Ministry of Water

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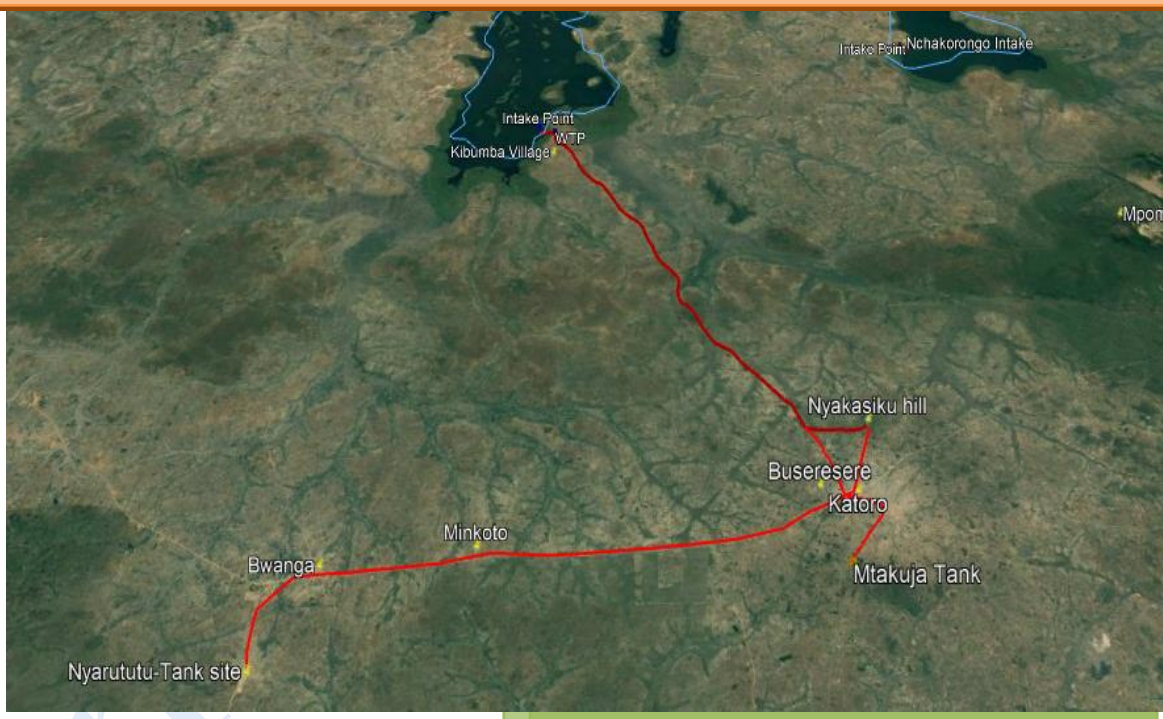
Environmental and Social Impacts Assessment for Proposed Water Supply to Katoro Township in Geita District and Buseresere, Minkoto and Bwanga Townships in Chato District - Geita Region



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Environmental and Social Impact Assessment for Proposed Water Supply to Katoro Township in Geita District and Buseresere, Minkoto and Bwanga Townships in Chato District - Geita Region

Declaration

This Environmental Impacts Assessment Report has been prepared by

Name	Speciality/Responsibility	Signature
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Executive Summary

A. Title and Location of the Project

Environmental and Social Impact Assessment for Proposed Water Supply to Katoro Township in Geita District and Buseresere, Minkoto and Bwanga Townships in Chato District - Geita Region

B. Project Developer:

Mwanza Urban Water Supply and Sanitation Authority (MWAUWASA)
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D. A Brief Outline and Justification of the Proposed Project

Introduction

Ministry of Water intends to identify and develop a reliable water source for supply of portable water for Katoro, Buseresere, Mikoto and Bwanga townships in Geita region. The project also includes provision of off-takes for villages located within a distance of 12 km from the main pipeline route from the source which lack reliable and adequate water supply.

In recognition of the above requirements, the Ministry of Water (MOW) through MWAUWASA commissioned M/s Howard Humphreys in association with WILALEX Consultants to undertake the feasibility study including an Environmental and Social Impact Assessment for the proposed water supply project.

Objectives of the Project

The overall objective of the project is to improve water supply situation in the townships of Katoro, Buseresere, Minkoto and Bwanga in Geita region. Residents of the targeted townships and adjacent villages within 12km from the main pipeline will be connected to the proposed water supply and will have improved service delivery through improved and sustainable access to reliable, adequate water supply services. The project will also contribute in reducing diseases that came from use of unsafe and untreated water.

Objectives of the Environmental Impact Assessment

The objective of this assignment is to carry out an Environmental and Social Impacts Assessment for water supply project to 4 towwnships of Katoro in Geita rural district and Buseresere, Minkoto and Bwanga in Chato district. The EIA study is also required to propose measures for mitigating negative impacts, enhancement measures for positive

impacts and prepare an environmental and social management and monitoring plans. This EIA will help NEMC in making an informed decision about its clearance.

Policy, Legal and Administrative Framework

Relevant National Policies, legislations, administrative structures, international treaties, and conventions relevant to the environment in relation to the proposed project were collected and reviewed. Legislations pertaining to pollution of ground and surface water, pollution of soil, air, land and land use, forests, wildlife, among others, were reviewed in order to ensure that the proposed water supply works meet and abide to the existing regulations.

Administratively the institutional and legal framework for environmental management is comprised of the National Environmental Advisory Committee, the Minister for Environment, Director of Environment, National Environment Management Council, Sector Ministries, Regional Secretariat and Local Government Authorities

Stakeholders Consultations and Public Involvements

The consultant conducted public participation and consultation activities which involved the potential Interested and likely to be Affected Parties (I&APs). The comments received and issues raised from these public participation exercises have been incorporated into the report and were used in determining mitigation measures for the project.

Identification of Potential Negative and Positive Impacts and Corresponding Mitigation Measures

Construction of water supply project like any other development project, in settled area or rural places, has a number of minor to major environmental and social impacts likely to occur from the planned project activities. These emanate from preparatory activities such as site clearance to transportation of construction materials, actual construction and the operation phase of the water supply project. Such potential environmental impacts per phase include;
During the pre-construction phase the impacts will be; vegetation clearance and deterioration of original land use, scenic and visual quality, Displacement of people and properties, Disturbances to historical and archaeological finds during site clearance.

During the construction phase the impacts will include, relocation of infrastructures and disruption resulting from relocation, interference on daily activities/businesses as most of the works will be carried out adjacent to the businesses especially in those earmarked townships, poor air quality from dust and emissions around the construction site and along the pipeline routes, noise and vibration pollution, poor disposal of solid and liquid waste resulting from excavation of trenches, at valve chambers and foundations for elevated storage tanks, soil erosion in disturbed surfaces, increased safety risk to construction/project personnel and increased transmission of communicable diseases from the labour force to resident communities or vice versa.

Finally, during operation phase the impacts will include social operational problems such as the inability of the communities to pay for the water service thus hampering its sustainability, vandalism to the project facilities and generation of wastewater as a result of improved water supply from Lake Victoria.

Project Alternatives

Various alternative sources of water supply have been considered. Among others, these include;
Groundwater sources: At the townships and villages level, the ground water sources are consisting of a number of wells located in the area without any purification or distribution system. This is what the townships and villages have been using over the years until now.

Rainwater harvesting is another important source of water supply due to its convenience. Rainwater harvesting can be done in individual households or by the establishment of a common facility such as schools or health centres where it is possible to collect rainwater directly from roofs. Unfortunately, rainwater harvesting has great limitations in the targeted area due to short periods of rain over the year.

Under consideration of "no – project" alternative, it means that the project will not be implemented and the status quo of the water supply in the earmarked townships will remain as it is and the inconveniences faced by the communities in the area including diseases will continue. The time wasted by women and children looking for water will continue. Overall, the impact of no - project is considered to be significant in hampering development in terms of local, regional, national water supply targets. Therefore, consideration of "No-Project" or "Do-Nothing" option has been dismissed as an alternative due to the need and desirability of this proposed water supply

Plan for mitigation of Impacts

<u>Pre-construction phase</u>

- Vegetation clearance along the road reserve where pipelines will be laid- avoid cutting or uprooting trees outside the permanent work area,
- Displacement of people and relocation of services and properties currently on the ROW - Identification of the properties to be displaced, valuation and compensation in places where properties cannot be avoided or left intact, Alignment of trenches (design) to follow existing access roads and open areas as much as possible to avoid relocating some of the properties
- Disturbances to historical and archaeological finds during site clearance along the proposed water reticulation routes - Notifying the Engineer giving the nature and location of the findings. The Engineer will consult the National Museum

<u>Construction phase</u>

- Relocation of infrastructures and disruption resulting from relocation- communities informed in advance regarding storage of water when their utilities are about to be relocated to pave the way for construction works
- Interference on daily activities/businesses as most of the works will be carried out adjacent to the businesses especially in those earmarked townships- Notices shall be served to the business communities to alert them on the intended project, Barricades shall be provided in all trenched areas, also shortest time applied to excavate, lay and backfilling of excavated trenches
- Poor air quality from dust and emissions around the construction sites and along the earmarked pipeline routes- Water sprinkling to reduce the dust at the construction site and in settled areas, Use of dust masks to operators and those working in the dusty areas
- Noise and vibration pollution-notices to affected communitites, suppliy of PPEs

- Poor disposal of solid and liquid waste resulting from excavation of trenches, valve chambers and foundations for elevated storage tanks-good site keeping shall be exercised and observed
- Soil erosion-Soil erosion control measures in the area shall be applied such as covering the bare soil with geo-fabric and re-vegetation with the local species and cover with concrete in erosion susceptible areas shall be implemented
- Increased safety risk to construction/project personnel-Putting in place a proper plan for occupational and health safety system including training and sensitization programmes for employees
- Socio-economic impacts - Increased transmission of communicable diseases including the recent pandemic of COVID-19- Sensitization and health awareness campaigns to all persons involved in the project including service providers, follow regular guidance issued by MOH regarding COVID- 19

Environmental and Social Management Plan

The project proponent MWAUWASA/RUWASA and its contractors envisage working in close cooperation with the respective villages, ward, district, regional and National level authorities to ensure that the project is executed in a smooth manner. The structures for undertaking various responsibilities during water supply project pre-construction, construction, demobilization and operation phases have been presented as specified in the Environmental and Social Management Plan under the respective section 9. The costs of various mitigation measures have been included in the total cost of the project in the Bills of Quantities as specified. The total ESMP budget excluding compensation of the properties in the project wayleave is estimated at TZS 191 Million.

The reporting arrangement is set in such a manner that MWAUWASA's Environmental Representative or Consultant's appointee to deal with Environmental Management will cooperate with other experts in Geita Rural and Chato Districts such as District Land Officers, District Valuers, Community Development Officers and District Environmental Management Officers to provide the Regional Environmental Management Expert with environmental reports of the project implementation as part of the progress reports and annual environmental reports.

Environmental and Social Monitoring Plan

Monitoring is the long-term process that normally begins at the start of the project and should continue throughout the life of the project. Its purpose is to establish benchmarks so that the nature and magnitude of anticipated environmental impacts are continually assessed. Therefore, monitoring involves the continuous or periodic review of mitigation activities to determine their effectiveness. This plan contained in the report specifies the type of monitoring, who will do it, how much it will cost to carry out monitoring and what other inputs, such as training, are necessary.

On reporting, Contractors' appointees to deal with Environmental Management will cooperate with District Environmental Management Officers and other sectoral officers in respective District of Geita Rural and Chato to provide the Regional Environment Management Expert (REME) Office with environmental reports of the project implementation as part of the progress reports and annual environmental monitoring reports. The REME will be the link between the project and NEMC and the Department of Environment under Vice President's Office.

Since the proposed project involves construction of the scheme followed by operation of the project, the project proponent, MWAUWASA/RUWASA, has developed a thorough understanding of the scope of potential environmental impacts of the project, and will set effective monitoring strategies matching those exiting in other water supply project by using Regional or District offices. The total project cost for Environmental Monitoring, covering all phases of the proposed water supply project has been estimated at about TZS 47 Million.

Decommissioning

The water supply infrastructure is not like a manufacturing facility or machinery, whereby the methods used to manufacture some products are replaced by modern technology or process! The design life of the water supply project will be 20 years or so based on population. Other supporting structures like reinforced concrete water storage tanks may even last for 50 years or more. As long as villages and townships are on continuous expansion and more development is evolving into these centres, there will always be a need for even a better scheme to supply more water. Therefore, decommissioning of the water supply scheme is not considered important unless the earmarked townships and villages cease to exist which is not possible.

Summary

The Environmental Impact Assessment (EIA) study has been completed by describing the project characteristics, identifying and evaluating the potential positive and negative impacts of the project. In identification of the environmental and social studies, the consultants carried out field surveys to collect the environmental and some social data and also discussed with the local authorities concerning the environmental and social impacts of the proposed water supply project and mitigation measures to minimise the impacts were proposed.

The proposed water supply is essential for the earmarked townships and targeted villages without improved water supply system. Besides creation of employment opportunities during initial stages of the project it is also likely to improve the health of the communities immensely during the operation phase of the water supply project. On the other opposing hand, the proposed project may cause negative impacts that must be mitigated if the projects benefits are to be realized in a permanent and sustainable way. These impacts are related to vegetation clearance, likely displacement of people and their properties, socio-economic impacts, etc. Most of these project negative impacts can be mitigated with appropriate measures suggested in the report. Monitoring of environmental and social impacts will be important in ensuring sustainable development of proposed project and the areas to be served by the proposed project.

Conclusion

Our conclusion, based on the assessment of the available information is that the proposed water supply project be taken a step further into detailed engineering design ready for implementing the project. Furthermore, it is recommended that the mitigation actions made in the Environmental and Social Management Plan (ESMP) be made binding for the proposed construction and operation of the water supply project.

Acknowledgements

A number of individuals have made this Environmental and Social Impact Assessment possible through their commitment in terms of time and effort. MWAUWASA are grateful to all those who contributed in one way or the other to this assessment in particular the team consultants that involved M/s Howard Consulting Limited in association with WILALEX Consultants who undertook the feasibility study of the proposed project and M/s Environmental BENCHMRK (T) Limited, a firm of Environmental Experts who carried out an Environmental and Social Impact Assessment for the proposed water supply project in the targeted townships in Geita region.

The team of consultants involved project coordinator Eng. M. Makuya, Water Engineers Joshua Mduma and A. Kamando, environmental engineer, Venant Rwenyagira, the Lead ESIA Consultant, the sociologist Mr. Yoswe Msongwe who participated fully in engaging the project stakeholders for consultation and finally drafting the SIA part of the report. The exercise of arranging public consultation within the earmarked townships and corresponding meetings would not have been possible without the effort of the community leaders. MWAUWASA appreciates their invaluable input and overall, their support and contribution in the assignment is highly appreciated.

MWAUWASA is also grateful to the Geita region leaders, district leaders specifically from Geita rural and Chato Districts from the district level to lower levels of wards, villages and sub-wards for their support during the assessment and the times ahead as they will also be needed during water supply project construction and operation activities during the lifetime of the water supply project.

MWAUWASA is also greatly indebted to all ward members within the earmarked townships, from Ludete, Katoro, Buseresere, Nyamigota, through Minkoto to Bwanga ward for sparing their time to participate in public consultation process and provide immeasurable input into this work. The support of various staffs from different government institutions, private companies, non-governmental organizations, who at different stages of the study were involved in supplying relevant information to the study team, is highly appreciated. Lastly, MWAUWASA owe her profound gratitude to the district staffs whose efforts made this process successful.

Acronyms and Abbreviations

CBOs	Community Based Organisations
CFC	Chlorofluorocarbon
CLO	Community Liaison Office
COVID-19	Corona Virus Disease-2019
DC	District Commissioner
DDCA	Drilling and Dam Construction Authority
DED	District Executive Director
DEMO	District Environmental Management Officer
DRC	Democratic Republic of Congo
EIA	Environmental Impacts Assessment
EIS	Environmental Impacts Statement
EMA	Environmental Management Act
EMP	Environmental Management Plan
ESCBA	Environmental and Social Cost Benefit Analysis
ESIA	Environmental and Social Impacts Assessment
ESMP	Environmental and Social Management Plan
EWURA	Energy and Water Utilities Regulatory Authority
GOT	Government of Tanzania
HIV/AIDS	Human Immune deficiency Virus / Acquired Immune Deficiency Syndrome
HSE	Health Safety and Environment
IAPs	Interested and Affected Persons
ICT	Information and Communication Technology
IPM	Integrated Pest Management
Kg	kilogram
LGA	Local Government Authority
LT	Long Term
m	metre
m^3	Cubic meter
MEAs	Multilateral Environmental Agreements
MOW	Ministry of Water
MT	Medium Term
MWAUWASA	Mwanza Urban Water and Sewerage Authority
NAP	National Agricultural Policy
NAWAPO	National Water Policy
NEAP	National Environmental Action Plan
NEMC	National Environment Management Council
NEP	National Environmental Policy
NGOs	Non-Governmental Organisation
NHIF	National Health Insurance Fund
NSGRP	National Strategy for Growth and Reduction of Poverty
OHS	Occupational Health and Safety
PAPs	Project Affected Persons
PMO	Prime Minister's Office
PPE	Personal Protective Equipment
REA	Rural Energy Authority
REME	Regional Environmental Management Expert
RUWASA	Rural Water Supply Authority
SEA	Strategic Environmental Assessment

SEU	Safety and Environment Unit
Sq. m.	Square meter
ST	Short Term
STDs	Sexually Transmitted Diseases
STIs	Sexually transmitted infections
TANESCO	Tanzania Electric power Supply Company
TZS	Tanzania Shillings
WEO	Ward Executive Officer
WSDP	Water Sector Development Programme

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CHAPTER ONE

1. Introduction

1.1 Background of the Project

The Tanzania Vision 2025 through its Water Sector Development Programme (WSDP) targeted to improve quality of livelihood through universal access to water supply and primary health care, which are both core components of Ministry of Water (MoW) functions in provision of adequate potable water and sanitation services in Tanzania.

The Government of Tanzania through Ministry of Water intends to identify and develop a reliable water source for supply of portable water for Katoro, Buseresere, Mikoto and Bwanga townships in Geita region. The project also includes provision of off-takes for villages located within a distance of 12 km from the main pipeline route from the source which lack reliable and adequate water supply.

In order to attain the strategic goal of sustainable, efficient and economic water service provision for Katoro, Buseresere, Minkoto and Bwanga townships, MWAUWASA on behalf of the Ministry of Water engaged a Consultant to undertake Feasibility Study for the proposed water supply project. The study also includes undertaking an Environmental and Social Impacts Assessment for the proposed project.

In recognition of the above requirements, the Ministry of Water (MOW) through MWAUWASA commissioned M/s Howard Humphreys in association with WILALEX Consultants to undertake the feasibility study of the proposed project and M/s Environmental BENCHMRK (T) Limited, a Consulting Firm of Environmental Experts to carry out an Environmental and Social Impact Assessment for the proposed water supply project in the targeted townships in Geita region.

1.2 Environmental Impact Assessment Requirement

According to the requirements of Environmental Management Act (EMA) Cap 191 of 2004, Environmental Impact Assessment is mandatory for projects of this nature since they are likely to have the potential of causing significant impacts on the environment and also some impacts on the communities within and outside the project boundaries. Further to this requirement, the Environmental Impact Assessment and Audit Regulations of 2005 together with Environmental Impact Assessment and Audit (Amendment) Regulations of 2018, classify the proposed activities under category A, the mandatory list of projects requiring EIA. In other words, the projects of this nature have to be subjected to the environmental impacts assessment.

1.3 Objective and Scope of the Environmental and Social Impact Assessment Study

The objective of this assignment is to carry out an Environmental and Social Impacts Assessment for water supply project to 4 towwnships of Katoro in Geita rural district and Buseresere, Minkoto and Bwanga in Chato district.

The scope of work of the environmental and social impacts assessment includes but not limited to the following tasks:

i. Describe and evaluate the present situation of the relevant environmental and social characteristics of the area proposed for water supply projects in the earmarked townships.

ii. Provide a full description of the project: general layout with diagram; layout of the water supply scheme, anticipated water supply infrastructure and construction activities; operation and maintenance activities; required off site investments, life span, adjacent communities to the project sites; existing roads and other supportive infrastructure.

iii. Present and project population, present land-use/ownership; planned development activities; community structure; public health; and cultural properties.

iv. Outline the national policies, legislation and administrative framework within which the environmental management of the proposed works will be carried out.

v. Identify design or operating standards which project activities must meet to be in compliance with environmental and social safeguards, e.g. drinking water quality limitations, receiving water quality standard, and occupational health and safety requirements

vi. Identify, analyse and assess potential environmental and social impacts that will result from the proposed works, based on the design.

vii. Carry out an assessment of the proposed project area including, service area of water collection and treatment system; transmission mains and distribution network, and any other tracts of land on which the proposed project will traverse

viii. Describe alternative water sources that were examined in the course of developing the proposed project (i.e. siting and design, technology selection, construction techniques and phasing, and operating and maintenance procedures for transmission and distribution systems, water treatment works, sludge disposal and management) and identify other alternatives that would achieve the same objectives.

ix. Compare alternatives in terms of potential environmental impacts, land and energy requirements, capital and operating costs, reliability, suitability under local conditions and institutional training and monitoring requirements. To the extent possible, quantify the costs and benefit of each alternative. Include the alternative of not implementing the project to demonstrate environmental conditions without it.

x. Propose costs-effective mitigation measures for minimizing or eliminating adverse social and environmental impacts of the proposed works, including recommendations on design changes if deemed necessary

xi. Propose modalities and arrangements for collection of stakeholders views

xii. Prepare an environmental and social management and monitoring action plan for implementing the mitigation measures and recommend institutional administrative and management framework. It should include the identification of the necessary

measures which should be inbuilt in the current mechanisms, such as measures for emergency response to accidental events (e.g. entry of raw sewage into water sources or water distribution systems.) The plan should also include assessment of compensation to affected parties for impacts that cannot be mitigated.

1.4 Methodology of the Environmental Impact Assessment

The methodology used in this assessment is corresponding with the Environmental Impact Assessment and Audit Regulations of 2005 together with the Environmental Impact Assessment and Audit (Amendment) Regulations of 2018, adopting the approach of identifying, collecting and analysing information which included;

i. Undertaking the activities initiated during the scoping phase including involvement of key stakeholders and collecting of the baseline information on both natural and built environment including socio economic conditions surrounding the project area.
ii. Analysis of data for identification, prediction and evaluation of the impacts both beneficial and adverse ones from the proposed project development and operation. This was achieved through use of checklists, simple matrices and use of engineering judgment, design standards and guidelines.
iii. Identifying and proposing mitigation measures aimed at minimising and where possible eliminating the potential negative impacts and enhancing positive ones using expert judgment.
iv. Preparing environmental and social management, monitoring and audit plans for easy follow up during implementation and follow up during project operation.
v. Presenting the information in the Environmental Impact Statement for subsequent steps of project approval.

The assessment was done by superimposing proposed water supply system project components such as intakes, rising mains, elevated storage water tanks, distribution networks and its appurtenances into the existing environmental conditions surrounding the project site(s). The methodology took into account likely impacts on the physical and biological environment. The methodology is further elaborated under section 6 on the analysis of Environmental Impacts. Other methodologies used in this assessment include literature reviews, consultative meetings with respective offices including the government offices in respective townships in Chato and Geita rural district and ward members and their respective leaders and visual observations through familiarization visits in the project area. Thus the following approaches/techniques were used in data collection.

In-depth discussions with key informants
In-depth discussions with key informants such as government officials working at ward level and community representatives in the project area were also conducted.

Public Consultative meetings
Public meetings were held with project wards members whereby issues related to construction of the water supply system were presented through which respective local communities raised their concerns as indicated in the section for public consultation.

Visual observation
Observation was made through transect walks whereby the consultants observed among other things areas to receive intensive works in terms of the existing natural environment

and infrastructures. Also the existing on-site sanitation infrastructures including toilets and septic tanks at the household level, business infrastructure such as communal toilets at market and school places, settlement patterns and other economic activities were observed.

Literature review
Documents and design reports and other records were reviewed to obtain existing secondary data and information relevant to the study area. The major source of such information includes district socio-economic and investment profiles, education, health and community development reports. The National 2012 Population Census and Settlement Development Plans and other relevant reports were also reviewed to see how they match with the projected population in the project areas.

In addition, the ESIA team collected and reviewed Geita and Chato districts profiles in order to extract and synthesize obtained information like population, socio-economic situation, provision of social services including water, gender issues, land use in every district. Similarly, the water department authorities provided reports on water supply within the districts (number of deep and shallow wells), possible institutional set up of the project, and so on.

1.5 Structure of the ESIA Report

The report is presented in accordance with the requirements of regulation 18 (1), (2) of the Environmental Impact Assessment and Audit Regulations made in 2005, with the following chapters;

- ✓ Cover page – with the title of proposed project, location of the project, developer, lead consultants, contact address and phone and date of submission
- ✓ Executive Summary
- ✓ Acknowledgements,
- ✓ Acronyms
- ✓ Abbreviations
- ✓ Introduction
- ✓ Project Background and Description
- ✓ Policy, Legal and Administrative Framework
- ✓ Baseline and Existing Conditions
- ✓ Stakeholders Engagement and Public Consultation
- ✓ Assessment of Impacts
- ✓ Identification of Project alternatives
- ✓ Impacts management, Environmental Mitigation measures
- ✓ Environmental and Social Management Plan
- ✓ Environmental and Social Monitoring Plan
- ✓ Cost Benefit Analysis
- ✓ Decommissioning
- ✓ Summary and Conclusions
- ✓ References and
- ✓ Appendices

CHAPTER TWO

2. Description of the Proposed Project

2.1 Project Concept

The Government of Tanzania through the Ministry of Water and Local Government Authorities (LGAs) have continued make more investments for implementation of water supply and sanitation projects. Currently there is no reliable water supply system in Katoro, Buseresere and Minkoto and Bwanga townships. The population of these townships has been growing fast as compared to what is presented in records of population census of the National Bureau of Statistics made in 2012.

It has been the expectations of the Ministry of Water to have water supply systems that respond well to the current and future demand of the rapidly expanding population in these townships that have no reliable water supply system in place.
The townships face serious problems/challenges on supplying water to these communities based on the available ground water sources. These communities depend on shallow and unprotected seasonal dug wells located in various locations one being in the Kabahelele spring valley. The access to service depend on water vendors at a cost ranging between TZS 250 and TZS 500 per 20 liters during rainy and dry season respectively. Consequently, lack of clean and safe water services to these communities render them susceptible to major health risks and environmental pollution.

Accordingly, an immediate intervention to ensure adequate and reliable water supply service to these communities is the proposed water supply project from Lake Victoria water source.

2.2. Location of the Proposed Project

The proposed water supply project is envisaged to be constructed in Geita region in the administrative districts of Geita and Chato, as shown on the administrative map of Tanzania in figure 1 below.

Specifically, the proposed water supply project will be in the townships of Katoro and Buseresere, Minkoto and Bwanga in Geita Rural and Chato districts respectively in a newly formed Geita region. Formerly Geita was a district in Mwanza region with other five districts which included, Sengerema, Misungwi, Kwimba, Magu and Nyamagana. In the recent rearrangement some of these districts, Geita rural district has been moved into a new region of Geita together with the other districts of Bukombe, Chato, Nbogwe, Nyang'wale and Geita town.

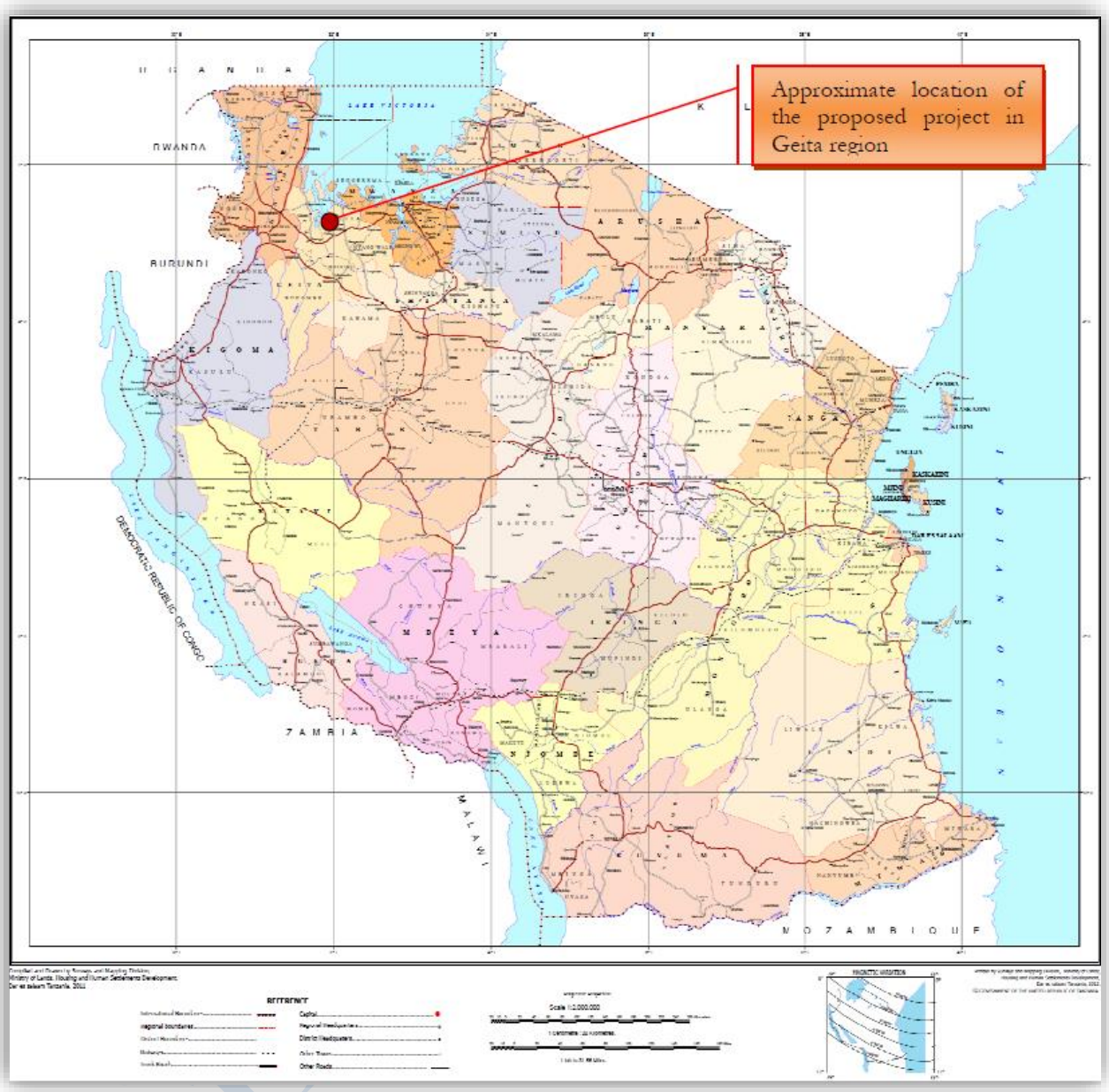

Figure 1: Administrative Map of Tanzania showing the location of the proposed project in Geita region

The location of the project in Geita Rural and Chato districts in Geita regional setting is shown on figure 2 below.

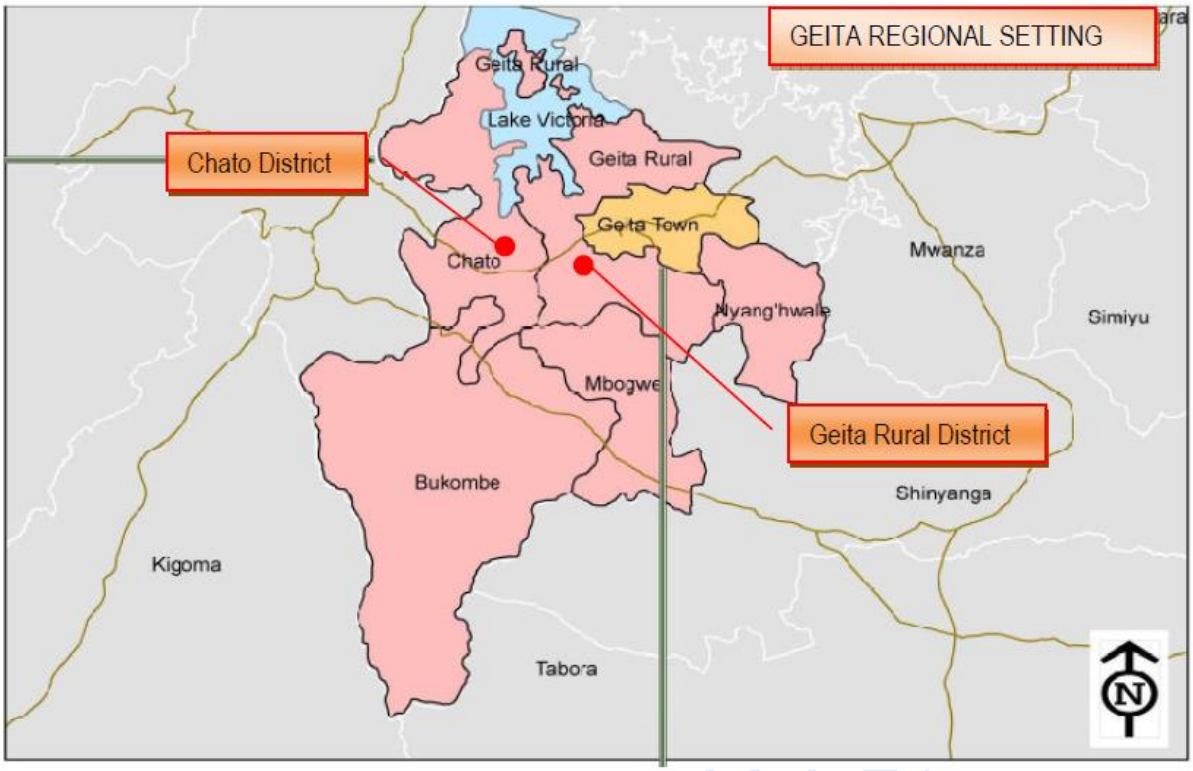

Figure 2: Map of Geita Region showing Geita rural and Chato districts where the proposed project will be implemented

In finer details the proposed project will be constructed in some areas of the following administrative wards.

Table 1: Project administrative boundaries

	Ward	District
i.	Bwanga Ward	Chato
ii.	Minkoto Ward	Chato
iii.	Buseresere Ward	Chato
iv.	Katoro Ward	Geita Rural
v.	Ludete Ward	Geita Rural
vi.	Nyamigota Ward	Geita Rural

2.3 Nature of the project in accordance with first schedule of the Environmental Impact Assessment and Audit Regulations (2005)

According to the First Schedule of the Environmental Impact Assessment and Audit Regulations, 2005 made under sections 82(1) and 230 (2) (h) and (q) of the Environmental Management Act No. 20 of 2004, the proposed project directly falls under the list of projects requiring EIA and therefore the full Environmental Impact Assessment is mandatory.

The proposed project is linked to the projects listed under the first schedule of the EIA and Audit Regulations 2005. Also, the project is classified under item 14 which describes the type of project under Building and Civil Engineering Industries which covers water pipelines that encompass rising main and distribution pipes. The proposed project is also categorised under item 21 of Water supply with the highlighted sub-items under water supply as shown on the extract below (figure 3) from the EIA and Audit Regulations 2005.

14. Building and Civil Engineering Industries.
- (i) Industrial and housing Estate
- (ii) Major urban projects (multi-storey building, motor terminals, markets etc)
- (iii) Construction and expansion/upgrading of roads, harbours, ship yards, fishing harbours, air fields and ports, railways and pipelines
- (iv) Developments on beach fronts

21. Water Supply
- (i) Canalisation of water courses
- (ii) Diversion of normal flow of water
- (iii) Water transfers scheme
- (iv) Abstraction or utilisation of ground and surface water for bulk supply
- (v) Water treatment plants

Figure 3: Extract from the First Schedule of the EIA and Audit Regulations 2005

This ESIA report is hereby presented and shall thus serve as a guide to NEMC on the decision if the project is likely or unlikely to cause significant adverse environmental and social impacts.

2.4 Project Activities

2.4.1 Mobilization Activities

The project activities, once designs and tender documents are completed, tenders are advertised, procured by prospective contractors and finally contract(s) are awarded, will be assumed to follow project routines whereby there are mobilization activities, construction activities and finally construction completion, commissioning of the project, operations and maintenance activities.

The first stage will involve mobilization of the construction human resource, construction equipment and plant, construction materials and erection of worker's camp (if required). At this stage on environmental consideration there will be wastes (mainly solid and liquid) generated from construction of camps. The staff camps like any other domestic place will generate, garbage, packaging, sacks, papers, cardboard boxes, plastic, wood crates, bottles, glass, metal cans and the like. Such wastes will need to be segregated for recycling or incinerating at designated project sites.

All project activities including construction of the water intake, water treatment plant, pump house, rising main, elevated storage tanks, distribution network will be carried out in areas currently used for other activities or along the tracks or streets and access roads within the boundaries of the identified project sites without disturbing or obstructing the neighbours and businesses. In order to ensure this, the project contractor will have to isolate or fence off the sites perimeter for open trenches with barricading materials or any other suitable material as it will be determined during project implementation. In case of deep trenches, proper barricades have to be applied to warn and protect the people of impending dangers of falling into open pits and trenches.

Also, as required, the Contractor will hire labour and erect necessary temporary facilities to cater for offices and storage yards within the construction site or outside the site as it may be agreed and permitted by the local ward authorities. Mobilization phase will also involve purchase and stockpiling of the materials such as aggregates, sand, cement, timber, high and low pressure water pipes, concrete culvert pipes and reinforcing steel. Other construction equipment and tools such as scaffolding for construction of elevated water tanks will be mobilised to the site of works as need arises.

2.4.2 Activities during Construction Phase

Upon completion of preliminary activities involving erection of site offices, storage facilities and services (water, temporary wastewater facilities and electricity) as required, the actual construction work of intake, pump house, rising pressure main, elevated storage tanks, gravity distribution pipelines will start which will involve;

- Setting out to demarcate rights of way, work areas, clearing limits. Access paths, detours, bypasses and protective fences or barricades should all be in place before water supply infrastructure construction begins.
- Relocation of properties which are within the areas where the works will be constructed

- Sites preparation –clearing and grubbing to remove unsuitable soils, construction of bypasses and possible modification of existing drainage structures coinciding with construction paths. Breaking pavements will also be carried out in public roads and private premises to be able to dig trenches and lay the proposed water supply pipelines.
- Excavation for trenches for rising main pipes and trenches for storage tanks foundations, distribution lines and excavation of foundations for valves chambers. Also larger chambers will be constructed to install pipeline ancillaries.
- Trench sheeting and bracing to protect collapsible trench side walls.
- Concreting bases of foundations for water intake pump house, water treatment plant,
- Laying of pipelines
- Backfilling, disposal of overburden and surface restoration to at least match the condition that existed prior to the project construction and secure built surfaces from soil erosion.

2.4.3 Activities during Contractors Demobilization Phase

Contractors' demobilization phase will involve clearing all the site activities in terms of tiding up of all sites facilities and removal from site all the unwanted materials. Disposal of any remaining unwanted material will also be carried out during this contractor's demobilization phase.

However, various wastes will be generated during this stage whereby similar methods used to manage waste for previous phases will apply. These will include solid wastes from packaging materials, wood and steel crates, cardboard, wrapping materials, boxes, sacks, drums, cans and chemical containers and any other unused materials such as pipe cuts. Along with this, reinstatement of damaged areas will be carried out before commissioning the project.

On the other hand, wastewater will also be generated from work camps and runoffs crossing hydrocarbon contaminated areas. As this wastewater can cause detrimental effects to the surrounding environment especially water entering Lake Victoria, conventional wastewater treatment systems such as septic tank and soak away pit will be employed to ensure safe and proper onsite disposal of waste water. After the project completion, temporary workers especially unskilled ones will have to be paid all their dues and terminal benefits (if any) and released to go back to other places for other works. Upon completion of contractor's obligations, the structures will be handed over to the Project Proponent MWAUWASA and later to RUWASA(s) for the operation phase.

2.4.4 Activities during Operation

Operation phase of the constructed water supply infrastructure will involve drawing water from the selected water sources, (e.g. Lake Victoria), conveyed into the water treatment plant for treatment and pumped to elevated storage tanks in the selected locations in Katoro, Buseresere, Minkoto and Bwanga then distributed to different users in the earmarked townships.

The domestic houses supplied with water in the respective townships will at this stage be generating wastewater which will also require some form of collection and treatment. At this stage, the central sewerage system is not part of the project but surely supply of water will lead into generation of significant amount of wastewater.

Therefore, during the operation phase of the water supply project significant portion of water supplied estimated to over 50% of that water will be converted into liquid waste. The operation phase like any other working phase will generate wastes in form of workshop garbage, packaging materials, sacks, papers, cardboard boxes, plastic, wood crates, bottles, glass, oil or grease metal cans, mainly at the water treatment plant, low lift and high lift or booster pumps house. Such wastes will need to be segregated for recycling or incinerating at site. However, burning or incineration should be done with great care excluding materials with poisonous emissions.

2.4.5 Activities during Decommissioning Phase

Water supply facilities will always be required to supply water to the community as long as there is no any other means of supply water from a different source. In view of this, decommissioning of the project is not seen as an issue of importance because population numbers will be growing requiring more water for use, therefore all efforts will be made towards prolonged life of the water supply facilities. Instead of considering to decommissioning the water supply system, strict plans will be made for maintaining the proposed structures and expansion to have prolonged life.

2.5 Feasibility Design of the Proposed Water Supply

2.5.1 Proposed Water source

Based on historical background of water sources in the area, Lake Victoria has been proposed to be the main source of water supply for Katoro, Buseresere, Minkoto and Bwanga townships by considering its all-year round potential to meet the required demand. The proposed project layout from Lake Victoria to the proposed townships is presented on the figure 4 below: -

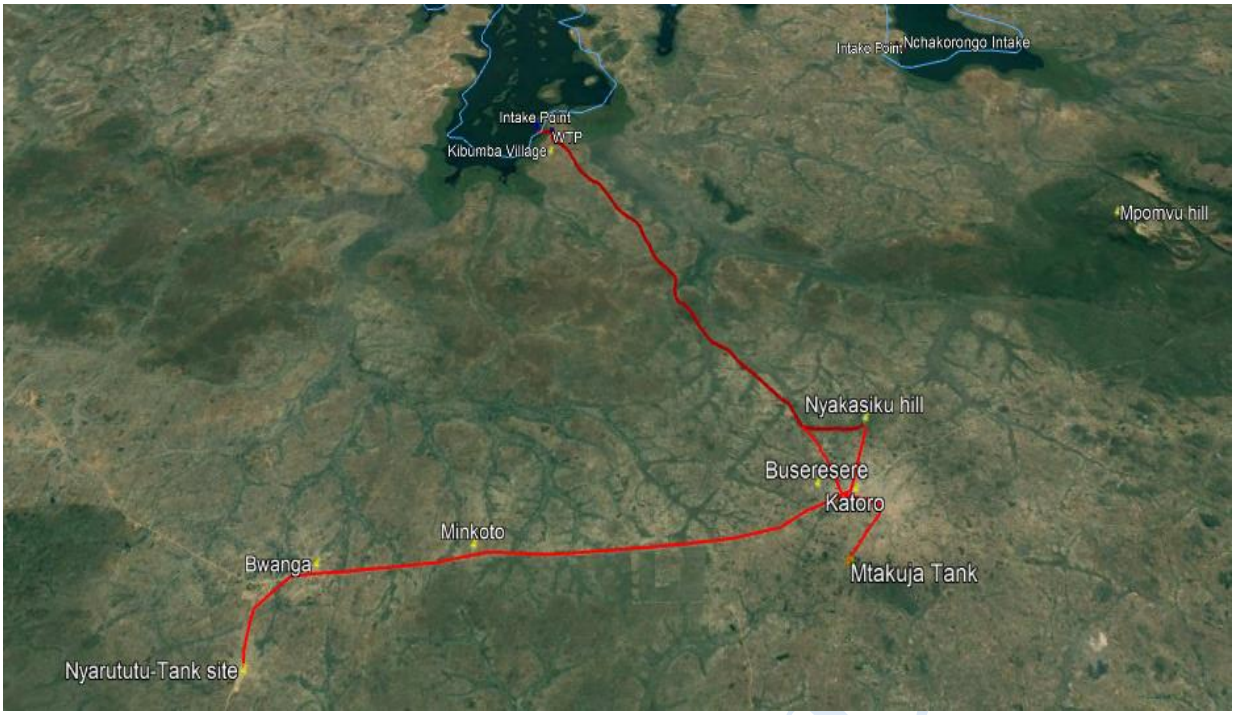

Figure 4: Proposed water supply scheme for Katoro, Buseresere, and Minkoto and Bwanga townships from Lake Victoria at Matofali sub village in Kibumba village in Chato district.

The proposed schematic diagram for the proposed, water intake, water treatment facilities, rising mains and water storage sites, together with off-take sites is presented below.

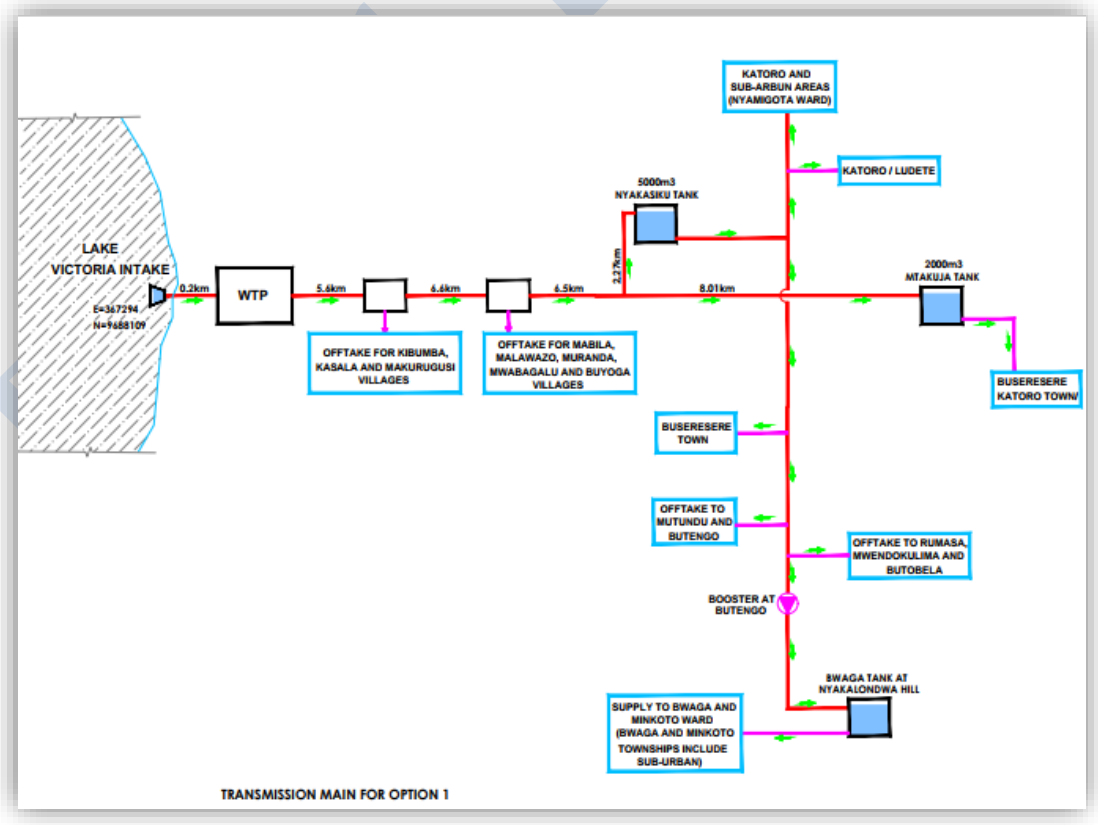

Figure 5: Schematic diagram for proposed water supply scheme

2.6 Materials to be Used, Waste Generation and Disposal Methods

2.6.1 Mobilization phase materials

Site Preparation - Preparation of the site for proposed water supply scheme will automatically result into disturbance and/or removal of existing vegetation around the site of works. These construction practices remove protective plants cover over the existing ground. The sites proposed for water intake, pump house and water treatment plant will equally be cleared of vegetation. These activities will result into generation of vegetal wastes like brushes and marshes debris mixed water lilies and other solid wastes all sorts of which will be collected and disposed in designated waste disposal site as directed by Geita and Chato district authorities. Decomposable materials may be buried at site if spaces are available, plastics and other recyclable materials will be collected and sent out for recycling within the project boundaries and beyond.

2.6.2 Required Construction Materials

Since the proposed water supply project will be mainly constructed from locally available materials except for the pipes and fittings, the main construction materials will be aggregates, cement, sand, reinforcing steel and water for reinforced concrete. Other requirements such as timber, formwork, scaffolding etc., will also be required as included in the table below. Borrow materials to be used for construction will be collected from the identified borrow areas such as those used for other project construction in the area. The rough estimate of construction materials for the proposed project is shown on the table below. The numbers may increase or decrease when the detailed design is completed.

Table 2: Estimated quantities of construction materials

Construction Materials/ Equipment	Estimated Quantity
High and Low Pressure pipes	80,000 m
Stones /Aggregates	500 tons
Cement	250 tons
Sand	2500 tons
Reinforcing steel/bars, binding wire etc.,	350 tons
Water	100 m^3 per day
Nails	500 kg
Formwork (Marine Plywood)	750 sq. m
Timber	1,000 m^3
Scaffolding	1,000 m

2.6.2 Wastes

Biodegradable materials wastes such as food leftovers, cardboards, papers will be collected and disposed off along with other solid wastes in sanitary landfills. Other materials such as plastics, metal straps, reinforcing bars, unusable timber crates,

steel cable pieces, pipes, etc., will be collected and transported to recycling centres. Wastes resulting from excavation will be used as fill materials in restoration of borrow pits.

2.6.3 Wastewater Drainage and Treatment

Currently there are pit latrines and a few septic tanks and soak away pits in respective areas of the project. Any waste water generated as the result of the proposed works will be lead to the same on-site waste disposal system unless the site for such proposed works decide to have a different waste disposal system but it has to be approved by the district authorities. Waste water from the construction site, particularly the toilets will be linked to the nearby septic tanks built as part of the work camps.

2.6.4 Demobilization Material wastes

Upon completion of construction activities, all construction waste materials such plastics, pipe leftovers and metal plates ideal for recycling will be collected and delivered at recycling centres. Unusable aggregates with concrete debris, chippings, sand will be sieved and the good one will be separated for reuse at other sites by the contractor. Natural grass to match the existing will be planted in all areas around the water intake, pressure rising mains, elevated storage tanks, distributions lines to prevent the loose soils from being washed away.

2.6 Project Boundaries

2.6.1 Spatial Boundaries of the Project:

The proposed water supply project may have local, regional and international implications. The implementation of the proposed project has major effects of improving quality of livelihood through universal access to water supply and primary health care which are both core components of Ministry of Water functions in provision of adequate portable water and sanitation services in communities living in the targeted areas. At a regional level, the proposed water supply may improve the status of the townships thus giving them an upper hand in attracting more investors with consequential improvement of the regional economy. As of now, Katoro town has businesses of various categories, business persons from adjacent regions of Kagera and Kigoma and even those from Rwanda, Burundi, Uganda and Democratic Republic of Congo (DRC) come to this town to purchase goods of all sorts. This kind of business carried out in Katoro Township has both regional and international implications.

2.6.2 Temporal Boundaries of the Project:

The impact of implementation of the proposed project may have short-term and negative impacts during construction. The proposed mitigation measures to address the negative impacts will be implemented and restoration of human being livelihood especially for those whose businesses may be impacted by the proposed water reticulation works. The impacts of interruption to business and possibly relocation of some infrastructures to give way for project implementation may be compensated for loss of income. Land and disruption in socio economic activities

can also be compensated in some form but most importantly social cohesion of the people shall be maintained. It is expected that, the long-term and positive impacts to the community is the improvement of water supply situation and associated improvements in health and saving time that was spent on looking for water in the subject areas.

2.6.3 Institutional Boundaries of the Project

In order to enhance collaboration among sectors, the proposed project will interact with more than one institution that can be determined from the legislations, ministerial and departmental mandates.

Although the administrative framework for environmental management is well structured in the Environmental Management Act No. 20 of 2004, The Vice-President's Office and NEMC are responsible for supervising all environmental issues associated with the implementation of the project. However, the Ministry of Water is charged with development of legislations and policies governing the implementation of water supply and associated sanitation systems or projects.

By virtue of technical backstopping during project construction, operation and maintenance, MWAUWASA together with RUWASA will be charged with overseeing of the project, monitoring, construction and carrying out regular maintenances. These are thus the technical right-hand of the Ministry of Water.

The district and townships administration, ward and sub -ordinate the responsibilities of townships, the administration in targeted townships are accountable for mobilization of communities, carrying out awareness programmes and making sure that the any impacts to affected people will be mitigated in a fair and effective manner.

CHAPTER THREE

3. Policies, Administrative and Legal Framework

3.1 Introduction

Relevant national policies, legislations, administrative structures, international treaties and conventions relevant to the environment in relation to the proposed water supply project were collected and reviewed. Other legislations pertaining to pollution of ground and surface water, pollution of soil, air, land and land use, forests, wildlife, among others, were reviewed in order to ensure that the proposed water supply works meet and abide to the existing regulations. These Policies and legislations are described in details below.

3.2 National Environmental Policy, Laws and Regulations

3.2.1 Policies

National Environmental Action Plan, NEAP (1994)

The plan encompasses all development sectors with the focus on the conservation of environment and sustainable development. The project being planned to be implemented along habitable settlements and crossing some congested villages with high population density and multiple social and environmental problems, the contractor of the project and the proponent must ensure that the mitigation measures provided in EIA reports are implemented in order to conserve the environment.

The National Environmental Policy, NEP (1997)

Tanzania currently aims to achieve sustainable development through rational use of natural resources and incorporating measures in any development activities in order to safeguard the environment. The existing legal document, which drives toward achieving this goal, is the National Environmental Policy (NEP), which was approved by GoT in 1997. The NEP advocates the adoption of Environmental Impact Assessment (EIA) tool for screening development projects, which are likely to cause adverse environmental impacts. In line with this, the National Environment Management Council (NEMC), which is a state organ for advice on the environmental management issues in the country, formulated the National EIA Guidelines and Procedures (1997 and subsequent amendments in 2002). The NEP gives directions on conducting and reporting of EIA studies as well as their administration.

The NEP highlights sustainable development as its core concept. NEP states that Tanzania is committed to sustainable development in the short, medium and long-terms. Section 4 of the NEP stresses the importance of Environmental Impact Assessment in the implementation of the Environmental National Action Plan. It asserts that although it is important to tackle immediate environmental problems, precautionary, anticipatory and preventive approaches, used in EIAs, are the most effective and economic measures in achieving environmentally sound development. With specific regard to water, sewerage and sanitation sector, NEP in section 48 focuses on the following aspects:
The environmental objective in the Water, Sewerage and Sanitation sector is to support the overall national objective of providing clean and safe drinking water to within easy reach, to satisfy other water needs, to protect water sources and to prevent environmental pollution. In order to achieve this, the following policy objectives shall be pursued: -

(a) planning and implementation of water resources and other development programmes in an integrated manner and in ways that protect water catchment areas and their vegetation cover;
(b) improved management and conservation of wetlands;
(c) promotion of technology for efficient and safe water use, particularly for water and waste water treatment, and recycling; and
(d) Institution of appropriate user-charges that reflect the full value of water resources.

These policy objectives are indeed the focus of the proposed water supply project in the respective townships of Katoro, Buseresere, Minkoto and Bwanga

The National Investment Promotion Policy (1996)
The Policy underlines the following:

1. Maximum mobilization and utilization of domestic capacity including cooperation with other developing countries as well as industrialised countries
2. Maximum promotion of exports of goods and services to enhance the development of a dynamic and competitive export sector
3. The encouragement of inflows of external resources to complement national efforts
4. Encouragement and facilitation of the adoption of new technologies in activities that especially have a direct bearing on productivity, quality and increased competitiveness
5. Enhancement of transparent legal framework that facilitates the promotion and protection of all investments
6. Deregulation of the investment approval process
7. Re-defines the role of the private sector and puts it into a more central role
8. Creates a balance between administrative controls and market forces as a means of allocating resources
9. Re-emphasize political pluralism to enhance democracy
10. Rededicates the nation's adherence to Rule of Law

Besides the policy emphasis on the above, the government wishes to advance promotion of local and foreign investment through improvement of linkages among various economic sectors involved in the production of good and services of which the proposed water supply project infrastructure is a pillar in developing the economic sectors. The project will therefore ensure that it observes the requirements of this policy during its implementation.

The National Health Policy, 2017
The National Health Policy 2017 has several specific policy objectives which include the need to reduce morbidity and mortality and increase life expectancy for all Tanzanians by delivering better health services, focusing on requirements for vulnerable 2 groups such as infants, under-fives, pre and school children, youths, people with disability, women of reproductive age and elderly people to access health services.

(a) The main objective of health policy is to protect public health, not in the narrow though indispensable sense of curing diseases, but in the broad sense of promoting human well-being and informed participation in primary environmental care. The policy objectives to be pursued include –
(b) provision of community needs for environmental infrastructure, such as safe and efficient water supplies, sewage treatment and waste disposal services; and
(c) Promotion of other health-related programmes such as food hygiene, separation of toxic/hazardous wastes and pollution control at the household level.

The policy objectives relevant to this water supply project is Occupational Health and Safety. Occupational health and safety has been supporting performances of personnel at work place. It has been crucial for employers to assume full responsibility for the protection of workers' health and safety. However, participation of the private sector for development and reviewing the workers' health policies including information sharing has been limited and uncoordinated. The healthcare services provided by the occupational health and safety (OHS) have been weak. OHS has not been very resilience at work and in the face of outbreaks and public health emergencies. Workers are therefore faced with a multitude of health hazards, due to inadequate coordination and linkages among sectors and inadequate enforcement of laws and regulations governing occupational health services. The project proponent and its contractors will ensure that the requirements of this policy are fully observed during all phases of the proposed project.

National Land Policy (1995)
This promotes a secure land tenure system to encourage the optimal use of land resources, and to facilitate broad-based social and economic development. The Land Policy provides for "full fair and prompt compensations" when land is acquired. The implementation of water supply in the respective towns will involve taking land for construction activities and also for sourcing of construction materials for storage tanks. Since some of the land to be taken will be outside the existing road reserve or public open spaces, then land take and corresponding compensations will keenly observe the requirements policy.

The Transport Policy (2003)
The policy aims at enhancing transport safety and environmental protection, through taking steps to review and update national legislation in transport operations and safety requirements. This project has been geared towards the main purpose of the transport policy that is socially, environmentally and economically viable.

National Forest Policy (1998)
This policy demarcates and reserves in perpetuity for the benefit of the present and future inhabitants, sufficient forested land and land capable of forestation, to ensure environmental stability and maintenance of the ecological balance including atmosphere equilibrium which is vital for sustenance of all life forms, human, animal and plant.
With regards to EIA, the policy calls for environmental assessment of any investment which would convert forest land to other land use or may cause potential damage to forest environment. Water supply project is identified as a relevant development activity under this policy. If any forest will be encountered during its implementation, the requirements of this policy will be fully observed

National Water Policy (NAWAPO 2002)
The overall objective of this policy is to develop a comprehensive framework for the sustainable management of the national water resources. It addresses adequately all relevant issues on integrated water resources management and adopts comprehensive policy framework and the treatment of water as both a social and economic good. Water policy issues particularly in water resources management underscore the disaster management from accidental pollution of water sources (Clause 4.8.4). The main objective is to protect against hazards associated with pollution of water sources. Since the water supply project will be a relevant development, if not executed with great care it may result into pollution of water sources like the Lake Victoria where water will be drawn and also the amount of water to be drawn will be as per requirements of the water rights as provided for under water resources management.

Cultural Property Policy (1997)

This policy covers a wide range of topics relating to both living cultural heritage and historical and archaeological remains ("cultural property"). The policy requires that "all land development shall be preceded by Cultural Resource Impact Studies". So far, no evident cultural property has been noted to be located along the proposed routes of water conveyance.

Also the existence of roads in the project area may provide a room for using the road reserve in laying the rising main together with the distribution networks. The existing roads alignment will be closely followed or diverted to suit site conditions. This in itself indicates that there may be minimal cultural property interferences. Therefore, during excavation of the trenches for water pipes, the project contractor will observe the said requirements through sensitization of his workmen particularly those involved in use of equipment such as excavators.

The National Policy on HIV/AIDs (2001)

This is a policy which provides for the framework, direction and general principles in the national response interventions in the prevention, care and support of those infected and affected by the epidemic and mitigation of its impact. The specific objectives of the policy are:

- Prevention of transmission of HIV/AIDs
- HIV/AIDs Testing through voluntary testing with pre-and-post-test counselling
- Care for people living with HIV/AIDs (PLHAs)
- To strengthen the role of all the sectors, public, private, NGOs, faith groups, PLHAs, CBOs and other specific groups to ensure that all stake holders are actively involved in HIV/AIDS work and to provide a framework for coordination and collaboration
- Research on HIV/AIDs
- To create legal framework by enacting a law on HIV/AIDS with a view to establishing multi-sectoral response to HIV/AIDS and to address legal and ethical issues in HIV/AIDS and to revise the legal situation of families affected by HIV/AIDS in order to give them access to family property after the death of their parent(s).

  Other objectives include:
- To monitor the efforts towards community mobilization for living positively with HIV/AIDS in order to cope with the impact of the epidemic while safeguarding the rights of those infected or affected directly by HIV/AIDS in the community.
- To identify human rights abuses in HIV/AIDS and to protect PLHAs and everyone else in society against all forms of discrimination and social injustice.
- To provide appropriate effective treatment for opportunistic infections at all levels of the health care system
- To work closely with the Ministry of Home Affairs, NGOs and Faith Groups in the fight against drug substance abuse that increases the risk of HIV transmission
- To prohibit misleading advertisements of drugs and other products for HIV/AIDS prevention, treatment and care.

In order to contribute towards observing the objectives of the National Policy on HIV/AIDs, the project Contractor will have to have HIV/AIDs programs aimed at promoting awareness of HIV/AIDs among its service providers and its employees, despite that the HIV/AIDs knowledge is known to most of people.

The National Employment Policy (1997)

The National Employment Policy aims at;

- Preparing the conducive environment for unemployed to employ themselves by directing more resources to the self-employment sectors,
- Identifying potential areas for employment and to lay down strategies of how to utilise such areas in promoting employment in the country,
- To prepare a special procedure for coordination and developing sources of employment including creation of a body that will supervise implementation of the employment policy,
- Identify and elaborate on the status and roles of various stakeholders in promoting and sustaining employment.
- To strengthen (through removal of bottlenecks) the relationship between formal sector and that of self-employment.
- To develop the self-employment sector in rural areas so as to reduce the rate of migration to urban areas,
- To ensure that activities initiated on self-employment act as a basis for development of the economy and are an inspiration for the culture of self-reliance, etc.

In view of the Government efforts in development of National Employment Policy, the Project Proponent intends to supplement these efforts by providing some few employments during the project implementation. During this period, transfer of technology will be attained among those who will be employed and after their contract terms they can engage in self-employment activities in the informal sector, especially in construction sector with abundant wealth which has not been fully exploited.

National Gender Development Policy (2000)

The key objective of this 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 of both men and women to participate in development undertakings and to value the role-played by each member of the society.

The Ministry of Water, and MWAUWASA have adopted the policy through provision of equal opportunities to both men and women in water supply and sanitation works and other related activities. This proposed water supply project shall also ensure that all genders are adequately involved at all levels of project from planning to implementation and subsequent operation and maintenance activities.

National Human Settlements Development Policy (2000)

Among the policy objectives that touch the water 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. Provision of reliable and safe water supply system are essential in increasing agricultural productivity and establishment of manufacturing industries.

Generally, all aforementioned policies underscored the importance of applying Environmental and Social 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 and socio-economic considerations in the decision-making process to ensure that unnecessary

damage to people and their environment is avoided and the existing reserves for roads and other public open spaces should be well utilized.

The National Strategy for Growth and Reduction of Poverty (NSGRP) - (2003)

This is a national strategy for growth and reduction of poverty, (NSGRP) committed to ensuring that any development activity carried out today does not adversely affect the development needs for future generations. The strategy stresses on the sustainable use of the country's natural resources and avoiding harmful effects on the environment and on people's livelihood.

Moreover, the strategy identifies several sources of growth meant for poverty reduction, one of them being Investment in Physical Capital which mainly emphasis on efficient and cost-effective provision of infrastructure for water supply, transport, power, ICT, with special attention to opening up rural areas and areas with economic potentials in order to address region inequalities.

National Construction Industry Policy (2003)

The main objectives of the Construction Industry Policy include:

- To improve the capacity and competitiveness of the local construction enterprises (contractors, consultants and informal sector)
- To develop an efficient and self-sustaining roads network that is capable of meeting the diverse needs for construction upgrading and maintenance of civil works for trunk, regional, districts and feeder roads network.
- To improve the capacity and performance of the public sector and private sector clients so as to ensure efficient, transparent and effective implementation and management of construction projects.
- To ensure efficient and cost-effective performance of the construction industry that will guarantee value for money on constructed facilities in line with best practices.
- To promote application of cost effective and innovative technologies and practices to support socio-economic development activities such as road works, water supply, sanitation, shelter delivery and income generating activities.
- To ensure application of practices, technologies and products which are not harmful to both environment and human health
- To mobilize adequate resources from both the public sector and the private sector for construction and maintenance of public infrastructure.
- To enhance participation in regional and international co-operation arrangements for the purpose of promoting the capacity and competitiveness of the industry and developing markets for export of its services and products.
- To improve co-ordination, collaboration and performance of the institutions supporting the development and performance of the construction industry.

  With respect to environmental protection and conservation, section 8.2.2 of the National Construction Industry Policy addresses a number of issues regarding the environment. The construction industry is generally said to be a major source of environmental damage and occupational health problems. A number of the industry's activities are environmentally not sustainable partly owing to lack of awareness of environmentally sound practices and technologies.

Moreover, construction activities such as the proposed water supply system affect the environment in many ways: through resource deterioration, physical disruption and chemical pollution. Large civil engineering projects can easily destabilize fragile hill slopes through land clearance and trench excavations to receive water pipes.

The Mineral Policy of Tanzania (1997)

The mineral policy was specifically set for the mineral sector aimed to attract and enable the private sector to take the lead in exploration, mining development, mineral beneficiation and marketing. The policy identifies the role of public sector as to stimulate and guide private mining investment by administering, regulating and promoting the growth of the sector. The policy has put forward some objectives for the mineral sector as follows:

- To estimate exploration and mining development;
- To regulate and improve artisanal mining;
- To ensure that mining wealth supports sustainable economic and social development;
- To minimize or eliminate the adverse social and environmental impacts of mining development;
- To promote and facilitate mineral and mineral-based products marketing arrangement;
- To alleviate poverty especially for artisanal and small scale miners

With specific regard to the infrastructure development sector, section 3.3.8 of the policy stresses on the creation and maintaining of reliable social and economic infrastructure facilities, such as water supply; power supply; communications; education, transport and health services; and recreation are vital for the mineral sector's development.
Moreover, section 3.3.12 of the Tanzania mineral policy emphasises on the integration of environmental and social concerns into mineral development programmes as a means for sustainability of mining sector. As mineral extraction involves different complex processes which directly affect the environment, the policy was set to address all issues due mineral development with respect to the environment. Some of issues addressed are to: reduce or eliminate the adverse environmental effect of mining; improve health and safety conditions in mining areas; and address social issues such as inadequate water supply and poor sanitation affecting women, children and the local community. As well the contractors in the section of water supply project will have to abide to the Mineral Policy in mining areas for building materials including gravel, sand and aggregates.

The National Energy Policy (2015)

Energy Sector plays an important role in the socioeconomic development of any country. To ensure effective management of the sector, the Government of Tanzania launched the first National Energy Policy in 1992. To cope with increasing activities in the Energy Sector and accommodate public sector reform objectives, a new National Energy Policy was launched in 2003. Despite several interventions in the past decade, the Energy Sector still faced some challenges embedded in policy, legal, regulatory and institutional frameworks. To address the challenges and achieve the desired policy objectives, the Government decided to formulate the National Energy Policy, 2015 (NEP, 2015) to enhance provision of adequate, reliable and affordable modern energy services to Tanzanians in a sustainable manner. The new policy also provides comprehensive legal, regulatory and institutional frameworks for petroleum, electricity, renewable energies, energy efficiency as well as local content issues.

This policy outlines to adopt clean technology and minimize pollution in developing the energy sector in the country. It emphasizes utilization of the natural energy resources such as water, gas, coal, petroleum and wind in a sustainable and environmentally friendly way. Furthermore, the policy states that energy is prerequisite for the proper function of all sub-

sectors of the economy and it is an essential service whose availability and quality can determine the success or failure of development plans.
Water supply project being a support facility to the energy sector, will fully observe the requirements of this policy.

National Agriculture Policy (2013)
The National Agriculture Policy (NAP 2013) aims at addressing challenges that continue to hinder the development of the agricultural sector; these include low productivity; over dependence on rain-fed agriculture; inadequate agriculture support services; poor infrastructure; weak agroindustry; low quality of agricultural produce; inadequate participation of the country's private sector in agriculture; environmental degradation and crop pests and diseases. Poor infrastructure touches lack of water supply and poor sanitation.
On the other hand, agricultural development is strongly dependent on environmental resources such as land, forest, air and water. Sustainable utilization of these resources in agriculture is vital to safeguard the environment. Although the intensification of agriculture exerts pressure on natural resources it also contributes to natural carbon pool hence increasing agriculture's contribution to climate change. Mitigation actions should entail efficient crop production systems. There is a consensus that projects construction that result in generation of greenhouse gases, human-driven emissions of carbon dioxide and land-use changes are the processes primarily responsible for climate change in our region. Climate change is also an attribute of unsustainable farming methods and systems including deforestation, land clearing and/or bush fires. The fact that the project is likely to give a better access to other natural resources, due to temporary access to lay water pipes, it thus calls for interventions to ensure that the proposed project is implemented in total observance of the national agriculture policy.

National Livestock Policy (2006)
The National Livestock Policy aims at stimulating development in the livestock industry in order to increase rural and national income, improve food security and environmental conservation. More specifically, this policy endeavours to increase national well-being of all stakeholders involved in the livestock industry. The overall objective of the National Livestock Policy is to develop a competitive and more efficient livestock industry that contributes to the improvement of the well-being of the people whose principal occupation and livelihood is based on livestock.

Water supply is one of the essential infrastructure and facilities that foster livestock development, others include transport means, communication, electricity, storage facilities, dips and markets, sewerage systems, holding grounds, quarantine stations, stock routes and abattoirs. Currently, the infrastructure available is owned and operated by various stakeholders.
The problem noted in the project area related to livestock is that livestock owners are demanding adequate water for livestock drinking. Therefore, under the implementation of this proposed project, firm guidance and directives will be given to livestock owners to liaise with livestock department in the respective districts together with RUWASAs in paying for the services and requirements for livestock.

3.2.2 Laws

The Environmental Management Act (EMA) No. 20 (Cap. 191) of 2004

The act requires a proponent or developer of any undertaking to carry out an EIA prior to commencement of the project. It further specifies that developer will not be allowed to undertake or to cause to be undertaken a project or activity without an Environmental Impact Assessment certificate issued under this Act. Environmental Impact Assessment certificate for this project should be issued before project construction starts. Together with the above requirements, the Environmental Management Act CAP 191, has a set of complimenting regulations which includes the following regulations;

1. Environmental Impact Assessment and Audit Regulations (2005);
2. Environmental Impact Assessment and Audit (Amendment) Regulations of 2018
3. The Environmental (Registration of Environmental Experts) regulations
4. The Environmental Management (Fees and Charges) Regulations 2018
5. The Environmental Management (Hazardous Waste Control and Management) Regulations, 2009
6. The Environmental (Solid waste Management) Regulations, 2009
7. The Environmental Management (Control of Ozone Depleting Substances) Regulations 2007
8. The Environmental Management (Quality Standards for control of noise and vibration Pollution) Regulation 2011
9. The Environmental Management (Water quality Standards) Regulations 2007
10. The Environmental Management (Soil Quality Standards) Regulations, 2007
11. The Environmental Management (Air Quality Standards) Regulations, 2007

In order to implement the proposed project in a sustainable manner and ensure the protection of the environment in the project area, the above regulations will be fully observed in terms of meeting conditions set in there, together with the national environmental standards specified in each of those regulations.

Land Act Cap. 114

The Land Act Cap. 114 (No. 4 of 1999) replaces the previous basic land law of 1923, and establishes three categories of land: general, village and reserved. In addition, land may be declared 'hazard land' where its development might lead to environmental damage, e.g. locations such as wetlands, mangrove swamps and coral reefs, steep lands and other areas of environmental significance or fragility. The Act recognises customary tenure as of equal status to granted rights of occupancy and allows livestock keepers to own pasture land either individually or in groups. Importantly the land act promotes gender equality by recognizing equal access to land ownership and use by all citizens- men and women – and giving them equal representation on the land committees. Now that the project will be implemented on land, the requirement of the Land Act will be fully observed

Village Land Act Cap. 114

The Village Land Act Cap. 114 (No. 5 of 1999) confers the management and administration of village lands to Village Councils, under the approval of the Village Assemblies, although the Minister of Lands is entitled to decide on the amount of land which can be owned by a single person or commercial entity.

The Act also provides for the fundamental principles of National Land Policy which are the objectives of the Village Land Act, 1999 geared towards;

- ensuring that existing rights and recognized long standing occupation or use of land are clarified and secured by the law

- ensuring that land is used productively and that any such use complies with the principles of sustainable development; to take into account that an interest in land has value and that value is taken into consideration in any transaction affecting that interest and
- to pay full, fair and prompt compensation to any person whose right of occupancy or recognized long-standing occupation or customary use of land is revoked or otherwise interfered with to their detriment by the State under this Act or is acquired under the Land Acquisition Act No. 47 of 1967.

In view of these requirements, the project proponent intends to coordinate land use activities with the rightful dwellers along the proposed section of the project sites and routes to reach amicable settlement of private land use.

The Land Acquisition Act, Cap 118 of 2002

The Land Acquisition Act requires the minister responsible for land to pay compensation as may be agreed upon or determined in accordance with the provisions of the Act. The Act stipulates that no compensation shall be awarded in respect of land, which is on vacant ground, or to be limited to the value of the un-exhausted improvement of the land, in case the development of the land is deemed inadequate.

The Act defines the circumstances in which public interest could be invoked, e.g., for exclusive government use, public use, for or in connection with sanitary improvement of any kind or in connection with laying out any new city, municipality, township or minor settlement or extension or improvement of any existing city. Other purposes are in connection with development of any airfield, port or harbour; mining for minerals or oils; for use by the community or corporation within community; for use by any person or group of persons as the President may decide to grant them such land. The acquisition of the land for the public use as well as for the resettlement sites is within the provision of this Act. Further the Act specifies other requirements prior to the acquisition of the land such as investigation for the land to be taken, issuing notice of intention to take land and mode in which notices will be served. It further defines the requirements for and restrictions on compensation.

MWAUWASA will be observing this requirement and has consulted land owners in respective areas through the public meetings and it is expected that compensation for the affected persons will be paid accordingly and the notice for taking land will be issued as early as possible where the land has to be acquired for the project.

The Graves Removal Act No. 9 of 1969

This Act provide for the removal of graves from land required for public purposes. The Act states that if any land on which a grave is situated, is required for a public purpose the Minister may cause such a grave and any dead body buried therein to be removed from the land and, in such case, shall take all such steps as may be requisite or convenient for the reinstatement of the grave and the re-interment of the dead body in a place approved by him for the purpose. Before the removal of the graves, the Act provides for the manner in which the grave has to be removed in terms of serving notices of grave removal intention to respective persons or a religious body. The Act also gives the manner in which the graves can be removed after the expiration of the served notice.

The Act states that compensation payable under graves removal shall be limited to the reasonable expenses incurred in the removal, transportation, reinstatement and re-interment of the grave or dead body and any placatory or expiatory rites or other ceremony accompanying such removal and re-interment.

In case the water supply project and its activities will involve interfering grave sites, the provisions made under this Act will be followed very closely.

Land Use Planning Act No. 6 of 2007

This Act provides for procedures for preparation, administration and enforcement of land use plans; to repeal the National Land Use Planning Commission Act No. 3 of 1984 and to provide for related matters. The objective of the Act is to provide for procedures for the preparation, administration and enforcement of land use plans; to facilitate an orderly management of land use, empower land occupiers and users to make better and more productive use of land, to enhance security and equity in accessing land and its resources;

The Act also provides for a legal framework for planning authorities, at the grassroots level, the mandate to prepare and implement land use plans following the laid out procedures.

The Act is divided into 9 Parts including the following: Preliminary provisions, fundamental principles of the National Land Policy and the National Human Settlement Development Policy, part 3 provides for powers and responsibilities of the Minister, establishment of the National Land Use Planning Commission, its powers and functions, Part 4 provides for sources of funds of the Commission, the powers of the Minister to impose fee and matters relating to accounts and conduct of audit. Part 5 establishes land use planning authorities. It is proposed to vest powers of such authorities to local government authorities. Part 6 contains provisions relating to acquisition of land needed for planning, demarcation, and consolidation of land, rearrangement and readjustment of land, power of entry by an authorized person and issue of statutory easements and for preservation of monuments. Part 7 contains provisions for compulsory compliance with approved/plans, control of the use of land and provides the procedures for appeal by an individual or a group of persons aggrieved with the decision of with the decision of the Commission. Part 8 contains provisions for offences by and penalties for contravention of the provision of this Act. Part 9 provides for miscellaneous provisions which include the power of the Minister to make regulations, the amendment and revocation of approvals, charging of fees, adoption or modifications of plans, rules, standards, instructions and specifications. The project proponent, MWAUWASA, will observe the requirement of the Act in the course of executing the project.

Urban Planning Act No. 8 of 2007

The Act provides for the orderly and sustainable development of land in urban areas to preserve and improve amenities. It also provides for the grants of consent to develop land and powers of control over the use of land and to provide for other related matters.

Section 4.1 of the urban planning Act, 2007, identifies the objectives of urban planning to which all persons and authorities exercising powers under, applying or interpreting this act shall be to:

- facilitate efficient and orderly management of land use,
- empower landholders and users, to make better and more productive use of their land;
- promote sustainable land use practices;
- ensure security and equity in access to land resources;
- ensure public participation in the preparation and implementation of land use policies and plans;
- facilitate the establishment of a framework for prevention of land use conflicts;

- facilitate overall macro-level planning while taking into account regional and sectoral considerations;
- provide for inter-sectoral co-ordination at all levels;
- ensure the use of political and administrative structures and resources available at national, regional, district and village levels; and
- Provide a framework for the incorporation of such relevant principles contained in the national and structural policies as may, from time to time, be defined by the government.

The activities of the proposed water supply project are observing the requirements of land use planning and will abide to all such other development as it may be guided from time to time during the course of the project execution.

Protected Public Places and Recreation Areas Act No. 38 of 1969

This Act was created to provide a process and mechanism for protecting specific lands as is deemed necessary at the discretion of the Minister. The Act provides for imprisonment and fines for persons unlawfully trespassing on such protected land areas. So far, the project does not interfere with any public place or recreation areas but in the course of detailed engineering design if such places are encountered then the requirements of this Act will be fully observed.

Forest Act No. 14 of 2002

This Act deals with the protection of forests and forest products in forest reserves and the restrictions and prohibitions in forest reserves. Forest Management plans are administered under the Forest Act (1957). Any contravention of the restrictions and prohibition is considered an offence under this act and subject to enforcement. The law was revised in 2002 to meet the new requirements under the Forest Policy. The new Forest Act No. 14 of 2002 requires that for any development including mining development, water supply construction and construction of building within a Forest Reserve, Private Forest or Sensitive Forest, the proponent must prepare an Environmental Impact Assessment for submission to the Director of Forestry. The law also requires licences or permits for certain activities undertaken within the national or local forest reserves, such as, among others, felling or removing trees, harvesting forest produce, entering a forest reserve for the purpose of tourism or camping, mining activities, occupation or residence within the reserve, cultivation, erecting any structures. Since the project traverses residential and agricultural areas, there are exotic trees along the transmission and distribution routes not forests. However, during implementation of the project, the requirements of protecting the forests will be observed.

The Mining Act No. 14 of 2010

This Act provides for prospecting of minerals, mining and dealing in minerals. The Act states that "building material" includes all forms of rock, stones, gravel, sand, clay, volcanic ash or cinder or other minerals being used for the construction of buildings, roads, dams, and aerodromes or similar works but does not include gypsum, limestone being burned for the production of lime, or material used for the manufacture of cement.

The Legislation makes EIA mandatory as a precondition for granting various categories of mining licences. Water supply infrastructure construction will involve importation of gravel, crushed stones and sand mined from other places away from the project sites. The requirements of this act will therefore be fully observed.

Explosives Act, Cap. 45, R.E. 2002

This is an Act to make further and better provisions for the control of the manufacture, import, export, purchase, sale, possession and use of explosives, to repeal the explosives ordinance and for matters incidental thereto and therewith.
Section 3 – (1) states, notwithstanding any other provisions of this Act, no other person shall import, manufacture, possess, acquire, or dispose of any explosive substance unless that substance has been approved by the commissioner for use in Tanzania.
The Act prescribes further that only holders of valid licenses and permits issued by the commissioner are allowed to purchase, acquire and use explosives. The proponent may require using explosive to remove rocks along the water transmission mains or distribution lines of the proposed water supply project. The requirements of the Act will be fully observed during implementation of the project.

The Water Supply and Sanitation Act No. 12 of 2009

This Act provides for sustainable management and adequate operation and transparent regulation of water supply and sanitation services to meet the requirements of the National Water Policy, 2002. The Act also provides directives for the establishment of water supply and sanitation authorities as well as community owned water supply organisations and also for appointment of service providers. The Act repeals the Waterworks Act and related matters.
The proposed water supply project passes through some villages with community water supplies which are limited in terms of qualities and qualities. In order to avoid conflicts with these local communities, the requirements of the Water Supply and Sanitation Act will be fully observed in terms of avoiding damage to or interference with such waterworks, avoiding misuse of water and also avoid using water other than for purposes supplied, avoiding bathing, washing, etc. in waterworks, avoiding water pollution.

The Local Government (District Authorities) Act No. 7 of 1982

This Act makes provisions to consolidate laws relating to, local government, to repeal the Local Government Ordinance, repeals certain other written laws and provides for other matters connected with or incidental to the organization of local government in Mainland Tanzania

Since the proposed project will follow existing roads in different established villages, wards, divisions and townships and district authorities, the project proponent (MWAUWASA) will collaborate with these established structures to observe the requirements of the Act.

HIV and AIDS (prevention and control) Act No. 28 of 2008

The Act provides for prevention, treatment, care, support and control of HIV and AIDS, for promotion of public health in relation to HIV and AIDS.
HIV and AIDS education in workplace, the Act requires that every employer in consultation with the ministry shall establish and coordinate a workplace programme on HIV and AIDS for employees under his control and such a programme shall include provision of gender responsive HIV and AIDS education, distribution of condoms and support to people living with HIV and AIDS.

Project proponent will highly observe the requirement of this Act during project implementation by setting aside budgets to facilitate the HIV/AIDS awareness programs, distribution of condoms and support to those living with the disease.

Employment and Labour Relations Act No. 6 of 2004

Among other things, an Act provides for core labour rights, establishes basic employment standards, provides framework for collective bargaining, and provides for prevention and settlement of disputes.
A contract with an employee shall be of the following form;

a) A contract for an unspecified period of time;
b) A contract for a specified period of time for professionals and Managerial cadre,
c) A contract for a specific task.

Subject to the provisions of subsection (2) of section 19, of this Act an employer shall supply an employee, when the employee commences employment, with the following particulars in writing, namely -

a. Name, age, permanent address and sex of the employee;
b. Place of recruitment;
c. Job description;
d. Date of commencement;
e. Form and duration of the contract;
f. Place of work;
g. hours of work;
h. Remuneration, the method of its calculation, and details of any benefits or payments in kind, and
i. Any other prescribed matter.

Therefore, project proponent will ensure that all employees are treated equally as per requirements of this law.

The Workers Compensation Act, (CAP 263 R.E 2015)

This Act provides for compensation to employees for disablement or death caused by or resulting from injuries or diseases sustained or contracted in the course of employment. The Act sets guidance to establish the Fund for administration and regulation of workers' compensation and makes provisions for related matters.
The objectives of this Act are;

a) provide for adequate and equitable compensation for employees who suffer occupational injuries or contract occupational diseases arising out of employment, and in the case of death, for their dependants;
b) provide for the rehabilitation of employees who have suffered occupational injuries or contracted occupational diseases in order to assist in restoring their health, independence and participation in society;
c) provide for a framework for the effective, prompt and empathetic consideration, settlement and payment of compensation benefits to employees and their dependants;
d) provide for the establishment, control and administration of the workers compensation fund, and the legal framework for the workers compensation fund, and the legal frame work for contributions to and payments from the Fund;
e) give effect to the international obligations with respect to workers; compensation; and
f) promote prevention of occupational accidents and occupational diseases.

The Project Proponent, MWAUWASA will ensure that conditions are set in the contracts for construction of the proposed water supply project which fully observes the requirements of this Act.

The Water Resources Management Act No. 11 of 2009

Water legislation has been updated to bring it in line with the National Water Policy 2002. This current Water Resources Management Act No. 11 of 2009 provides for institutional and legal framework for sustainable management and development of water resources; outlines principles for water resources management; provides for the preventions and control of water pollution; provides for participation of stakeholders and the general public in implementation of the National Water Policy; repeals the Water Utilization (Control and Regulation) Act, 1974 and vests all water in the country to the Government of United Republic of Tanzania and sets procedures and Regulations for the extraction of water resources.
The Act also sets standards for receiving waters and effluent. It is anticipated that the proposed project will abstract water from Lake Victoria, treat it, convey it to elevated tanks and finally distribute it for use by the respective communities within the project area. The contractor and the proponent will observe all the requirements including use of the abstracted water for construction activities and ensure that no pollution or mismanagement of the existing water resources and thus respect and maintain the existing system of water rights.

The Occupational Health and Safety Act No. 5 of 2003

This Act sets provisions for the safety, health and welfare of persons at work in factories and other places of work. It is also meant to provide for the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with activities of persons at work; and provides for connected matters. The proposed water supply project will eventually be a place of work to be registered as per OSHA regulations that govern the places of work and observe all safety and health practices at work sites by its consultants, contractors and sub-contractors. Based on the requirements of this Act, the Proponent together with the appointed Contractor for the project will observe the requirements of this Act.

3.2.3 Acts Dealing with Trades and Professional Ethics/Conduct

The Architects and Quantity Surveyors Act No. 16 of 1997 R.E. 2002

This act provides for establishment of the Board of Architects and Quantity Surveyors responsible for registering and regulating the conduct of the Architects, Quantity Surveyors and Architectural and Quantity Surveyors Consulting Firms. The project proponent is observing the requirements of this act and is ready to assist the board during inspections of the project works.

The Engineers Registration Act No. 15 of 1997, R.E. 2002.

This is an act which formed the Engineers Registration Board, a statutory body with the responsibility of monitoring and regulating engineering activities and the conduct of engineers and engineering consulting firms in Tanzania through registration of engineers and engineering consulting firms. Under the law, it is illegal for an engineer or an engineering firm to practice Engineering profession if not registered with the board. The

board has also been given legal powers and has the obligation to withdraw the right to practice from registered engineers if found guilty of professional misconduct or professional incompetence. Registration with the board is, thus, a licence to practice engineering in Tanzania.
The proposed water supply project is an engineering assignment and the project proponent is observing all the requirement of this act through engaging the services of personnel and firms that are registered with the Engineer's Registration Board.

The Contractor's Registration Act No. 17 of 1997, R.E. 2002.

This is an act which provides for registration of contractors and also establishment of the Contractors Registration Board, the body responsible for regulating the conduct of contractors in Tanzania. The project proponent will equally abide by all requirements of this Act in terms of supporting the activities of the board during inspection of any site for project construction, installation works for the purpose of verifying and ensuring that the works are being undertaken by registered contractors; and that the works comply with all governing regulations and laws of the country;

3.2.4 Regulations and Guidelines

Environmental Impact Assessment and Audit Regulation of 2005 and Environmental Impact Assessment and Audit (Amendment) Regulations of 2018

These regulations were prepared under EMA 2004 and require developers to conduct an Environmental Impact Assessment for any project likely to have negative impacts on the environment. Application for an Environmental Impact Assessment certificate is necessary for any such project.

Environmental Impact Assessment (EIA) Procedures (March 2002)

The National Environment Management Council (NEMC) developed EIA guidelines and procedures using information from international agencies (NORAD, DANIDA, ODA, ADB, World Bank) and checklists from UNEP. The guidelines are contained in five volumes:

Vol. 1: Procedures and General Information on EIA
Vol. 2: Screening and Scoping Guidelines
Vol. 3: Report Writing Guidelines and Requirements
Vol. 4: Review and Monitoring Guidelines
Vol. 5: General Checklist of Environmental Characteristics

These guidelines were closely followed while preparing Environmental Impact Assessment for any project.

Land (Compensation Claims) Regulations, 2001

This provides the basis for eligibility for compensation. It sets out the rights and entitlement for the one claiming compensation. It also provides that compensation takes the form of monetary compensations, or may, at the option of the Government, take the form of all, a combination or any of the following;

i. A plot of land of comparable quality, extent and productive potential the land loss;
ii. A building or buildings of comparable quality extent and use comparable to the building or buildings lost;

iii. Plant and seedlings; and Regular supplies of grain and other basic foodstuffs for a specified period.

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

The Land Regulations were made under section 179 of the Land Act 1999, and provide all specific forms required for Management and Administration, Granted Right of Occupancy, Mortgage, Lease, Easement, Co-occupancy and others including compensation forms (Forms 69 and 70).

These regulations provide criteria for the assessment of compensation on land, as per market value for real property; disturbance allowance is calculated as a percentage of market value of the acquired assets over twelve months; and transport allowance calculated at the cost of 12 tons hauled over a distance not exceeding 20 km. The other criteria include loss of profit on accommodation based on audited accounts and accommodation allowance equivalent to the rent of the acquired property per month over a 36-month period.

The current enactment in force which governs compensation is the Land Acts No. 4 and 5 of 1999. At Section 3(g) it is pointed out that, compensation for loss of any interest in land shall be based on the concept of opportunity cost. It is further elaborated that; the concept of opportunity cost shall be based on the following: -

- The Market Value of the Real Property
- Disturbance allowance
- Transport allowance
- Loss of profits /income or accommodation
- Cost of acquiring or getting an equivalent land
- Any other immediate costs, loss or capital expenditure incurred to the development of the subject land and
- Interest at market rate

The proposed project proponent will have to make use of these current Land Acts of 1999 for payment of compensation.

The Water Supply Regulations, 2013

These Regulations apply to any area designated and declared to be a Water Supply and Sanitation Authority, clustered water authority and any person providing water supply and sanitation services. Also, where the circumstances necessitate any provision to these Regulations apply to a community owned water supply organization, any reference to any water authority shall be deemed to include community owned water supply organization.

Among other regulations, regulation 19 refers to the price of water where it is stated that the water supplied by the water authority and any service provided by the water authority shall be supplied at a price as may be proposed by the water authority and approved by EWURA. The regulations also set conditions for water supply and related matters. Since MWAUWASA is a statutory body administering the activities under these regulations, it will continue observing the requirements of these regulations.

3.2.5 International Treaties and Conventions

Tanzania has ratified a number of Multilateral Environmental Agreements (MEAs) and consequently has duties under those agreements. The most relevant MEAs to this study are:

Table 3: Multilateral Environmental Agreements (MEAs) (Treaties and Conventions ratified by Tanzania)

Type of Convention	Name of Convention	Relevance to the Water Supply Project
Bio diversity related Conventions	Convention of Biological Diversity, (1992) ratified by Tanzania in 1996, Convention to combat, desertification, particular Africa, Paris 1994, The Cartagena Protocol on Bio safety to the convention on Biological Diversity (2000).	Project activities will involve clearing of vegetation from borrow sites, quarry sites and camp sites. Re-vegetation will be carried out upon completion of the works. The project will also work with the respective communities in the conservation of available ecosystems.
Other Conventions	The convention concerning the Protection of World Cultural and Natural Heritage, Paris, (1972), The convention of Wetlands of International Importance especially as water fowl Habitat (The Ramsar Convention) (1971) ratified by Tanzania in 1998).	The project operations may encounter areas with endangered flora and fauna species. In such cases the project staff and the contractor will in no event involve themselves in the trade of such species
Climatic change Conventions	The United Nations Framework convention on climatic change (1992) Kyoto Protocol (1997)	The project will prevent the leakage of greenhouse gases into the atmosphere through regular maintenance of construction equipment.
Chemicals and Ozone Protection Conventions	Basel convention on the control of Trans boundary movements of Hazardous Waste and their Disposal, 1989. Rotterdam convention on prior Informed Consent Procedure Stockholm Convention on Prior Informed Organic Pollutants Vienna Convention on protection of Ozone Layer The Montreal protocol on substances that deplete the ozone layer, Montreal, 1987 Protocol on Liability and compensation on Damage resulting from Trans boundary movement of Hazardous waste and their disposal, 2000	All wastes generated along the project route will never be moved beyond Tanzania Boundaries. Permitted disposal will be done in Tanzania. Cooling facilities (fridges) to be used by the project will not be using chlorofluorocarbons (CFC's)

3.3 The World Bank's Safeguard Policies

The World Bank has keen interest in protection of the environment, for investment projects they support, in line with its safeguards policies. These policies provide guidelines, aimed at preventing and mitigating undue harm to people and the environment, when implementing development projects. The safeguard policies provide a platform for the participation of stakeholders in project design and implementation and the relevant policies to this project are:

- Environmental Assessment (OP/BP 4.01)
- Natural Habitats (OP/BP 4.04)
- Forests (OP/BP 4.36)
- Involuntary Resettlement (OP/BP 4.12)
- Indigenous Peoples (OP/BP 4.10)
- Pest Management (OP 4.09)
- Physical Cultural Resources (OP/BP 4.11)

The construction of water supply project triggers some of these operational policies of the World Bank as presented below

3.3.1 OP/BP 4.01 Environmental Assessment Policy

The objective of this policy is to ensure that Bank-financed projects are environmentally sound and sustainable, and that decision-making is improved through appropriate analysis of actions and of their likely environmental impacts. This policy is triggered if a project is likely to have potential (adverse) environmental risks and impacts on its area of influence. OP 4.01 covers impacts on the natural environment (air, water and land); human health and safety; physical cultural resources; and trans-boundary and global environment concerns.

Depending on the project, and nature of impacts a range of instruments can be used: EIA, environmental audit, hazard or risk assessment and environmental management plan (EMP). When a project is likely to have sectoral or regional impacts, sectoral or regional EIA is required. The Borrower is responsible for carrying out the EIA.

Under Project, the project proponent MWAUWASA has facilitated the undertaking of Environmental and Social Impact Assessment to assess the social and environmental impacts of the project.

3.3.2 OP/BP 4.12 Involuntary Resettlement

The policy acknowledges that development projects that displace people generally give rise to economic, social and environmental problems. Its objective therefore, is to avoid or minimize involuntary resettlement where feasible, by exploring all viable alternative project designs. OP 4.12 is intended to assist displaced persons in maintaining or improving their living standards. It encourages community participation in planning and implementing resettlement; and in providing assistance to affected people, regardless of the legality of title to the land they possess, which has to be acquired for project activities. The Bank guidelines therefore, prescribe measures to minimize the negative impacts to ensure that the displaced community benefits from the project and to ensure that the affected persons are:

- compensated for their losses at full replacement costs prior to the actual move;

- assisted with the move and supported during the transition period in the resettlement site;
- assisted in their effort to improve (or at least restore) their former living standards, income earning capacity and production levels;
- integrated socially and economically in the host communities, so that adverse impacts in the host communities are minimized. This is best achieved through appropriate planning and consultation, involving affected people.

In addition; land, housing, infrastructure and other compensation should be provided to the adversely affected population, indigenous groups, ethnic minorities, and pastoral people who may have customary rights to the land and other resources taken for the project. The absence of legal title to land by such groups should not be a bar to compensation.
The policy is triggered not only if physical relocation occurs, but also by any loss of land resulting in relocation or loss of shelter; loss of assets or access to assets; loss of income sources or means of livelihood, whether or not the affected people must move to another location.
The existing policies, land laws and regulations regarding land acquisition and compensation in the country should be generally consistent with the World Bank Operational Guidelines. Therefore, if necessary at all, compensation could still be handled within the existing regulations, without contradicting the World Bank Policy requirements. *However, since the construction of water supply project will be confined within the road reserve or along the existing road there are a few properties that are likely to be interfered with the proposed project thus the respective policy is triggered.*

3.3.3 OP/BP 4.04 Natural Habitats

This policy recognizes that the conservation of natural habitats is essential to safeguard their unique biodiversity and to maintain environmental services and products for human society and for long-term sustainable development. The Bank therefore supports the protection, management, and restoration of natural habitats in its project financing, as well as policy dialogue and economic and sector work. The Bank supports, and expects borrowers to apply, a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development. Natural habitats are land and water areas where most of the original native plant and animal species are still present. Natural habitats comprise many types of terrestrial, freshwater, coastal, and marine ecosystems. They include areas lightly modified by human activities but retaining their ecological functions and most native species.
This policy is triggered by any project (including any sub-project under a sector investment or financial intermediary) with the potential to cause significant conversion (loss) or degradation of natural habitats, whether directly (through construction) or indirectly (through human activities induced by the project).
The policy is likely to be slightly triggered as there are wetlands to be crossed by the proposed water supply project sections however it is not expected that there will be significant conversion of natural habitats since the project will be traversing areas used for residential and agricultural activities. Wetland management plans to limit impacts of the wetlands will be put in place.

3.3.4 OP/BP 4.36 Forests

The objective of this policy is to assist borrowers to harness the potential of forests to reduce poverty in a sustainable manner, integrate forests effectively into sustainable economic development and protect the vital local and global environmental services and values of forests. Where forest restoration and plantation development are necessary to meet these objectives, the Bank assists borrowers with forest restoration activities that maintain or enhance biodiversity and ecosystem functionality. The Bank assists borrowers with the establishment of environmentally appropriate, socially beneficial and economically viable forest plantations to help meet growing demands for forest goods and services.
This policy is triggered whenever any Bank-financed investment project (i) has the potential to have impacts on the health and quality of forests or the rights and welfare of people and their level of dependence upon or interaction with forests; or (ii) aims to bring about changes in the management, protection or utilization of natural forests or plantations.
The policy is likely to be triggered as some of the project areas may pass through forests along the transmission and distribution pipelines will have to be cleared to allow the water supply construction works.

3.3.5 OP 4.09 Pest Management

The objective of this policy is to (i) promote the use of biological or environmental control and reduce reliance on synthetic chemical pesticides; and (ii) strengthen the capacity of the country's regulatory framework and institutions to promote and support safe, effective and environmentally sound pest management. More specifically, the policy aims to (a) Ascertain that pest management activities in Bank-financed operations are based on integrated approaches and seek to reduce reliance on synthetic chemical pesticides (Integrated Pest Management (IPM) in agricultural projects and Integrated Vector Management (IVM) in public health projects. (b) Ensure that health and environmental hazards associated with pest management, especially the use of pesticides are minimized and can be properly managed by the user. (c) As necessary, support policy reform and institutional capacity development to (i) enhance implementation of IPM-based pest management and (ii) regulate and monitor the distribution and use of pesticides.

The policy is triggered if: (i) procurement of pesticides or pesticide application equipment is envisaged (either directly through the project, or indirectly through on-lending, co-financing, or government counterpart funding); (ii) the project may affect pest management in a way that harm could be done, even though the project is not envisaged to procure pesticides. This includes projects that may (i) lead to substantially increased pesticide use and subsequent increase in health and environmental risk; (ii) maintain or expand present pest management practices that are unsustainable, not based on an IPM approach, and/or pose significant health or environmental risks.
Under the water supply construction project, the policy will not be triggered as the project will not involve any pesticides

3.3.6 OP/BP 4.11 Physical Cultural Resources

The objective of this policy is to assist countries to avoid or mitigate adverse impacts of development projects on physical cultural resources. For purposes of this policy, "physical cultural resources" are defined as movable or immovable objects, sites, structures, groups of structures, natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural

resources may be located in urban or rural settings, and may be above ground, underground, or underwater. The cultural interest may be at the local, provincial or national level, or within the international community.
This policy applies to all projects requiring a Category A or B Environmental Assessment under OP 4.01, project located in, or in the vicinity of, recognized cultural heritage sites, and projects designed to support the management or conservation of physical cultural resources.
The policy is may be triggered during excavation of fill materials at both existing and new borrow sites however it is not expected that physical cultural resources will be affected.

3.3.7 OP/BP 4.10 Indigenous Peoples

The objective of this policy is to (i) ensure that the development process fosters full respect for the dignity, human rights, and cultural uniqueness of indigenous peoples; (ii) ensure that adverse effects during the development process are avoided, or if not feasible, ensure that these are minimized, mitigated or compensated; and (iii) ensure that indigenous peoples receive culturally appropriate and gender and inter-gene rationally inclusive social and economic benefits.

The policy is not triggered as it is not expected that indigenous peoples will be affected by the proposed project and above all the project will follow roads of access that are in existence in the project area.

3.4 Administrative Framework

3.4.1 Government Agencies Responsible for Environmental Issues

The administrative and institutional arrangements for environmental management for all sectors in Tanzania are stipulated in the Environmental Management Act No. 20 of 2004. There are seven (7) institutions mentioned by the act, of which the Minister Responsible for Environment is the overall in-charge for administration of all matters related to the environment. The legal institutions for environmental management in the country include:

National Environmental Advisory Committee

The EMA 2004 stipulates the obligations of the National Environmental Advisory committee as to advice the minister responsible for environment or any sector ministry on all matters regarding the environment. In this particular development, the national advisory committee has to recommend to the minister or sector ministry on the protection and management of the environment based on the EIA report.
The committee further reviews and advise the minister on any environmental standards, guidelines and regulations pertinent to the environmental protection.

Minister Responsible for Environment

The Minister responsible for Environment, VP Office is the overall responsible for all matters relating to environment, responsible for all policy matters necessary for the promotion, protection, and sustainable management of Environment in Tanzania.

Director of Environment

The Director of Environment coordinates various environmental management activities being undertaken by other agencies and promotes the integration of environment consideration into policies, plans and programmes, strategies and projects.

National Environment Management Council (NEMC)

EMA 2004 gives National Environment Management Council (NEMC) the overall responsibility for undertaking the enforcement, compliance, review and monitoring of Environmental Impact Assessment and in this regard facilitates public participation in environmental decision-making. NEMC is responsible for screening and reviewing big investments and projects of the national significance.

Sector Ministries

Sector ministries, in this case the environmental section in the Ministry of Water, through MWAUWASA is responsible for the following duties as far as the proposed project is concerned,

- Coordinate the activities related to the environment within the ministry,
- To ensure that environmental concerns are integrated into the ministry or in a department of development planning and project implementation in a way this protects the environment,
- To prepare and coordinate the implementation of environmental action plan at the national and local levels and
- To ensure that sectoral standards are environmentally sound, and the like.

The Ministry of Lands and Human Settlements Development will be consulted to coordinate all activities related to land valuation, compensation and resettlement procedures, if there is such a need.

Ministry of Water, Safety and Environment Division

Ministry of Water now has four main divisions.

- Technical Services
- Safety and Environment

Since MOW has a main stake in the water sector, the ministry formulates policy, sets standards and specification; define the long term strategic plans; monitors and controls application of the regulations; and participates in the management of the executive agencies. In the Ministry, environment falls under Safety and Environment Division.

Under the Safety and Environment Division there is a Safety and Environment Unit (SEU) responsible for implementation of environmental management matters in the water sector. For environmental assessment of the proposed project, the SEU:

- Prepares strategic environmental assessment (SEA);
- Screens application form to determine the level of environmental assessment;
- Assesses and comments on environmental assessment;
- Advises the ministry for approval of environmental assessment reports;
- Participates in EIA review in collaboration with NEMC;
- Controls the implementation of environmental management plan (EMP);
- Promotes public environmental awareness;

- Assist in the development and implementation of the environmental management system;
- Advises the ministry on all environmental issues related to water supply construction, upgrading, and maintenance and operation.

3.4.2 Regional and District Administrative Structures

The Regional Administration Act No. 9 of 1997 provides for Regional Commissioners to oversee Regional Secretariats, with District Commissioners directly supervising the District Councils. Local authorities oversee the local planning processes, including establishing local environmental policies.

The National Environmental Policy establishes a policy committee on environment at regional level chaired by the Regional Commissioner, mirrored by environmental committees at all lower levels, i.e. at the district, division, ward and village or "mtaa" councils.

At Local Government level, an Environmental Management Officer should be designated or appointed by each City, Municipal, District or Town Council. In each City or Municipality or District, Environmental Committees should be established in order to promote and enhance sustainable management of the Environment.

The Village Development Committee is responsible for proper management of the environment in their respective areas. The District Council designates for each administrative area as township, ward, village, "mtaa", "kitongoji" an Environmental Management Officer to coordinate all functions and activities related to protection of environmental in their area.

Regional Secretariat

The Regional Secretariat, which is headed by Regional Environmental Management Expert (REME), is responsible for coordination of all environmental management programmes in their respective regions and in liaison with the Director of Environment. The Regional Environmental Management Expert is responsible for advising the local authorities on matters relating to the implementation of and enforcement of environmental by-laws/Act; Creating a link between the region and director of environment and the Director General of the council (NEMC).

Local Government Authorities (City, Municipal, District, Township, Ward, Village, sub-village "Mtaa", "Kitongoji")

The environmental management officer under the local government authority is responsible for promoting environmental awareness in the respective area on the protection of the environment and conservation of natural resources. Furthermore, he is the one to prepare, review and approve the EIA for local investments.

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

- Ensure enforcement of the Environmental Management Act in their respective areas,
- Advise 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 all local investors,
- Review by-laws on environmental management and on sector specific activities related to the environment,
- Report to the DoE and the Director General of the NEMC on the implementation of the Environmental Management Act,
- Perform other functions as may be assigned by the local government authority from time to time.

All of the above institutions are responsible for the environmental management of the water supply project and their link to this project are specified in functions as enumerated in the respective sections above.

CHAPTER FOUR

4. Baseline Conditions

4.1 Project location and level of townships development

4.1.1 Project location

The general proposed area for this project is in Geita Region. Geita Region is one of Tanzania's 31 administrative regions. The regional capital is the town of Geita. Geita Region is located in northern west of Tanzania and lies between latitudes 2°8' and 3°28' South of the equator and longitude 31^0 15' and 32^0 48' East of Greenwich. The region is 1,100 to 1,300 metres above sea level and shares borders with five regions, namely Kagera Region to the west and north west; Tabora and Shinyanga regions to the south; Shinyanga Region to the south east; Kigoma Region to the south and south west; and Mwanza Region to the north and north east. The region is also bound by Lake Victoria waters in the north.

4.1.2 Townships pace of development

Katoro and Buseresere are sister townships in Geita Region located about 150 km south-west of Mwanza city. Over the recent years, these sister townships have been developing fast due to a number of economic activities taking place in these towns and adjacent areas. The satellite image below Figure 5 presents the extent of housing development in the townships

Figure 6 : Satellite image of Katoro and Buseresere townships

Figure 7: Satellite image of Minkoto township

Figure 8: Satellite image showing Bwanga township

4.2 Physical environment

Area coverage

The total surface area occupied by Geita Region is 21,879 sq. kms. out of this area 1,150 Square kilometres (about 5.3%) is covered by water, dominated by Lake Victoria. This leaves only 20,729 (94.7%) sq. kms. of dry land.

Climate and soils

Geita Region has moderate temperatures of between 22^0 C and 30^0 C with an average rainfall ranging from 900 mm to 1200 mm per annum. Rainfall is fairly evenly distributed with short rains from September to December followed by a dry spell from January to February before long and heavy rains set in from March till the end of May. From June to September the region is subjected to dry season. During the hot season humidity is thirty-five percent (35%), and rises up to sixty percent during the rainy season. Geita Region is characterised by undulating land spotted with hills and mountains. The land is also characterised by black cotton soils, loam, sand, sandy loam and clay loam soils, which are

suitable for growing varieties of crops including cassava, bananas, finger millet, sisal, sunflower, coffee, tobacco, pyrethrum, macadamia nuts, sorghum, mangoes sweet potatoes, beans, groundnuts, paddy, maize, cotton, millet, simsim, wheat and a range of horticultural products such as tomato, onions, legumes (lentils) and vegetables. Geita also produces plenty of fruits such as passion, pineapples, mangoes, and watermelons.

4.3 Biological baseline

(i) Western Zone

The western zone of Geita Region includes Chato District (Bwanga and Kachwamba divisions) and some parts of Bukombe District (Siloka Division). This zone is characterised by an average annual rainfall of between 700 mm and 1000 mm, which is conducive for the cultivation of agricultural crops including cotton, cassava, paddy, maize, sweet potatoes and sorghum.

(i) The Lake Shore Zone

This zone is located at 1,300 metres above sea level and receives an average rainfall of between 700 mm and 1300 mm. The zone includes parts of Chato District (Buseresere, Bozilayombo and Nyamilembe divisions) and Geita District (Bugando and Butundwe divisions). Farmers in this zone grow various crops, notably cotton, cassava, paddy, maize, sweet potatoes, pineapples, groundnuts, legumes and coffee. Free range and tethering systems are prominently used for cattle, goats and sheep grazing.

(iii) The Eastern Zone

This zone includes Nyang'hwale District and some parts of Geita District (Kasamwa Division). It is characterised by farming of a wide range of crops, namely maize, paddy, sunflower, lentils, cassava, cotton, and chickpeas. It receives an average annual rainfall of between 600 mm and 1000 mm.

(iv) The Southern Zone

This zone includes Mbogwe District and some parts of Bukombe District (Bukombe and Ushirombo divisions) and Geita District (Busanda Division). It receives an average annual rainfall of between 750 mm and 900 mm. The southern zone is famous for production of cotton, paddy, groundnuts, sorghum, and maize. Livestock keeping (cattle) is also predominant in this zone.

4.4 Socio-Economic Baseline district-wise

4.4.1 Chato District

4.4.1.1 Chato district Council and its location

Chato district is located between 2^0 15' – 3^0 15' South of Equator and 31^o – 32^o East of "Standard Meridian". It is within the altitude ranging between 1135 – 1410 m. above sea level and borders Muleba District to the North, Bukombe to the South, Biharamulo to the West and Geita to the East. The district covers an area of 3,572 Km^2 of which 3,472 Km^2 is dry and 100 Km^2 is covered by Lake Victoria.

4.4.1.2 Administrative Units

Chato is among five districts, which constitute Geita region. The Chato council was established in 2007. It has five divisions namely, Buzirayombo, Bwanga, Buseresere, Kachwamba and Nyamirembe with 23 wards, 115 villages and 599 hamlets.

4.4.1.3 Main economic activities and Production sectors in the district

Chato District has an area of 267,900 hectares of arable land of which 99,123 hectares are under cultivation. Note that land is the primary productive resource for development. With reference to the population census (2002) the distribution of the total labor force was as shown in the table below.

Table 4: Division of labor force (2002) in the district

No.	Sector	Percent	Remarks
1	Agricultural	7.4	
2	Forestry, fishing and related industries,	78.7	The majority were in the fishing industry, even children for villages along the lake shores
3	Trade and Commerce	14.1	
4	Mining and quarrying	12.2	
5	Public administration and Education sectors	12.1	These include formal employees
6	Other remaining categories	15.5	

Source: District Socio-economic profile (2014)

However, the above information in table 4 must have been changed with time and material but have not been updated.

Agriculture: Chato's agricultural sector comprises both crops and livestock production. The major food crops grown include; maize, rice, cassava, beans, potatoes, while cotton and tobacco are the main cash crops grown in the district. Both commercial and subsistence farming are practiced by farmers in the district. According to the district information, it contributes more than 73% of the District GDP and more than 77% of the district labour force depends on this sector for their earning.

Industries: By the time of preparation of the district profile, it had limited number of industries so far developed as a sector. The main significant industries are cotton ginning which process seeds and cotton lint ready for semi processing. Some factors which contribute to poor development of industries in the district include lack of capital, inadequate knowledge and proper technology especially in mining sector.

Trade & industries: These are mainly dependent on the development of small scale-mining activities and fishing which attract a great number of emigrants. However, some emigrants purposely come for trading activities of different kinds especially in the growing town centres. The mining business has been explored in some areas

like Buseresere, Bwanga, Nyantimba and Makurugusi wards whereby small scale gold mining is being carried out. Beekeeping activities are also done in the district mainly in Bwanga and Nyamirembe divisions. The honey produced is sold locally and is mostly used to prepare different types of local brews.

Tourism: Promotion of tourism industry is low though there are many tourism potential attractions in the District which are Community Based Conservation areas, beautiful hills, photographing areas, lake shores, Lake for canoeing, swimming, sport fishing, and forest reserve, etc.

Fisheries
As shown in table 4 above, fishing is one of the most promising industries for economic development in the district, undertaken in Lake Victoria. Fish and fish products are mostly sold within the district and to fish processors in Mwanza.

Tourism
The district has neighbouring areas for tourism and one of the most famous areas is the Rubondo Island which is found in the North part of Chato. The Island is the National park which is under the control of TANAPA. Within the Island there are various animals such as elephants, crocodiles, giraffes, bushbucks, otters, different types of snakes, baboons, black rhinos, roan antelopes, chimpanzees, black and white colobaus, suni and grey parrots. These animals and others attract tourists and various people from abroad and within the country come to visit the place.

Irrigation:
The District has total potential area of 11,010 hectares for irrigation which require adequate water for reliable production. Potentiality, crop and livestock production provide opportunities of investing in small industries of upgrading (add value) food and livestock products.

4.4.1.4 Ethnic Groups
Chato has different ethnic groups and the dominant ones are Wasukuma and Wajita. Other tribes include Wahaya, Wasumbwe, Waha, etc

4.4.1.5 Population
According to the Census (August, 2012), Chato district council had a total population of 365,127 people of which 181,368 were males and 183,759 were females. The average growth rate was 4.1%. The District's population is growing very fast and consequently there are inadequacies in providing the various services, as discussed in the later sections. According to the district profile, the average household size was 6 people (2014) per household, with a total of 60,855 private households by then (2014). The rapid population increase is influenced by both natural causes and immigration (birth rates and net immigration rates respectively).

4.4.1.6 Health services

Essentially the improved health in the district is vital for people to fully participate in production of goods and services otherwise economic and social development

will be stagnant. This improvement depends on factors like number of health facilities, quality of services (number and qualified personnel and availability of medicines, infrastructure, etc.), motivation, etc. According to the socio-economic profile of the district council, the table below provides type and number of facilities as shown below:

Table 5: Number of Health facilities in Chato District Council

Type of health facility	**Amount by type of ownership**			**Total**
	Government	**FBOs**	**Private**	
Hospitals	1	-	0	1
Heath centre	9	-	0	9
Dispensaries	40	-	14	54
Total	**50**	**-**	**14**	**64**

Source: Chato District Profile - Health Department (2014)

Note that due to development trends, this number has changed, that is, the number of facilities has increased.

Table 6: Types and number of Health facilities – Chato district up to 2020

Type of facility	**Amount by type of ownership (owned by Government**	**Private owned**	**Other**	**Total**
	Profile (2014)	**Profile (2014)**	**Profile (2014)**	**Profile (2014)**
Hospital	1	0		1
Health Centre	9	0		9
Dispensaries	40	14		54
Total	**50**	**14**		**64**

The extracted information from the district council profile of 2014, shows that the Top Ten Diseases (2010) include Malaria, Other Diagnosis, ARI, Diarrhea, Intestinal worms, Pneumonia, and Skin Diseases. The eighth disease is Eye condition, followed by Genital Discharge and lastly Clinical AIDS. The table below indicates type of disease, number of people suffered from each of the diseases.

Table 7**:** Type of disease and number of patients per disease in 2010

No.	Name of disease	Number of people suffered per disease		
		Male	Female	Total
1	Malaria,	19,186	19,541	38,727
2	Other Diagnosis	11,004	9,690	20,694
3	ARI	9,168	8,901	18,069
4	Diarrhea	3,916	4,140	8,056
5	Intestinal worms	3,390	4,476	7,866
6	Pneumonia	3,312	2,260	5,572
7	Skin Diseases	1,656	1,677	3,333
8	Eye condition	1,095	841	1,936
9	Genital Discharge	679	500	1,179
10	Clinical AIDS	733	405	1,138
Total		**54,139**	**52,431**	**106,570**

Source: Chato District Profile (2014) / Health Department (2010)

As indicated in the table above, there are diseases which occurred because of water shortage or lack of water in the areas, poor condition of surroundings including waste water which host harmful insects like mosquitoes. The diseases include malaria, diarrhea, intestinal worms, etc. The proposed water supply project will help to improve the situation and contribute to reduce the occurrence of some of the diseases in the district especially in the proposed townships and villages.

4.4.1.7 Water supply

Given the essentiality of water service for human being as well as for animals and plants, its supply or availability is neither adequate nor qualitatively supplied in the District.

Up to 2014, the District had **2** water piped scheme of Nyamirembe and one gravity scheme in Kasenga. Currently, there are (3) piped schemes of water in the district including the gravity scheme(s). The majority of people in different locations depend on water obtained from different types of wells as shown in the table hereunder.

Table 8**:** Types and number of water existing sources

No.	Type of water source	Year		
		2007	2014	2020
1	Deep wells	29	35	
2	Shallow wells	169	126	
3	Piped schemes		2	
4	Water harvesting tanks		35	
5	Traditional wells			

	Population access (%)	29	43	
Total				

Source: Socio-economic District Profile (2014)

4.4.1.8 Education

According to the district profile (2014), the main objective of providing education is to ensure availability and quality education service in the district. There are different levels of education attainment within the district as illustrated in the table below;

Table 9**:** Different levels of education, number of schools and students / pupils (2014)

No.	Level of education	Govt. owned	Private	Total	Number of boys	Number of girls	Total
1	Pre-primary schools	119	3	122	47,791	5,106	9,897
2	Primary schools (Std II – Std VII)	128	3	131	30,852	30,340	61,192
	Primary Schools (Std I) (Enrolled in 2014)	-	-	-	8,206	7,859	16,065
3	Secondary schools	24	0	24	6,398	4,252	10,649
4	Technical / Vocational training	3	0	3			

Source: District profile (2014) / Education Department (Chato)

It was found that up to 2014, there were 1,495 of which 993 are male and 502 are female teachers. The total deficit was 944 teachers, while the ratio was by then 1:52 for secondary schools. Apart from deficit of teachers, Chato education sector is facing other challenges whereby students fail to complete their studies due to truancy, pregnancy for girls and death or chronic diseases. The table below depicts statistics from 2008 to 2012.

Table 10**:** Challenges preventing students to complete their studies in Chato

Year	Truancy			Pregnancy			Others (Death, Diseases)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2008	47	26	73	-	37	37	22	19	41
2009	-	-	-	-	19	19	-	-	-
2010	729	298	1,027	-	21	21	22	10	32
2011	-	-	-	-	15	15	-	-	-
2012	593	396	989	-	7	7	7	7	14
Total	**1,369**	**720**	**2,089**	**-**	**272**	**272**	**51**	**36**	**87**

Source: District socio-economic profile (2014)

4.4.1.9 Livestock keeping

The economy of Chato district's residents is mainly dominated by crop and livestock production. Different types of livestock are reared in the district for different uses including pets like cats and dogs for security and other purposes. The table below displays the types and number of livestock per type from 2012 up to 2016.

Table 11: Types of livestock and number in Chato district

No.	Name of livestock	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016
01	Cattle	105,402	115,808	112,946	115,997	114,659
02	Goats	64,550	64,106	69,137	67,133	72,654
03	Sheep	8,628	9,559	10,813	8,669	9,172
04	Pigs	1,679	1,841	1,513	2,083	2,455
05	Chicken	102,028	101,163	108,366	119,869	167,647
06	Duck	2,827	1,939	2,163	1,815	1,708
07	Dogs	6,010	6,048	7,464	9,807	11,123
08	Rabbits	82	51	44	94	103
09	Donkeys	319	384	419	611	516
10	Cats	634	763	812	1,019	901

Source: Chato district Socio-economic Profile (2014)

The number of livestock per type kept on changing up and down year to year which could be attributed to different factors.

4.4.1.10 Roads networks

Ninety percent of road network in the District are passable throughout the year and road infrastructure is crucial for the economic development of the district and effective for provision of social services. According to the district profile (2014), the total length of the district roads was 533.84 Km of which tarmac road covered 124.21Km (23.3%), gravel road covered 174.1 Km (32.6%) and earth covered 235.6 Km (44.12%). The regional roads constitute 8 roads (186.59 Km) while 36 roads (347.25 Km) belong to the district roads. Since 2014 to date (6 years later), such road classifications have changed but not updated.

4.4.1.11 Telecommunication

It is stated that the world has been reduced to the village due to improved communication by big companies in the country including Chato district. Improved communication has made easy communication and is pivotal to development. Up to 2014, the main Communication Companies that were operating in the District were **AIRTEL, HALOTEL, VODACOM, ZANTEL, TIGO and TTCL**.

4.4.1.12 Main sources of energy

The information obtained from the socio-economic profile regarding sources of energy is not updated. The district had electricity in its town centres and other sources like solar, charcoal firewood, gas etc.

4.4.1.13 Gender issues

In general terms, it is reported that there is gender imbalance in the district in various aspects including employment at district level where there is only one woman who stands as a Head of Department. The imbalance goes down to the household level in terms of division of labour and access and use of resources. Gender inequality is attributed to different factors rooted in traditional and cultural practices which are inherited from generation to generation. Generally, women are treated as home managers and tools for production and reproduction.

4.4.1.14 HIV&AIDS response

Up to the year 2014 HIV prevalence rate of HIV infection was at 4.1% as compared to 2005 when it was 4.9% (District Council: 2020). This means in 9 years, the rate of prevalence decreased by 0.8% from 2005 to 2014.

Among other roles / responsibilities, the Community Development Department is also coordinating HIV/AIDS programs in the District. The district has a committee which is responsibly dealing with HIV and AIDS matters e.g. supporting People Living with HIV and AIDS and taking preventive measures to the community through provision of condoms and dissemination of HIV and AIDS education in primary and secondary schools.

4.4.1.15 Cooperatives

Chato district council has been focusing on promoting the function of Savings and Credit Cooperative Societies (**SACCOS**), whereby people are sensitized to establish **SACCOS**. Up to **2010** there were 24 **SACCOS with** a total number of **4,746** members where **1,871 were** females and **2,346** males.

Besides, the district had 35 cooperative groups, formed for different purposes among which 30 were related to agriculture and marketing cooperative society, 1 fishery cooperative society, 1 bee cooperative society and a group for livestock keeping. The construction group was dormant.

4.4.1.16 District's effort and incentive to attract investments

The district has been striving to create environments that attract investments and this includes improving both the quantity and quality of services provision by using efficiently and effectively available resources. This is done by involving all key stakeholders and by observing principle of good governance and democracy. Some of undergoing activities are construction roads, water schemes, school and health facilities, irrigation structures, markets, and establishment of SACCOs. The

proposed Katoro – Buseresere – Bwanga and Minkoto water supply project is in line with the district's efforts.

4.4.1.17 Socio Economic Baseline Data analysis of the project affected townships in Chato

a) Population in the proposed project areas / townships

The table below presents number of people and number of households per Township in Chato district.

Table 12: Number of households and population per ward/township – Chato district

Ward / Township	Sub-ward / Street	Number of households	Number of males	Number of females	Total	Average per household
Buseresere	Ibondo	1,350	3,175	3,575	6,750	5
	Murunda	967	1,330	1,985	3,315	3
	Imwela	490	1,765	1,773	3,538	5
	Mapinduzi	1,700	4,900	5,300	10,200	6
	Buseresere	1,980	5,698	6,142	11,840	6
	Mwabagulu	273	1,820	1,600	3,420	12
	Buyoga	446	1,684	1,884	3,568	8
Sub-total		7,206	20,372	22,259	42,631	
Minkoto	Minkoto	789	2,475	3,116	5,591	7
Bwanga	Bukiriguru	440	1,000	1,200	2,200	5
	Bwanga	2,013	4,043	5,009	9,052	5
	Izumangabo	1,326	6,854	5,796	12,680	8
	Nyarututu	3,142			18,852	5
Sub-total		6,921	11,897	12,005	42,784	
	Grand Total	**29,322**	**63,927**	**75,876**	**176,742**	

Source: Wards / Sub-wards from the project areas (July 2020)

b) Sources of income for the households found in the project area

There is high variation of income among the proposed project wards / townships due to location, economic activities or sources of income, circulation of money, etc. It was also found that the higher the income, the higher the expenditure and vice versa. Further information will be provided in the detailed study including household interviews on income and expenditure per household. According to findings from all proposed project areas, the highest income was estimated to be TZS 15,000,000/= per month and the lowest was TZS 550,000/= (Bwanga). The estimated income for Nyamigota was TZS 300,000/ and the lowest was estimated to be TZS 70,000/=. Ludete ward was estimated to be TZS 500,000/= (Maximum) and TZS 50,000/= lowest income while the expenditure was TZS 480,000/= (highest) and TZS 30,000/= (lowest) per month. This information was collected from sampled sub-villages, wards/townships and gives just a rough indication

c) Sanitation facilities

It was found that the project areas were unplanned and therefore there are no formal sewerage systems in the project areas. There were few households which

relied upon septic tanks. The majority of the households rely on pit latrines and some of which were of unacceptable standards due their unhygienic conditions. Preliminary findings from wards / townships indicate that there were some households which had no sanitation facilities (toilets) at their households or compounds which is dangerous for health in the community.

In this regard lack or unacceptable standard of sanitation facilities, insufficient and unsafe water supply were attributed by stakeholders to unhealthy conditions in the project areas in terms of waterborne diseases and faecal related diseases like typhoid, diarrhoea, etc. This has implication on health expenditure in terms of medical treatments. Detailed information will be availed during the detailed study

d) Source of water found along the project area

i) Availability and sources of water

Water supply in all proposed townships / wards is a serious problem to the population as a whole. Water is scarce, unreliable and generally unsafe for human use especially for drinking because there was no evidence of being tested and not treated.

Currently, there is no piped water. The main sources of water include deep (electrically pumped) and shallow (hand pump) wells owned either by government or private entities. Other sources include traditional wells, water streams, water ponds, etc. depending on locations and uses. The government wells were managed by water associations (CBWSOs). The table below indicates number and main types of water sources as collected from wards / sub-wards.

Table 13: Number and main types of water sources as collected from wards / sub-wards.

District	Name of ward / sub-ward	Number of sources per type				Remarks
		Stream / river	Traditional shallow wells	Pumped wells	Other	
Chato	Bwanga		5			There were also pumped wells but the number was unknown
	Nyarututu	32%	60%	8%		32% of the households (200) depend on stream / water, 60% (287 households depend on traditional wells) and 8% of households depend on pumped water
	Mapinduzi		4	2		
	Ibondo		4	4	102	
	Mwabagulu					100% depend on traditional shallow wells
	Buyoga		6	2		
	Muranda		9			
	Imwelu		22	2	2%	2% depend on other sources. One of the deep well was not

						functioning
	Kalembela (Minkoto ward)		4	2		
	Itanga		4	2		1 was not functioning
	Minkoto		14	5		5 were not functioning
	Buseresere		10	2		

Source: Fieldwork during Feasibility study (July 2020)

e) Land tenure system found within the project area

In the project areas, land is mainly acquired through purchasing from people with land while others obtained land through inheriting from their elders. The price of land varies from one place to another as shown in the table below due to its value (market value), demand, and availability of land.

f) Household average income per day

There is high variation of income among the proposed project wards / townships due to location, economic activities or sources of income, circulation of money, etc. It was also found that the higher the income, the higher the expenditure and vice versa. Further information will be provided in the detailed study including household interviews on income and expenditure per household. According to findings from all proposed project areas, the highest income was estimated to be TZS 15,000,000/= per month and the lowest was TZS 550,000/= (Bwanga). The estimated income for Nyamigota was TZS 300,000/ and the lowest was estimated to be TZS 70,000/=. Ludete ward was estimated to be TZS 500,000/= (Maximum) and TZS 50,000/= lowest income while the expenditure was TZS 480,000/= (highest) and TZS 30,000/= (lowest) per month. This information was collected from sampled sub-villages, wards/townships and gives just a rough indication

g) Gender issues:

Water collection was found to be the responsibility of women and children (particularly girls) and this is attributed to inherited traditions and customs, which are passed from generation to the next. It was found out that the cost incurred for obtaining water for home consumption is for both females and males and females for female headed households

h) HIV and AIDS pandemic

The current situation indicates the decline of prevalent rate of new HIV infection in the district due to a combination of different factors like continued education on HIV & AIDS awareness creation / raising, improvement on preventive measures, etc. The table below provides the details on the current situation.

Currently, number of people living with HIV was reported in some proposed project areas and the spread of new HIV infections was attributed to different factors, including interactions of people from different places, unsafe sex, poverty among some families, etc. There are also reported diseases which affect the

population due to water problems in the areas, examples include diarrhoea, bilharzias, vomiting, and typhoid.

4.4.2 Geita District

4.4.2.1 Location and size of the district

Geita District lies between 1,100 to 1,300 metres above the sea level. It lies between 2°8 to 3°28 South of the Equator and 32° 45 to 37° East of Greenwich. The district shares its borders with Muleba district to the North, Sengerema and Nyag'hwale districts to the East, Mbogwe district to the South; and to the West it is bordered with Chato district

4.4.2.2 District area and administrative units

The District covers 7,825 Sq. km. of which 6,775 Sq. km. is dry land and 1,050 Sq.km. is covered by Lake Victoria

Geita district is divided into two constituencies, four administrative divisions with a total of 37 Wards, 145 registered villages which are further subdivided into 626 Vitongoji (Hamlets) / Sub-villages

4.4.2.3 Major ethnic groups in Geita district

The main ethnic groups in the district are the Sukuma, Zinza, Kara, Longo and the Waha.

4.4.2.4 Population in the district

The National Population and Housing Census of August 2002 indicated that Geita district had a total population of 709,078 whereby 354,065 were males and 355,013 were females. Taking 2002 population as a base the District has an estimated population (projection) of 962,915 (2011) people, 996,217 (2012) people.

4.4.2.5 Major economic activities

Agriculture: The agricultural sector comprises both crops and livestock production for both cash and consumption. The major food crops grown include; maize, rice, cassava, beans, potatoes, while cotton and pineapple are cash crops of most important.

Agricultural sector contributes more than 73% of the district GDP. Seventy-seven percent or more of the district labour force depends on agriculture for their earning. However, out of 48% of poverty result from lack of basic needs, while 31% results from lack of food.

According to the collected information (District profile), of the total district labour force, 78.7% were engaged in agricultural sector, 7.4% absorbed in forestry, fishing and related industries, 4.1% in trade and commerce, 2.2% engaged in mining and quarrying, 2.1% in public administration and education sectors and 5.5% were absorbed in the remaining categories of activities, like in the informal sector, private companies, etc.

Livestock sector: This is also the major sector for development of the district council and various types of livestock are kept within the district for different uses. Unfortunately, the district has not updated its statistics on livestock and the table below is just an indication of the livestock trends for three years in the past 12 years.

Table 14**:** Livestock population 2006 - 2009 in Geita district

Type	2006/2007	2007/2008	2008/2009
Cattle (local)	443,946	429,340	431,434
Cattle (exotic)	715	795	837
Goats	346,706	326,708	333,372
Sheep	63,123	62,317	61,285
Pigs	1,549	1,339	1,409
Chicken (local)	2,924,426	2,309,420	2,339,541
Chicken (exotic)	7,300	8,725	12,750

Source: District socio-economic profile (2014)

Generally, livestock is one of the major sources for income among the population as well as for consumption. Local chicken is the highest for all 3 years while cattle (exotic) is the lowest among all and there is a general trend of decrease for all types in year 2007/8 with an increase in 2008/09 except for sheep. This sector requires enough and reliable water for its prosperity for example, water for cattle dips, cattle watering troughs, etc.

Trade & industries: Existence of trade in Geita district is mainly a function of development of small and large – scale-mining activities, which attract a great number of emigrants. However, some emigrants purposely come for trading activities of different kinds.

Industrial development: Generally, the district had limited number of developed industries and it is believed that the situation has likely changed positively. Factors which Contributed to poor Development of Industries include lack of capital, knowledge and proper technology especially in mining sector.

The main significant industries were cotton ginning, processing seeds and cotton lint ready for semi processing. Others include, the Three sunflower seed processing machine, mining industries run by Large Mining Companies (GGM and TANKAN/TANZAM) and small scale industries under indigenous people. All these processing industries and small scale - mining activities require reliable water for effective and efficiency operation.

Tourism industry: The district has some areas for tourism activities and one of the most famous areas is the Rubondo Island which is found in the North part of Geita. The Island is the National Park which is under the control of TANAPA. Within the Island there are various animals such as elephants, crocodiles, giraffes, statunga, bushbucks, otters, different types of snakes, baboons, black rhinos, roan antelopes, chimpanzees, black and white colobus, suni and grey parrots. Similarly,

there are about 40 beaches found along the Lake Victoria which are suitable for tourism. These attract tourists and various people from abroad and within the country visit the place and the council gets revenues for its development.

Mining: Geita district is rich in gold, which is yet well exploited by small and large - scale miners. Gold in Geita district is within greenstone belt. This belt has been the most productive in Tanzania with nearly continuous history of mining activity since 1932 to the present. After independence in 1961 the colonial mine (Geita Mine) operated for only 4 years, then it was closed in 1965.The mining activities were left to small scale local miners. In 1993 exploration by large companies from abroad (investors) started and in 1999 Ashanti Gold Fields Mine (currently Geita Gold Mine) was opened. It is located 6 Km away from Geita town. TANKAN/TANZAM mining company, located in Lwamgasa ward, is operated in collaboration between Canada and the Government of Tanzania has been recently opened (2010).

Apart from gold, the district is also endowed with abundant building materials; these include all forms of rocks, stones, gravel, sand, clay and soil. Industrial minerals like galena, gypsum, kaolin and lime necessitates detailed exploration works before being mined commercially.

Forest: Geita district is endowed with 4 natural forests namely Geita, Miyenze, Lwamgasa, and Luande. Besides, there were other three forest reserves known as Usindakwe, Nsinde Hills and Ibisabageni but the three forest reserves don't exist anymore due to encroachment and poor management and were turned into agricultural and residential land ten years ago.

Figure 9**:** Part of Geita forest reserve

Forest produce includes charcoal, poles, firewood, honey, beeswax, fodder game, streams, poor quality and small quantity of timber. These resources are exploited from unprotected areas as well as from reserved forests through encroachment and illegal harvesting.

Fisheries management industry: This is managed through fisheries Act No. 6 of 1970 followed by subsidiary and legislation with the aim of strengthening fisheries management. In 1997 the fisheries policy established the need of involving fishing community participation on Management of fisheries, from 1999 up to 2000 Geita established 40 Beach Management Units(BMUs) from 40 landing sites with the aim of managing the resources through collaboration management system (Co–Management) between fishing community and the Government.

Now the fisheries Act No.6 of 1970 and its Regulation has been replaced by fisheries Act No. 22 of 2003 and Regulation of 2005, Co - management is now introduced to the fishers' community and some of them have already understood that the resources within the Lake Victoria are owned by both Fishers Community and the Government.

4.4.2.6 Telecommunication and Electricity

Communication network: Communication network in the District is provided by big companies which greatly influence the socio-economic development of the district. The main communication companies operating in the district include, AIRTEL, VODACOM, HALOTEL, ZANTEL and TTCL.

Electricity supply: By the time of preparing the current district socio-economic profile, there was no energy systems adequately developed in the district especially in rural areas. As of to date, electricity is availability in Geita Town and other several townships like Katoro, Nyarugusu, etc. and more so many small towns are supplied by electricity through REA under the main supplier of electricity service - TANESCO.

4.4.2.7 Health facilities and top ten diseases

The District has about 64 health service stations which include 1 hospital, 9 health centres and 54 dispensaries. Out of these, 1 hospital, 9 health centres and 40 dispensaries are owned by the Government, 14 dispensaries are privately owned.

In year 2010, the district came up with a list of Ten Top Diseases, which were prominent as listed below according to their occurrence or big number of suffered patients. These include (1) Malaria, (2) ART, (3) Diarrhoea, (4) Pneumonia, (5) Intestine worms, (6) Eye infection, (7) Skin infection, (8) Ear infection, (9) Cardiovascular disorders and (10) HIV & AIDS. Based on this order, it means that Malaria is a leading killer disease followed by ART and HIV/AIDS was the least disease in causing deaths among population. Some of the diseases are related to water supply problems, for example, diarrhoea, malaria (breeding sites of mosquitoes), etc.

4.4.2.8 Water supply

Water service is not only essential for human being, but also for animals and plants. With all its essentials to all living organisms, water is neither adequately nor qualitatively supplied in Geita district. The water demand by the year 2025 in the district is estimated to be 19,500m^3 per day, and the current demand is 5,243 m^3 per day. According to the survey conducted in 2002, demand for water services sector was given the first priority where it accounted **32%** of all people interviewed.

There have been different water sources of water supply in rural areas, including water pipe projects. In **2005,** the Water Department had **6** water pipe projects namely; Nyakagomba, Kasamwa, Nzera and Nyamtukucatuza. The Department added three more projects namely Nyaruguguna, Katoro and Bugayambelele. It also rehabilitated two projects namely, Chankolongo and Kasamwa, making a total of **9** water projects.
In the same year (2005), the Department had 87 deep wells and 174 shallow wells; the department is striving to add more wells and up to 2014 there were 112 deep wells and 174 shallow wells, added up to a total of 236 functioning wells.

Water pipe projects – in urban areas: Before and after the colonial era until the year 2002, the people in Geita District Council were drawing water for domestic use from Nyamalembo dam. This project was established in the year 1954 and was completed in the year 1956. The project involved construction of 1 tank with the capacity of 90m3 at Katoma area. In the year 1970, the cotton Authority constructed the second water tank with the volume capacity of 90m3 in the same area. Other sources of water were natural springs of Lwenge, Bi-Khadija, Katoma and Bi-Tofa; all these sources sufficed the need of water for that time given the population during the time.

According to the district profile, up to year 2005 there was only 1 water project (Kagera gravity). In the year 2009 there were **3** water projects namely; 14-Kambarage, Bomani and Tambukareli, which are all working and makes a total of 4 water schemes. In collaboration with Geita Gold Mine, the District Council is intending to implement a large water project in Geita town worth TZS 15,000,000,000/=. These efforts of improving the availability of water in Geita District Council have been reached through funds from Central Government (Quick wins) and other stakeholders namely; Plan Tanzania, Geita Gold Mine and IAM Gold Tanzania

Figure 10: Water Project in Geita District Council

Source: District profile / Water department (2016)

Challenges: Despite of all the efforts being undertaken by the district council to ensure the availability of improved health, sanitation and water in Geita District Council, the large population of people in the district has not been reached with water, therefore more efforts are needed to carter for the problem.

4.4.2.9 Education

Pre-primary education has become part and parcel of promoting education status in the district and this is has become a necessary target group. Up to 2011, the district council had a total number of 257 pre-primary schools out of which 252 owned by the Government and **5** schools were owned by privately institutions. At a time, there were 31,789 pupils out of which 15,910 were boys and 15,879 were girls with 316 professional teachers. The ratio of teacher to pupils was 1:101 implying a big deficit of teachers.

Apart from pre-primary schools, Geita district council had a total of 300 primary schools of which 255 are Government schools and 5 schools are privately owned. According to the information obtained from the district profile, there were 113,135 boys (2011) and 112,775 girls (2011) and the total was 225,910. There was an increase of 37,873 pupils if compared to 5 previous years i.e. 2007, whereby there were a total of 188,037 pupils, of which 96,266 were boys and 91,771 were girls. For the past 5 years (2007 – 2011), the total number of boys was more than girls each year except in 2009.

Up to 2011, Geita district had a total number of 46 secondary schools and this was an increase of 23 schools as compared to 13 schools in 2003. All schools except 2 belonged to the Government schools, whereas 2 were private schools. The tireless efforts, which are commendable, it is obvious that the number of secondary schools has already increased since 2011 to date (2020) only that an updated report is unavailable.

Education sector has been facing challenges which drawback efforts invested in the sector by different stakeholders, and these include truancy, pregnancy and deaths or chronic diseases. This is evident by looking at the number of registered students and those who completed after four years. It shows that not all registered students managed to complete their secondary education, due to some of the stated reasons.

Table 15: Registered students, Truancy, pregnancies and other reasons for school incompletion

Year	Total registered	Truancy			Pregnancy			Others		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
2007	13,018	294	615	909	-	32	32	-	-	-
2008	17,037	497	821	1,318	-	67	67	-	-	-
2009	21,910	398	612	1,010	-	23	23	-	-	-
2010	27,144	582	415	997	-	29	29	93	157	250
2011	32,212	648	464	1,112	-	22	22	4	2	6
Total	111,321	2,419	2,927	5,246	-	173	173	97	159	256

Source: District Socio-economic Profile (2016)

As shown in the table above, truancy was a big problem among students for all 5b years and the same is the case of pregnancy among girl students. Out of a total of 111, 321 registered students for 5 consecutive years, 5, 246 dropped due to truancy and 173 got pregnancy while 256 students discontinued due to various reasons. In total, 5,675 (5.1%) did not complete their studies. Overall, this is a serious challenge and needs concerted efforts to overcome, especially truancy and pregnancy to rescue school girls.

4.4.2.10 Roads networks

These are part of economic services influencing development in the district. Road infrastructure in the district is developed in such a way that economic and social service activities are favourably influenced. According to district profile (2016) more than 80% of road network in the district were passable throughout the year. The district has two major types of roads, which are district and regional roads as indicated in the table below

Table 16**:** Road classification by ownership and lengths

SN	**Roads owner**	**Number**	**Distance (km)**	**Percent**
1	District	132	1,926	85.8
2	Regional	6	320	14.2
Total		**138**	**2,246**	**100.0**

Source: Works Department – Geita District Council (2016)

4.4.2.11 Gender issues

Generally speaking, in Geita District there is gender imbalance, as regards to professional posts, there is only one woman who stands as a head of department. There are various factors attributed to the imbalance of gender in the district, mainly rooted in the traditional and cultural practices.

However, the district plans to ensure the existence of gender balance by doing among others, to do the following; providing preliminary education on projects identification and planning, providing manageable skill and establish mutual cooperation among women, educating and alter opinion to inequality existence that are imposed upon women through law, practices and customs in disseminating information on their present situation as widely as possible, advance the recognition of human right and human dignity regarding women and publicize their abuse, encouraging women participation in all development issues, raise gender awareness among women, empowering women by providing education, which will improve their working capacity and help them gain technical-know-how, build their confidence and become economically independent, encouraging formal and informal sector about women employment in order to increase the number of employed women and finally, establishment of Gender Policy and Women Development Fund.

4.4.2.12 HIV&AIDS response in the district

All matters concerning HIV&AIDS and other community development activities are implemented and coordinated by District Community Development Department. There is also a district committee, which is responsible for HIV and AIDS matters e.g. supporting People Living with HIV and AIDS (PLHIV) and taking preventive measures to the community through provision of condoms and dissemination of HIV and AIDS education in primary and secondary schools and other targeted population and community as a whole.

The rate of **HIV** & **AIDS** infection has decreased from **9.7%** in December 2005 to **7.2%** in December 2010, which makes a decrease of **2.5%**. During the reporting time, the leading group for infections was youths of the age ranging from 15-35 years of age, where females were more susceptible. During this period there had been an increase of services to fight against **HIV** & **AIDS** to various places within the District as the table below shows:

Table 17: Provision of HIV & AIDS services from 2005 - 2010

Type of service	2005	2008	2009	2010
Number of centres for HIV & AIDS testing	3	12	36	36
Number of people volunteering to test HIV & AIDS	2,794	73,947	73,809	20,126

Number of centres offering treatment and training	1	5	8	12
Number of HIV & AIDS victims getting drugs to fight against HIV & AIDS	106	2,352	5,383	6,108
Number of centres offering preventive measures on HIV & AIDS from pregnant mother to baby	1	6	10	14

Source: District socio-economic profile (2016)

4.4.2.13 Urban planning, survey & mapping

Geita's land has not been fully surveyed despite the fact that it is one of the oldest districts in Tanzania. Up to 2016 it had no updated map and consequently this leads to most of its administrative boundaries to base on traditional understanding. Moreover, by then, there was no significant land use plan, which could otherwise be essential in Planning. Absence of land use plan contributes to conflicts existence among many land users but also has an impact on the distribution of social services including the proposed water supply project from Lake Victoria, for example, Katoro and Ludete.

4.4.2.14 Non-governmental organizations

In the District, there are some Non-Governmental Organizations, which work hand in hand with the Council to ensure adequate availability and quality of goods and services. These include **PLAN TANZANIA**, **AMREF**, **ACORD**, **LELEA ORPHANAGE CENTRE, INFORMED RURAL SOCIETY**, **NELICO, MOYO WA HURUMA** and **GAYDO**. Many of these are directly involved in provision of **HIV & AIDS** services, while others deal with orphans and the most marginalized children within the district

4.4.3 Socio Economic Baseline Data analysis of the project affected townships in Geita

Population in the project areas / townships

Table 18: Number of households and population per ward/township – Geita district

Ward / Township	Sub-ward / Street	Number of households	Number of males	Number of females	Total	Average per household
Katoro	Mtakuja	3,005	8 472	9,437	17,909	6
	Lutozo	1,947	4,218	5,160	9,378	5
	Bulengalusi	2,685	12463	1,142	27,605	10

	Kaduda	1,020	1,021	3,666	7,867	6
	Katoro Centre	3,100	6,361	8,232	14,593	5
Sub-total	**KATORO**	**11,757**	**24,063**	**27,637**	**77,352**	
Nyamigota	Chibingo	1,078	1,455	1,895	3,350	3
	Inyala	1,087	2,431	2,907	5,338	5
	Nyamigota	909	1,828	2,208	4,039	4
	Shilabela	264	563	685	1,248	5
Sub-total	**NYAMIGOTA**	**3,338**	**7,695**	**13,975**	**13,975**	

Source: Wards / Sub-wards from the proposed project areas (July 2020)

4.4.3.1 Sources and levels of income for the households found in the project area

There is high variation of income among the proposed project wards / townships due to location, economic activities or sources of income, circulation of money, etc. It was also found that the higher the income, the higher the expenditure and vice versa. The estimated income for Nyamigota was TZS 300,000/ and the lowest was estimated to be TZS 70,000/=. Ludete ward was estimated to be TZS 500,000/= (Maximum) and TZS 50,000/= lowest income while the expenditure was TZS 480,000/= (highest) and TZS 30,000/= (lowest) per month. This information was collected from sampled sub-villages, wards/townships and gives just a rough indication.

4.4.3.2 Available sanitation facilities within the proposed project areas

It was found out that the areas were unplanned and therefore there are no formal sewerage systems in the project areas. There were few households which relied upon septic tanks. The majority of the households rely on pit latrines and some of which were of unacceptable standards due to their unhygienic conditions. Preliminary findings from wards / townships indicate that there were some households which had no sanitation facilities at their households or compounds which is dangerous for health in the community. Absence of sanitation facilities at the household level was attributed to various factors such as poverty, weak enforcement of bye laws, inadequate education, etc.

In this regard lack or use of unacceptable standard of sanitation facilities, insufficient and unsafe water supply contributed to unhealthy conditions in the project areas in terms of waterborne diseases and faecal related diseases like typhoid, diarrhoea, etc. This has implication on health expenditure in terms of medical treatments which could be prevented by ensuring that all households

complied to have acceptable sanitation facilities and proper use (hygienic) of the same.

4.4.3.3 Source of water found within the project areas

Demand for piped water is extremely high in all visited proposed project areas because the existing water sources were inadequate, unreliable and unsafe.

During the study, there was no piped water. The main sources of water included deep (electrically pumped) and shallow (hand pump) wells owned either by government or private entities. Other sources include traditional wells, water streams, water ponds, etc depending on locations and uses. The government wells were managed by water associations (CBWSOs). The table below indicates number and main types of water sources as collected from wards / sub-wards.

Water wells were found operated by individual owners and water associations (CBWSO) respectively in terms of collection of user charges, repair etc. It was found that some of the wells were not functioning due to financial, technical and managerial problems, etc. Examples of non-functioning wells are shown in the table above. (iii) Distance and time spent for water collection: The distance to obtain water varied from place to place (2 Km longest distance, to and fro) depending on the location of the source of water. Some people spent no time waiting to collecting time while some spent up to 1.30 hrs waiting to collect water at the collection point.

4.4.3.4 Land tenure system found within the project area

In the proposed project townships of Katoro, Ludete, Nyamigota, etc, land is mainly acquired through buying from people with ample land while others obtained land through inheriting from their elders or relatives. The price of land varies from one place to another as shown in the table below due to its value (market value), demand, and availability of land.

The value of land and price will have implication in terms of compensation rate for land and other properties to be affected by the project. For example, the Land officer in Chato district reported that according to their records, the highest rate compensated so far was TZS 1,000,000/= per acre and the lowest rate was TZS 400,000/= per acre. Some project areas reported to experience land shortage which aggravates the price of land to be high. With regard to crops and trees, the Ministry has crop compensation schedule per each zone.

Table 19: An indication of current land prices per size in the proposed project areas in Geita

Ward / township / sub-ward / village	Size of land			
	20m x 20m	¼ of an acre	0.5 of an acre	1 acre (70m x70m
Nyamigota	800,000.00	1,000,000.00	2,000,000.00	3,000,000.00
Inyala	150,000.00	300,000.00	600,000.00	
Chibingo	200,000.00	250,000.00	500,000.00	1,000,000.00
Mtakuja	1,250,000.00	1,500,000.00	2,500,000.00	5,000,000.00
Lutozo	1,500,000.00	3,750,000.00	7,500,000.00	15,000,000.00
Katoro Centre	800,000.00	1,500,000.00	2,000,000.00	
Ludete	200,000,00	250,000.00	400,000.00	1,000,000.00

Source: Sub-wards / townships leaders (July 2020)

Given the existing acute shortage of water in the project areas, the cost of water for the forthcoming piped water was found immaterial among the population (beneficiaries) because the existing sources are unreliable. This proved that people were ready and willing or prepared to pay for the proposed water supply services as indicated in table 4.2. Besides, during consultative meetings it was argued by stakeholders that people can afford to pay for water like other services such as electricity bills, air times for their phones and more important water is inevitable for human life. Pay as one uses water was proposed by some participants, that is, prepaid system.

Apart from the problem of quantity or adequacy of water as expressed during the meetings, consulted people clearly expressed about the serious problem of poor or unsafe quality of water and other concerns in obtaining water from the existing sources. These include some wells being located close to sanitation facilities (latrines) considering the areas are unplanned; absence of quality testing/monitoring of water from private deep wells, unprotected and unhygienic wells, by the water authorities; water from some of wells being saline; water being fetched from long distances; contamination of water wells by different users including animals, risky, poor drainage in the township centres and poor solid waste management in townships. Therefore, implementation of the proposed Katoro-Buseresere water project is justifiable at least from socio-economic point of view given the unsatisfactory existing situation of water supply expressed by the residents and high demand for water.

4.4.4 Population in the project area

The population in the project area has been growing very fast due to a combination of various factors including the natural growth of population. Other factors

contributing to the rapid growth include businesses, agricultural activities (e.g. cotton and rice), two townships (Katoro and Buseresere) are strategically surrounded by exploitation and processing of gold whereby people are attracted to invest in various sectors like services provision and spending, etc. The table below depicts the rapid growth of population per township / ward according to current records collected during the field work.

Table 20: Number of households and population per ward/township

Ward/ Township	Sub-ward / Street	Number of households	Number of males	Number of females	Total	Average per household	District
Katoro	Mtakuja	3,005	8 472	9,437	17,909	6	Geita
	Lutozo	1,947	4,218	5,160	9,378	5	
	Bulengalusi	2,685	12463	1,142	27,605	10	
	Kaduda	1,020	1,021	3,666	7,867	6	
	Katoro Centre	3,100	6,361	8,232	14,593	5	
Sub-total	**Katoro Centre**	**11,757**	**24,063**	**27,637**	**77,352**		
Ludete	Kalfonia	1,973			14,126	7	
	Kilimahewa	1,813			11,630	6	
	Mtaa wa afya	1886			11,100	6	
	Bugayambelele	1554			13,208	8	
	Ludete	2,442			12,014	5	
	Ibondo	708			4,952	7	
Sub Total	**Ludete**	**10,376**	**29,506**	**37,375**	**67,030**		
Nyamigota	Chibingo	1,078	1,455	1,895	3,350	3	Geita
	Inyala	1,087	2,431	2,907	5,338	5	
	Nyamigota	909	1,828	2,208	4,039	4	
	Shilabela	264	563	685	1,248	5	
Sub-total	**Nyamigota**	**3,338**	**7,695**	**13,975**	**13,975**		
Buseresere	Ibondo	1,350	3,175	3,575	6,750	5	Chato
	Murunda	967	1,330	1,985	3,315	3	
	Imwela	490	1,765	1,773	3,538	5	
	Mapinduzi	1,700	4,900	5,300	10,200	6	

	Buseresere	1,980	5,698	6,142	11,840	6	
	Mwabagulu	273	1,820	1,600	3,420	12	
	Buyoga	446	1,684	1,884	3,568	8	
Sub-total	**Buseresere**	7,206	20,372	22,259	42,631		
Minkoto	Minkoto	789	2,475	3,116	5,591	7	Chato
Bwanga	Bukiriguru	440	1,000	1,200	2,200	5	Chato
	Bwanga	2,013	4,043	5,009	9,052	5	
	Izumangabo	1,326	6,854	5,796	12,680	8	
	Nyarututu	3,142			18,852	5	
Sub-total	**Bwanga /Minkoto**	6,921	11,897	12,005	42,784		
Total		**29,322**	**63,927**	**75,876**	**243,772**		

Source: *Wards / Sub-wards from the project areas (July 2020)*

The consultant has also collected population data from the National Bureau of Statistics (NBS) 2020 Population census whereby the estimated intercensal growth rate were compared with the actual growth from the current population data

Table 21: Population of the project townships as per 2012 Population Census

District/Council	Townships	Ward	Total Population-2012 Census
Geita	**Katoro**	Katoro Ward	70,317
		Nyamagota Ward	16,515
Chato	Buseresere	Buseresere Ward	29,055
	Minkoto	Minkoto Ward	13,412
	Bwanga	Bwanga Ward	23,351
Total			**152,650**

Source: 2012 National Bureau of Statistic Census

According to the 2012 national census, the region had a population of 1,739.530, with an average annual population growth rate of 2.5%. Average annual intercensal growth rate (2002 – 2012) was 1.9% for the rural settlements and 6% urban settlements.

Water Supply Overview

Water supply in Geita Region is generally satisfactory due to the regions' proximity to Lake Victoria. There are other sources of water supply which include rivers, streams, shallow wells, bore holes, rain water harvesting and springs. The demand for water is driven by human and livestock population; in year 2018 demand for water in Geita Region was 53,149 cubic metres (m^3) against availability of 27,637.5 m^3, which was fifty-three percent (53%) of total demand. In comparison to water supply in urban areas (i.e. Geita Town,

Chato Town and Bukombe Town), the total demand is forty-one percent (41%) which indicates a dire need of more water supply to these urban areas and the same case will be for these townships of Katoro, Buseresere, Minkoto and Bwanga.

Health Services in Geita region

Geita is one of the regions in Tanzania with challenges in the health sector, and it is struggling to cope with the growing demand for better health care services. Geita is reported to experience serious shortages of medical facilities and equipment. The social security fund, for example, provides members with long and short-terms financial security that can be used as a "social safety net," especially at old age. Hence, households with members in any of social security funds are likely to be more socially secured than those without the service. According to the 2018 population and housing census (PHC), more than 6.33 percent of all households in Geita Region had at least one member on a social security scheme. The National Health Insurance Fund (NHIF) and Community Health Fund (CHF) are the most popular social security schemes with 1.8 percent of households reporting to have at least one member of their household registered into those two health security schemes. District councils with the highest proportion of households registered in social security schemes are Chato (45.3 percent) and Geita (35.4 percent).

CHAPTER FIVE

5. Stakeholders Consultation and Public Involvement

5.1 Introduction

Public Participation in all stages of project development is of great importance particularly from the initial stages of the project feasibility and preliminary design to detailed engineering design including stages of environmental assessment, scoping phase as well as preparation of the ESIA report to final stages of implementation and operation of the proposed water supply project

Firstly, the consultant carried out an identification of stakeholders and analysis of their roles followed by identification of the means of public involvement through considering either use of public consultation meetings, advertisements and notices, surveys, interviews and questionnaires, workshops and/or advisory groups. Each of the methods was weighed against each other to come up with the best options for public participation. One to one consultation and public meetings were finally chosen to be best options for the majority of stakeholders in the project areas

The consultant conducted the public meetings which involved the necessary potential Interested and Affected Parties (I&APs). Public involvement through stakeholders' consultation achieved the following:

- a vehicle for receiving public input and also facilitated negotiated outcomes;
- it created trust and partnerships;
- it is envisaged that negative impacts from the proposed project will be minimized;
- positive impacts will be enhanced; and
- It provided an up-front indication of issues that may prevent project continuation, that can cause costly delays at a later stage, or result in enhanced and shared benefits.

The Consultant conducted the public participation for the proposed project to involve as many potential Interested & Affected Parties as possible. Accordingly, issues arising from public participation process are incorporated into this ESIA report and were used in determining mitigation measures for the project.

5.2 Stakeholders Identification and Analysis of their roles in the project

The exercise started with identification of key stakeholders for the proposed project. The stakeholders identified include those who are likely to be affected by the project (Project Affected Persons), authorities and interested or concerned parties. The list of stakeholders identified for this project is as indicated in Table 6 below:

Table 22: Identified stakeholders

Stakeholder Group	Members
Authorities or decision makers	o Vice-President's Office o Ministry of Water o Mwanza Water Supply and Sewerage Authority (MWAUWASA) o National Environment Management Council o Geita Regional Office
Interested parties	o NGOs o CBOs o Individuals o Civil Society -
Likely to be affected parties	o Local communities in the respective project areas including; Bwanga ward Minkoto ward Buseresere ward Katoro ward Ludete ward Nyamigota ward o TANESCO o RUWASAs
Developer	o Ministry of Water o MWAUWASA

During the environmental assessment, site familiarization visits revealed that the target project area comprised of farms and some residential buildings around the water intake and along the transmission and distribution lines, businesses; the majority would either directly or indirectly be affected by the project undertakings. Those whose business may be affected will be required to give room to the construction activities which will possibly take a short time ranging from a year to two years. Also because the water supply scheme is meant to benefit the residents and house owners, it is envisaged that land owners will give part of their land for implementation of the project. Other stakeholders particularly CBO, NGOs, and Civil Societies organisations that are interested in the project undertakings will be indirectly or emotionally affected by the proposal.

Having identified these stakeholders, consultations with the stakeholders through interviews were made. During the consultation, the interested and affected parties (I&APs) were briefed on the proposed project construction as well as the ESIA process, stressing on the existing environmental legislation. The stakeholders were then given opportunities to present their views and opinions concerning the proposed project. The aim was to find out potential impacts or difficulties, which the Project Affected Persons (PAPs) could face as a result of project implementation and disturbances or interferences in particular. This will guide on putting strategies on how to minimize the project interruptions and improve efficiency in the construction process.

The field visit to the proposed project was conducted prior to the stakeholders' meetings and interviews. The purpose of which was to get an overview of the actual situation on project site(s) to compliment information gathered during the meetings with stakeholders.

5.3 Officials contacted to mobilize the stakeholders in respective areas

Table 23: Officials contacts

District /Ward/Institution	Leader Contacted	Telephone numbers
Geita rural district	DED- Mr. Ally A. Kidwaka	0754 536 111
Chato district	Acting DED- Mr. Martin Ndamo	0754 680 547
Bwanga ward	WEO – Ms Adah J. Mtaki	0751 341 548
Minkoto ward	WEO- Ms Astidia Rwezaula	0752 331 283
Buseresere ward	WEO - Mr. Emmanuel Nyantori	0763 943 848
Katoro ward	WEO –Mr. Seleman Mahushi	0758 387557
Ludete ward	WEO- Ms Victoria Mapunda	0769 114 838
Nyamigota ward	WEO- Mr. Kazimiri P. Malindi	0754 814 545

5.4 Public Participation Process

5.4.1 Participation objectives

The overall goal of the consultation process was to disseminate project information to the respective community and to incorporate their views in the design and also share and discuss mitigation measures against negative Environmental Impacts. The specific aims of the consultation process were to inform the community about;

- Impacts related to disturbances likely to result from construction of the proposed project from the water intake, rising main to storage tanks, elevated storage tanks and distribution network.
- Social interactions resulting from activities on work sites, presence of people on project sites and health and safety impacts from construction and operation of the project including, infectious diseases such as HIV/AIDS, social conflicts, property appropriation, trench digging and resulting dust and noises,
- Impacts on air quality (pollution) resulting from construction of the water supply system such as dust, oil, and others.
- Impacts on noise and vibration resulting from construction of the water supply system
- Impacts on surface and underground water quality during construction and operation phases of the project (e.g. oil spillage and waste generated)
- Disruption of norms and values in the project sites due to interaction with the work force who will be working on project sites.
- Obtain the main concerns and perceptions of the population and their representatives regarding the proposed project;
- Operational costs anticipated during operation of the project.

Among others, a communication plan was developed in which the first step was to discuss with the stakeholders about the project dimensions and other details. A visit was then made to the project site in order to see its location, layout, and assess the surrounding environment and ecological resources in the area and other physical features in order to gauge the kind of issues and impacts that are of interest in the EIA process. Consultative meetings were conducted at different levels including those likely to be affected and interested parties ranging from individual, key informants, policy and decision makers, local communities, local government leaders, government institutions, NGOs and CBOs and

utility companies. Appendices present pictures of consulted stakeholders and the minutes of the consultative meetings.

Furthermore, data and information collected using consultations, checklists and open ended discussions were used in compilation of this report. The EIA team also used other methods for data collection including physical observations to assess the status of the environment to be affected by the proposed project.

5.4.2 Sensitisation to Attend the Meeting

Besides the invitation letters for consultation meetings forwarded to the respective ward offices, the communities were further sensitized to participate in the process direct mobile telephone calls which involved the respective leaders around the project area reminding the communities on the dire need of attending the consultation meetings.

5.4.3 Photographic records of public consultation Meetings

Figure 11: Bwanga ward meeting

Figure 12: Minkoto ward offices

Figure 13: A cross-section of stakeholders at Buseresere ward offices

Figure 14: Stakeholders at Katoro ward offices

Figure 15: Stakeholders at Ludete ward

Figure 16: Stakeholders meeting at Nyamigoto Ward

5.5 Concerns/ Issues raised by the Stakeholders

Public participation process followed the guidelines stipulated in the Environmental Management Act No. 20 of 2004, Part XIV regarding public participation in environmental decision-making for the proposed project of water supply to the four townships of Katoro, Buseresere, Minkoto and Bwanga

To facilitate an open and transparent process, interested and likely to be affected persons were identified, invited and later informed of the proposed project development and subsequent phases of the water supply system operations and management under RUWASA. The meeting involved good representations from the project wards. At least a total of 209 people attended and participated fully in these meeting through registration of their names and signatures.

Presentation of the project and what was intended at each ward was presented to the community. The importance of portable water supply project for domestic use, commercial and institutional use and other uses such livestock and gardens, as well as benefits to individual persons were equally presented. The positive impacts and negative impacts of the project and the corresponding mitigation measures were also described in details. Finally, at the end of the meeting, the communities were given an opportunity to ask questions, give comments, warnings, observations and opinions.

These comments, observations, questions, warnings, observations and opinions received from each person have been summarized and are addressed below. The reaction given by the ESIA consultants accompanied by RUWASA representative on each issue raised is also summarized below on the third column

Table 24: Government Officials Concerns and Issues and Consultants Response

s/n	Issue/ Concern raised	Response from Consultants
MWAUWASA		
1	Financiers are keen on the project and the ESIA should be given a highest priority	Comment noted
2	Sufficient data must be sought to prove that the project is worth	Comment noted
3	PMU will guide the consultants in achieving the study objectives and TOR must be followed very closely	Comment noted
4	Consultants are advised to report to the leaders in respective project locations	Comment noted
5.	Scope of work – villages within 12km have to be considered through off-takes only	Comment noted
6.	There are different water sources that include, Kabumba water source, wells, Lake Victoria sources,	Comment noted
7.	Water quality in Lake Victoria	Comment noted
8.	Way leave for the rising and distribution mains – about 12m in with may be considered (6m from the centreline)	Comment noted
GEUWASA OFFICES		
1.	Existing water sources in the proposed project area are shallow and deep wells	Noted
2.	Borehole yields range between 5m^3/hr. and 15 m^3/hr.	Noted
3.	Water users associations are now being revived	Noted
4.	Regional Environmental Management Expert (REME) and District Environmental Management Officer (DEMO) are not employed in Geita	Noted
5.	Most important issue to communities are compensation issues	Noted
6.	The positive impacts of the project are enhanced construction activities due to availability of water, settlements economy will improve. Katoro is continuously expanding centre	Noted
7.	The supply of portable water will lead into increase in generation of wastewater and the present proposal does not consider this requirement	Consultants will consider this issue and advise accordingly
8.	Land acquisition is the major negative impact of the proposed project	Noted
9.	Some of the areas to be supplied with water in the earmarked townships are not planned, therefore the project may face an uphill task in implementing the proposed project.	Comment noted
REGIONAL ADMINISTRATIVE SECRETARY'S OFFICE		
1.	Two similar projects were completed in Geita. These are Chankorongo and Chato water supply	noted
2.	The project acceptability is high but the willingness to pay for the service is low.	Further observations to be noted during consultation meetings
3.	Politics play a major role in the success of these projects. Some politicians tend to convince people to claim for compensation regardless of the fact that the project is there to benefit the same local communities	Noted
4.	Communities should be very well sensitized to accept these projects	Noted

DISTRICT ADMINISTRATIVE SECRETARY- GEITA		
1.	The important requirements for Katoro residents are district hospital and roads. They have existing water supply, and there are underground political movements to boycott any newly proposed project on the pretext that compensation to communities must be carried out first.	Noted
2.	Some wells were financed by some NGOs such as Plan International and Water AID.	Noted
3.	Katoro was controlled by an opposition party therefore most of the projects were meeting stumbling blocks but now the politics have subsided	Noted
4.	For the proposed project to succeed, permits for water sale should not be renewed	Noted
5.	Willingness to pay for the water service is there since the communities are paying for unsafe water	Noted
6.	Proposed water source is Chankorongo	Noted
DISTRICT EXECUTIVE DIRECTOR – NZERA OFFICES		
1.	The President promised the communities in Katoro that he will solve their chronic water problem	Noted
2.	The population has been growing rapidly far above than the national growth rate of 2% per year	Noted
3.	Many plots are being surveyed following the rapid expansion of the area	Noted
	Roads are being built to match the surveyed plots but the main problem is water supply	Noted
4.	The experience available in Geita Rural District on Chankorongo water supply project is very poor. The project had a lot of problems. The tenders were split thus causing the project to be delayed	Noted
5.	The 2nd large project was Mharamba water supply scheme. There was no compensation at all. The arrangement for land appropriation was made with local communities in the presence of Appointed Land Officer	Noted
6.	Another challenge experienced is that contractors were not paying employees from the local communities. Also they were not paying for the natural resources they were getting from the villages such as sand and stones	Noted
7.	Willing ness to pay for the service was very low	Noted
8.	Politics also contributed negatively to the projects	Noted
9.	There were collusions between consultants and Contractors in the execution of the projects	Noted
10.	Land use plan for Katoro township is available with the Urban Planners in Katoro	Noted
11.	Present population of Katoro township is about 275,000 people and these records are different from the projections of the NBS population census for the year 2012.	Noted
RUWASA -CHATO		
1.	Water supply in the targeted towns are wells fitted with hand pumps.	Noted
2.	There are also private wells, which are used by owners sell water to the local communities	Noted
3.	Water quality for both shallow and deep wells is not known but some claim that the water is brownish in colour	Noted

4.	Water testing to determine the quality might have been carried out by DDCA	Noted
5.	Water users association run the wells owned by the communities	Noted
DISTRICT COMMISSIONER'S OFFICE - CHATO		
1.	District Commissioner (DC) requested the Consultants to expedite the study as water supply to the communities is most important and urgently needed.	Noted
2.	DC also promised to follow up the issue with NEMC so that the approval process can be fast tracked.	Noted
3.	There are bad experiences with water projects such as Buzilayombo water project but such poor experience should not be used as the major problem to the upcoming projects	Noted
DISTRICT PLANNING OFFICER - CHATO		
1.	Most of the people still fetch foul water for domestic use. Also their willingness to pay for the service provided is still low	Noted
2.	There are residences, farms and trees in the area to be used for the project. Therefore the local community's expectation is compensation.	Noted
3.	The project Consultant should put beacons to demarcate the area to be used for the project early in the process	Noted
4.	For the continuity of the project, the project contractor should train members from the local community for future maintenance of the project. The cadres to be trained shall include plumbers and electricians	Noted
5.	Presence of the traditional wells contribute into making people fail to pay for the water service	Noted
6.	Water vendors are mainly in townships not in villages.	Noted
7.	Water for construction of houses in the area is saline water obtained from the wells	Noted
8.	The settlements or villages traversed by the proposed water supply scheme shall get water in order to protect the project	Noted
9.	Employment especially for the unskilled labour cadres should originate from the respective villages/wards traversed by the project	Noted
10.	Payment for water service shall be billed on monthly basis and the mode is preferred by many water users.	Noted
11.	Farmers shall be notified before implementation of the project to allow them harvest their produce.	Noted
LAND OFFICER – CHATO		
1.	The costs for land compensation/ sale and valuation lies between 0.5m to 1m per acre	
2.	Government projects meet a lot of problems due to the issues raised by the local communities especially compensation (Referenced projects were Nyantukuza and Nyangwale)	
3.	Areas traversed by the pipeline should be supplied with water. It will also create a better partnership with local communities	
4.	Labour force – employment shall be given to the members of the local community.	
5.	The price of land per acre increases as you move from Bwanga to Buseresere. Bwanga prices range 0.5m to 1.0 m per acre while in Buseresere the price ranges between 2.5m to 4m per acre. Prices go up due to locality and business is the driving factor for the higher prices	

District Environmental Management Officer (DEMO)	
1.	If communities are enlightened about the project, there will be no any problem
2.	The project is much awaited due to the promises made by the President during his visits.
3.	If the communities are sensitised adequately there will be no be any problem with compensation. There are projects that are passing through farms such as that one in Nyamirembe to Ichwankima, compensation was made to some few individuals whose areas were appropriated for water pump stations. Communities accepted the project after they were sensitized and satisfied that the project was for their benefit far above the little compensation for small pieces of land here and there where the project passed.

Table 25: Stakeholders Concerns and Issues and Consultants Response

Bwanga Ward		
1	Bwanga town is a strategic town due its location on the junction to Chato and later to Bukoba, Biharamulo and Lunzewe which is later linked to Kahama and other important business centres. Therefore, water supply is a major component is the development off this strategic centre.	Comment noted
2	Pipes shall be passed in the streets of the township for ease of the services	
3.	The project is long overdue as we continue to use unsafe water and much money is spent on medication to cure diarrhoeal diseases	Comment noted. Not only money is spent for medication, also productive hours are lost when one is nursing a terrible stomach from drinking unsafe water
4.	Is the intended water supply project only for domestic use or livestock can also use that water?	Livestock can also use the proposed water supply as long as the service is paid. Water will be treated, pumped and distributed in various locations at a significant cost. Livestock development Section will coordinate the requirements of the livestock keepers with RUWASA who in turn will install water meters for the keepers to meet the water bills
5.	The project has come at the opportune time when we have COVID-19 pandemic that requires enough water for washing to keep the water at bay! School children are forced to carry water to school for hand washing and other use in the toilets. So, if a child happens to carry dirty and unsafe water to school, the chances are high that most of the children will be affected. School gardens and flowers also requires water, therefore institutions should be given a higher priority	Comment noted
6.	During the dry season, water is collected from distant places and it is required in almost all institutions including churches, mosques, hospitals and health centres, guest houses, etc.,	Noted
7.	Charges for a bucket of water is now 100/= How much will be the cost of water from the	The charges for water will be according to the rates set by the water committees

	proposed water supply scheme?	in respective areas
8.	It is a fact that there are wells or water supply schemes owned privately and they are making money through water sale. The proposed water scheme is for the development of the whole community, therefore private or self-enrichment shall not be considered.	Noted
9.	Available wells are shallow and the water produced is limited to the wet season, come the dry season none of these wells produce any water.	Noted
10.	The project is long overdue. Some of the available wells are located adjacent to the toilets and surely no one knows the quality of the water from such wells.	Noted
11.	Horticultural activities also require water for their survival during the dry season	Noted
12.	Some of the wells available belong to the family and many of these cannot produce enough water for others	Noted
13.	On the operationalization of the proposed water supply scheme, the area has permanent electricity power supply from the national grid and most of the households are paying for this service in their houses, therefore members of the community cannot fail to pay for water service	Noted
14.	There are water user committees who will be responsible for setting the water tariffs and monthly basis	Noted
15.	Women suffer most as far as the water issue is concerned, therefore the proposed project will not only improve the communities but also women who fetch water on daily basis	Comment seconded
16.	What will be fate of disabled persons under this proposed project?	Water Act and other Policy has outlined different groups of people who can use water for free
17.	Instructions to the water contractor-Employment especially for unskilled labour shall be reserved for the respective local communities	Comment noted
18.	Contractors should pay for compensation in case they interfere with people's land or properties	Noted
19.	No one is paid compensation on all on-going water supply projects. Local communities were well sensitized and they all participate fully in the projects	
20.	What of the diseases such as HIV/AIDs and sexually transmitted diseases	Contractors will conduct sensitization around all project areas. The budget for the program will be set aside in the contract.
21	Lack of water has been a source of many conflicts among family members. Women leave houses as early as 04:00 o'clock set to look for	Comment noted

	water and also unwanted pregnancies were conceived during the sessions of collecting water from wells	
22.	Traditionally, water fetching is 98% for women. Only about 2% of men fetch water and this is only in urban areas	Noted
23	Most of the Contractors tend to move with their workmen from one site to the other depriving of the other members of local community opportunities for employment	Consultants wish is to see members of local community getting employment on projects implemented in rural areas. The same instruction will be conveyed to successful contractors. Most youths in some parts of the country run away from jobs on pretext that the jobs are low paying.
24.	Sacred areas are there but cooperation between communities and contactors will remove conflicts that emanate from contractors getting into local areas without reporting to the community administration first	These areas will be identified with the communities during surveys of the rising main
25.	Contractors from China come in with a language barriers and therefore employment to local youths meet such barriers	Contractors are normally instructed to come with translators/interpreters for smooth operation of the project. Some of the local people are also untrustworthy, therefore it becomes difficult for the foreign contractor to engage members from the local community. Village/Ward Offices should be used to register youths who are ready to work. Village or Ward leaders should be their guarantor when looking for employment.
26.	Women also are able to do jobs (e.g. pouring concrete, digging trenches) that are normally preserved for men.	Comment noted
MINKOTO WARD		
1.	Which direction the proposed water supply is come from?	Water will be coming from Buseresere
2.	Is there any compensation to those whose properties will be interfered with?	Evaluation will be carried out to come up with those who should be compensated due to the nature of the property to be appropriated.
3.	Cultivation season is nearing, information on the project should be made available so that the likely to be affected persons can look for other cultivation areas	The project feasibility study will be carried out in 4 months, thereafter the detailed engineering design will be carried out, and then tenders will be sent out and received in not less than 3 months. Then there will be mobilization period, etc., this will be all completed in not less than a year. Therefore if there is any information to be sent out, there is still time not less than a year and half to notify the respective communities.
4.	Water is a very scarce commodity in the villages around the project area. So the proposed water	Noted

	project is much awaited.	
5.	There are three types of projects being carried out in the area - REA which has no compensation - Power Transmission between Geita and Nyakanazi which has compensation and - Hoima (Uganda) to Chongoleani Tanga Crude pipeline – has a compensation component Now this water project is a blessing to Minkoto	Compensation cannot be discussed now because the specific areas are not known. Detailed design will give a directive on where the pipeline will be located
6.	There households with modern houses built with flushing toilets, they need constant water supply. Also there are disabled persons, children who need clean and safe water,	Comment noted
7.	Water supply will simplify activities in the respective area	Certainly , Comment noted
8.	What is the approximate area that will be taken by the project?	The way leave for the pipeline may be a maximum of 12m in width. Booster stations and storage tanks each can take an area of about 25 by 25m
9.	What is the time frame for the project start? What are the areas for the project?	About 1.5 years based on tendering and contractual procedures. These project areas will be known when the project detailed engineering design is completed.
10.	Will there be any employment for the local communities? At least each village should be given opportunities for 5 youths. There are skilled work men in the villages including carpenters, plumbers, electricians etc.	Indeed, there will be employment for members of the local community as long as they register through the village/ward administration.
11.	Suppose the pipe ruptures accidentally, won't it be dangerous to the houses or any property near it.	The properties will not be allowed closer to the pressure pipelines. The designs will also avoid the properties where possible
12.	There might be equipment which are emitting smoke thus affecting workmen or members of the local community or polluting the environment	The requirements of the environment will be observed during implementation of the project
13.	Employees of the contractor may use foul language or insults while working in the local communities. This might affect the children in the project area.	Instructions will be given to the contractors to observe good manners while working in the area. Sensitization will be carried out by the contractors to their work men to observe norms and cultures of the area.
14.	Some Contractors use substandard pipes and fittings. This has been affecting some of the projects in many areas.	Specifications during tendering and construction will be given showing what kind of materials is required. Any material different from what is specified in the contract will not be accepted.
15.	Water vendors will always find an alternative work when the proposed project starts operation. Therefore their presence shall not be seen as a threat to the proposed project	Comment noted
16.	Men in these project areas also fetch water to	Comment noted

	help women. Therefore water business shall not only be seen as work meant for men only.	
17.	Water from the traditional wells have tasty water different from the piped water schemes	The taste of water emanates from salts and other minerals contained in the water and most water users tend to get used to this taste. If a person is used to a certain taste it becomes a preference. Also the pumped water gets a taste chemical such as chlorine which are used to disinfect water.
18.	Some schools have been fitted with flushing toilets which makes their use quite challenging in the absence of adequate water. Therefore public institutions should be given a first priority	That is one of the reason of this proposed project. Designers will give the priority these institutions deserve
19.		
BUSERERSERE WARD		
1.	The proposed water supply is a significant contribution to the development of Buseresere ward	Comment noted
2.	Impacts of the proposed project cannot outweigh the need and demands of water supply in Buseresere. There are wells but the water produced is not safe and insufficient during the dry season.	Comment noted
3.	If local communities are well involved in the project from the initial stages to the end, the project will be a success	This consultation meeting is one of those strategies of involving communities from initial stages of the project.
4.	Representatives from respective villages in Buseresere ward will sensitize their people to ensure that the proposed project becomes a success and this is obvious due to the pathetic condition of the present sources of water supply.	Comment noted
5.	The area is now connected to the electricity national grid and if members of the community can afford to pay for that electricity under 'LUKU' (pay as you use units of electricity), they cannot fail to pay for water	Comment noted
6.	Is there any alternative strategy of avoiding appropriation of land and relocation of the people?	The detailed design encompassing surveys will show where relocation of people or appropriation of land is possible and where it can be avoided
7.	The drawings should show where the pies will pass	Parallel studies for the feasibility of the project are on going
8.	Water projects are not coming in Buseresere for the first time, contribution or payment for the service rendered is well known to the communities. The unsafe and unclean water being supplied is also paid for and those involved in water vending, buy water and later sell the same water. So there is nothing new!	Comment noted
9.	The project is good and long overdue. Also the water demand is so high the only challenge expected is relocation or resettlement of the	Noted

	people. In some areas compensation will be inevitable.	
10.	Diarrhoeal diseases and vomiting are common in Buseresere	These will be confirmed with the health facilities
11.	The price of water in the area for 4 to 6 drums, is 1,000 TZS.	Noted
12.	What is normally done in such project in order to avoid some impacts of the project	Consultations is the first step towards knowing the likely impacts of the project and also once the impacts are known then sensitization of the communities is also applied to let members of the communities know the impending threats from the proposed project.
13.	What if project area passes in the grave yard?	Efforts will be made to avoid such locations but if it is not possible to avoid them then the requirements of the Graves Removal Act will be applied and observed. Graves can be relocated.
14.	The water supply project will have many advantages including improving services in the guesthouses and hotels, growing vegetables, improving services of food vendors through use of safe and clean water	Comment appreciated as it was openly made by the community member.
15.	Will the villages along the pipeline get water from the proposed project?	Yes
16.	Any consideration to special groups (e.g. disabled persons)	The consideration will be as provided for in the regulations
17.	Acute shortage of water has led to interfering or destroying marriages. Women start or wake up in the middle of the night to go for water. Men are sometimes forced to escort their wives to the wells.	Noted
18.	During the dry season the price of a 20 litre bucket can reach 1,000 to 1,500 TZS. This problem seriously affects the economy of the most families. Once the proposed project is operational, family economy will be improved.	Noted
19.	Livestock does not have water. Wells or charco dams are mostly used for livestock drinking but when the rains stop, the livestock have to be sent to where there is water or to the Lake, almost 20 km away and the herdsmen have to remain there for so long until it rains again! Livestock have never been considered under such water supply schemes	The livestock keepers will be required to list their requirements through the Department of Livestock Development in the district for RUWASA to consider the charges for water service. Once they are billed and settled the bills all their requirements will be met.
20.	During implementation of the project Contractor's offices shall be erected in project areas for the benefit of the communities in terms of employments for unskilled labourers and other service related activities such as food for employees.	Comment noted
21.	In urban areas livestock keeping is restricted therefore water supply for livestock in such areas may not be that difficult.	Zero grazing is recommended in town areas therefore water supply can be linked to the domestic water supply and the amount of water required will not be

		that huge.
22.	Some of the wells have water with high iron content	Noted

MEETING FOR REPRESENTATIVES OF KATORO TOWNSHIP (Katoro, Ludete and Nyamigota Wards)		
1	In Katoro township, the major outcry is about domestic water supply. There is water from local wells but of poor quality	Noted
2.	The project is much awaited, you are wasting more of the time on discussions	There are requirements such as environmental impact assessments which have to be met first before the project is implemented.
3.	There is no any local issue that can stop the project except for those whose properties such as houses, crops and farms will be interfered by the project activities. If they are involved in the project planning, no obstacles will be there during implementation	Noted
4.	During the meeting with the President, he stated that if the Government was able to construct a project sending water to Tabora and Shinyanga how can the same government fail to bring water to these nearby towns. The local community was assured that the water supply project was on the way. The communities request that the water supply project is not delayed any further.	Noted
5.	The water vendor stated that there are times when wells dry completely, such that the vendors are forced to get water from far away at a higher price. The cost is eventually shoulders by water users.	Noted
6.	There will be many benefits when water project is completed. Employments in the project and improvements in health with consequential reduction health bills	Noted
7.	A disabled person on a wheel chair, Mr. Petro Joseph inquired if there will be any consideration to disabled persons. He stated that the water supply project may be similar to power supply project in which the disabled persons did not get any consideration.	The representatives were asked to discuss the issue of disabled persons during their meetings with the local community to see how they can be assisted under the water supply project. There are provisions in law on what and how the disabled persons shall be accommodated in such projects.
8.	When is the project starting?	The project will start when all the project formalities are completed including carrying out an Environmental Impact Assessment.
9.	The communities wish to know the plan and layout of the project so that they can prepare themselves to receive the project.	The Environmental Impact assessment was running in parallel with the feasibility study, therefore communities will be informed of the project layout when the designs are

		completed.
10.	There is water from the local wells which is brown in colour and there are claims that the water is safe for use.	The colour of water maybe a result of a number of issues. There is water whose iron content is high and when such water is exposed to air (through aeration) the iron present in water is oxidised and rendered brown in colour. If tests were carried out and discovered that the resulting iron is within the acceptable limits for consumption, that is why it must have been declared as safe for use. Otherwise, further tests of water characteristics can explain the quality of the said water.
11.	Water shortage is a serious problem in Katoro. Women wake up as early as 02:00 hours to start looking for water. Horticultural activities have sometimes proved difficult due to lack of water and the available vegetables cost a lot of money due to lack of water. Some people decided to relocate to Inyala and other places where there is water.	Noted
12	Once the project is implemented there should be regulations to protect misuse of water.	Once the project is implemented there will certainly be metering and payment for water used for project sustainability. Therefore under such systems the water can only be misused if it will
13.	Why are the water bills that high?	These bills are based on the cost of delivering the service to users but they are not higher than the cost of water from the local wells.
14.	Currently there are pit latrines and few septic tanks in the township. There will be significant generation of waste water once the project is completed. Is there any plan for the sewerage system in the township?	This phase is for water supply only. Hopefully future plans will look at the issues of wastewater management.
15.	On employment opportunities, priorities shall be given to residents of the area under consideration	Village/settlement governments should administer the issue to help members of the local community to secure employment in the project.
16.	Will there be any sensitization seminars for water drawing points?	That sensitization can be arranged with Water user Associations and RUWASA's
17.	Will there be any compensation to those whose properties will be appropriated/	Compensation will depend on the nature of the appropriation. Some areas that will be traversed by the project may not even notice any interference
18.	In most of the projects, disabled persons are not involved. Is there a way these disabled persons can be involved in developing the upcoming water supply project?	Depending on the nature of disability, the project can accommodate the disabled persons.
19.	Is this a government sponsored project? Will the public institutions such as schools, dispensaries get	Yes, this is a government financed project and any public institution

	water supply? Will they pay for the water service?	that gets the service will certainly pay for it.
20.	For the issue of waste water generated from the supplied water, health officials in the locality shall sensitize the members of the community and every household shall have well-constructed soak away pits to manage the nuisance from wastewater. Also by laws shall be made to control haphazard disposal of waste water. Wastewater is part of the environmental cleanliness for the household.	Comment seconded
21.	Wastewater is not such an environmental hazard as explained by some presenters. The wastewater is even generated now in the absence of project, so let the water supply project come and the environmental cleanliness will also be equally maintained.	Comment noted and seconded
LUDETE WARD		
1	In 2018, there was a team that came like this team. Water drawing points were identified together with that team of experts. Is that water project similar to this proposed project? This is 2020 and we have not received any feedback from that 2018 project.	It is possible that similar teams came in the past and they were all possibly planning for the same water supply project for say, Katoro township under a different sponsorship. This project is for water to be drawn from Lake Victoria and supplied to the townships of Katoro, Buseresere, Minkoto and Bwanga.
2	There are so many issues to deal with but today the meeting was called to discuss the water supply issue. How serious is this project?	The project is the result of the contract made between the Ministry of Water through MWAUWASA with the Consultant to come and carry out the feasibility study of the water supply project.
3.	When is the project due to start?	The current meeting is part of the project activity; in other words, the project has already started. The project involves studies and assessment, construction and then operation. Therefore, construction of the project (if that is regarded as starting of the project) will start when all these assessment and design of project formalities are completed.
4.	Will there be any compensation for properties?	Compensation will depend on the extent of appropriation. In some places the road reserve will be used to lay the pipelines. We were informed that in Chankorongo area the pipeline was laid without any compensation. Also in
5.	Katoro area is developing at a high rate and the water project shall also be matched with the rate of the expansion.	Comment noted
6.	The project is delaying and the communities are ready for the project	Comment noted and efforts will be made to fasten the implementation

		of the project
7.	Wastewater generation after the completion of the water project is expected and the sensitization of the communities shall be introduced immediately for the communities to build wastewater infrastructure	Noted
8.	What will be the cost of proposed water supply? The current cost of water is 30 buckets of 20 litres each at a rate of 100 TZS and in some places the bucket of 20 litres is charged 100 TZS.	In comparison this water rate is higher than what is charged by MWUAWASA on monthly basis. Therefore if the local communities are affording these rates, they cannot fail to afford the rates of the proposed water supply.
NYAMIGOTA WARD		
1.	The communities are ready for the project because most of the wells run dry the wet season.	Noted
2.	There are no issues associated with cultural briefs, therefore the project will have no obstacle in the area.	Noted
3.	The proposed project is a blessing because the current water sources are contributing to contracting typhoid and diarrhoeal diseases. The rates of these diseases are high!	Noted
4.	Public institutions are in dire need of water supply. Therefore they will support the project by 100%	Noted
5.	How is the status of compensation for water supply? Electric power reticulation project did not have any compensation but the major power project for power transmission had a compensation component.	Comment noted
6.	Horticultural activities also require water.	As long as the horticultural operators are ready to pay for the water service, there will be no problem.
7.	There is an instruction that every secondary school shall have a laboratory, but without water this requirement will not be easily be met.	This shows how the proposed water project is important to the local communities.
8.	In case the proposed water supply project materialises, those owning water wells will always get an alternative use of the water from the wells. They can also use the water for livestock and horticultural activities	There are so many requirements of water such that the water from wells cannot be rendered useless or redundant
9.	There is no way communities can avoid paying for the proposed water service. Otherwise the impact emanating from use of unsafe water will keep on increasing.	Comment seconded
10.	In September there is no water for livestock, what arrangement is there for livestock keepers	The livestock keepers should send their requirements to the department of livestock in the district who in turn will liaise with RUWASAS for installation of their requirements in respective areas
11.	Guest house owners sometimes fail to run their business smoothly because of lack of water.	Comment noted and shows the dire need of water

	Therefore, the coming of this proposed water supply project is a blessing to Lodges and Guest houses business	
12	Thank God, the sensitization of this kind has never happened in this area. There are teams that came before you they were drawing maps in the local area without giving any such education.	They cannot be blamed entirely, may be their role was different from the roles of those conducting Environmental and Social Impacts Assessment
13.	Thanks to the Ministry of Water for remembering these communities that share water supplies with animals	Comment noted
14.	What will happen if the project falls into ones grave yard?	There are many ways of avoiding cultural centres (i.e. grave yards and other places) of importance. One is re-routing the pipeline. In case it happens that the graves cannot be avoided, then the requirements of the Grave Yard Removal Act during relocation of the Grave must be observed in totality. Reference can be made to other large projects such as road construction or gas pipeline from Songo Songo to Dar es Salaam that involved removal of more 3,000 graves.
15.	The economic status of the family is the main reason as to the use of unsafe and unclean water from these wells. TZS 50 per 20l bucket prove to be a problem to some families	A separate study on the willingness to pay for the service rendered will reveal actual situation. The argument may be a general classification which is not linked to any particular family. Arguments were raised that if a household head can afford a mobile phone voucher of TZS 500, it is questionable that one can fail to buy a 20 litre bucket of water at TZS 50!
16.	What are the charges for connecting water in the household?	These prices vary according to the pipe fittings required and the distance between the water line and the property to be connected.
17.	What of the villages neighbouring the water supply project.	The provisions are made in the study to supply water to villages located 12km away from the main line.
18.	Livestock are severely affected by worms after drinking water from the ponds and charco dams. These worms lead into infecting the liver of the livestock. It is proposed that water troughs shall be constructed in location where the pipeline passes. The cost of curing the worms is very high, about TZS 25,000 per bottle. Each bottle serves only 4 cattle.	The livestock keepers should send their requirements to the department of livestock in the district who in turn will liaise with RUWASAS for installation of their requirements in respective areas
19.	How will the proposed water supply scheme look like? Is it one tank supplying a number of households or it will be in form of drawing points	The system can accommodate both systems, house connections to where users are willing to accept that and

	constructed at a strategic point?	Drawing Points (DP) in places where households cannot afford house connection.
20.	What is the general picture of the whole project? When will it start?	The project has stages. Initial stages involve preliminary designs and assessments, construction and operation. The project has already started, whereby actual construction will start when the project formalities are completed
21.	There are horticultural activities in the area, will these activities be allowed to use water from the proposed project?	They are allowed as long as they agree with the conditions that will be set after the project is completed. Also as an alternative use for the water from the current wells, this can be ideal for growing vegetables as the water from the project will be treated and thus expensive to use for vegetables
22.	Katoro has many problems associated with water supply, therefore any suggestion similar to the proposed water supply project are most welcome.	Comment noted
23.	Nyamigota ward needs water dearly, there are no traditional wells, a few wells that are available belong to individuals and they put conditions of their own including prices.	Comment noted
24.	There is a habit of sabotaging water infrastructures, therefore when the proposed project is due for construction, sensitization of the communities must be carried out.	These public consultations are meant to introduce the project and instil the culture of protecting the community infrastructures. More of these sensitization will be carried out under RUWASAs
25.	The price of water in Nyamigota is TZS 250 per 20 litre bucket.	This rate of water per bucket is the highest in the project area. This goes to show a dire need of the proposed project

CHAPTER SIX

6. Identification, Assessment of Impacts and Project Alternatives

6.1 Introduction

The Environmental Impact Assessment procedure involves investigations to identify main project positive and negative impacts. The environmental assessment also requires that the assessor identifies alternatives for the proposed project. Therefore, under alternatives, it is required that a number of possible alternative proposals for accomplishing similar objectives be considered. In principle, these project alternatives should include an analysis of the location, timing, input and design alternatives as well as the do-nothing option.

Water Supply like any other development project, may have a number of minor to major environmental and social impacts are likely to emanate from initial preparations of site clearance of the site for water intake to transmission pipelines and appurtenances, transportation of building materials, excavation of trenches, placing or laying of water pipes, construction of storage tanks and operation of the installed water supply system. Such potential Environmental Impacts likely to emerge during different phases of the project are presented under this section. The impacts are a result of interference, prohibition, hindrance, impediment by various elements in the respective project areas. There are two categories of impacts; positive and negative impacts.

6.2 Pre-construction, Planning and Design Phase

This phase will involve confirmation of the location of the water intake, location for water treatment, identification of the transmission routes to ensure that the selected routes are optimal in terms of cost and ease to implement and also they minimize relocation of the resident communities or their properties, identification of suitable areas for storage tanks and camp sites, identification of locations for distribution networks, identification of sources of natural construction materials (gravel, building sand, aggregates and water) and transportation of construction equipment to site.

a) Positive Impacts

i. Creation of employment opportunities

The pre-construction/planning phase creates employment opportunities to various professionals directly or indirectly linked to the project. The proposed project during this phase will create employment to the following teams

- Consulting Engineering teams for concept and design development and preparation of tender dossiers
- Environmental Impacts studies teams
- Building economists or Quantity Surveyors to establish quantities of construction materials and assessing project economic viability and preparation of bills of quantities
- Surveying teams and technicians for topographical and geotechnical investigations
- Local laboratories for testing construction materials.

- Identification of locally available materials (stones, aggregates and sand will also create employment to local people working on those sites
- The preconstruction phase is envisaged to involve about 100 employees in all cadres

b) Negative Impacts

The negative impacts expected to emanate from the activities during the pre-construction phase include

i. Vegetation loss through clearance – location for water intake and water treatment facilities, the routes for transmission and distribution networks, site(s) for elevated storage tanks, etc.,
ii. Temporary obstruction of access roads by topographic survey and geotechnical investigation teams.
iii. Soil erosion – during detailed engineering design and geotechnical investigations, soils will become loose due to pits digging to facilitate these soil investigations. There is evidence in the project area that soil erosion is a serious problem due to the sloping terrain as shown on the picture under figure 15 below.
iv. Interference on daily activities/businesses as most of the works will be carried out adjacent to the businesses especially in the townships
v. Noise from transport of equipment to facilitate both feasibility and detailed engineering design phases
vi. Likely motor accidents with pedestrians in the course of implementing planning phase activities.

6.3 Mobilization Phase

- **Vegetation clearance and deterioration of original land use, scenic and visual quality**

Presently the proposed site has a mixture of land use, whereby in a rural setup there are corresponding rural vegetation. The urban setup has some urban vegetation too. Areas near water bodies have the vegetation that is supported by the surrounding water environment. In general, the vegetation is few and scattered due to cultivation of the areas and will change the landscape when removed. Therefore, this vegetation needs to be carefully considered as when removed they will be lost and thus changing the familiar aesthetic view of the area.

Figure 17: Vegetation as seen at Matofari area where the proposed water intake will be located

- **Displacement of people and properties**

  Some areas of the project especially in the townships are built up areas; therefore, to get space for excavation of trenches for pipes, construction of manholes and for access during maintenance may necessitate relocation of some properties especially buildings. Even though it was initially indicated that there will be limited land or property appropriation but this aspect is worth considering.

- **Disturbances to historical and archaeological finds during site clearance**

  Based on the nature of the sites of work, it is possible that historical or archaeological interest or anything of value during execution of the works may be encountered. Even though, it is not expected to find these archaeological finds along the water transmissions mains which will be mainly laid along the roads of access in the project areas, but in case this happens, the contractor or any other project personnel discovers such artefacts, the proposed mitigation measures proposed under section 8 of this report shall be closely followed.

6.3 Construction Phase

- **Relocation of infrastructures and disruption resulting from relocation**

  Some of the households in the project area have own water supply system either a shallow or a deep well. Most houses depend on water supply from wells owned by communities or privately owned wells.

- **Interference on daily activities/businesses as most of the works will be carried out adjacent to the businesses especially in those earmarked townships**.

  Trench excavation will be carried out in areas where there are businesses. If the trench is dug in front of any business this cannot allow customers to gain access to respective business locations

- **Poor air quality from dust and emissions around the construction site and along the pipeline routes**

  When works are in progress there will be creation of dust all over the area where machineries are working and along the routes. If these areas are residential places, the respective members of the community will be exposed to this nuisance

- **Noise and Vibration pollution**
  Noise will result from works such as excavation of trenches for water supply pipes, excavation, breaking or crushing the stones in places where storage tanks might be erected. Also use of explosives such as dynamite may be practised to pave the way for construction of elevated storage tanks.

- **Poor disposal of solid and liquid waste resulting from excavation of trenches, valve chambers and foundations for elevated storage tanks**

  Construction activities will always result into generation of waste of various forms in large volumes. These all generated wastes need to be properly disposed off otherwise it may pollute the surrounding environment.

- **Soil erosion**
  Since the project area is somewhat hilly and sloping topography, with loose soils, thus any mismanagement of earthworks may result into soil erosion.

Figure 18: Some areas affected by soil erosion in Katoro area.

The area shown in this picture had a road which is now washed away and the storm water channel now covers about half the width of the road!

- **Increased safety risk to construction/project personnel**
  Occupational hazards as a result of poor instruction and/or awareness on safety regulations, ignorance and reckless personnel may result from construction works.

Socio-economic Impacts

- Increased transmission of communicable diseases
  Construction activities in such large projects tend to attract migrant labour population that results into social interaction with the resident community. The construction site will be a place of work where job seekers and other service providers such as food vendors commonly known as "Mama Lishe" will gather for the purpose of work and related services. As a result of the mixed population, differences in behaviour and norms particularly those related to sexual practise lead to spread of sexually transmitted diseases such as HIV/AIDS, STIs /STDS (gonorrhea and syphilis) and the recent pandemic COVID-19.

6.4 Project Impacts during Operation Phase

- **Social operational problems**
  Inability of the communities to pay for the water service thus hampering its sustainability

- Vandalism to the project facilities
  It has recently emerged that business of scrap metal made scrap metal scavengers look for every metal from any source regardless of the use. Covers for valve chambers, cut-off pipes from steel pipes, rungs for ladders, I- beams, tubes are at risk of theft and sold as scrap metal. Therefore, any metal used in the project may be an incentive to metal scraps scavengers as they collect these for sale to recyclers.

- Generation of wastewater as a result of improved water supply from Lake Victoria
  Currently there are pit latrines and a few septic tanks connected to soak away pits in respective areas of the project. Any waste water generated as the result of the proposed works will be lead to the same on-site waste disposal system unless the site for such proposed works decide to have a different central or individual wastewater disposal system. If this problem is not taken care of by construction of the central sewer system, then sewage overflows will be the norm in the earmarked townships

6.5 Positive Impacts of the Project

- Women who used to spend most hours looking for water will now be relieved from these tasks, in turn the time will be spent usefully in other productive activities
- Reduction of water related diseases stemming from use of untreated and unsafe water from both shallow and deep wells and charco dams
- Creation of new businesses in the targeted townships such as horticulture and livestock keeping,
- The community around the project site will exploit new business opportunities in food vending and other similar services to the contractor and its work force.

- Opportunities for temporary and permanent employments. The project works will require both skilled and unskilled labour, thus creating job opportunities.
- Water is significant part of production processes in many industries, agriculture, and other economic activities such as mining which require large amounts of water

6.6 Assessment of significance of the Project Impacts

6.6.1 Assessment of positive and negative Impacts

An overview of the feasibility of water supply project to the townships of Katoro, Buseresere, Minkoto and Bwanga has been presented in the previous sections. The potential positive and negative impacts of the proposed project have been listed under sections 6.1 through to 6.5. These impacts are now analysed into different categories based on the stakeholders' views and perceptions, the consultants experience in undertaking Environmental and Social Impact Assessments and experience gained in other projects of a similar nature.

The approach used to assess the significance of the potential impacts and later assess the effectiveness of the mitigation or enhancement measures is to apply significant ratings to each impact based on objective criteria, such as magnitude, extent and duration of that impact, to yield a final evaluation of the significance of impacts before and after mitigation.

The application of significance rating reduces the number of variables which need to be considered by the decision maker, whist providing pertinent information about the implications of the proposed project. The assessment criteria used in the methodology and their associated ratings are shown in the Table below.

Table 26: First step assessment criteria for evaluation of impacts

Assessment Criterion	Ratings
Effect	**Direct**: effect comes directly from activities at the project site **Indirect**: effect does not come directly from activities at the project site, but from another direct or indirect effect
Duration of Impact	**Short Term** (ST): 0-5 years; **Medium Term** (MT) 5-10 years; **Long Term** (LT): 15+ years
Reversibility	**Irreversible:** cannot recover from the impact over a reasonable amount of time **Reversible**: can recover from the impact over a reasonable amount of time
Extent or Spatial influence of Impact	**Site Specific**: Within the boundaries of the project site **Local:** within the local project impact area Regional/National/International: Beyond
Magnitude of Impact at the spatial scale	**High**: natural and/or social functions and/or processes are severely altered **Medium**: natural and /or social functions and /or processes are notably altered **Low**: natural and /or social functions and/or processes are negligibly or minimally altered

Source: Adopted from Brownlie and Willemse (1996)

Using this methodology, a continuum of significance can be derived with the two end points of the continuum being:

Table 27: Continuum of Significance

Least Significant	Most Significant
- **Indirect**	- Direct
- **Site Specific**	- Regional
- **Low Magnitude**	- High Magnitude
- **Short-term**	- Long-term
- **Reversible**	- Irreversible

Also, other important criteria considered to evaluate whether or not adverse impacts are significant include:

- environmental loss and deterioration;
- social impacts resulting directly or indirectly from environmental change;
- non-conformity with environmental standards, objectives and guidelines; and
- Likelihood and acceptability of risk.

Criteria to evaluate adverse impacts on natural resources, ecological functions or designated areas include:

- reductions in species diversity;
- depletion or fragmentation on plant and animal habitat;
- loss of threatened, rare or endangered species;
- Impairment of ecological integrity, resilience or health e.g.
- disruption of food chains;
- decline in species population;
- Alterations in predator-prey relationships.

Criteria to evaluate the significance of adverse social impacts that result from biophysical changes include:

- displacement of people e.g. by water supply project facilities, dams and reservoirs;
- threats to human health and safety e.g. from release of persistent and/or toxic substances,
- decline in commercially valuable or locally important species or resources e.g. fish, forests and farmland;
- loss of areas or environmental components that have cultural, recreational or aesthetic value;
- disruption of communities by influx of a workforce e.g. during project construction; and
- pressures on services, transportation and infrastructure.

Environmental standards, objectives and targets to evaluate significance include:

- prescribed limits on waste/emission discharges and/or concentrations;
- ambient air and water quality standards established by law or regulations;
- environmental objectives and targets contained in policy and strategy; and
- approved or statutory plans that protect areas or allocate, zone or regulate the use of land and natural resources.

6.6.2 Assessment of Cumulative, Residual and Transboundary Impacts

a) Cumulative Environmental Impacts

In the introductory part of sub section 6.4, two types of direct and indirect environmental impacts likely to arise from water supply development project have been presented. Now the third category of environmental impacts from the proposed water supply project may be cumulative impacts: Cumulative impacts may be defined as the total impact that will arise from the water supply project under the control of the proponent (RUWASA/MWAUWASA), other activities under the control of others (say farmers from local communities) and other background pressures and trends which may be unregulated such as cultivation and livestock grazing. The activities of

the water supply project will therefore be one part of the total cumulative impact on the environment. Therefore, cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The analysis of the water supply project impacts combined with the effects of other projects can give a more accurate picture and understanding of the effects of the project's development than just considering the water supply impacts in isolation of the presence of other projects.

These cumulative impacts can also be further split down according to their nature, into positive and negative impacts, random and predictable impacts, local and widespread impacts, temporary and permanent impact and also short -and long-term impacts as specified for direct and indirect impacts.

The process of cumulative environmental impact can arise from any of the four following types of events:

1. single large event such as construction of this project,
2. multiple interrelated events,
3. natural calamities such as severe storms leading into increase in water levels in Lake Victoria or
4. slow, incremental and widespread change such as erosion as the result of uncontrolled erosion along the project pipelines and other similar actions in the project area.

These possibilities being considered, it is possible that during water supply construction, the hills and valleys will be cut through, firstly by vegetation clearance then exposing a larger part soil that will later be washed into the nearby water courses causing siltation. This impact on water courses can equally be caused by bush fire or livestock grazing that will either loosen the soil or exposing the soil that will later be washed away into the water body. The difference here is the extent and magnitude of causative agents of these cumulative impacts. Cumulative impacts assessment is a complex process which requires extensive knowledge of ecological principles and ecosystem response mechanisms. The success of the analysis relies heavily on the framework that is set up before the assessment is undertaken. The analysis of cumulative impacts can begin once boundaries for the assessment have been defined; quantifiable variables have been chosen; and the relationships between the chosen variables have been established.

Likely cumulative environmental impacts of the water supply project are

- Air quality
- Ecology and nature conservation
- Landscape and visual impairment
- Archaeology and heritage on excavated sites
- Land use
- Noise and Vibration

The mitigation actions can be similar to those applied to similar impacts under direct and indirect impacts category.

b) Residual Environmental Impacts

The residual impacts refer to those environmental effects predicted to remain after the application of mitigation actions outlined in the environmental assessment.

The identified residual impacts are

- Change in land use and visual effect – this residual impact will be minimal as the water supply will be passing along the existing routes of access except in some locations where modifications will be made to avoid unavoidable obstacles
- Change in landscape – these will be minimal residual impact as the excavation for water pipes and other appurtenances will be along the existing roads of access to the project sites.
- Ecology will change where locations will be identified to erect storage tanks, treatment plant or locations that will be cut and all vegetation cleared to allow use of earmarked area
- Noise and vibration will be there during construction but once the project is made operational such noise and vibrations will be transient (pressure and air release valves and lower than when the water supply project will be under construction

c) Transboundary Environmental Impacts

Transboundary impact as defined by the United Nations (1991) means any impact, not exclusively of a global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the area under the jurisdiction of another Party.

While this water supply project is constructed and operated in Tanzania, but the water will be drawn from a transboundary water body, Lake Victoria that later feeds into Nile River which makes it a potential pathway of transboundary impacts. These impacts are related to what may come from the water supply under construction or operation flowing into Lake Victoria. This may be in form of soil erosion, water pollution and siltation of the rivers that flow into Lake Victoria or dust and emissions generated from project activities.

These transboundary environmental impacts are analysed for their significance in the table below

Table 28: Analysis of Transboundary Environmental impacts of the proposed water supply project

Impact	Analysis of its significance
Air Quality	There is a possibility that air pollutants emitted from various sources, such as vehicle traffic and blasting operations will affect ambient air quality But the Ambient air quality is supposed to comply with the country's ambient air quality standards. Therefore, this transboundary impact is insignificant
	There are mining activities in the project area but there is no possibility that the project will make air pollution worse
Water Quality	There is a possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting and filling will cause water quality degradation in river waters that flow into Lake Victoria.
	There is a possibility that surface runoff from the proposed water supply project will contaminate water sources
	Effluents from various facilities, such as service and fuel refuelling stations and parking areas/service areas are supposed to comply with the country's effluent standards and ambient water quality standards. Therefore, the transboundary impact of water quality will be insignificant
Hydrology	There is a possibility that alteration of topographic features and installation of pipes will adversely affect surface water and groundwater flows, but this will not lead to a significant transboundary impact
Topography and Geology	There may be a soft ground along the proposed water supply routes that may cause slope failures or landslides, but there are adequate measures considered under detailed engineering design to prevent slope failures or landslides. Therefore, this impact is insignificant
	There is a possibility that civil works, such as excavation for pipes will cause slope failures or landslides but there are adequate measures considered to prevent slope failures or landslides and maintain slopes stability under detailed engineering design, therefore, the impact is moderately significant

6.7 Analysis of Environmental and Social Impacts

The summary of impacts is made on Table 13. They have been subdivided into direct, indirect and cumulative impacts. Furthermore, a statement is made on whether or not the impact is considered to be slight, moderate or significant.

Table 29: Analysis of Environmental and Social Impacts

Environmental and Social Impacts	**Analysis of Environmental and Social Impacts**											
	Effect				Duration			Reversibility		Extent or Spatial influence		
Description of Impacts	Direct	Indirect	Primary	Secondary	Short term	Medium	Long term	Reversible	Irreversible	Local	Regional	**Significance**
NEGATIVE IMPACTS												
During Pre-construction phase												
1. Vegetation clearance along the road reserve where water pipelines will be laid	✓		✓		✓				✓	✓		Medium
2. Displacement of people, properties and infrastructures currently on the ROW	✓		✓				✓		✓	✓		Medium
3. Disturbances to historical and archaeological sites during site clearance	✓			✓	✓				✓	✓		Low
During Construction phase												
1. Relocation of infrastructures and disruption resulting from relocation	✓		✓		✓			✓		✓		Low
2. Interference on daily activities/businesses as most of the works will be carried out adjacent to the businesses especially in those earmarked townships.	✓		✓		✓			✓		✓		Low
3. Poor air quality from dust and emissions around the construction site and material hauling routes	✓		✓		✓			✓			✓	Medium
4. Noise and vibration pollution	✓		✓		✓			✓		✓		Medium
5. Poor disposal of solid and liquid waste and contamination of water sources	✓		✓				✓	✓		✓		Medium
6. Soil erosion	✓			✓			✓	✓		✓		High
7. Increased risk to construction/project personnel	✓		✓		✓			✓		✓		Low

8.	Socio-economic Impacts and cultural changes		✓		✓			✓			✓		Medium
9.	Increased transmission of communicable diseases, HIV/AIDS and COVID-19 pandemic	✓		✓		✓			✓			✓	Medium
During Operation													
1.	Water supply operational problems due to inability of the communities to pay for the service rendered	✓			✓			✓	✓		✓		High
2.	Vandalism to project facilities	✓		✓		✓			✓		✓		Medium
3.	Generation of wastewater as a result of improved water supply from Lake Victoria	✓		✓		✓			✓		✓		High

CHAPTER SEVEN

7. Project Alternatives

The overall objective of the project is to improve water supply situation in the townships of Katoro, Buseresere, Minkoto and Bwanga in Geita region. Residents of the targeted townships and adjacent villages within 12km from the main pipeline will be connected to the proposed water supply and will have improved service delivery through improved and sustainable access to reliable, adequate water supply services. The project will also contribute in reducing diseases that came from use of unsafe and untreated water.

7.1 Alternative Sources of water Supply

Irrespective of the source of water, if the water supplied is safe and clean, there will be added advantage of improved health and diseases that would have spread to local communities will not be there. Various alternative sources of water supply have been considered. Among others, the following alternatives have been discussed with various stakeholders and experts to opt for the optimum alternative for design and implementation:

(a) **No Option Alternative:** This option implies that the situation will be left as it is as of now, thus maintaining the status quo of the existing water supply situation. In this regard, the water supply condition in proposed areas will continue to deteriorate thus posing health problems among the communities and women will continue to waste more time looking for water in contaminated wells and ponds. This option was not supported by both stakeholders and experts due its disadvantages. The No Project Alternative would be defeating the purpose of improving quality of livelihood through universal access to water supply and primary health care, which are the core components of the Ministry of Water functions in provision of adequate portable water supply and sanitation services in Tanzania.

(b) **Groundwater sources:** At the township level, the ground water sources are consisting of a number of wells located in the area without any purification or distribution system. This is what these townships have been using for years now. On considering the groundwater wells, one distinguishes between open wells which were dug by hand or wells which were drilled by machines. On the open wells, water is brought up to the surface by use of buckets with ropes, while from the drilled wells the water is pumped up by hand pumps or motor driven pumps. Where the pumps are used, maintenance and service of these pumps is very crucial. It is without doubt that the targeted townships have gone through all these experiences of missing water supply because the pumps were out of work. Also, those that depend on motor driven pumps may have experienced luck water due to power outage, or any other reason. Most importantly, all these types of wells must be protected from infiltration or seepage of wastewater from pit latrines or other sources of wastes. The targeted townships have all this experience of contamination of water wells. Therefore, this alternative of ground water sources is what the townships have at the moment and there are no reasons as to why they should continue using them.

(c) **Rainwater harvesting:** This can also be an alternative and important source of water supply due to its convenience. Rainwater harvesting can be done in individual

households or by the establishment of a common facility such as schools or health centres where it was possible to collect rainwater directly from roofs.

Figure 19: Rain water harvesting tank at a health centre in Bwanga Township

Unfortunately, rainwater harvesting can be practised with great limitations in the targeted area due to short periods of rain over the year. The rain season in targeted area is very short and most of the institutions have tried rainwater harvesting to their best but with the said limitation. Comparatively, this option is purely dependent on rain like the wells that dry out during the dry season.

(d) **Surface sources:** Surface water sources is convenient for supply of large amount of water to populated areas comprising of households, industries, institutions, as is the case with targeted townships of Katoro, Buseresere, Minkoto and Bwanga. The surface water is envisaged to be collected from Lake Victoria which about 20km away from these townships. Conveniently, the surface water will be collected, purified and disinfected, pumped into elevated reservoirs to ensure stable supply of water, then distribute to identified drawing point or to households as it may be determined during designs of the reticulation system. Considerations were made to other important aspects such as organization, administration and access to qualified personnel with relevant experience, participation of local communities and possibilities of funding for construction and maintenance.

After consideration of all the above alternative sources, each with its merits and demerits, it was concluded that the surface water source in Lake Victoria will meet the requirements of the targeted townships.

7.2 Construction Technology Alternatives

The water supply construction technologies can only be considered in two forms namely; mechanized and labour based techniques. Mechanisation for project construction became necessary to replace labour which was becoming ever more expensive and scarce.

However, in many third world countries labour is now abundant and prepared to work for low wages. Moreover, construction equipment and the inputs needed to keep it working must be imported, diverting scarce foreign exchange from more vital purposes. In such circumstances it is not surprising that efforts began more than twenty-five years ago to develop construction techniques more appropriate to the economic and social conditions in developing countries.

Labour-based techniques do not imply the complete elimination of machinery but rather selective replacement. Certain tasks, for example, excavation of long and deeper trenches, laying the pipelines and backfilling the trenches are better done by mechanical equipment while small trenches for small pipes, depending on distance can be done by hand. Both of the latter have the advantage of being multi-use which is essential in the country where specialised equipment tends to be under-used. For other tasks, simple machines have been developed which can be used to save labour if wages or scarcity justify it.

Unfortunately, labour-based works have not had the success. Changing a well-established technology requires a multi-level approach as well as the time to learn. It cannot be done piecemeal and hurriedly. Putting aside the profound shifts in attitude which must be induced, they require extensive retraining of construction works managers and engineers and given the trend towards private sector involvement, technical and financial assistance to construction firms. These in turn can only survive if they can be guaranteed a steady flow of similar work, which can only be assured by a global approach.

Their relative simplicity permits decentralisation to local level management. However, again we are confronted with the need to train and supervise their implantation to ensure that the acquired knowledge will continue to be used after the project is over. Too often, works have been carried out without adequate training and supervision and have been of poor quality. In other cases, managers and enterprises have been trained and equipped but could not continue subsequently to apply their skills and have found themselves unemployed or bankrupt.

In conclusion, labour-based works can be introduced within a high level commitment to privatisation, decentralisation, employment creation and poverty alleviation. Labour-based works can be powerful policy instruments to support these objectives. However, without a real rather than rhetorical commitment of government and donors they will not realise their potential.

Therefore, construction technology will surely depend on the size and duration of the project. Mechanised or labour based will be apportioned based on the extent of the works available and also as determined by the contractor himself.

CHAPTER EIGHT

8: Mitigation measures

8.1 Pre-construction Phase Mitigation Measures

Table 30: Impacts and Mitigation measures during preconstruction phase

Impacts		Mitigation actions
1)	**Vegetation clearance along the road reserve where pipelines will be laid**	- Vegetation clearance will as much as possible try to avoid cutting or uprooting trees outside the permanent work area, - if possible the design will be modified in some specific locations in order to avoid tree uprooting. This is important because the project area is somewhat flat and clear with gentle slopes, thus very few trees have successfully grown and they are growing in areas of good soil.
2)	**Displacement of people and relocation of services and properties currently on the ROW**	- Identification of the properties to be displaced, valuation and compensation in places where properties cannot be avoided or left intact, should be carried out in advance - Alignment of trenches (design) to follow existing access roads and open areas as much as possible to avoid relocating some of the properties
3)	**Disturbances to historical and archaeological finds during site clearance along the proposed water reticulation routes**	- Notifying the Engineer giving the nature and location of the findings. The Engineer will consult the National Museum. - The Contractor shall exercise necessary care so as not to damage artefacts or fossils uncovered during excavation operations and shall provide such cooperation and assistance as may be necessary to preserve the findings for removal or other disposition by the employer. - Where appropriate by reason of a discovery, the Engineer shall order delays in the time of performance or changes in the work, or both. If such delays, or changes or both are ordered, the time of performance and contract price shall be adjusted in accordance with the applicable clauses in the general Conditions of Contract.

8.2 Construction Phase Mitigation measures

Table 31: Impacts and Mitigation measures during construction phase

	Impacts	Mitigation Actions
4)	**Relocation of infrastructures and disruption resulting from relocation**	- Communities shall be informed in advance regarding storage of water when their utilities are about to be relocated to pave the way for construction works. - Water pipes crossing the trenches may be moved slightly away from the trench or provision of service duct may be considered.
5)	**Interference on daily activities/businesses as most of the works will be carried out adjacent to the businesses especially in those earmarked townships.**	- Notices shall be served to the business communities to alert them on the intended project - Barricades shall be provided in all trenched areas - Trenching, laying pipes, testing and backfilling the trenches shall be done in the shortest possible time to avoid inconveniences to the business communities in the earmarked towns
6)	**Poor air quality from dust and emissions around the construction sites and along the earmarked pipeline routes**	- Water sprinkling to reduce the dust at the construction site and in settled areas - Use of dust masks to operators and those working in the dusty areas - Construction machines/equipment will be well maintained to ensure total fuel combustion. All vehicles involved in construction works will be frequently checked and well serviced during the whole pipeline construction period so that the level of exhaust emissions is reduced
7)	**Noise and vibration pollution**	- Construction workers exposed to noise of the order above 85 dB (A) will be provided with the ear protective devises such as ear muffs or ear plugs. - Also to safeguard health and safety of the workers, the contractors will be required through contractual arrangements to supply safety gear including coveralls, overalls, hardhats, goggles, dust-masks and safety harness in case of work above ground is encountered. - The residents will have to be informed at least one day before the day of carrying out activities which may result to noise and abnormal vibrations.
8)	**Poor disposal of solid and liquid waste resulting from excavation of trenches, valve chambers and**	- Good house/site keeping will be exercised at all construction sites. All excavated spoils should be well managed through levelling or tipped into borrow pits which are no longer useful or in depressions. - Any material that may be recycled in the project area shall be

	foundations for elevated storage tanks	reused for better environmental management
9)	**Soil erosion**	- Soil erosion control measures in the area shall be applied such as covering the bare soil with geo-fabric and re-vegetation with the local species and cover with concrete in erosion susceptible areas shall be implemented.
10)	**Increased safety risk to construction/project personnel**	- Putting in place a proper plan for occupational and health safety system including training and sensitization programmes for employees.
11)	**Socio-economic impacts - Increased transmission of communicable diseases including the recent pandemic of COVID-19**	- Sensitization and health awareness campaigns to all persons involved in the project including service providers - Construction workers to undergo health screening according to the National HIV/AIDs Policy - Follow the regular guidelines issued by the Ministry of Health including washing hands on flowing water, use sanitizers, use of masks and observing safe distances

8.3 Operation phase impacts and corresponding mitigation measures

Table 32: Impacts and Mitigation measures during operation phase

12)	**Water supply operational problems related to inability to pay for the service**	- With regard to the tariff structure, in order to avoid operational problems, the water supply authority RUWASA should arrange to connect the houses for a nominal fee translated into lower rates so that it can encourage more people to be connected to the water supply system. - In poor areas, connection fees for water supply are likely to create payment problems, and these should be transferred into monthly charges. RUWASA shall also look at the ability of the residents to pay for the water supply service. The water charges in areas served should be affordable and linked to the household income, otherwise, the project may end up serving a few people in the area. - RUWASA has to ensure good partnership with community served by water supply though good design, good construction, good maintenance and an adequate, but affordable tariff structure.
13)	**Vandalism to project facilities**	- The project should be made community based through involvement of the community leaders in order that they are involved in protection for the water supply system structures. - Minimization of metal scraps in the project may also be a solution towards reduction of loss of project infrastructures.
14)	**Generation of**	- Improvement of the on –site wastewater disposal systems such as

	wastewater as the result of improved water supply	pit latrines, septic tanks and soakaway pits. - Planning for the central collection and treatment system for the earmarked townships

CHAPTER NINE

9. Environmental and Social Management Plan

9.1 Introduction

The objectives of Environmental and Social Management Plan (ESMP) are to describe;

a) the legislative and administrative frameworks in the country on Environmental Impact Assessment Management,
b) implementation arrangements for the ESMP,
c) the environmental monitoring programme and reporting arrangements and
d) design consideration regarding environmental, health and safety and social impacts.

In Tanzania the Environmental Assessment framework is guided by the following two key national legislations:

i. The Environmental Management Act (EMA) No. 20 (Cap 191) of 2004
ii. The Environmental Impact Assessment and Audit regulations, 2005
iii. The Environmental Impact Assessment and Audit regulations, 2018

Environmental Impact Assessment for any development project is administered and approved by the Vice Presidents' Office, where the Minister for Environment falls. Therefore, for environmental assessments for the proposed water supply project, the responsible institutions are:

i. Minister for Environment who approves the EIA and gives the environmental permit,
ii. NEMC, who arranges for EIAs, undertakes enforcement, compliance, review and monitoring of EIA.

9.2 Implementation Arrangement of the ESMP

The project proponent and the executing agency of the project is MWAUWASA who will be assisted by the Design and Supervision Consultants and other Sectoral Consultants to engage the Contractor and Sub-contractors in the implementation of the water supply project. To minimize potential environmental and social negative impacts, the project will require the support of various institutions in the project area particularly in Geita rural and Chato districts. Table 17 below outlines the actions of the ESMP. The organizational framework for the ESMP is designed to evolve as the project progresses through pre-construction, construction and operation phases.

9.3 Reporting Arrangement of the EMP

MWAUWASA Environmental Representative or Consultant's appointee to deal with Environmental Management will cooperate with other experts Geita Rural and Chato Districts such as District Land Officers, District Valuer(s), Community Development Officers and District Environmental Management Officers to provide the Regional Environmental Management Expert with environmental reports of the project implementation as part of the progress reports and annual environmental monitoring reports. The Regional Management Expert is the link person between the region and the Director of Environment as well as the Director General of NEMC.

Table 33: Environmental and Social Management Plan

Environmental and Social impact	Indicator-mitigation target	Responsible for mitigation	Time Frame	Estimated Cost (TZS' '000)
During Pre-Construction phase				
Vegetation clearance along the road reserve where pipelines will be laid	Limit clearance to necessary areas for permanent works	Supervising Engineer/contractor	During vegetation clearance	15,000
Displacement of people and relocation of services and properties currently on the ROW	Properties identified and compensation effected Infrastructural services relocated and no social service interruption	Supervising Engineer/ Infrastructure relocation contractor/District Valuer	Before project construction	50,000 Partly compensation to project affected persons (PAPs)
Disturbances to historical and archaeological finds during site clearance along the proposed water reticulation routes	Notification to National museum	Engineer/ Contractor	During site clearance for works	15,000
During Construction Phase				
Relocation of infrastructures and disruption resulting from relocation	Infrastructural services relocated and no social service interruption	Supervising Engineer/ Infrastructure relocation contractor/District Valuer	Before project construction	25,000
Interference on activities/businesses as most of the works will be carried out adjacent to the businesses	Sensitization of the business owners and some compensation for the interference encountered	Supervising Engineer/Project contractor	Before start of construction works	7,000
Poor air quality from dust and emissions around the construction sites and along the earmarked pipeline routes	Water sprinkling, PPE, Speed limit implemented, Equipment well serviced	Supervising Engineer/ contractor	Weekly	Part of the BOQ for dust abatement Estimated at 10,000
Environmental and Social impact	**Indicator-mitigation target**	**Responsible for mitigation**	**Time Frame**	**Estimated Cost (TZS'000)**

Noise and vibration pollution	Sound insulation	Supervising Engineer/ water supply contractor	Weekly	Part of the BOQ – air pollution abatement Estimated at 11,000
Poor disposal of solid and liquid waste resulting from excavation of trenches, valve chambers and foundations for elevated storage tanks	Good house keeping	Supervising Engineer/ water contractor	Weekly	Part of the BOQ Estimated at TZS 6,000
Soil erosion	Soil erosion controlled	Supervising Engineer/ Project contractor	Monthly	Part of the BOQ estimated at 15,000
Increased safety risk to construction/project personnel	PPE supplied and used at all work sites	Supervising Engineer/ Project contractor	Daily	PPE Supervision 7,000
Socio-economic impacts - Increased transmission of communicable diseases including the recent pandemic of COVID-19	Sensitization of the workforce and the surrounding communities Observe guidelines issued by the Ministry of Health in respect with COVID 19	District Aids Control Coordinator	Quarterly	5,000
During Operation Phase				
Water supply operational problems related to inability to pay for the service	Sensitization of the communities and user friendly tariffs set to attract the users	RUWASA	Quarterly	5,000
Vandalism to project facilities	Sensitization of the communities	RUWASA	Quarterly	5,000
Generation of wastewater as the result of improved water supply	Improved on site wastewater disposal systems	RUWASA	Quarterly	15,000
Total				**191,000**

CHAPTER TEN

10. Environmental and Social Monitoring Plan

10.1 Introduction

Monitoring of the environmental related activities of water supply system is the long term process that should begin at the start of the project construction and continue throughout the life of the project. Its purpose is to establish environmental benchmarks so that the nature and magnitude of anticipated environmental impacts are continually assessed. Monitoring involves the continuous or periodic review of mitigation activities to determine their effectiveness. Consequently, trends in environmental degradation or recovery can be established and previously unforeseen impacts can be identified and dealt with during the water supply project design life.

Environmental audits are also usually carried out some few years after completion of the project. These audits assess the relevance, efficiency and impact of any mitigation measures administered. The project proponent, MAUWASA in collaboration with RUWASA may initiate such audit processes to cover all its projects activities. The water supply contractor should prepare an Environmental and Social Monitoring Plan which will cover the mobilization, construction, commissioning and demobilization phases of the project. Tasks to be covered and monitored during each phase are presented below.

Monitoring during Pre-Construction Phase

- If appointment of the Health, Safety and Environment (HSE) Officer is carried out and carries out his/her responsibility.
- If maintenance and checking of construction equipment ready for work at site and during the actual works;
- If training and sensitization of the staff on safety aspects and environmental issues is carried out;
- If HIV/AIDS, COVID-19 sensitization campaign have been planned and will actually be carried out;

Monitoring during Construction Phase

- If mitigation measures are implemented;
- HIV/AIDs, COVID-19 sensitization campaigns are done in regular periods
- Occupational health and safety measures (conditions at materials storage places,
- Soil erosion control measures, equipment, personal protective equipment (PPE), etc.,) are implemented.
- Data collection and analysis of baseline data on air and water quality, noise levels and socio-economic aspects as indicated in the EIA study are carried out

Commissioning phase

- If the water supply project is performing as designed and constructed in term of quantity, residual head on all drawing points and the water quality is within set down limits
- If solid and liquid wastes generated as part of the operation phase are taken care in the manner specified in the environmental management plan
- If mitigation measures are effectively mitigating the impacts identified before the project start

Demobilization phase of the Contractor

- If the resulting debris is managed in planned order

10.2 Environmental and Social Monitoring During Operation

MOW/MWAUWASA/RUWASA will be responsible for monitoring the environmental and social impacts after construction and handing over of the water supply project by the contractor. The District Environmental Specialist in Geita Rural and Chato districts' Office together with District Land Officer can be in-charge of the environmental and social monitoring of issues related with the water supply project, that is if the project is meeting all the statutory requirements.

Among other things, the appointed District Environmental Management Officer should deal with

- monitoring water quality for various pollutants;
- monitoring if pressure and distributions networks are functioning as required
- monitoring water leakages from different sources such as valves chambers, rising mains, storage tanks, and the distribution networks
- environmental degradation control measures such as soil erosion;
- changes in socio-economic status;

Table 34: Environmental and Social Monitoring Plan

Environmental or Social Impact (parameter)	Indicator or Mitigation Target	Management Method (Responsibility for monitoring)	Monitoring Time Frame/frequency	Sampling area	Estimated monitoring Cost (TZS'000)
During Project Pre-construction phase					
Vegetation clearance along the road reserve where pipelines will be laid	Minimum vegetation clearance	District Natural Resources Officer/ Forester	Once every 3 months for 2 years	Along the project wayleave	4,000
Displacement of people and relocation of services and properties currently on the ROW	Properties identified and compensation effected Infrastructural services relocated and no social service interruption	District Lands Officer/Public utility companies in the project areas	Once during preparation	Along the project wayleave	3,000
Disturbances to historical and archaeological finds during site clearance along the proposed water reticulation routes	Notification to National museum	National Museum	Once before start of the works	Along the project wayleave and materials sites	2,000

During Project Construction phase					
Relocation of infrastructures and disruption resulting from relocation	Infrastructural services relocated and no social service interruption	District Water Engineer, TANESCO	Once during initial preparations	Along the project wayleave	2,000
Interference on activities/businesses as most of the works will be carried out adjacent to the businesses	Sensitization of the business owners and some compensation for the interference encountered	District Lands Officer	Once during preparation	Along the project wayleave	3,000
Poor air quality from dust and emissions around the construction sites and along the earmarked pipeline routes	Emissions within the required standards. Refer to Environmental Management (Air Quality Standards) Regulations of 2007, G.N. 237, on first, second and fourth schedules for the limits and test methods.	District Environment Management Officer	Once every month during construction	Residences along the project wayleave	3,000
Noise and vibration pollution	Noise insulation and vibration cushioning Intensity of vibration within 100m of residence -≤25mm/s in residential -≤50mm/s near water supply well Observe requirements of Explosives Act	District Environment Management Officer	Once every month	Noise Receptor Residence near the project wayleave	2,000
Poor disposal of solid and liquid waste resulting from excavation of trenches, valve chambers and foundations for elevated storage tanks	Pollution control Pollutants in water, TSS, Target not > 20mg/Nm3 on yearly average	District Environment Management Officer	Once every 3 months for project duration	Rivers/streams and shallow wells Along the project wayleave	2,000

Soil erosion	Soil erosion controlled	District Environmental Management Officer	Once every 3 months for 32 months	Along project wayleave	3,000
Increased safety risk to construction/ project personnel	PPE and Good housekeeping at construction camps	District Environment Management Officer	Once every month for 32 months	Work premises	3,000
Increased transmission of communicable diseases including the recent pandemic of COVID-19	Sensitization of the workforce and the surrounding communities Observe guidelines issued by the Ministry of Health in respect with COVID 19	District Community Development Officer	Once every 3 months for 32 months	In the targeted Community	5,000
During Project Operation Phase					
Water supply operational problems related to inability to pay for the service	Setting Customer Friendly Tariffs	MWAUWASA /RUWASA	Once before the project becomes operational	In the community (water users)	5,000
Vandalism to project facilities	Sensitization of Communities	MWAUWASA /RUWASA	Once monthly	In the community areas(Water users	5,000
Generation of wastewater as the result of improved water supply	Improvement of onsite waste water disposal systems or planning for the central sewer system	MWAUWASA /RUWASA	Before the project becomes operational	In the community areas(Water users	5,000
Estimated Total					**47,000**

CHAPTER ELEVEN

11. Resources Evaluation or Cost Benefit Analysis

11.1 Introduction

Cost Benefit Analysis is a tool used either to rank projects or to choose the most appropriate option. The ranking or decision making is based on the expected economic costs and benefits. The general rule is that the project should be undertaken if lifetime expected benefits both environmentally and socially, exceed all expected economic, environmental and social costs.

The aim of Environmental and Social Cost Benefit Analysis (ESCBA) is to present the lifetime costs and benefits of a project as a single number that can be compared to either the interest rate prevailing or the costs and benefits of environment. To get this indication, the stream of net benefits (benefits minus costs) is discounted.

The process of conducting the environmental cost benefit analysis involves

- Description of the project and corresponding capital costs.
- Identification of the project consequences in time frame order and obtain their monetary values.
- Determination of the type of Environmental and Social Cost Benefit Analysis

In the following sections, the environmental cost benefit analysis of the project is presented.

11.2 Environmental and Social Costs

As presented before under Section 6, the project negative impacts will include the following, all presented in different phases of the project.

During the pre-construction phase the impacts will be; vegetation clearance and deterioration of original land use, scenic and visual quality, Displacement of people and properties, Disturbances to historical and archaeological finds during site clearance.

During the construction phase the impacts will include, relocation of infrastructures and disruption resulting from relocation, interference on daily activities/businesses as most of the works will be carried out adjacent to the businesses especially in those earmarked townships, poor air quality from dust and emissions around the construction site and along the pipeline routes, noise and vibration pollution, poor disposal of solid and liquid waste resulting from excavation of trenches, at valve chambers and foundations for elevated storage tanks, soil erosion in disturbed surfaces, increased safety risk to construction/project personnel and increased transmission of communicable diseases from the labour force to resident communities or vice versa.

Finally, during operation phase the impacts will include social operational problems such as the inability of the communities to pay for the water service thus hampering its sustainability, vandalism to the project facilities and generation of wastewater as a result of improved water supply from Lake Victoria.

If each one of these impacts is assigned a monetary value at current market value, based on a combination of market value methods and one's willingness-to-pay methods for the damage or impact caused, or based on cost for a remedy such as application of erosion control measure to control erosion or provision of PPE to offset the impacts of noise and vibration, all these impacts (including implementation of the management plan and monitoring costs estimated under Chapter 9) all are worth about 310,000 dollars as estimated below on the Table 19. below

In this section some of the boxes are deliberately left blanks as the costs of associated details cannot be known with certainty as part of them depend on the actual work by the contractors on site and the footmarks they leave behind when a certain activity is done on site

Table 35: Environmental and social cost estimates

	Item description	Unit Rate TZS)	Quantity	Total (TZS)
1.	Vegetation loss through clearance along the road reserve where pipelines will be laid	50,000	500 ha	25,000,000
2.	Displacement of people and relocation of services and properties currently on the ROW	100,000,000	Lumpsum for all services and some compensation to those relocated	100,000,000
3.	Disturbances to historical and archaeological finds during site clearance along the proposed water reticulation routes	5,000,000	Recovery lumpsum	5,000,000
4.	Relocation of infrastructures and disruption resulting from relocation		Included under item 2 above	
5.	Interference on activities/businesses as most of the works will be carried out adjacent to the businesses	5,000,000	6 months	30,000,000
6.	Poor air quality from dust and emissions around the construction sites and along the earmarked pipeline routes (remedy measures per month)	200,000	2 years	4,800,000
7.	Noise and vibration pollution	200,000	2 years	4,800,000
8.	Poor disposal of solid and liquid waste resulting from excavation of trenches, valve chambers and foundations for elevated storage tanks (monthly remedies)	500,000	2 years	12,000,000
9.	Soil erosion (restoration costs per area)	12,000	20,000m^3	250,000,000

10. Increased safety risk to construction/project personnel(handling and sensitization costs) about 250 employees)	450,000 per employee	2 years	225,000,000
11. Increased transmission of communicable diseases including the recent pandemic of COVID-19 (Sensitization and use of masks and sanitizers/one per month)	600,000	2 years	14,400,000
12. Water supply operational problems related to inability to pay for the service (Setting friendly tariffs and sensitization	5,000,000	2 years	10,000,000
13. Vandalism to project facilities (surveillance and replacement for 1 yr)	5,000,000	2 years	10,000,000
14. Generation of wastewater as the result of improved water supply (Planning and sensitization of water users per year	10,000,000	2 years	20,000,000
Total estimated cost of land acquisition, mitigation remedy or prevention for 24 months****			**711,000,000**

CHAPTER TWELVE
12. Decommissioning

12.1 Introduction

Decommissioning is the final phase in the life cycle of the project after locating the site, design, construction, commissioning and operation for the design life. Most often, decommissioning is a process involving operations such as dismantling and demolition of structures, and management of resulting demolished materials. All these activities have to take into consideration of the environmental health and safety requirements for the operating personnel, the general public, and any implications for the surrounding environment.

12.2 Requirements for decommissioning the water supply project

Some infrastructures such as water supply, or sewerage system, a road between townships or electrical reticulation system are not like manufacturing facilities or machineries whereby the methods used to manufacture some products are replaced by modern technology or process! The design period of the water supply project will be about 20 years to year 2042 while considering 2022 as a starting year for water usage. Some of the water supply fittings and other appurtenances can be replaced or changed regularly depending on their usage, but the main pipeline or the storage tanks built in reinforced concrete may require no replacement in less than 50 years or so.

As long as villages and small towns served by the proposed water supply project are on continuous expansion and more development is coming into these centres, there will always be a need for even a better water supply service. Therefore, decommissioning of the proposed project should be thought of terms of upgrading the infrastructure from the present status to the next higher stage. There will be no time in the design life of the water supply project when it will appear that the water supply is not needed.

If at any time after 20 years, the constructed water supply project becomes ineffective, for example, developing pipe raptures leading to severe water leakages such that maintenance or rehabilitation is required, then according to the first schedule of the Environmental Impact Assessment and Audit Regulations of 2005, then will require a fresh Environmental Impact Assessment.

CHAPTER THIRTEEN
13 Summary and Conclusions

13.1 Summary

This ESIA report is intended to offer an objective assessment on the concerns that were raised during the scoping phase of the study as well as those noticed by the assessment team in the project area based on the technical expertise that lies within Environmental BENCHMARK's consultants. The purpose of this report is to identify and assess the potentially significant environmental and social issues and environmental impacts. Ultimately, the report should give NEMC and other interested stakeholders the opportunity to make an informed decision regarding the proposed water supply system project and its various options.

The construction and operation of the proposed water supply system can result in a variety of impacts on the natural environment as well on the neighbours in the vicinity of areas where trenches will be dug to install the sewer pipes. The issues related to the proposed water supply system were identified with various stakeholders, discussed with the technical personnel and assessed by the ESIA consultants. Mitigation measures were listed and the possible remedial options reviewed. The issue of an alternative to proposed project was discussed as either to remain with the current water supply systems which involves shallow wells, rainwater and charcoal dams, under section 7 for alternative options for water supply. Equally important, the consideration of "Do-Nothing Option" was discussed in sub-section 7.4. The No Project Alternative would be defeating the purpose of improving quality of livelihood through universal access to water supply and primary health care, which are the core components of the Ministry of Water functions in provision of adequate portable water supply and sanitation services in Tanzania. The water supply system for the earmarked townships is generally in pathetic condition and it really needs improvements or an uplift to offset the problems currently faced by the water users. It is evident that the experience gained so far from, the time wasted in looking for water, diseases contracted out of using unsafe and untreated water outbreak and the pathetic conditions of current sources of water supply and need to protect health are the reasons that lead to the present proposal.

If there were ready made numerical figures to know how much damage the current water supplies have caused, then these figures would have given the decision of getting better water supply system immediately and at any cost.

13.2 Conclusion

The findings of environmental impact assessment of the proposed water supply system are positive overall on the health and social–economic environment of the earmarked townships. However, the impact of the project on the bio-physical environment is potentially slightly negative in pre-construction, construction and operation phases of the project. In addition to this, the environmental impacts expected from the proposed development can be mitigated to acceptable/satisfactory standards except those associated disturbances during construction, which are rated to be of low significance. However, the impacts mentioned in here are not of sufficient importance to stop the proposed water supply system project. The management of the identified negative impacts will require

implementation of the necessary mitigation measures detailed within Section 8 of this document and in the Environmental Management Plan, EMP prepared under section 9 of this draft EIS report. With adequate management of the identified impacts, as required by the EMP, the environmental risks and impacts of the proposed project can be minimized to acceptable levels.

Furthermore, in order to ensure that the construction of this proposed development does not result into potential negative impacts on site and in the surrounding area, a detailed engineering design must be carried out taking into consideration of the concerns raised by the neighbours particularly on safety of the people and amicable resolve of these who might be forced to be relocated or surrender some of their plot to accommodate the elements of the project such as storage tanks. Also a Community Liaison Office (CLO) must be established and must comprise of the following key stakeholders:

- Three members from each of the wards of Katoro, Ludete, Nyamigota, Buseresere, Bwanga and Minkoto Wards Development Committees.
- Contractors HSE officer
- Geita Rural and Chato Districts Environmental Management Officers
- RUWASA Project Administrative Officer

During construction of the water supply project the committee must continue to function as the key role player to ensure that the contents of the EMP are complied with. This committee will also be responsible for dealing with or addressing any issues associated with the proposed water supply project. The composition of the committee must be changed during operation to suit the conditions of the site based on its use and this will ensure the good co-existence of the water supply project with the surrounding resident communities

Reference Materials

1. Basel convention on the control of Trans boundary movements of Hazardous Waste and their Disposal, 1989
2. Brownlie and Willemse (1996), First Step Assessment Criteria for evaluation of Environmental Impacts,
3. DEAT (2004) Cost Benefit Analysis, Integrated Environmental Management, Information Series 8, Department of Environmental Affairs and Tourism (DEAT), Pretoria,
4. District Executive Director -Chato District Socio-Economic Profile 2014
5. Environmental Impact Assessment (EIA) procedures (March 2002)
6. Heinzerling & Ackerman (2002)- Pricing the Priceless: cost Benefit Analysis of Environmental Protection – Georgetown University,
7. Lusaka Agreement on cooperative enforcement operations Directed at illegal Trade in Wild Fauna and Flora (1994).
8. Managing Director, - Bukoba Urban Water Supply and Sanitation Authority- Project brief for Bwanga Water Supply Project Chato district council, Geita region, February 2018
9. Nairobi Convention for the protection, management and development of the Marine and Coastal environment of Eastern African Region, 1985 and the related protocols.
10. National Bureau of Statistics; 2012 Population and Housing Census, March 2013
11. Protocol on Liability and Compensation on Damage resulting from Trans boundary movement of Hazardous waste and their disposal, 2000
12. Subsidiary Legislation (Suppl. No. 16 of 4th May 2001,
13. Tanzania Bureau of Standards – National Environmental Standards Compendium (NESC),
14. The Cartagena Protocol on Bio safety to the convention on Biological Diversity (2000)
15. The convention concerning the Protection of World Cultural and Natural Heritage, Paris, (1972)
16. The Convention of Biological Diversity, (1992) ratified by Tanzania in 1996).
17. The convention of Wetlands of International Importance especially as water fowl Habitat
18. The convention of Wetlands of International Importance especially as water fowl Habitat
19. The convention on International Trade and Endangered species of Wild Fauna and Flora (CITES), Washington (1973)
20. The Convention on the conservation of Nature and Natural Resources, 1968 Algiers, (1968)
21. The convention on the prevention of Marine Pollution by dumping of Wastes and other wastes, London, (1972)
22. The convention on the prevention of Marine Pollution from ships (MARPOL) (1973)
23. The Convention to combat, desertification, particular Africa, Paris 1994
24. The Land Acquisition Act of 1967,
25. The Montreal protocol on substances that deplete the ozone layer, Montreal, 1987
26. The National Land Policy (1996),
27. The Ramsar Convention (1971) ratified by Tanzania in 1998).
28. The United Nations Framework convention on climatic change (1992)
29. United Nations convention on the Law of the sea, Montego Bay, (1982)
30. United Republic of Tanzania –President's Office Regional Administration and Local Government - Geita Region Investment Profile – 2019
31. United Republic of Tanzania, Cultural Policy (1997)

32. United Republic of Tanzania, Environmental Impact Assessment and Audit Regulation of 2005
33. United Republic of Tanzania, Forest Act No. 14 of 2002
34. United Republic of Tanzania, Land Act Cap. 113, (No. 4 of 1999)
35. United Republic of Tanzania, Land Use Planning Act No. 6 of 2007
36. United Republic of Tanzania, National Construction Industry Policy (2003)
37. United Republic of Tanzania, The Contractors Registration Act No. 17 of 1997 R.E. 2002
38. United Republic of Tanzania, The Engineers Registration Act No.15 of 1997, R.E. 2002
39. United Republic of Tanzania, The Environment Management (Water Quality Standards) Regulations, 2007
40. United Republic of Tanzania, The Environmental Management Act (EMA), Cap 191 (No. 20 of 2004)
41. United Republic of Tanzania, The Land (Forms) Regulation 2001
42. United Republic of Tanzania, The Land Acquisition Act, Cap 118 of 2002
43. United Republic of Tanzania, The Local Government (Municipal/District) Authorities Act No. 7 of 1982
44. United Republic of Tanzania, The Mining Act No. 14 of 2010
45. United Republic of Tanzania, The National Employment Policy (1997)
46. United Republic of Tanzania, The National Environmental Policy, NEP (1997)
47. United Republic of Tanzania, The National Land Policy (1996)
48. United Republic of Tanzania, The National Policy on HIV/AIDs (2001)
49. United Republic of Tanzania, The National Water Policy (2002)
50. United Republic of Tanzania, The Occupational Health and Safety Act No. 5 of 2003
51. United Republic of Tanzania, The Public Health Act (2009)
52. United Republic of Tanzania, The Roads Act No. 13 of 2007
53. United Republic of Tanzania, The Surface and Marine Transport Regulatory Authority Act No. 9 of 2001
54. United Republic of Tanzania, The Village Land Act, Cap 114 (No. 5 of 1999)
55. United Republic of Tanzania, The Water Resources Management (Water Abstraction, Use and Discharge) Regulations, 2010
56. United Republic of Tanzania, The Water Resources Management Act No. 11 of 2009
57. United Republic of Tanzania, Water Supply and Sanitation Act No. 12 of 2009
58. United Republic of Tanzania, Wildlife Conservation Act, No. 5 of 2009
59. United Republic of Tanzania, Women and Gender Development Policy (2000)
60. United Republic of Tanzania; Protected Public Places and Recreation Areas Act No. 38 of 1969

APPENDICES

Appendix I: NEMC's Screening Decision

Appendix II: Terms of Reference for undertaking an ESIA

Terms of Reference for undertaking the Environmental and Social Impacts Assessment for Proposed Water Supply Project for Katoro, Buseresere, Minkoto and Bwanga Townships in Geita Region

1 Background of the Project

The Tanzania Vision 2025 through its Water Sector Development Programme (WSDP) targeted to improve quality of livelihood through universal access to water supply and primary health care, which are both core components of Ministry of Water (MoW) functions in provision of adequate potable water and sanitation services in Tanzania.

The Government of Tanzania through Ministry of Water intends to identify and develop a reliable water source for designing and construction of water supply networks for the Katoro, Buseresere, Mikoto and Bwanga townships in Geita region. The assignment also includes provision of off-takes for villages located within a distance of 12 km from the main pipeline route from the source which lack reliable and adequate water supply.

In order to attain the strategic goal of sustainable, efficient and economic water service provision for Katoro, Buseresere, Minkoto and Bwanga townships, MWAUWASA on behalf of the Ministry of Water engaged a Consultant to undertake Feasibility Study for the proposed water supply project. The study also includes undertaking an Environmental and Social Impacts Assessment for the proposed project.

According to the requirements of Environmental Management Act (EMA) Cap 191 of 2004, Environmental Impact Assessment is mandatory for projects of this nature since they are likely to have the potential of causing significant impacts on the environment and also some impacts on the communities within and outside the project boundaries. Further to this requirement, the Environmental Impact Assessment and Audit Regulations of 2005 classify the proposed activities under the mandatory list of EIA. In other words, the projects of this nature have to be subjected to the environmental impacts assessment.

2. OBJECTIVE OF SERVICES

The main objective of this consultancy is to carry out Environmental and Social Impact Assessment for the proposed Water Supply Project for Katoro, Buseresere, Minkoto and Bwanga Townships in Geita Region. The EIA will address environmental and social impacts which may arise from the proposed water supply project and provide mitigation plan to prevent or minimize adverse impacts.

3. APROACH AND METHODOLOGY

The ESIA shall be for the Water Supply Project for Katoro, Buseresere, Minkoto and Bwanga Townships in Geita Region, which consists of several works. The works will involve mobilization, construction and commisssioning of the project, operation of the water supply scheme and finally maintenance activities.

Specific related conditions should be addressed in development of ESIA mitigation plans and that each design and cost estimates accordingly. The EIA will follow the existing Tanzania legislation, regulations and guidelines. The National EIA regulations will serve as basic reference document for the preparation of the EIA. A close collboration between ESIA Consultant and the Client and the MWAUWASA (the proponent of the water supply project) must be maintained through out the contract to ensure that the identification of the possible impacts and development of the ESIA mitigation measures and related action plans and management suit MWAUWASA, RUWASA and implementation arrangements for the Water Supply Project. The ESIA consultant shall therefore quantify the impacts, mitigation measures and develop an appropriate action plan in close consultation with all stakeholders of the water supply project in the targeted townships. A status report on current ESIA and anticipated impacts and proposed mitigation measures, action plan and management frameworks must be approved by the Client and the National Environment Management Council. The final Environmental Impact Statement will be submitted to NEMC in 5 copies including a non-technical Executive Summary in both English and Kiswahili. Upon completion of the review process, NEMC will prepare a report on the review of Environmental Impact Statement and submit it to the Minister responsible for the Environment. The Minister shall give his decision on an Environmental Impact Statement within thirty days of receiving recommendations of the Council. All statutory report required by NEMC will be submitted as per format/number prescribed in the EIA regulations.

4. SCOPE OF SERVICES

The scope of work of the Consultant in undertaking the environmental and social impacts assessment shall include but not be limited to the following tasks:

Task 4.1: Project registration through preparation of Project Brief and Filling EIA Forms

Before undertaking the environmental and Social Impact assessment the consultant has to fill EIA Registration forms and prepare project brief. The filled EIA registration form and project brief should be submitted at the inception stage for later submission to NEMC.

Task 4.2 Scoping Exercise

The Consultant shall carry out scoping exercise and prepare Scoping Report. 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 stakeholder identification, record their concerns and indicate how they were involved. This list of stakeholders consulted should be appended in the Scoping Report.
- Project alternatives,

In the undertaking of scoping exercise, the Consultant has to refine the framework TOR given by the Client to cover environmental issues, which may emerge from the

consultation during the scoping exercise. The Refined TOR should be appended to the Scoping report. The Scoping Report should be submitted to the National Environment Management Council for further review and approval.

Task 4.3 Undertaking of Environmental and Social Impact Assessment

The Consultant shall provide description or background to the project proposal and its justification, need and purpose of undertaking the study, ESIA study methodologies and approaches applied and structure of the report.
In details the Assessment should carry out the following sub-tasks

i. Describe and evaluate the present situation of the relevant environmental and social characteristics of the area proposed for water supply projects in the earmarked townships.

ii. Provide a full description of the project: general layout with diagram; layout of the water supply scheme, anticipated water supply infrastructure and construction activities; operation and maintenance activities; required off site investments, life span, adjacent communities to the project sites; existing roads and other supportive infrastructure.

iii. Present Baseline Condition or Description of the 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 water supply project. The 'environment' to be affected must be based on the broad definition of the term that would include biophysical, 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; climate and meteorology; ambient air quality; surface and groundwater hydrology; existing sources of air emissions; existing water pollution discharges; and receiving water quality;

(b) Biological environment: flora; fauna; rare or endangered species; ecologically. Important or sensitive habitats, including game and 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 cultural environment: population; land use; planned development activities;
Community structure; employment; 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.

iv. 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. 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.

v. Identify design or operating standards which project activities must meet to be in compliance with environmental and social safeguards, e.g. drinking water quality limitations, receiving water quality standard, and occupational health and safety requirements

vi. Identify, analyse and assess potential environmental and social impacts that will result from the proposed works, based on the design.

vii. Carry out an assessment of the proposed project area including, service area of water collection and treatment system; rising mains and distribution network, and any other tracts of land on which the proposed project will traverse.

viii. Describe alternative water sources that were examined in the course of developing the proposed project (i.e. siting and design, technology selection, construction techniques and phasing, operating and maintenance procedures for transmission and distribution systems, water treatment works, sludge (if any) disposal and management) and identify other alternatives that would achieve the same objectives.

ix. Compare alternatives in terms of potential environmental impacts, land and energy requirements, capital and operating costs, reliability, suitability under local conditions and institutional training and monitoring requirements. To the extent possible, quantify the costs and benefit of each alternative. Include the alternative of not implementing the project to demonstrate environmental conditions without it.

x. Propose costs-effective mitigation measures for minimizing or eliminating adverse social and environmental impacts of the proposed works, including recommendations on design changes if deemed necessary

xi. Propose modalities and arrangements for collection of stakeholders views

xii. Resource Evaluation or Cost Benefit Analysis. The Consultant shall undertake qualitative and quantitative analysis of costs and benefits to determine the viability of the proposed project on the environment, social and economic aspects. The Economic Internal Rate of Return (EIRR) and Net Present Value (NPV) of the project at reasonable discount rate should be calculated and provide interpretation of the results.

xiii. Prepare an environmental and social management and monitoring action plan for implementing the mitigation measures and recommend institutional administrative and management framework. It should include the identification of the necessary measures which should be inbuilt in the current mechanisms, such as measures for emergency response to accidental events (e.g. entry of raw sewage into water sources or water distribution systems.) The plan should also include assessment of compensation to affected parties for impacts that cannot be mitigated.

The Environmental Management Plan shall focus 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 collaboration, this should be indicated.

The EMP should specify impact mitigation plan and environmental monitoring plan requirement. Inject costs, responsibility and timeframe for mitigating each impact and monitoring of each environmental parameter. 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 4.4 Reporting and expected outputs

The contents and the structure of the Environmental and social Impact Assessment Report should be in accordance with the Environmental Impact Assessment and Audit Regulations of 2005: It is recommended that the Environmental Impact Assessment report closely contain the followings:

- The Report shall be presented as per format stipulated in Regulation 18 (2);
- The Executive Summary of the report should reflect the Regulation 18 (3) requirements;
- The Non-Technical Executive Summary should be a brief stand-alone document both in Kiswahili and English languages starting with the main findings, conclusions and recommendations as required by Regulation 19 (2).
- The cover page to indicate the names and address of the Client, EIA Consultant and the Reviewer (NEMC)

It is recommended that the Environmental and Social Impact assessment report closely contain the followings:

Chapters:

- Introduction
- Project Background and Description
- Policy, Legal and Administrative Framework
- Baseline or existing environmental Conditions
- Stakeholders Consultations and Public Participation
- Project alternatives
- Identification and analysis of Impacts
- Mitigation Measures
- Resources Evaluation or Cost Benefit analysis
- Environmental and Social Management Plan
- Action Plan for Management of impacts
- Environmental Monitoring Plan
- Action plan for Auditing
- Decommissioning/demobilization Plan
- Summary and Conclusions
- References
- Appendices

The following are the main reports and deliverables expected from the consultant.

S/No	Reports/Deliverables	Content	Timeframe
1	Inception Report	A review of the documents and pre-meetings and interviews. Realistic work plan for implementation of the assignment and timing of deliverables together with a description of key challenges and issues which must be addressed by the client to enhance completion of the assignment on time and at an acceptable quality.	Four (4) weeks after start of the assignment
2	Submission of Draft EIA	Format as per NEMC Regulations on EIA	Eleven (12) weeks after start of the assignment
3	Registration Form and Project Brief to NEMC	EIA forms and Project Brief as per EIA and Audit Regulations, 2005	Four (4) weeks after commencement of the assignment
4	Submission of scoping report and TOR for conducting the ESIA to NEMC	Format as per NEMC Regulations on EIA	Eight (8) weeks after start of the assignment upon NEMC's Screening Decision on the submitted information

5	Final Report	Final report on the detail environmental impact assessment incorporating official comments from the Client and key stakeholders	16 weeks after start of the assignment

The consultant will be required to submit six (6) bound (hard) copies and four (4) soft copies of these reports. All the reports shall be in Standard English language, neatly bound with an attractive outlay and shall contain the main text and annexure, with designs, figures/frameworks, illustrations and/or logical flow diagrams the soft copies shall be in MS Office on CDs/DVDs. The format of statutory reports required by NEMC shall be in accordance with the EIA Regulations.

5. INPUTS AND SKILLS REQUIREMENTS

(a) Duration of Services

This consultancy assignment will take a total duration of Sixteen (16) weeks starting from the date of signing of the contract.

(b) Basic Requirements:

The Consultant must have at least five (6) years of working experience in similar assignments; must be registered with National Environment Management Council of Tanzania. The firm should also show evidence having carried out similar assignments including references from previous clients.

(c) Qualification of the Key Personnel

Team Leader (Environmental Specialist): The Team Leader shall be a professional environmental scientist with proven experience in the preparation of environmental and social management plans. The Team Leader shall have a minimum M.Sc. in Environmental Engineering, Environmental Economics or related fields. The Team Leader shall have a minimum of eight (6) years' experience on similar environmental and social management plans preparations, and registered as an Environmental Expert by NEMC

Environmental Engineer: The Environmental Engineer shall have proven experience in the environmental impact assessment of water resources schemes and sewerage works. The Environmental Engineer shall have a minimum B.Sc degree in Science, Engineering or related field, with relevant qualifications in environmental management. The Environmental Engineer shall have a minimum of five (5) years practical working experience relevant to environmental assessment.

Sociologist: The Sociologist shall have proven experience in the social impact assessment of water resources schemes and resettlement matters in large projects. The Sociologist shall have a minimum Bachelor's degree in Sociology or equivalent, with at least four (4) years' experience in social assessment.

6. ORGANIZATION AND ADMINISTRATION

(a) Institutional Arrangements

Day-to-day supervision of the consultancy work will be carried out by the Mwanza Urban Water Supply and Sanitation Authority (MWAUWASA).

(b) Responsibility of the Client:

a. Providing relevant necessary documents for the project available,
    i. FINAL PROJECT PRIEF KATORO AND BUSERESERE WATER PROJECT-27 JANUARY 2018
    ii. PROJECT BRIEF BWANGA WATER PROJECT
    iii. Project Site Photos - Appendix 4
    iv. Table of Coordinates - Appendix 3
b. Organizing stakeholders' meetings to validate consultancy reports
c. Pay the consultant as per agreed schedule of payment.
d. Providing letters of introduction to key statutory authorities e.g. NEMC

Appendix III: Sample of copy of invitation letter to consultation meeting

Appendix IV: Officials Consulted in Geita and Chato

Appendix V: Attendance and Minutes for public meetings

V.1: Stakeholders Consulted During Scoping Exercise

V.1.1 Geita Region

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDY OF WATER SUPPLY PROJECT FOR KATORO – BUSERESERE - BWANGA & MINKOTO TOWNSHIPS IN GEITA REGION

CONSULTED OFFICIALS

Sn	Date / Tarehe	Name / Jina	Title / Cheo	Organization / Taasisi	Contact / Simu	Signature / Sahihi
1	13/07/2020	LEONARD MSENGELE	Ag. MANAGING DIRECTOR	MWAUWASA	m.sengele@yahoo.com +255754580692	
2	13/07/2020	GOGADI MGWATU	Ag. PROJECT MANAGER - MWAUWASA	gogadimgwatu@mwauwasa.go.tz	0745536412	
3	13/07/2020	NICAS LIGOMBI	RM	RUWASA	nckligombi@yahoo.com	0713973913, 0767473413
4	13/07/2020	ZACHARIA MTUNGUJA	W. Engineer	RUWASA	zacharia.mtunguja@ruwasa.go.tz	
5	13/7/2020	JAMES BENNY	Ag. DM	RUWASA BUKOMBE	bukombelm@ruwasa.go.tz	
6	13/7/2020	NORBERT KIMARO	W. Engineer	RUWASA - BUKOMBE	norbertkimaro9@gmail.com	
7 x	13/7/2020	SONDA SENI	DM	RUWASA - GEITA	senisonda@yahoo.com	0757642994, 0784932676
8	— 11 —	SAMSON LUBALA	SO	RUWASA - GEITA	lubala2010@gmail.com	
9	— 11 —	ANDREW KILEMBE	DM	CHATO	ndelejo@yahoo.com	0765774024, 0716-253952
10	15/7/2020	FRANK MUAKI	W. Engineer	CHATO	frankmuaki@gmail.com	0719320436
11	— 11 —	SHAIBU ABDUL	TECHNICIAN	CHATO	shaibuabdul93@gmail.com	0746346578
12	— 11 —	NGALE MAPINDA	TECHNICIAN	CHATO	ngalemapinda9@gmail.com	0752801611
13						
14						

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDY OF WATER SUPPLY PROJECT FOR KATORO – BUSERESERE - BWANGA & MINKOTO TOWNSHIPS IN GEITA REGION

Sn	Date / Tarehe	Name / Jina	Title / Cheo	Organization / Taasisi	Contact / Simu	Signature / Sahihi
1	14/07/2020	DEODATUS B. KAYANGO	Ag. RAS	GEITA RS	0788011885	[signature]
2	14/07/2020	THOMAS A. DIMME	DAS	GEITA	0788589950	[signature]
3	14/07/2020	ALI A. KIDWAKA	DED	GDC	0754536111	[signature]
4	15/07/2020	Eng. CHARLES KABEHO	DC	CHATO	0756-063809	[signature]
5	15/07/2020	Martha P. Mlowo	Ag DED	CHATO DC	0754680547	[signature]
6	15/07/2020	Vicent Buhatwa	DCDO	CHATO DC	0786 706341	[signature]
7	~~15/07/2020~~	~~SIMONI DEOGRATIAS~~	~~VEO~~	~~CHATO DC~~	bushaya.Viont9@gmail.com	
8	15/07/2020	SIMONI DEOGRATIAS	VEO	CHATO DC	0753993586	[signature]
9	15/07/2020	BENO Samwel Mfrawati	VEO	KIBUMBA	0754409763	[signature]
10	15/07/2020	MISHACK L. RUHWINDA	MW/KIJIJI	KIBUMBA	0758860506	[signature]
11	15/07/2020	LEONARD MAJALIWA	M/KITONGOJI	MATEKENI KAN	0763513191	[signature]
12	15/07/2020	MAKENENA MSIBA	M/BMU	MATOFALI	0763494802	[signature]
13	15/07/2020	SYLVESTER MANYAMA	KIBMU	MATOFALI	0764405160	Sylvester
14	15/07/2020	EDWARD SEBASTIAN	K/TAWI CCM	MATOFALI	0756311504	[signature]
		GIESA MAKOYA	K T B	KIMBU REPA		[signature]

Sn	Date / Tarehe	Name / Jina	Title / Cheo	Organization / Taasisi	Contact / Simu	Signature / Sahihi
	16/07/2020	CLINIUS IGNATIUS	AFISA MAZINGIRA	CHATO DC	0754277041	
	—u—	BONIFACE MASIMANO	AFISA USAFIRISHAJI	CHATO DC	0756852785	
	—u—	Victor Kitundwa	Mchumi	CHATO DC	0753593853	
	—11—	STEPHEN MIGOBERA	Mchumi	CHATO DC	0764914523	
	—11—	MWIZARUBI JUDA	MTHAMINI	CHATO DC	0756076660	
	—11—	ALLEN EMORY	LAND SURVEYOR	—u—	0763-838838	
	—11—	SIMON MAPESA	WEO-MINKOTO	CHATO DC	0765196346	
	—11—	EMMANUEL G. NYANTORI	WEO – BUSERESERE	CHATO – DC	0763948848	
	20.07.2020	PAUL W. NGHABI	EDO	CHATO DC 116	0759 433289	
	23/07/2020	Damian Aloyce	TEO	Geita DC	0753568610	
*	23/07/2020	SELEMAN S. MAHUSHI	WEO KATORO	GEITA DC	0758 387557	*
*	23/07/2020	JUMANNE FAIDA	VEO KATORO	GEITA DC	0756 207439	*
	23/07/2020	KASSIM R. SHABANI	A/ TARAFA	GEITA DC	0753 103059	
	24/07/2020	VICTORIA LUPULUSA	WEO - KATORO	GEITA DC	0769 111838	
	24/07/2020	KAZIMIRI P. MALINDI	WEO-NYAMIGOTA	GEITA DC	0756814545	

V.1.2 Bwanga Ward- Attendance

YAH. MAHUDHURIO YA WAJUMBE WALIENYE

KIKAO BWANGA TAREHE 20. JULAI. 2020

S/NA	JINA KAMILI	WADHIFA	SIMU NAMBA	SAHIHI
1	REVOCATUS BADOKUFA	M/KITI KIJIJI	0752826591	[signature]
2	[illegible] J. KANYANZA	Kaim m/kiti kijiji	0746777362	[signature]
3	ABDH J. MTAKI	WEO BWANGA	0757341548	[signature]
4	Jesca Chikubati	CDO		
4.	Shija C. Shilondela	M/mlemavu	0766889381	[signature]
5	Stanslaus Bitumbiko	Mjumbe	0754940998	
6	Suleman S. Masibuka	SINIOR LFO	0766610805	[signature]
7	ISOCAPIA L NGEREJA	AFO III	0762-470949	[signature]
8.	DIDAS P. KANDULA	VEO Izumangabo	0754019806	[signature]
9	DECKAN KASANGA	WAFUGAJI - Bukiriguru	0754449212	[signature]
10	BUPILI PETRO	VEO - BWANGA	0768345334	[signature]
11	ZAINABU MOHAMEDI	M/ WA MAJI	0767494153	[signature]
12	SHAKIRA HAMDHANI	UKULIMA	0764714653	[signature]
		M/WA MAJI	0767612902	[signature]
13	JOSHUA JOBS	WAEO		[signature]
14	MASTIBIN JOHN	Mjumbe	0757434438	
15	KEFURENI HOMANI	MJUMBE	0757195394	MR
16	MARIAM X NGESI	VEO - BUKIRIGURU	0756264610	[signature]
17	AYOUB MASEBEYENGE	MFUGAJI BWANGA	0768778908	[signature]
18	Edwin - Chigonga	VEO - Nyarututu	0742547655	Ayoub M.
			0762259718	[signature]
19	Elias - NGEZE	M/Kiti Nyan[illegible]	0757-345922	[signature]
20	MARIA PAULO	MJUMBE	0758858188	[signature]
21	GEORGE M. MAYOMBO	MLEVU	0766394805	[signature]
22	Paulo mlyakela	MLEVU	0769796474	[signature]
23	SABICK CHARLS	M/WA MAJI	~~0765330061~~ 0753630033	
24.	MARCO D. KANANI	M/m kuu - BWANGA	0752826471	[signature]
25	MAGESA MUTONDO	MJUMBE	0768247056	Mmutondo
27	EMANUEL - MAGETA	mjumbe	0758889779	Emanuely

27	FAUSTINE M. KUGABUSA	Mkulima	0766378374[?]
28	LAULENTI R. KASARA		
29	JELEMIAH CHARLES	MJUMBE Mkulima	0765[?]9166
30	Pauletha P Ruuta	Mkulima	0765-072220
31	SOPHIA HABIBU	M/MKUU	0756624993
32	AYUBU L SIMONI	MJUMBE	0752765531
33	LAULENSIA FUYELA	MJUMBE	0744903494
34	PRISIKA MACHEMBA	MJUMBE	
		MJUMBE	
35	NYANLAMA I. BONIPHACE	EHO	0754309850
36	BARANDONDA NTAGONDA	M/KITONGOJI	0745351442
37	MAPINDUZI JOHN	MJUMBE	0758274186
38	PAUL NGHABI	CDO	0759 43 32 82
39	SHABIBU ABDUL	TECHNICIAN	0746 346 578
40	KHAMISI MUSSA	MJUMBE	0763198445
41	BAHEBE PASTORY	MJUMBE	0766976632
42	KUSILEKA KADABO	MJUMBE	
43	SCHOLASTICA MANYAHA	M/SHULE	0765679765
44	ABDALLAH H. SESEME	M/SHULE	0753-452700
45	DEUS J. MAKOYE	MJUMBE	0759888131
46	Costantine L Ndelema	mjumbe	0756550913
47	PHARES HENERIKO	MJUMBE	0763206889
48	VERONICA MAKUNJA	Mjumbe	0745321560
49	KERLEN E. NYAGA	MJUMBE	0757822966
50	SOPHIA RICHARD	MJUMBE	
51	Emmanuel Jeremia	mjumbe	0753779414

AFISA MTENDAJI KIJIJI CHA BWANGA
HALMASHAURI YA WILAYA CHATO

V.1.3 Minkoto Ward- Attendance

MAHUDHURIO YA MKUTANO WA MRADI WA MAJI-UPEMBUZI YAKINIFU - KUTOKA KATA YA MINKOTO, ULIOFANYIKA TAREHE - 21 JULAI 2020.

Na.	JINA KAMILI	MUDA	WADHIFA	KITUO ANACHOTOKA	SAINI
01.	Vernant RWEMAGIRA	4.00	MSHAURI	DSM	
02.	LUPILI STEPHANO	4.00	MKITI	MINKOTO	
03.	YOSWE MSONGWE	4:00	MSHAURI WILALEX	DSM	
04.	ASTIDIA A. RWEYALULA	4:00	WEO	MINKOTO	
05.	JOSEPH NYAMASEMBE	4:00	VEO	KALEMBELA	
06.	SIMON M. MAPESA	4:00	VEO	MINKOTO	
07.	SAMUEL KATIGIZU	4:00	MJUMBE	MINKOTO	
08	MARCO MASALA	4:00	MJUMBE	MINKOTO	
09	JUMA IFOBONGHO	4:05	MJUMBE	KALEMBELA	
10	ENOS JANUARY	4:06	MJUMBE	KALEMBELA	
11.	PHILBETH-BENARD	4:07	MJUMBE	ITANGA	P. B.
12	ELIZABETH SIMON	4:07	KATIBU - ITANGA	ITANGA	E. S.
13	SILVESITA JOHN	4:08	MKITI - ITANGA	ITANGA	S L
14	NHANDI M. SELE	4:09	MJUMBE-KAKORA	KAKORA	
15	YOHANA B. SANYENGE	4:09	MJUMBE	ITANGA	
16	KOJE J YAYA	4:12	MJUMBE	KALEMBELA	
17	LAURIANI NZIGIYE TWIKAL	4:32	MKUU KIJIJI	KALEMBELA	
18	ISSACK LAWRENCE	4:33	MJUMBE	KALEMBELA	
19	YOELI JOTHAMU	4:33	MJUMBE	KALEMBELA	
20	WILIBATI N. MASEKA	4:33	MJUMBE	MINKOTO	
21	ZEPHANIA BUSWELU	4:33	MJUMBE	KAKOLA	
22	EMMANUEL ERINEST	4:33	MJUMBE	KAKOLA	
23	ZACHARIA M-CHELEHANI	4:33	MJUMBE	KAKOLA	
24	DOTO ELIASI BUSWELU	4:33	MJUMBE	KAKOLA	
25	ESAU NZIGIYE RAUL	4:33	MJUMBE	KALEMBELA	
26.	NYANDA KAZUMULI	4:33	MJUMBE	ITANGA	
27.	EVALINDE JOSEPH	4:34	MJUMBE	MINKOTO	N.K.
28	KELVIN CHARLES	4:34	MJUMBE	MINKOTO	E.J
29.	ENOCK V. KASEKE	4:34	MJUMBE	KALEMBELA	K. C
30	WINIFRIDA - M. BILLA	4:35	MKULIMA	MINKOTO	W.M.BILLA
31	JAYNESS KIBEBA	4:00	MJUMBE	KALEMBELA	J. K.
32	HOJA LUKINDA	4:46	MWENYEKITI	ITANGA	H.J.
33	PELEPETINA NZIGIYE	4:37	MJUMBE	KALEMBELA	P.N.

Na.	JINA KAMILI	MUDA	WADHIFA	KIJIJI ANACHOTOKA	SAINI
34.	ANGELINA MBINZA	4:37	MHUDUMU WA AFYA	KALEMBELA	[signature]
35.	HADIJA M. LUTAWANYA	4:37	"	KALEMBELA	H. MASUDI
36	AGATH S. PAULO	4:37	MFANYA BIOSHARA	KALEMBELA	AS. Paulo
37.	REBECA KANYETI	4:38	MKULIMA	KAKORA	R.K
38	COSMAS BUPINA	4:38	KM/KITI ITONGOJI	ITANGA	C.B
39	GETA CHARLES	4:39	MKULIMA	KAKORA	G.C
40	FRANK DEUS	4:39	MUUZA MAJI	KAKORA	F.D
41	KULWA MASHAURI	4:40	MKULIMA	KAKORA	K.M
42	PASTORY M. BUGOLLO	—	—	MINKOTO	[signature]
43	MABELE NYAMALA	4:41	MZEE WAKIJIJI	MINKOTO	[signature]
44	JOSEPH KATUGIZU	4:42	M/KITI	KAKOLA	[signature]
45	PAUL NGHABI	4:42	CDO	CHATO DC 116	[signature]
46	SHAIBU ABDUL	4:43	TECHNICIAN	CHATO DC 116	[signature]
47	NICHOLAUS MANYILIZU	4:43	MFUGAJI	ITANGA	[signature]
48	NENGO - KWANGU	4:43	MKULIMA	ITANGA	Kwangu
49.	Jumanne M. Mwinamila	5:30	AEK-KATA	MINKOTO	[signature]

AFISA MTENDAJI KATA
KATA YA MINKOTO
HALMASHAURI YA WILAYA
CHATO
[signature]

Simon MAPEA
Kny-WEO-MINKOTO.

V.1.4 Buseresere Ward Attendance

HALMASHAURI YA WILAYA YA CHATO.

MAHUDHURIO YA KIKAO CHA KAMATI YA MAENDELEO YA KATA, CHA TAREHE 02/07/2020. KATA YA BUSERESERE

AFISA MTENDAJI KATA
KATA YA BUSERESERE
HALMASHAURI YA WILAYA
CHATO

	JINA KAMILI	WADHIFA	MUDA	SAHIHI
01	KHAMIS ABDUL MPENDA	M/KITI	-4-	
02	NYERENDE B. JETIA	WEO	4:00 ASB	
03	SHABANI ABDUL SHABANI	TECHNICIAN	4:00	
04	GEROLD J. MGWAMA	CDO - BUSERESERE	4:15	
05	VITUS A. MAGOBE	MJUMBE	4:00	
06	MATHIAS - MIPALABA	MJUMBE	4:20	
07	MALONDO MAHUBE	MJUMBE	4:00	
08	MARYCIANA G. KASHEPA	MJUMBE	4:00	M.Kashepa
09	JOFREY ZANGA	MJUMBE	4:00	J.Zanga
10	I. DOMICIAN. TINGA	AFISA UGANI	4:00	
11	FAUSTIN MALUNDE	M/KITI IBONDO	4:00	
12	DEUSI MUSIBHA	M/KITI BUSERESERE	4:00	
13	ABELY SIMON NDACK	VEO - MURANDA	4:00	
14	SIMONI LUKWAJA	MJUMBE	4:00	
15	SALOME KASUNGA	MJUMBE	4:00	S.KASUNGA
16	LOBATI MATIYAS	MLEMAVU	4:00	L.MATIYAS
17	JOYCE PETRO	MJUMBE	4:00	
18	ROBERT K. SULIAN	MJUMBE	4:00	
19	FAIDA M J.	MWENYEKITI	4:00	
20	MAJULA SAMSON	AFISA KILIMO	-11-	
21	DENICE JOSIAH	MJUMBE	4:00 asb	
22	MICHAEL M. KIFUKA	M/KITI - MWABANZA	4:00 am	
23	EMMANUEL G. NYANTORI	EHO - BUSERESERE	-11-	
24	CHRISTOPHER M. MABUBA	VEO - BUSERESERE	-11-	
25	EPIMACUS T. CYRIACUS	VEO MAPINDUZI	-11-	
26	EPHGENIA MULALEMWA	VEO - BWIGA	-11-	
27	JUSTA P. RUTASHOBYA	SAFO - BUSERESERE	-11-	
28	ROBATH FURASI	Mulemavu	-11-	R-F.
29	FEBRONIA MATHEW MATWI	MJUMBE	-11-	
30	ANASTAZIA SYLIVANUS	MJUMBE	-11-	A.Kakali
31	METHUSELA GIDION	MBAY KISIMA	-11-	
32	ANNA DEUSY	mamlaka wa nyambani	-11-	
33	PAUL NG'HARI	CDO CHATO DC	4:00	

V.1.5 Katoro Ward Attendance

MAHUDHURIO YA KIKAO CHA MRADI WA USAMBAZAJI MAJI KATA YA KATORO KATIKHOFANYIKA UKUMBI WA KATA LEO TAREHE: 23/07/2020.

OFISI YA MTENDAJI WA KATA KATORO-GEITA.

	JINA	WADHIFA	NA: SIMU	SAINI
1.	Damian Aloyce	TEO	0753568610	
2.	Yoswe Msongwe	Sociologist WALALEX	0755 197295	
3.	Venant RWEMYAGIRA	CONSULTANT	0754-353954	
4.	SELEMAN S. MAHUSHI	WEO - KATORO	0758 387557	
5.	BAHATI C, MAHIGA	MJUMBE	0759-513178	
6.	LUMAMBA LWAKALAGILE	— 11 —	0742277662	
7.	CLEMENT MATINA SHILINGI	MJUMBE	0759848904	
8.	JOSEPHATI - ABEL	MJUMBE	0752753O8	
9.	SHIINDE JOSEPH	MJUMBE	0759 265102	
10	DAWSON NDEGO	— 11 —	0747-637752	
11	EMILI HAMZA	MJUMBE	0752678087	
12.	BUDINGILI NDIGAHE	Mjumbe	0759522311	B.N.
13	JUMA LUFUNGULO MASHILI	mjumbe	0755146613	
14	PETRO JULIAS	mjumbe	0763290396	P. J
15.	FURAHA JACKOB	MJUMBE	0762349002	FJ
16	RAHIMA AB-BAKALI	MJUMBE	0757181584	RA
17	LUSIA JOSEFU	MJUMBE		L.J
18	BRAYON MAYORO	Mjumbe	0692638200	
19	JACOB JOSEPH	mjumbe	0747238196	J. Joseph
20	LUCAS FAIDA	mjumbe	0743552549	L. Faida
21	MASHAKA ALEKSANDER	Mjumbe	0753753428	
22	LEO. C. RUCHEMBA	mjumbe	0757651488	
23	HINGE P. SANANG	mjumbe	0756173004	
24	KELVIN G. MAKORA	Mjumbe	0719-475450	
25	PASCHAL THADEO	Mjumbe	—	
26	BENJAMIN TEMBE	Mjumbe	0747-638367	
27	AMOS ALFRED	MJUMBE	0762653507	
28	JOSEPH MACHIBYA	MJUMBE	0763147450	
29	ELIAS B. WAMBURA	MJUMBE	0764754353	

NA	JINA	WADHIFA	SIMU NA	SAINI
30	BUKOMBE - METHUSELA	MKELLIMA	0746860325	B. methusela
31	CATHERINE JAMES	MJASILIAMALI	0766840409	James
32	FRANK BARNABA	Mkulima	0769575424	
33	GEORGE CHARLES	Mkulima	0746383315	
34	PETER M. CHACHA	M/KITI - MIKUNGA	0754553279	
35	WILLIAM KERORE ANTHONY	AFISA MIFUGO	0763-304150	
36	KASSIM R. SHABANI	AFISA TARAFA	0753103059	
37	PENDO. MABULA	MJUMBE	0766332686	
38	JOSEPH M. MBISHI	M/KITI-LUTOZO	0756519411	
39	MAGILETI MPYAGU	MJUMBE	0764233373	M. P.
40	MESHACK MALOSA SIYANTEMI	M/KITI NYAMIGOTA	0765 358 132	
41	MASALU LUSANIKA	M/KITI	0764248005	
42	[illegible]	MJUMBE	0744605452	
43	RICHARD KAYENGE	MJUMBE	0764534428	
44	ANTONY TELA	MUFUNGAJI	0764123837	
45	JUMANNE FAIDA HUNGWI	VEO	0756207439	

AFISA MTENDAJI WA KATA
KATORO-GEITA.

V.1.6 Ludete Ward Meeting attendance

MAHUDHURIO YA KIKAO CHA MRADI WA UJAMBAZAJI MAJI - KATA LUDETE 24/07/2020.

NO	JINA KAMILI	CHEO	MUDA	SAHIHI
1.	Venant RWENYAGIRA	CONSULTANT 0754-353954	10:00	[signature]
2.	YOSWE MSONGWE	— do —	— do —	[signature]
3.	VICTORIA S. MAPUNDA	WEO - LUDETE	09:00	[signature]
4.	JONATHAN KAZUNGU	M/KITI KIONGOZI	09:00	[signature]
5.	ROBERT GOMANGA	M/KITI KITONGOJI	09:30	[signature]
6.	MARCO Y. CHUMA	M/KITI KITONGOJI	09:00	[signature]
7.	SIDIONI MAYEKA	M/Kiti - maji	09:30	[signature]
8.	JOSEPH S. MARWA	Katibu - maji	09:35	[signature]
9.	KORNEL PETRO	M/KITI IBONDO	09:30	[signature]
10.	[illegible] JOHN MWEMBEZI	M/KITI KITONGOJI [illegible]	09:30	[signature]
11.	PIUS MARTIN	M/kiti /maji	09.38	[signature]
12.	NAFTARY Amos	Ehto	9:40	[signature]

HALMASHAURI YA WILAYA
AFISA MTENDAJI WA KATA
LUDETE
GEITA
[signature]
24/7/2020.

V.1.7 Nyamigota ward meeting attendance

	JINA KAMILI	ANAKOTOKA	WADHIFA	SAINI
01				
02	KAZIMIRI P. MALINDI	NYAMIGOTA	WEO	[signature]
03	KALOLI B. LUSHINIKA	NYAMIGOTA	Afisa ugani	[signature]
04	DOTTO BULABO	SHILABELA	MKULIMA	.UTO
05	MARIAM ALEX	SHILABELA	MKULIMA	MARIAM
06	EDWIN H. KAHINDA	CHIBINGO	MKULIMA	
07	ELINISA S. NDOSI	CHIBINGO S/M	MWALIMU MKUU	[signature]
08	HENRY PHILIPO	NYAMIGOTA S/M	MWALIMU MKUU MSAIDIZI	[signature]
09	RUBEN B SAIMON	CHIBINGO	VIJANA	[signature]
10	MISSA J. WILLIAM	SHILABELA	MWL. MKUU MSAIDIZI	[signature]
11	SESILIA K. SINDANO	NYAMIGOTA	MALUMUYATIMA	Sesilia
12	PHILIMON. EMMANUELY	NYAMIGOTA	KUNDI LA VIJANA NYAMIGOTA	[signature]
13	MESHACK ABEL	CHIBINGO	WALEMAVU CHIBINGO	[signature]
14	ZACHARIA MALOSHA	NYAMIGOTA	KUNDI LA VIJANA	[signature]
15	KWILIGWA M. YUNZU	Ihnyala	Mwalimu	[signature]
16	GEORGE F. MGAYA	NYAMIGOTA	MKUU SEKONDARI	[signature]
17	BAYUGILE RAPHAEL J	NYAMIGOTA	A. MIFUGO	[signature]
18	JOSEPH. LUNJILIA. MTENYA	SHILABELA	MKulima. B	[signature]
19	LUCAS DAUD BUSWELLE	NYAMIGOTA	MAJUMBA WA VIJANA	Mtenya
20	RUKIA MASOUD	NYAMIGOTA	Kikundi cha vijana	Daudi
21	christina slivester	Nyamigota	Msimamizi Gest	[signature]
22.	EPIPHANIA T. LUSHIKAMA	CHIBINGO	KIKUNDI CHA VIJANA	Chris
23	KAZIMILI K. NDAKI	CHIBINGO	UZEO	[signature]
24	CHARLES - MABULA	CHBO M/KITONGOJI		Chabula

HALMASHAURI YA WILAYA AFISA MTENDAJI WA KATA NYAMIGOTA GEITA

V.2: Minutes of the Stakeholders' Consultation meetings

V.2.1 Bwanga Ward

YAH. MUHTASARI WA KIKAO CHA MAELEKEZO NA MAJADILIANO JUU YA MRADI WA MAJI KATA YA BWANGA

AGENDA

01. KUFUNGUA KIKAO
02. KUJITAMBULISHA WAJUMBE
03. KUTAMBULISHA MRADI
04. CHANGAMOTO
05. MENGINEYO
06. KUFUNGA KIKAO

AGENDA NA 01. 20.07. 2020 KUFUNGUA KIKAO

Kikao kilifunguliwa na M/Kiti Muda wa Saa 4.00 asubuhi M/Kiti aliwaomba Wajumbe wawe Watulivu kwenye kikao hicho

AGENDA NA. 02/20/07/2020 KUJITAMBULISHA WAJUMBE

Wajumbe wote walijitambulisha kwa Makundi mbali mbali pamoja na Taasisi kama vile Wakuu wa Shule Msingi na Sec

Wawakilishi wa walemavu wachuuzaji Maji
Waosha Magari wakulima wa Bustani
wawakilishi wa wafugaji pamoja na
wajumbe wa W.D.C Bwanga walijitambulisha

AGENDA NA 03/20/07/2020 KUTAMBULISHA
MRADI WA MAJI KWA WAJUMBE

Mtoa mada alielezea kuwa kuna Mradi wa
Maji toka Ziwa Victoria ambao unatarajia
kuja hapa hivyo na vizazi kutambua hilo
na je jamii itakuwa tayari kupokea

Baada ya taarifa hiyo wajumbe wa kikao
hicho walipokea taarifa hiyo ya Mradi wa
Maji na kusema kuwa wako tayari kupokea
a Mradi huu.

Kwani Bwanga Maji yamekuwa kilio kwa
kulingana na Maji huu unakuja na idadi
kubwa ya watu wanaongezeka
Hivyo walipokea Mradi huu wa Maji
kwa mikono miwili

Na wajumbe wataendelea kutoa Elimu kuhusu jambo hili

AGENDA NA 04/20/07/2020 CHANGAMOTO

Juu ya changamoto kuhusu mradi huu ni wale wauzaji wa maji na maeneo ambayo mradi huu utapita

Wajumbe walikubaliana kuwa mradi huu hautakuwa na fidia wajumbe walikubaliana pamoja na wauzaji maji hakuna shida kwa mradi huu kwani hata visima vilivyopo Bwanga havitoshi

Pia namna ya usimamizi wa maji haya wajumbe walikubaliana kuwa kutakuwa na Kamati ya maji Kamati Simamizi ya maji ambayo itasimamia shughuli za maji

Pia maji haya yatatumika kwa matumizi yote mifugo kilimo bustani na matumizi mengine ya kawaida

AGENDA NA 05/20/7/2020 MENGINEYO

Juu ya Mongineyo ni Maombi ya wajumbe juu ya vijana wa hapa Kupata ajira pindi Miradi haaa Utakapofika

Walaa Mada Mmedai Kuwa ajira Zitapatikana Kwa Kulinganaa na Sifa na Utaalamu wa Shughuli Zinyewa. Za Miradi kwa wa Maji pindi Shughuli za Miradi Zitakapofika hapa Bwanga

AGENDA. NA 06/20/07/2020 KUFUNGA KIKAO

Kikao Kilifunguwa na saa Tatu 25 Asubuhi na Mwisho alishukuru wajumbe wote kwa Uwepo, Na aliwaomba Wakatoe Elimu kwa Jamii juu ya Makubaliano na Maelekezo ya Miradi kwa bila kupotosha jamii

NYAMYAMA I. BONIPHACE

MTENDAJI KATA YA BWANGA
MWASHAURI YA WILAYA
KATORO

SAHIHI YA MWENYEKITI SAHIHI YA KATIBU

V.2.2 Minkoto Ward

MUHUTASARI WA MKUTANO WA VIONGOZI NA WANAKIJIJI WA KATA YA MINKOTO ULIOFANYIKA TAREHE 21.07.2020 UPEMBUZI YAKINIFU WA MRADI WA MAJI-BUSERESERE - BWANGA.

01. Kufungua Mkutano.

Afisa Mtendaji wa Kata alisimama na Kuweza Kuwakaribisha Wajumbe wote ambao Wameweza Kufika. Baada ya hapo alianza Kuratambalisha wajumbe ambao walikuwa wamehudhuria Kwenye Mkutano huu. Na mwisho Viongozi Kutoka Wilayani na Wakalamu Washauri Kutoka Kampuni ya Howard Consulting Ltd na Wilalex Consultants.

02. Kufungua Kikao.

Mkiti wa Mkutano alisimama na Kuweza Kufungua Mkutano huu mnamo Saa 4:05 Asubuhi, akiwaomba wajumbe wote Kuwa huru na Wazi Kuchangia Katika ajenda hii ya huduma ya Maji. Na baada ya hapo Kikao Kilifunguliwa rasmi.

03. Wawezeshaji Kutoa Lengo la Mkutano.

Washauri na Wataalamu elekezi Kutoka Makapuni ya Howard Consulting Limited na Wilalex Consultants walisimama na Kuanza Kueleza lengo la Mkutano huu:-

LENGO:- Ni Kufanya upembuzi yakinifu Wa Mradi wa Maji wa Kutoka Buseresere Kwenda Bwanga-ambao pia Utasambazwa Katika Kata yetu ya Minkoto.

⇒ Aidha pia Watachunguza Chanzo au Vyanzo vya Maji. Njia za Kusafirisha maji hayo hadi Kwenye Matanki ya Kuhifadhia maji. Njia za Kusambazia maji na Viungo vya Usambazaji Kwenda Kwenye familia.

⇒ Baada ya hapo andiko la Mradi litaandikwa na Kupelekwa NEMC ili Kuona Kama Kuna athari za Mazingira na shughuli zingine za Kiuchumi ndani ya Jamii zetu zinaweza Kuathirika Kutokana ne Mradi huu, au Usumbufu Katika shughuli hizi ambazo zitaathiriwa na Mradi huu na Kuathiri maitha ya Jamii husika.

⇒ Aidha Mradi huu Katika Utekelezaji wake utahusitha Kuhumia Maeneo ya Ardhi yaliyo wazi Katika ujenzi wake. Hii itahusisha Uchimbaji wa Mitaro, Kusambaza Mabomba na Uwekaji Matenki ardhi (Eneo) hilo likiwezekana liwe la wazi yaani huru.

Baada ya hapo Wajumbe Wa Mkutano ambao ni Viongozi Wa Kata ya Minkoto walipata fursa ya Kuuliza Maswali, Kutoa Ushauri na Mapendekezo yao - Kama ifuatavyo:-

⇒ Wajumbe Kwa Pamoja Wameshukuru sana Kwa Serikali yao Kuwaona Kna Kuwaletea huduma ya Maji Karibu Katika maeneo yetu. Na hii itasaidia Kuwatua Kdoo Kichwani Watinamama. Labini Pia Tutapata Maji Safi na Salama, MRADI UMEPOKELEWA KWA FURAHA.

⇒ Wajumbe Kwa Pamoja WameKubali Kutoa Maeneo yao Bure kabisa ili Kupitisha Miundombinu ya Mradi wa Maji. Ila Wanapokuwa Wanakuja Kuangalia eneo la Kuchimba au Kujenga Wamiliki wa Maeneo Washirikishwe.

⇒ Wajumbe Kwa Pamoja Wameomba AJIRA KWA WENYEJI Jizingatiwe hasa Kwa ajira za Vibarua ili Mwananchi aendelee Kuona fursa ya Umiliki wa Mradi. Pia hata ajira za Utaalamu watoe matangazo na Wenye Utaalamu huo Waombe.

ANGALIZO LILILOTOLEWA NA WATAALAMU:-

- Vijana Wanapaswa Wenye Kujituma, Waaminifu na Wachapakazi maana vijana wa Siku hizi walio wengi hawapendi Kufanya kazi ngumu.

⇒ Wajumbe Waliuliza Pia Kuhusu Muda wa Utekelezaji wa Mradi.

MAJIBU KUTOKA KWA WATAALAMU:-

- Muda wa Utekelezaji wa Mradi utatokana na Uhovaka wa majibu ya Upembuzi yakinifu Kutoka NEMC na upatikanaji wa fedha za Utekelezaji wa Mradi huo. Aidha Maeneo ya Wazi yaendelee Kuwepo tu na tusiwe na Shaka yeyote mradi utatekelezwa.

⇒ Wajumbe Wameelezaliana Kukabiliana na Changamoto mbalimbali ambazo zinaweza Kujitokeza Katika utekelezaji wa Mradi kama

Kuchukuliwa Maeneo yao, Kukatwa Kwa Miti,- Changamoto hizi ni ndogo Kulinko Faida Kubwa ambazo zinaenda Kujifokeza baada ya Mradi huu kukamilika ikiwemo Kuimarisha Familia zetu.

⇒ Ombi Kwa Wataalamu wa Utekelezaji wa Mradi:- Vijana ambao watakuwa wanafanya kazi hasa za Vibarua (wachimba mitaro) waache Kutoa lugha za Matusi Kwa Jamii. Pia wafunge Mashine ambazo hazitaasisi mazingira ikiwemo Kelele Kwa Wananchi.

⇒ Wajumbe pia Walikubaliane Kwa Walinzi wa miundombinu hiyo ili iwahudumie Kwa muda mrefu.

⇒ Pia Kuna Shughuli za Kijamii ambazo zinaweza Kuongezeka Kama vile:- Kilimo (Cha Bustani wakati wote), Viwanda vidogovidogo na Vya Kati, Maeneo maalum ya Kunyweshea Mifugo. Na itatusaidia Sana Kujikinga na Magonjwa ya Mlipuko Kama vile Kichocho, Typhodi, Kipindupindu na Magonjwa ya Tumbo.

04- KUFUNGA MKUTANO

M/Kiti wa Mkutano alisimama na Kuweza Kuwashukuru Sana Wajumbe wote ambao wameweza Kuhudhuria Mkutano huu, na Kwa Wataalamu wetu tunawaahidi Kuulinda mradi mradi na tupo tiari Kabisa Kutoa maeneo yetu bure bila ghaama yeyote. Na hakika mkutano umekatha Changamoto Kubwa mno ndani ya Jamii yetu. Na saa 7:10 Mchana Mkutano Ulifungwa rasmi.

LUPILI STEPHANO
M/KITI WA MKUTANO.
21.07.2020.

ASTIDIA
WEO - MINKOTO.
21.07.2020.

V.2.3 Buseresere Ward

HALMASHAURI YA WILAYA YA CHATO.

KIKAO CHA KAMATI YA MAENDELEO KATA, KATA YA BUSERESERE CHA TAREHE 22/07/2020

AGENDA ZA KIKAO.

01: KUJITAMBULISHA, Wajumbe wote wa mkutano kikao walijitambulisha na waka fahamiana kwa majina yao kila Mtu kwa nafasi yake alikotoka na wadhifa ulio mleta kwenye kikao hicho.

02: KUFUNGUA KIKAO, M/kt wa Muda wa maendeleo aliyechaguliwa alifungua kikao kwa kuwataka wajumbe wote waalikwa na ambao ni halali wawe wasikivu kwenye kikao hicho ili mambo yote yatakayo jadiliwa waweza fanyie kazi kikamilifu.

03: SUALA LA MRADI WA MAJI KUTOKA ZIWA VICTORIA HADI BUSERESERE, KATORO, MINKOTO, NA BWANGA, Wataalamu wa Idara ya Maji kutoka Mwanza walielezea hususani suala la Maji kutoka Ziwa Victoria ambapo ni Matokeo ni Mpango ambao unaweza kuondoa kama siyo kumaliza tatizo la Maji kwenye Kata, Pia waliwaomba Wajumbe wa kamati ya maendeleo ya kata changamoto zote kabla ya Mradi kuanza wanapaswa wakatoe elimu kwa jamii ili mambo yote yakaendelee vizuri bila kuwa na migogoro. Wajumbe wote wa kikao walipokea ya Mradi wa Maji isipokuwa walitoa mawazo kuwa changamoto ya fidia katika Mradi huu kwenye andiko linapaswa liwekwe kwenye maeneo mengine wananchi wanaweza wakagoma kupitishwa kwenye maeneo yao, Pia wataalamu walitoa majibu kuhusu suala la fidia kwenye maeneo hayo bajeti hiyo haipo kwenye Mradi huu wa Maji ziwa Viktoria. na kwa wajumbe waliomba jamii na wadau wote wakashirikishwe ili kuleta ufanisi wa mradi.

04: SUALA LA KUPATA JINA LA SEKONDARI MURANDA. Wajumbe wote wamepitisha majina matatu kama ifuatavyo 01: Izenga sekondari 02: Mwabagalu sekondari kwa ajili ya kupata jina la usajili wa shule hiyo ya sekondari

05: MENGINEYO, Afisa Mtendaji kata ametoa malanga zo kuwa kila kijiji kinapaswa kisimamie usafi kwa kila mwezi kwa kipindi hiki na tarehe 25/07/2020 kila Kitongoji waidara wafanye kila kijiji ili kukagua usafi huo, Pia ametoa tangazo kuwa Mkoa wa Geita kwa kupitia imeonekana watoto wengi kuwa na upungufu wa lishe hivyo ameandaa siku maalumu ya kuwaona na wahudumu wa afya, Afisa afya na watendaji ili kuonekana tatizo hilo kwenye kata ya Buseresere na kupata ufumbuzi wake.

06: KUFUNGA KIKAO. M/kt wa wamaendeleo ya kata wametaka kufunga kikao kwakuwashukuru wajumbe wote walio hudhuria kama wamefanya ushirikiano na wakawe chachu kwenye ie kazi Kwambo yote waliyoyajadili na wakawe chachu kwenye shughuli za maendeleo hususani kwenye kuhamasisha wananchi kupokea Mradi wa maji kutoka ziwa Victoria.

N. B. JEITAH
WEO
KATIBU
AFISA MTENDAJI KATA
KATA YA BUSERESERE
HALMASHAURI YA WILAYA
CHATO

MWENYEKITI
HALMASHAURI KIJIJI
CHAMAPINDUZI
CHATO

V.2.4 Katoro Ward –Minutes of Consultation Meeting

MUHTASARI WA KIKAO CHA DHARULA CHA WDC KATA YA KATORO KILICHOFANYIKA TAREHE 23/07/2020 KATIKA UKUMBI WA OFISI YA KATA

AGENDA ZA KIKAO

1. KUFUNGUA KIKAO
2. KUSUDIO LA WIZARA YA MAJI KUSAMBAZA MAJI MJI WA KATORO,
3. KUFUNGA KIKAO.

AGENDA NA. 01/23/07/2020 KUFUNGUA KIKAO

Mwenyekiti wa kikao alikifungua kikao Mda wa saa 4:00 Asubuhi baada ya kumteua ndugu Bahati charles Mahiga Kuliongoza Kikao hiki cha WDC ilikuweza kujadili Agenda Mbimu Ili kuleta ufanisi katika Miradi ya Maende leo.

AGENDA NA 02/23/07/2020 KUSUDIO LA WIZARA YA MAJI KUSAMBAZA MAJI KATIKA MJI WA KATORO

Wataalamu wafuatao hapa chini walitoa ufafanuzi Kuhusu Ujio wa Miradi wa Usambazaji Maji Mji wa Katoro. Alianza ndugu VENANT RWEYANGIRA kutoka Kampuni ya WILALEX DSM ambaye alielezea kuwa Lengo kuu ni kuhakikisha jamii inapata Maji ya uhakika kutoka kwenye chanzo cha Maji ziwa victo- ria ambayo yatasambazwa katika Mji Mdogo Katoro Hadi Bwanga Wilaya ya chato hivyo jamii inatakiwa Kuipenda Miradi huu na Kuuthamini hivyo taratibu za Kitaalamu zita-endelea Kufanyika ili miradi ua- nze Kutekelezwa kwa sasa tupite zinaendelea Kufa nyika. Baada ya Maelezo ya ~~Eba~~ Eng. huyo wajumb e wote walio hudhuria kikao hicho walimpoke Miradi huu wa maji kwa shangwe kuwa Miradi hu ~~uki~~ u ukihamilika ni mkombozi katika Mji wa Katoro.

Baada ya kumpokea Mradi huu wa maji ndipo wata-alamu hao wali-hitaji Maswali toka kwa wajumbe wa wakiishi wa Makundi mbalimbali kama walivyo Alikwa Hivyo Mwenyekiti wa Kikao alituhusu - Maswali toka kwa wajumbe

MASWALI YALIYOULIZWA

1. Ndugu JUMA LUFUNGULO MASHILI yeye alipongeza na Kwa kuleteaa Mradi wa Maji Mji wa Katoro aliomba Mradi huu uanze haraka ili jamii iweze kunufaika na Maji Safi na salama.

2. ~~Ndugu~~. Hinge Sanane Naye pia alipongeza na ku-omba Mradi huo ufanyike haraka ili~~sp~~. Jamii ya Mji wa Katoro iwe kupata Maji safi na salama ili kuandoa Changamoto ya Maji

3. Ndugu Kitinde Joseph yeye aliuliza kuwa Watu Wenye ulemavu hawapewa kipau mbele katika kupata maji aliomba Maji yatakapo patikana Wape we kipaumbele kupata Maji Katika Maeneo Wana yo ishi pia jamii itarifiwe mapema ili kutambua njia zitakazo pita Mabomba ya maji Jibu lilijibiwa kuwa Watu Wenye ulemavu watapewa kipa pata Maji

4. Ndugu Bukombe Mat~~thu~~sela yeye ali uliza kuwa ~~unbele kupata maji~~ Maeneo yatakapo pita Mabomba ya Maji Watapewa fidia? Jibu Mfadhili alaghaimia gharama za Mradi Hata kuwa na gharama ya kutoafidia kwa sababu Mabomba yana pita chini ya ardhi hakuna athari ye yote

5. Ndugu Joseph Mbishi yeye aliuliza kuwa taasi si za serikali zita wekewa Maji kwa bure Jibu taasisi husika ili lipia kiliza Maji Utaratibu unafahamika kuwa kuna ma fungu ya kulipia kili za maji na umeme.

MAJIBU YA ZIADA TOKA KWA WATAALAMU

1. Maji yatakayo sambazwa yatakuwa safi na salama uta fiti unaendelea kuyapima Maji katika chanzo cha Maji ziwa viktoria.

2. Mradi huu utachukua tekelebani miezi 9 kuna kazi za upembuzi wa kinifu Ramani itachorwa ili kuonyesha sehemu zitakapopita bomba la Maji Kutanga zabuni baada ya kukamirisha Andiko

3. Mradi ukikamilika watu wenye mahitaji maalum kwa watu ambao hawajiwezi watapewa maji Bure.

4. Mradi unao ingia jamii ni fursa kwa jamii watu wanapata ajira mbalimbali

Mwisho Mtaalamu huyo aliwauliza wajumbe wa Kikao kuwa Hali ya ~~Maji~~ usafi wa mazingira ukoje katika Mji wa Katoro wajumbe walijibu kuwa hali ya usafi wa Mazingira Mji wa Katoro Hairidhishi sana jitihada zipo za kukabiliana na changamoto hiyo ya kuweka Mji kuwa safi na kuhakikisha maji taka hayatiririshwi Sheria ndogo zipo

AGENDA NA 03/23/2020 KUFUNGA KIKAO

Mwenyekiti alifunga kikao muda wa saa 7:00 mchana kwa kuwashukuru wajumbe kwa kutoa mchango wa Mawazo yao pia wataalamu kutoa elimu kwa wajumbe kuhusu mradi wa Maji.

BMaliga.
Mkiti wa muda BAHATI G. MALIGA.

JUMANNE K. [illegible]
HALMASHAURI YA WILAYA
AFISA MTENDAJI WA KATA
KATORO-GEITA.

V.2.5 Ludete Ward – Minutes of Consultation meeting

24/07/2020.

MUHTASARI WA KIKAO CHA MRADI WA USAMBAZAJI MAJI – LUDETE

AGENDA: 1
KUFUNGUA KIKAO
AGENDA: 2
KUELEZEA MRADI WA USAMBAZAJI MAJI
AGENDA: 3, KUFUNGA KIKAO.

AGENDA NO. 1

Mwezeshaji alifungua kikao majira ya saa nne asubui kwa kuwa shukuru wajumbe waliohudhuria kikao, Alitoa historia nzima kuwa mradi umefadhiliwa na benki na kampuni MWAUWASA imepewa tenda ya kufanya ~~[illegible]~~ ~~ya~~ utafiti wa maeneo haya manne ambayo ni Katoro, Buseresere, Minkoto na Bwanga kwa ajili ya kuweka mradi huu kutoka chanzo kikuu cha ziwa Victoria.

AGENDA NO 2: MRADI WA USAMBAZAJI MAJI KUTOKA CHANZO KIKUU CHA ZIWA VICTORIA.

Mwezeshaji alitoa taarifa ya kuamba lengo la mradi ni kupunguza ~~[illegible]~~ adha inayowakumba wananchi ila pia na kuangalia changamoto zinazoweza kujitokeza endapo mradi ukiwekwa mfano wahujumu maji kwani itaathiri kipato cha watu mfano wauza maji rejareja na wenye visima.

- Mradi huu hauna fidia, Mwezeshaji aliwaasa wajumbe wawashi nkishe wananchi kwani mradi utahitaji kuwekwa kwa mabomba ya maji.

Mwenyekiti wa kitongoji cha kalifonia aliwasilisha hoja kuwa mwaka 2018 ilikuja timu ikaeleza juu ya mradi kama huu na wakaambiwa wabaini maeneo ya kuweka matank, na waunde kamati lakini timu hiyo haikurudi wala kutoa mrejesho.

Mwezeshaji alifafanua kuwa waliyoenda chato kulikuwa na Preminary design na ~~Geita~~ ~~wali~~ ~~[illegible]~~ waliambia kuna taarifa kama hizo ila taarifa za sasa ni kwa ajili ya maeneo manne na wao wapo chini ya MWAUWASA.

HALMASHAURI YA WILAYA
AFISA MTENDAJI WA KATA
LUDETE
GEITA

Mjumbe wa pili aliuliza serikali ya hili jambo ukoupi kwani tokea miaka mitano nyuma na je huo mradi utaanza lini? ili wakienda kwa wananchi wawe na majibu.

Mwezeshaji alijibu; Mkataba unatuambia ni miezi miwili (60) lakini kwa mujibu wa sheria za manunuzi ni miezi minne (4) na taratibu nyingine za ~~katt~~ kuutendaji na sheria za mikataba na maabuni. Hivyo wananchi wanapaswa kuambia ukweli na kuwa wavumilivu kwani kuna utaratibu.

Mjumbe aliuliza, kuhusu suala la fidia imekaaje kwani, hakuna fidia mradi

Mwezeshaji alijibu upembuzi ukija kufanya utafiti wataangalia jinsi ya kufanya upembuzi yakinifu na jinsi ya kuyaepuka na pia kama italazimika utaratibu utafuatwa.

Mjumbe alikumbusha kuwa mradi ufanywe kwa haraka ili kuepusha adha wanazozipata wananchi na ikumbukwe kuwa tupo kwenye awamu ya tano.

Zipi ni changamoto zitakazoweza kuwakumba wananchi wa eneo husika endapo mradi huo utakuwepo?

Wananchi wapo tayari na mradi kwani visima vya jumuia vipo mbali na makazi kidogo.

Mkakati uliopo kwenye maji taka kwa maeneo yetu ni kwamba watu wanashauriwa kuchimba shimo na kujengea kwa lengo la kuhifadhi maji salama kwa matumizi maji taka ambayo visima vya maji sio maji salama kwa matumizi

AGENDA NO 3: KUFUNGA KIKAO.

Mwezeshaji alifunga kikao saa sita mchana kwa kuwashukuru wajumbe waliohudhuria kikao na kuwaomba ushiriki wao katika kuwashirikisha wananchi katika mradi.

HALMASHAURI YA WILAYA
AFISA MTENDAJI WA KATA
LUDETE
GEITA

24/7/2020

V.2.6 Nyamigota Ward Minutes of the Meeting

MUHTASARI WA KIKAO CHA W.D.C
MAALUMU KATA YA NYAMIGOTA CHA
TAREHE 24.07.2020

AGENDA ZA KIKAO
1. KUFUNGUA KIKAO
2. UJIO WA MRADI WA MAJI
3. KUFUNGA KIKAO

HALMASHAURI YA WILAYA
AFISA MTENDAJI WA KATA
NYAMIGOTA
GEITA

AGENDA NA 1/2020 KUFUNGUA KIKAO

Mwenyekiti alifungua kikao muda wa saa 9:30 alasiri

AGENDA NA 2/2020 UJIO WA MRADI WA MAJI

Mtaalamu wa Maji, alieleza kwamba mradi huu utahusisha maeneo ya Katoro, Buseresere, Bwanga na Minkoto. Na kwamba utafiti utafanyika ili kupata uhalisi wa kupata maji/kuwafikia walengwa. Pia unaweza kuwa na changamoto wakati wa utekelezaji mradi huu kwa sababu mradi unaweza kupita katika mashamba ya watu, ambao pia wanaweza kudai fidia, kwa sababu nyingine ambazo zinaweza kuleta changamoto, hata mila na desturi.

Baada ya maelezo ya Wataalamu wa Maji kutoa maelezo ya mradi huu, ndipo wajumbe, kila mmoja kwa uwakilishi wake, wameupokea mradi huu muhimu.

UCHANGIAJI WA MAJI: Ulitakiwa na gharama ya kuchangia maji ya mradi huu kwa sababu mradi huu utaendeshwa gharama/fedha.

Wajumbe walipewa nafasi ya kuuliza maswali kutoa maoni: Ni pamoja na swali je, mradi huu ukitekelezwa katika makaburi itakuwaje?
→ Itatumika sheria ya kuhamisha makaburi/makaburi

→ Je, mradi huu utawanufaisha wote au baadhi na wao hawana umeme? Jibu ni ndiyo kwa sababu watawaletewa umbali wa kilometa 12 watakaa katika eneo watapata fursa hii ya mradi wa maji.

→ Je, mradi huu utasambaza maji kwa mfumo gani yatakuwa na mfumo wa kupata maji kupitia kati ka tank na kuwapata watumiaji au baadhi watakuwa tayari kuchangia gharama za maji.

→ Je, mradi huu utaanza kutekelezwa lini? Mradi huu utaanza mara tu michakato kukamilika hii ni pamoja na shughuli za uthamini na ufuatiliaji hata ongezeko la watu litakalokuwepo
→ Upembuzi huu yakinifu utachukua muda wa miezi minne, ndipo hatua nyingine itafuata.

AGENDA NO: 3/2020 KUFUNGA KIKAO

Mwenyekiti alifunga kikao rasmi muda wa saa 11:00 jioni kwa kuwashukuru wajumbe

Saini ya Katibu
KAZIMIRI P. ...

HALMASHAURI YA WILAYA
AFISA MTENDAJI WA KATA
NYAMIGOTA
GEITA

Saini ya M/kiti
ALPHONCE HAMISI

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