testing. The thickness of overburden and gravel seam was measured.

The following laboratory tests were performed on representative samples taken:

- Sieve Analysis
- Liquid limit LL
- Plastic limit PL

- Moisture Density Relationship
- 3 - Point CBR Test

A summary of laboratory test results on representative samples is presented in table 4-1 below.

Table 4-1, Laboratory Test Results on Representative Samples

BP No.	B/Pit Name	LOCATION	LL	LS	PI	PL	AASHTO class	GM	SWELL	CBR (95%)
1	Subira	Subira	39.30	8.40	15.50	23.80	A-2-6	1.99	0.00	31.37
2	Namanditi	Namanditi	34.70	6.70	13.00	21.70	A-2-6	2.37	0.00	26.57

From the test results of the representative samples taken for laboratory testing, the quality of materials can be summarized as follows:

- All two (2) borrow pits have gravel with CBR greater than 25.0%.

Regarding the test results above, all two potential sources for granular materials have been recommended for the construction of the fill and pavement layers. A summary of laboratory test results for gravel sources is shown in Appendix B.

Appraisal of the natural gravel borrow pits investigated is outlined below.

01. Subira borrow pit

This is an existing borrow pit located in Sinai village, 8.0km from Songea Municipality. Overburden materials are silty soils. The borrow pit is accessible and currently used to maintain the existing project roads as well as for construction of ongoing road projects and for other different fill purposes in Songea Municipality.

Suitable gravel materials are found from a depth of 0.2/0.5m to over 4m seen on hill cut face with an approximate quantity of over 300,000m^3.

The source has the following properties; liquid limit of 39.30%, linear shrinkage of 8.4%, plasticity index of 15.50%, grading modulus of 1.99, CBR% swell of 0.00, material's 4-days soaked CBR was 31.37% at 95% MDD.

The material can be classified as G25 quality material. The material from this borrow pit can be used for construction of fill, improved subgrade and pavement layers.

02. Namanditi borrow pit

This is an existing borrow pit located in Namanditi village, 6.0km from Songea Municipality. Overburden materials are silty soils. The borrow pit is accessible and currently used to maintain the existing project roads as well as for construction of ongoing road projects and for other different fill purposes in Songea Municipality.

Suitable gravel materials are found from a depth of 0.2/0.4 m to over 3.5m seen on hill cut face with an approximate quantity of over 300,000m^3.

The source has the following properties; liquid limit of 34.70%, linear shrinkage of 6.70%, plasticity index of 13.00%, grading modulus of 2.37, CBR% swell of 0.00, material's 4-days soaked CBR was 26.57% at 95% MDD.

The material can be classified as G25 quality material. The material from this borrow pit can be used for construction of fill, improved subgrade and pavement layers.

4.4 Borrow Pit Quantities and Utilization

The following paragraphs contain information of the natural gravel sources that may be available for the project. Although probable, the information provided have to be regarded as a summary of assumptions and verification testing will be necessary at the time of construction.

During construction, the following will be required:

- Confirm by means of onsite testing compliance of the in-situ materials in-between the indicated (tested) test pit positions.
- Identification and distinguishing within the borrow pit area between specific sourcing areas (of different quality).
- Borrowing and stockpiling operations have to be performed diligently. Unsuitable (overburden) material has to be avoided and only gravel that has been tested and that complies with requirements may be used.

4.5 Excavated Materials from Cut Sections

The excavated materials on the cut sections can be used for various constructions works. According to alignment laboratory test results, there are suitable subgrade materials which can be used for fill layers.

The materials have various properties; however, at this stage, the materials have been assessed for common fill that shows CBR % swell of < 2 and materials 4-days soaked CBR of more than 3% at 90% MDD. Tentatively, the material can be classified as G3 quality material, which can be used for construction of fill. During construction, the excavated materials should be stockpiled, retested and classified properly.

4.6 Hardstone Sources

4.6.1 General

Hard stone material will be required for production of aggregate for concrete works, production of base course pavement layer, and production of bituminous surfacing pavement layer. Hard stone samples from the proposed quarry sites were taken for laboratory testing. The following test have been carried out at NORPLAN (T) LTD material testing laboratory in Dar es Salaam.

- Loss Angeles Abrasion
- Aggregate strength – 10% fines value (TFV), dry
- Aggregate strength – 10% fines value (TFV), wet
- Aggregate Crushing Value (ACV)
- Sodium Sulphate Soundness
- Bitumen Affinity
- Aggregates Impact Value
- Soluble salts Contents
- Water absorption

Laboratory test results for rock source are summarized in Appendix C.

01. Mpitimbi Quarry

This is an existing hard stone source/quarry located in Mpitimbi village 20km from Songea Municipality. Currently the quarry is fully operational and used for different constructional purposes within Songea Municipal Council.

It is estimated that the source can yield more than 450,000m^3 of crushed aggregates. Samples taken from this source were tested for suitability in bituminous surfacing and concrete works that shows the following results.

- TFV (Dry) 213.2 kN

- TFV (Wet) 185.6 kN
- ACV 18.75%
- Aggregate Impact Value 17.7%
- Apparent specific gravity 2.683%
- Water absorption 0.476%
- Saturated surface dry specific gravity 2.661%

TFV is 213.2KN > 110KN, the ratio of TFV (wet) to TFV (dry) is 87.1% > 75%, water absorption is 0.476% < 2.0%. According to PMDM and Standard Specification for Road Works (SSRW-2000), the aggregates from this source meet the required properties for base course pavement layer, asphalt works and concrete works.

02. Sinai Quarry

This is a new proposed hard stone source/quarry located in Sinai village, about 25km from Songea Town. Currently the quarry site has not started operating, upon operational it is estimated that the source can yield more than 800,000m³ of crushed aggregates.

Samples taken from this source were tested for suitability in bituminous surfacing and concrete works that gave the following results.

- TFV (Dry) 254.4 kN
- TFV (Wet) 214.1 kN
- ACV 16.99%
- Aggregate Impact Value 16.4%
- Apparent specific gravity 2.777%
- Water absorption 0.235%
- Saturated surface dry specific gravity 2.766%
- Bulk specific gravity 2.759%

TFV is 254.4KN > 110KN, the ratio of TFV (wet) to TFV (dry) is 84.1% > 75%, water absorption is 0.235% < 2.0%. According to PMDM and Standard Specification for Road Works (SSRW-2000), the aggregates from this source meet the required properties for base course pavement layer, asphalt works and concrete works.

5.7 Sand Sources

5.7.1 General

Sources of sand were investigated by sampling and performing sieve analysis to ascertain their suitability. The grading of these sources, in comparison with grading envelope specified in BS 822 (1983) shall form the basis for recommending the use of these sources for concrete works. Summary of laboratory tests results for sand sources is shown in Appendix D. During site investigations, only one reliable source was identified and representative sample was taken for laboratory testing.

01. Mwenge Mshindo River sand

This is an existing and the only reliable sand pit source located at Mwenge Mshindo river around 12km from Songea town. The source is easily accessed and is currently utilized in different ongoing projects within Songea Municipality. The material is light brown which is medium to coarse SAND.

A representative sample taken from this source was tested for particle size distribution to ascertain its suitability for usage in concrete works. The grading of this source falls within the grading template specified in BS 822 (1983) and therefore recommended for use for concrete works. A summary of other laboratory test results is as follows;

- Bulk specific gravity……..…..….2.469%
- Saturated surface dry specific gravity……..2.523%
- Apparent specific gravity…….... 2.610%
- Water absorption…..…….. 2.182%
- Sand equivalent ……...91.0%
- Organic content……10.24%

5.8 Water Sources

5.8.1 General

There are various permanent and seasonal rivers including water ponds that provide reliable sources of water for construction works especially during rain seasons. During site investigations, two reliable permanent water sources were identified. Representative samples were taken for laboratory testing. The laboratory water test was done in accordance to standard methods for the examination of water samples ASTMC 1602 and APHA et al., 1992.

The following tests have been carried out at University of Dar es Salaam water testing laboratory in Dar es Salaam.

- PH
- Total Alkalinity (mg/l as $CaCO_3$)
- Chlorides (mg/l)
- Electrical conductivity (µS/Cm)
- Total Dissolved Solids (mg/l)
- Total Hardness (mg/l as $CaCO_3$)
- Sulphate (mg/l)
- Magnesium (mg/l)
- Calcium (mg/l)
- Ammonium (mg/l)
- Bicarbonates (mg/l as $CaCO_3$)

Laboratory test results for water sources is shown in Appendix E.

Water Source - 1 (Ruvuma River)

Ruvuma River discharges water throughout the year. Currently, water from this river is used for domestic and construction purposes in Songea town. Ruvuma river can be easily being accessed at many locations within Songea Municipality. Evaluation of water quality from this source was carried out and the results are summarized below.

Table 4-4, Summary of Water Results for Ruvuma River

S/No.	Parameters	Unit	Value	Specification for Concreting: Degree of Aggressiveness			
				DIN 4030			AASHTO
				Slight	Severe	Very Severe	Recommended
1	pH	-	7.42	6.5-5.5	5.5-4.5	<4.5	4.5-8.5
2	Electrical Conductivity	µS/Cm	74.2	N.M	N.M	N.M	N.M
3	Total Dissolved Solids	mg/l	40	N.M	N.M	N.M	N.M
4	Total Hardness	mg/l	17.5	N.M	N.M	N.M	N.M

S/No.	Parameters	Unit	Value	Specification for Concreting: Degree of Aggressiveness			
				DIN 4030			AASHTO
				Slight	Severe	Very Severe	Recommended
5	Total Alkalinity	mg/l	15.0	N.M	N.M	N.M	N.M
6	Sulphates	mg/l	6.0	200-600	600-300	>3000	<1000
7	Chloride	mg/l	9.50	300-600	600-300	>3000	<500
8	Calcium	mg/l	3.28	N.M	N.M	N.M	N.M
9	Magnesium	mg/l	2.76	300-1000	1000-3000	>3000	N.M
10	Ammonium	mg/l	0.38	15-30	30-60	>60	N.M

According to limits set by DIN 4030, AASHTO and Tanzanian standards for various uses, the water source is suitable for drinking and construction works.

Water Source - 2 (Lowisa River)

Lowisa River discharges water throughout the year. Currently, water from this river is used for domestic and construction purposes in Songea town. Lowisa river can be easily being accessed at many locations within Songea town. Evaluation of water quality from this source was carried out and the results are summarized below. Water test results is attached in appendix E.

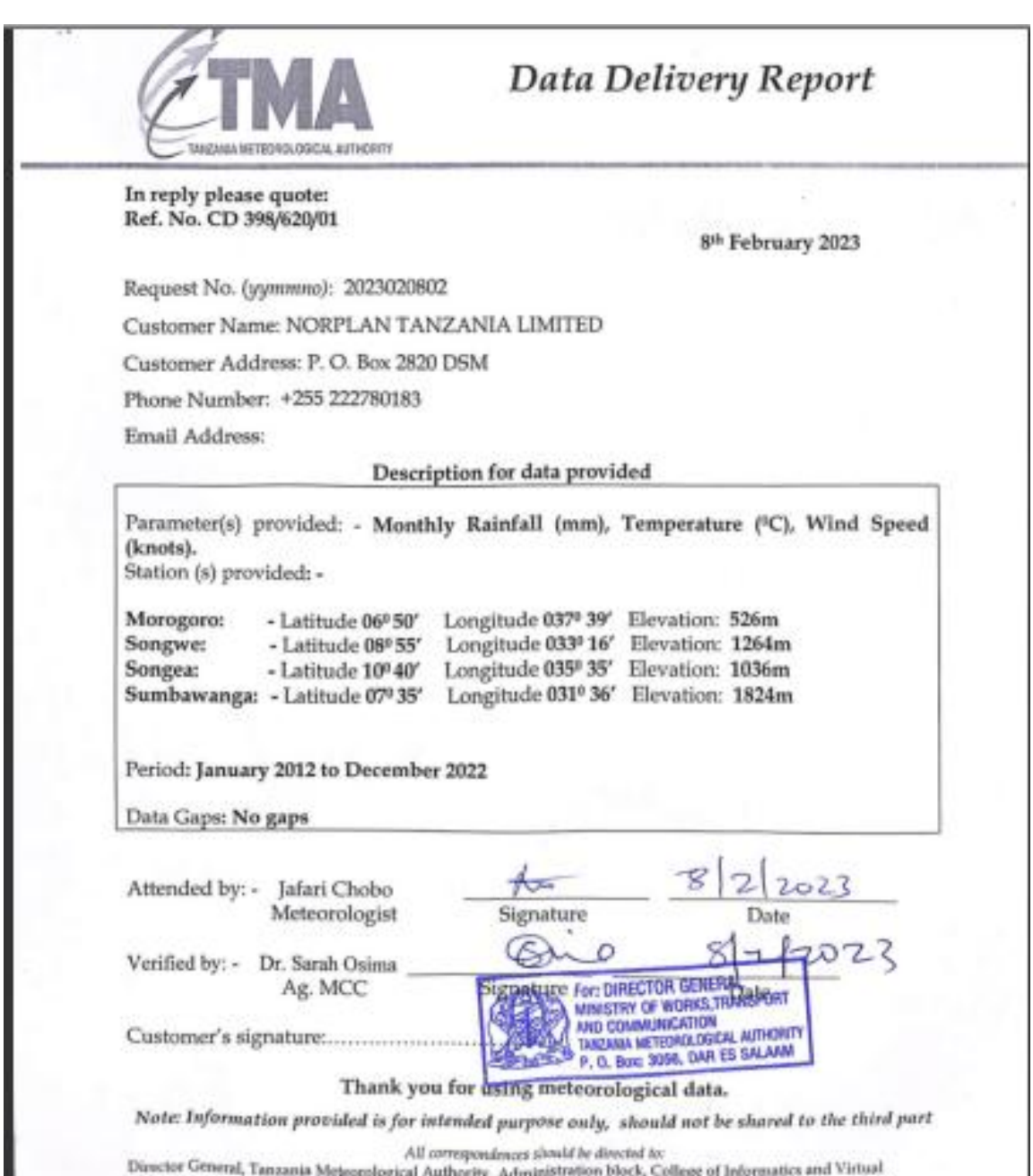
Table 4-5, Summary of Water Results for Lowisa River

S/No.	Parameters	Unit	Value	Specification for Concreting: Degree of Aggressiveness			
				DIN 4030			AASHTO
				Slight	Severe	Very Severe	Recommended
1	pH	-	7.61	6.5-5.5	5.5-4.5	<4.5	4.5-8.5
2	Electrical Conductivity	µS/Cm	102.2	N.M	N.M	N.M	N.M
3	Total Dissolved Solids	mg/l	50	N.M	N.M	N.M	N.M
4	Total Hardness	mg/l	23.0	N.M	N.M	N.M	N.M

S/No.	Parameters	Unit	Value	Specification for Concreting: Degree of Aggressiveness			
				DIN 4030			AASHTO
				Slight	Severe	Very Severe	Recommended
5	Total Alkalinity	mg/l	20.5	N.M	N.M	N.M	N.M
6	Sulphates	mg/l	8.3	200-600	600-300	>3000	<1000
7	Chloride	mg/l	11.5	300-600	600-300	>3000	<500
8	Calcium	mg/l	4.4	N.M	N.M	N.M	N.M
9	Magnesium	mg/l	3.9	300-1000	1000-3000	>3000	N.M
10	Ammonium	mg/l	1.34	15-30	30-60	>60	N.M

According to limits set by DIN 4030, AASHTO and Tanzanian standards for various uses, the water source is suitable for drinking and construction works.

Appendices G TMA Climatic Data



TMA
TANZANIA METEOROLOGICAL AUTHORITY

Data Delivery Report

In reply please quote:
Ref. No. CD 398/620/01

8th February 2023

Request No. (yymmno): 2023020802

Customer Name: NORPLAN TANZANIA LIMITED

Customer Address: P. O. Box 2820 DSM

Phone Number: +255 222780183

Email Address:

Description for data provided

Parameter(s) provided: - **Monthly Rainfall (mm), Temperature (°C), Wind Speed (knots).**
Station (s) provided: -

Morogoro:	- Latitude **06° 50′**	Longitude **037° 39′**	Elevation: **526m**
Songwe:	- Latitude **08° 55′**	Longitude **033° 16′**	Elevation: **1264m**
Songea:	- Latitude **10° 40′**	Longitude **035° 35′**	Elevation: **1036m**
Sumbawanga:	- Latitude **07° 35′**	Longitude **031° 36′**	Elevation: **1824m**

Period: **January 2012 to December 2022**

Data Gaps: **No gaps**

Attended by: - Jafari Chobo, Meteorologist — Signature — 8/2/2023 Date

Verified by: - Dr. Sarah Osima, Ag. MCC — Signature — 8/2/2023 Date

For: DIRECTOR GENERAL, MINISTRY OF WORKS, TRANSPORT AND COMMUNICATION, TANZANIA METEOROLOGICAL AUTHORITY, P. O. Box: 3056, DAR ES SALAAM

Customer's signature:.....

Thank you for using meteorological data.

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All correspondences should be directed to:
Director General, Tanzania Meteorological Authority, Administration block, College of Informatics and Virtual Education, University of Dodoma, 1 CIVE Street, P.O. Box 27, 41218 Dodoma, Tel: + 255 26 2962610, Fax: +255 26 2962610, Email: metf@meteo.go.tz, Website: www.meteo.go.tz

Effective Date: October 31, 2019 — *Revision No. 01*

SONGEA MONTHLY TOTAL RAINFALL(mm)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	286.7	111.4	172.2	58.6	12.3	0.0	0.2	0.0	0.0	0.0	82.7	171.9
2013	281.5	76.3	252.8	114.4	7.1	0.0	0.0	0.0	0.0	18.4	106.6	147.3
2014	384.8	172.7	196.6	141.8	2.8	0.6	0.0	4.0	3.3	24.0	130.2	132.7
2015	306.0	75.2	123.5	86.0	1.3	0.0	0.0	0.0	0.0	3.2	36.5	220.6
2016	295.1	249.9	158.6	151.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	87.8
2017	196.1	331.8	159.0	204.9	12.8	0.0	0.0	5.3	4.5	0.0	43.4	268.3
2018	322.7	242.8	164.1	138.9	1.7	0.0	0.5	0.0	12.2	0.0	3.5	152.6
2019	298.7	255.6	159.4	70.1	12.6	2.3	0.0	1.0	0.0	11.2	78.1	345.7
2020	358.1	362.5	524.1	98.7	0.0	1.5	0.0	0.0	0.0	25.6	58.6	135.3
2021	357.7	163.4	223.8	75.4	2.7	0.0	1.6	0.0	0.0	0.0	11.5	65.4
2022	340.8	377.5	289.4	290.8	0.0	0.0	0.0	0.0	0.0	0.0	52.1	250.7

SONGEA MONTHLY MEAN MINIMUM TEMPERATURE(°C)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	18.4	17.7	17.5	15.4	13.3	11.4	9.7	12.4	14.6	16.3	17.1	17.5
2013	17.6	16.6	16.3	14.5	12.0	9.1	9.0	11.5	13.5	15.8	17.2	17.0
2014	16.6	16.3	15.6	15.2	11.5	9.9	9.3	10.5	11.8	14.2	15.5	15.8
2015	15.3	15.1	14.4	13.2	10.5	7.9	8.7	9.1	11.3	14.2	14.6	14.6
2016	14.5	14.0	16.8	18.6	16.8	11.7	11.5	12.9	14.6	16.2	18.8	18.8
2017	17.8	17.7	17.4	16.6	13.9	11.0	10.0	12.0	13.4	16.8	17.8	17.6
2018	16.9	16.7	16.5	15.0	12.7	10.0	10.5	11.8	13.8	16.7	19.4	19.0
2019	19.0	18.2	18.4	17.6	16.1	11.6	12.2	14.1	16.7	19.1	20.0	19.6
2020	19.8	19.5	19.3	18.1	15.3	13.8	12.8	14.1	15.6	19.0	19.4	19.7
2021	19.2	19.4	18.7	17.9	13.6	13.0	12.5	13.9	16.1	18.1	20.1	20.0
2022	19.3	19.0	18.7	18.2	14.7	12.8	12.3	13.9	15.0	16.7	19.3	19.3

AGMCC
8/2/2023

For: DIRECTOR GENERAL
MINISTRY OF WORKS,TRANSPORT
AND COMMUNICATION
TANZANIA METEOROLOGICAL AUTHORITY
P. O. Box: 3056, DAR ES SALAAM

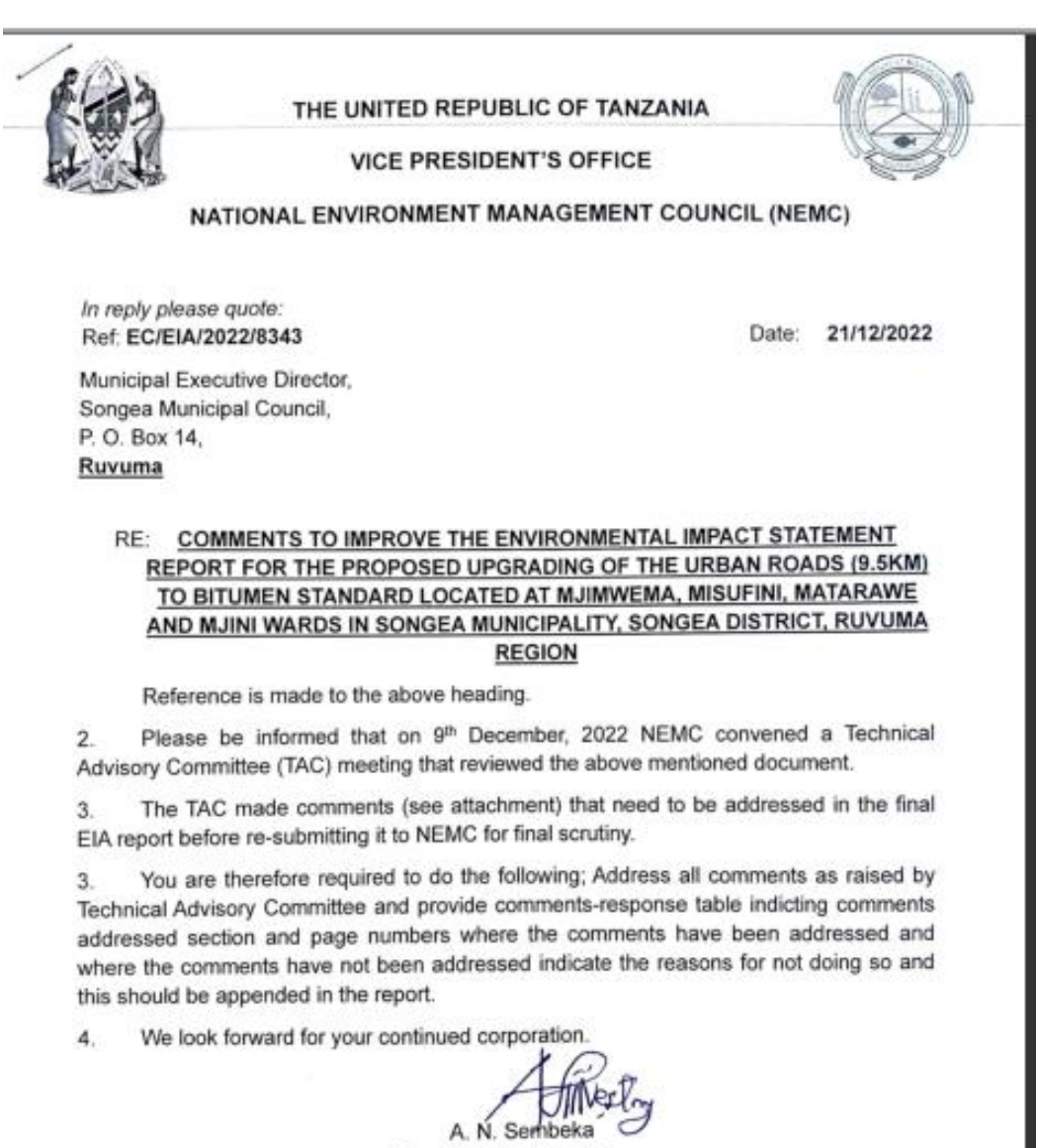
SONGEA MONTHLY MEAN MAXIMUM TEMPERATURE(°C)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	28.4	26.8	27.2	26.7	25.9	25.6	24.3	25.6	27.8	29.8	31.1	29.0
2012	27.9	28.3	27.7	26.4	25.8	25.2	24.6	26.6	28.9	30.4	29.2	28.3
2013	28.3	28.5	27.4	26.7	25.7	24.5	24.1	25.7	28.7	28.9	30.6	28.7
2014	27.8	27.5	27.2	26.0	25.4	24.6	24.4	26.2	27.4	29.4	30.1	30.0
2015	27.8	28.6	27.5	27.1	26.3	25.8	25.5	26.6	28.8	30.7	30.2	29.4
2016	27.6	28.7	29.4	27.1	29.1	24.7	24.3	25.9	27.6	30.3	31.3	29.6
2017	28.2	27.5	27.2	25.8	25.9	25.2	24.6	25.7	28.0	29.9	30.8	29.3
2019	28.3	28.2	27.8	26.7	25.3	24.9	25.0	26.8	28.2	29.7	30.6	27.4
2020	28.4	28.1	27.7	27.3	26.2	25.1	23.9	26.4	27.7	30.7	31.8	30.8
2021	29.5	29.1	28.3	26.2	25.7	24.9	24.9	26.4	28.4	30.3	32.8	32.2
2022	29.3	28.5	28.3	28.0	26.9	24.4	23.6	24.9	26.8	29.3	30.4	27.9

SONGEA MONTHLY MEAN WINDSPEED(knots)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	3	4	3	4	3	4	4	5	7	8	7	5
2013	4	3	3	3	3	4	4	6	7	8	8	4
2014	3	3	3	5	3	4	4	4	6	7	7	6
2015	4	2	4	3	3	4	5	6	9	9	8	4
2016	3	3	3	3	4	5	4	6	9	10	10	8
2017	5	3	3	4	4	3	5	6	8	9	8	5
2018	3	4	3	4	4	4	5	6	7	8	8	5
2019	4	4	4	4	5	5	5	6	7	8	8	5
2020	6	5	4	5	5	5	6	6	7	8	8	5
2021	3	4	4	5	5	5	6	5	7	6	7	7
2022	3	3	2	3	3	3	5	5	7	7	7	5

Appendices H Comments & Comments Addressed Table



THE UNITED REPUBLIC OF TANZANIA

VICE PRESIDENT'S OFFICE

NATIONAL ENVIRONMENT MANAGEMENT COUNCIL (NEMC)

In reply please quote:
Ref: **EC/EIA/2022/8343** Date: **21/12/2022**

Municipal Executive Director,
Songea Municipal Council,
P. O. Box 14,
Ruvuma

RE: **COMMENTS TO IMPROVE THE ENVIRONMENTAL IMPACT STATEMENT REPORT FOR THE PROPOSED UPGRADING OF THE URBAN ROADS (9.5KM) TO BITUMEN STANDARD LOCATED AT MJIMWEMA, MISUFINI, MATARAWE AND MJINI WARDS IN SONGEA MUNICIPALITY, SONGEA DISTRICT, RUVUMA REGION**

Reference is made to the above heading.

2. Please be informed that on 9th December, 2022 NEMC convened a Technical Advisory Committee (TAC) meeting that reviewed the above mentioned document.

3. The TAC made comments (see attachment) that need to be addressed in the final EIA report before re-submitting it to NEMC for final scrutiny.

3. You are therefore required to do the following; Address all comments as raised by Technical Advisory Committee and provide comments-response table indicting comments addressed section and page numbers where the comments have been addressed and where the comments have not been addressed indicate the reasons for not doing so and this should be appended in the report.

4. We look forward for your continued corporation.

A. N. Sembeka
For: **Director General**.

Cc: NORPLAN - Consulting Engineers and Planners,
P.O. Box 2820,
Dar es Salaam.

COMMENTS TO IMPROVE THE ENVIRONMENTAL IMPACT STATEMENT REPORT FOR THE PROPOSED UPGRADING OF THE URBAN ROADS (9.5KM) TO BITUMEN STANDARD LOCATED AT MJIMWEMA, MISUFINI, MATARAWE AND MJINI WARDS SONGEA DISTRICT IN RUVUMA REGION

1.0 PROJECT PARTICULARS

Project title : Proposed Upgrading of the Urban Roads (9.5km) to Bitumen Standard
Location : Mjimwema, Misufini, Matarawe and Mjini Wards Songea District, Ruvuma Region
Proponent : Songea Municipal Council
Consultant : NORPLAN

2.0 GENERAL COMMENTS

i. Format of the project report should be in line with the provision of Regulation 6 of the Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations, 2018;
ii. All paragraphs and sub-paragraphs should be numbered throughout the document;
iii. Ensure that the Non-Technical Executive Summary is provided and in both Kiswahili and English;
iv. Harmonize the document into a common font, for instance there are parts with "Arial" and some of "Times New Romans";
v. Abide to the Urban Planning (Planning Space Standards) Regulations, 2018;
vi. Append the Approved Terms of Reference;
vii. Provide the signatures of the Experts who participate in the ESIA study as requirement of the law as per regulation 20(1) of the Environmental Impact Assessment and Audit Regulations, 2005;
viii. Layout and content on cover page should follow the requirements of Regulations (Project Title, authorizing institution (NEMC), developer and lead consultant (other associates such as TYPSA, Urban Solutions Ltd, can be acknowledged inside the report and no need to include them in footer note);
ix. Delete all irrelevant or unnecessary information throughout the document, e.g. DSM Metropolitan Development Project (as appear on cover page), feasibility study for Morogoro, Mbeya, Sumbawanga; and
x. Re-page the document to achieve chronology. Currently the document has 'zigzag' pages and several missing pages. e.g., page 18-60 are missing, page 75 onwards start after page 108.

3.0 SPECIFIC COMMENTS

Review Area 1 Description of the Development Local Environment and Baseline conditions

1. Cover Page;
   a) Include ***Submission Date***
   b) NEMC's address is missing, include the updated address
   c) In line with the format provided under Regulation 18(2) (b) of the Environmental Impact Assessment and Audit Regulation, 2005 as amended in 2018
2. Cover page and in executive summary be clear on who is the developer for this project (i.e., the one whom ESIA certificate will be addressed to);
3. Page xii, acknowledgment should be from developer of the project (the one whom ESIA certificate will be issued/addressed);
4. Page 1;
   a) Section 1; provide details on when the ESIA study was conducted
   b) Section 1.1. Include information about TYPSA and Urban Solutions Ltd in relation with NORPLAN Tanzania Ltd
5. Page 6;
   a) Section 2.0, Provide a declaration that the project site is not within or near the sensitive ecosystem/areas (e.g., water bodies, protected areas, schools, public utilities
   b) Section 2.2, Include geographical coordinates for the projects locations
6. Page 8, Section 2.7;
   a) Indicate estimated duration of all project phases;
   b) Indicate studies to be conducted prior to project implementation. example. Geotechnical study, project appraisal etc.
7. Page 9 Section 2.7.6, describe first the existing situation about storm water management along the roads e.g., are all roads lined with storm water drainage? What is the status/quality of such drainage;
8. Page 10 Section 2.8, indicate total length for the drainage to be constructed and or rehabilitated;
9. Page 11 Section 2.9 include also information about space/land required for storm water drainage and indicate whether there will be any affected residential houses or not;
10. Chapter 2;
    a) Provide details about Land Ownership and Land Use;
    b) Provide information about employment during all project phases;
    c) Provide current status for each road and storm water drainage so as to establish problems that need to be improved/solved;
    d) Provide information regarding permits for sources of quarry, borrow and sand;

e) Revisit calculations of individual roads length and provide exact total length of the roads.

11. Connect the cited Laws with the proposed project. Try to outline clearly how does that Law connect/comply with such project;
12. Missing Laws, Policy and Regulation;
    a) Construction of industry policy, 2002;
    b) The National Construction Policy 2003;
    c) National economic empowerment policy 2004;
    d) The Engineers Registration Act, 1997;
    e) The Urban Planning (use group and use classes) Regulation, 2018;
    f) The Urban Planning (planning space standards) Regulations, 2018;
    g) Energy and Water Utilities Regulatory Authority, 2002;
    h) The Companies Act, 2019;
    i) The Environmental Management (Registration and practice of Environmental Experts) Regulations, 2021;
    j) The Environmental Act (fees and charges) Regulations, 2021;
    k) The water supply and sanitation Act, 2019;
    l) The Contractor Registration Act, 2003;
    m) The Social Security Regulatory Authority Act, 2015.
13. Do not combine Principal and Subsidiary Legislation in one-part, Principal Legislation is Superior to Subsidiary Legislation regardless of the matter it regulates. So they should be analyzed separately starting with Principal Legislation;
14. Chapter 4.0; Baseline Conditions.
    a) For any condition described, indicate on how the project will positively or negatively impact the environment
    b) Ensure that the baseline condition data like climatic data are sourced from the regulatory Authority i.e., Tanzania Meteorological Authority as per TMA Act (2019) section 48
    c) Ensure that the devices used to collect data are registered by the Authority and recognized
    d) Show relevance of the climatic condition with the project site, explain how these characteristics affects the existing project
    e) Table 4.1 Indicate headings for the rows of the table

Review Area 3 Alternatives, mitigation, EMP, and commitment

15. Chapter 6, alternatives are not discussed. Discuss different alternatives regarding site, technology, designs, wastewater management, water source, and justify for each option chosen;
16. Chapter 7 and 8, discuss more possible impacts including population influx, gender based violence, loss of scenic quality, increased traffic congestion, disease outbreak; and

17. Report should analyze measures to mitigate environment pollution from each issue raised by all stakeholders consulted

Review Area 4 Stakeholder participation and communication of results

18. Page 91, provide a row in Table 5,1 which should indicate responses of developer for raised comments; and
19. Append the following permits/certificates in the final EIS report.
    a) Approved designs that's shows Road sections, storm water drainage systems and road infrastructures (the one indicated to be attached in nowhere seen);
    b) Emergence preparedness and response plan to ensure health and safety of workers and neighboring communities;
    c) Site layout plan;
    d) Water abstraction permit from SO-UWASA;
    e) Permits for sources of quarry, borrow and sand;
    f) Geotechnical study summary report;
    g) Soil study summary report;
    h) Construction materials investigation summary report;
    i) Topographic survey study report.

COMMENTS TO IMPROVE THE ENVIRONMENTAL IMPACT STATEMENT REPORT FOR THE PROPOSED UPGRADING OF THE URBAN ROADS (9.5KM) TO BITUMEN STANDARD LOCATED AT MJIMWEMA, MISUFINI, MATARAWE AND MJINI WARDS IN SONGEA MUNICIPALITY, SONGEA DISTRICT, RUVUMA REGION

S/No	COMMENTS DESCRIPTION	RESPONSE/REMARKS
	GENERAL COMMENTS	
i	Format of the project report should be in line with the provision of Regulation 6 of the Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations, 2018;	See the Final Submitted Reports
ii	All paragraphs and sub-paragraphs should be numbered throughout the document;	See the Final Submitted Reports
iii	Ensure that the Non-Technical Executive Summary is provided and in both Kiswahili and English;	See the Final Submitted Reports
iv	Harmonize the document into a common font, for instance there are parts with "Arial" and some of "Times New Romans";	See the Final Submitted Reports
v	Abide to the Urban Planning (Planning Space Standards) Regulations, 2018;	See section 3.6.35
vi	Append the Approved Terms of Reference;	See appendix A
vii	Provide the signatures of the Experts who participate in the ESIA study as requirement of the law as per regulation 20(1) of the Environmental Impact Assessment and Audit Regulations, 2005;	See the Final Submitted Reports
viii	Layout and content on cover page should follow the requirements of Regulations (Project Title, authorizing institution (NEMC), developer and lead consultant (other associates such as TYPSA, Urban Solutions Ltd, can be acknowledged inside the report and no need to include them in footer note);	See the cover page of the Final Submitted Reports
ix	Delete all irrelevant or unnecessary information throughout the document, e.g. DSM Metropolitan Development Project (as appear on cover page), feasibility study for Morogoro, Mbeya, Sumbawanga; and	See the cover page of the Final Submitted Reports

S/No	COMMENTS DESCRIPTION	RESPONSE/REMARKS
x	Re-page the document to achieve chronology. Currently the document has'zigzag' pages and several missing pages. e.g., page 18-60 are missing, page 75 onwards start after page 108.	See the Final Submitted Reports
	SPECIFIC COMMENTS	
	Review Area 1 Description of the Development Local Environment and Baseline conditions	
1	Cover Page; a) Include **Submission Date** b) NEMC's address is missing, include the updated address c) In line with the format provided under Regulation 18(2) (b) of the Environmental Impact Assessment and Audit Regulation, 2005 as amended in 2018	See the cover page of the Final Submitted Reports
2	Cover page and in executive summary be clear on who is the developer for this project (i.e., the one whom ESIA certificate will be addressed to);	See the cover page of the Final Submitted Reports & Final Submitted Reports
3	Page xii, acknowledgment should be from developer of the project (the one whom ESIA certificate will be issued/addressed);	See the Final Submitted Reports
4	Page 1; a) Section 1; provide details on when the ESIA study was conducted	See sub section 1.7.1.3
	b) Section 1.1. Include information about TYPSA and Urban Solutions Ltd in relation with NORPLAN Tanzania Ltd	See section 1.1
5	Page 6; a) Section 2.0, Provide a declaration that the project site is not within or near the sensitive ecosystem/areas (e.g., water bodies, protected areas, schools, public utilities	See section 2.1
	b) Section 2.2, Include geographical coordinates for the projects locations	See section 2.2
6	Page 8, Section 2.7; a) Indicate estimated duration of all project phases;	

S/No	COMMENTS DESCRIPTION	RESPONSE/REMARKS
	b) Indicate studies to be conducted prior to project implementation. Example. Geotechnical study, project appraisal etc.	See section 2.4 & appendix E
7	Page 9 Section 2.7.6, describe first the existing situation about storm water management along the roads e.g., are all roads lined with storm water drainage? What is the status/quality of such drainage;	See section 2.4
8	Page 10 Section 2.8, indicate total length for the drainage to be constructed and or rehabilitated;	See section 2.8
9	Page 11 Section 2.9 include also information about space land required for storm water drainage and indicate whether there will be any affected residential houses or not;	See section 2.9
10	Chapter 2; a) Provide details about Land Ownership and Land Use;	See section 2.11
	b) Provide information about employment during all project phases;	See section 2.18
	c) Provide current status for each road and storm water drainage so as to establish problems that need to be improved/solved; d) Provide information regarding permits for sources of quarry, borrow and sand;	See section 2.4/Table 6-6 & Section 6.3.4 See section 2.16.1
	e) Revisit calculations of individual roads length and provide exactly total length of the roads.	According to the ToR the proposed road is 9.5KM
11	Connect the cited Laws with the proposed project. Try to outline clearly how does that Law connect/comply with such project;	See Chapter 3
12	Missing Laws, Policy and Regulation; a) Construction of industry policy, 2002;	See comment 12b
	b) The National Construction Policy 2003;	See section 3.4.13
	c) National economic empowerment policy 2004;	See section 3.4.14
	d) The Engineers Registration Act, 1997;	See section 3.6.15
	e) The Urban Planning (use group and use classes) Regulation, 2018;	See section 3.6.134

S/No	COMMENTS DESCRIPTION	RESPONSE/REMARKS
	f) The Urban Planning (planning space standards) Regulations, 2018;	See section 3.6.35
	g) Energy and Water Utilities Regulatory Authority, 2002;	See section 3.6.3
	h) The Companies Act, 2019;	Not Applicable
	i) The Environmental Management (Registration and practice of Environmental Experts) Regulations, 2021;	See section 3.6.36
	j) The Environmental Act (fees and charges) Regulations, 2021;	See section 3.6.37
	k) The water supply and sanitation Act, 2019;	See section 3.6.24
	l) The Contractor Registration Act, 2003;	See section 3.6.14
	m) The Social Security Regulatory Authority Act, 2015.	See section 3.6.23
13	Do not combine Principal and Subsidiary Legislation in one-part, Principal Legislation is Superior to Subsidiary Legislation regardless of the matter it regulates. So they should be analyzed separately starting with Principal Legislation	See the submitted report
14	Chapter 4.0; Baseline Conditions. For any condition described, indicate on how the project will positively or negatively impact the environment b) Ensure that the baseline condition data like climatic data are sourced from the regulatory Authority i.e., Tanzania Meteorological Authority as per TMA Act (2019) section 48 c) Ensure that the devices used to collect data are registered by the Authority and recognized d) Show relevance of the climatic condition with the project site, explain how these characteristics affects the existing project e) Table 4.1 Indicate headings for the rows of the table	See chapter 4 & Appendix G
	Review Area 3 Alternatives, mitigation, EMP, and commitment	
15	Chapter 6, alternatives are not discussed. Discuss different alternatives regarding site, technology, designs, wastewater management, water source, and justify for each option chosen;	See section 6.5
16	Chapter 7 and 8, discuss more possible impacts including	See table 7-2 & table 8-1

S/No	COMMENTS DESCRIPTION	RESPONSE/REMARKS
	population influx, gender based violence, loss of scenic quality, increased traffic congestion, disease outbreak; and	
17	Report should analyze measures to mitigate environment pollution from each issue raised by all stakeholders consulted	See table 7-1
	Review Area 4 Stakeholder participation and communication of results	
18	Page 91, provide a row in Table 5,1 which should indicate responses of developer for raised comments; and	All concerns raised by stakeholders are their commitment since Songea Municipal Council is a developer on establishment of the project
19	Append the following permits/certificates in the final EIS report. a) Approved designs that's shows Road sections, storm water drainage systems and road infrastructures (the one indicated to be attached in nowhere seen);	See appendix C
	b) Emergence preparedness and response plan to ensure health and safety of workers and neighboring communities;	See table 7-1
	c) Site layout plan;	See appendix C
	d) Water abstraction permit from SO-UWASA;	Contractor's task
	e) Permits for sources of quarry, borrow and sand;	Contractor's task
	f) Geotechnical study summary report;	See appendix E
	g) Soil study summary report;	See appendix F
	h) Construction materials investigation summary report;	See appendix F
	i) Topographic survey study report.	See section 4.3.2

RESUBMITTED COMMENTS ON ENVIRONMENTAL IMPACT STATEMENT FOR THE FOR THE PROPOSED UPGRADING OF THE URBAN ROADS (9.5KM) TO BITUMEN STANDARD LOCATED AT MJIMWEMA, MISUFINI, MATARAWE AND MJINI WARDS IN SONGEA MUNICIPALITY, SONGEA DISTRICT, RUVUMA REGION

S/No	COMMENTS DESCRIPTION	RESPONSE/REMARKS
	GENERAL COMMENTS	
1	The report control form is for the own office use	See the submitted final report
2	Delete the footer	See the submitted final report
3	Check the ESMP; the responsibility to implement ESMP lies on the side of the developer (Songea Municipal Council)	See table 7-2

Provision of Consultancy Services for Feasibility Study, Urban Design, Detailed Engineering Design, Environmental and Social Due Diligence, Preparation of Cost Estimates and Bidding Documents for Urban Infrastructure Investments in Morogoro, Songea, Mbeya and Sumbawanga Cities/Municipalities (Tactic Zone 3)

Provision of Consultancy Services for Feasibility Study, Urban Design, Detailed Engineering Design, Environmental and Social Due Diligence, Preparation of Cost Estimates and Bidding Documents for Urban Infrastructure Investments in Morogoro, Songea, Mbeya and Sumbawanga Cities/Municipalities (Tactic Zone 3)