LVWATSAN – Mwanza Immediate Investment Plan (IIP) Environmental and Social Management Plan (ESMP) for Establishment of Water Supply Extension and Rehabilitation of Pipelines in Ilemela and Nyamagana Districts Mwanza Region

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Mott MacDonald

LVWATSAN – Mwanza

Immediate Investment Plan (IIP)

Environmental and Social Management Plan (ESMP) for Establishment of Water Supply Extension and Rehabilitation of Pipelines in Ilemela and Nyamagana Districts - Mwanza Region

June, 2016

Mwanza Urban Water and Sanitation Authority(MWAUWASA) (MWAUWASA) / European Investment Bank (EIB)

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Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
01	14th, January 2016	MMD / UWP			Initial draft for internal review.
02	22nd, January 2016	MMD / UWP Ally Salim			Revised draft.
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List of Abbreviations

AFD	French Development Agency
DED	Detailed Engineering Design
DoE	Department of Environment
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management/Monitoring Plan
EU	European Union
EUR	Euro
GoT	Government of Tanzania
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome
HDPE	High Density Polyethylene
IIP	Immediate Investment Plan (for LVWATSAN)
LS	Lender's Supervisor
LVWATSAN	Lake Victoria Water and Sanitation (Project)
MCC	Mwanza City Council
MDG	Millennium Development Goals
MoWI	Ministry of Water and Irrigation
MWAUWASA	Mwanza Urban Water and Sanitation Authority
NEMC	National Environment Management Council
NGO	Non-governmental Organization
PFR	Project Formulation Report (for LVWATSAN)
PMC	Project Management Consultant (for LVWATSAN)
PMU	Project Management Unit (for LVWATSAN)
PPE	Personal Protective Equipment
RPF	Resettlement Policy/Planning Framework (for LVWATSAN)
SEP	Stakeholder Engagement Plan (for LVWATSAN)
SER	Supplementary Engineering Report (for LVWATSAN)
STD	Sexually Transmitted Diseases
STIP	Short-term Investment Plan (for LVWATSAN)
USD	United States Dollar
WSDP	Water Sector Development Project

Acknowledgement

The Mwanza Urban Water and Sewerage Authority (MWAUWASA) would like to acknowledge the assistance and guidance of compiling this Environmental and Social Management Plan (ESMP) for the proposed construction and operation of water supply extension and rehabilitation of pipelines in Mwanza City.

Special thanks are given to the Mwanza City Council and NEMC's Lake Zone staff for their vital contributions and their assistance during various project's consultations.

Executive Summary

Title and location of the project

Lake Victoria Water and Sanitation (LVWATSAN) – Mwanza: Immediate Investment Plan (IIP): Environmental and Social Management Plan (ESMP) for Water Supply Extensions and Rehabilitation of Pipelines in Mwanza City

Name of the proponent and contact

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Brief outline and justification of the proposed project

The LVWATSAN Project (2014-2019) aims at protecting the Lake Victoria environment and wellbeing of the population in the Lake Basin. The Project has several components, one being the preparation and implementation of an Immediate Investment Plan (IIP) for Mwanza City, that comprises three 'categories' i.e. (i) sanitation in selected schools and public places, (ii) water supply extension and rehabilitation of pipelines, and (iii) simplified sewerage and sewer rehabilitation and extensions. For category (ii), and the focus of the present ESMP, three areas were selected where existing water pipes will be replaced (i.e. in Kirumba/Kitangiri, Nyakato, and Kenyatta Road), and six hilltop areas where the water supply system will be extended through the construction of water tanks, mains and distribution networks (i.e. in Kitangiri, Nyasaka/Zenze sub-wards, Mjimwema/Nyakabungo, Capri Point, Bugarika, and Nyegezi). The works are scheduled to be implemented between July 2016 and December 2017 (18 months), followed by a defects period of 12 months.

Brief description of the project environment

The targeted water supply interventions are located in two municipalities/districts of Mwanza City: Ilemela and Nyamagana. Mwanza is Tanzania's second largest urban centre supporting a population of more than 700,000, and with major industrial and commercial activities. The area is densely populated in formal and informal settlement on and amidst sloping terrain, rocky outcrops and well-drained sandy loamy soils. The intervention sites are located in predominantly low-cost residential areas.

Explanation on why some impacts are not addressed

All impacts that, reasonably speaking, are usually associated with this type of low impact interventions have been identified and addressed.

List of developer, consultant, local planning authorities and other people and organisations consulted

The planned water supply works have been discussed with local communities involved as well with the authorities of Mwanza City.

Results of public consultation

Public consultation activities were conducted by the consultant in the period June-November 2015: all targeted interventions sites were visited and local residents, local authorities (city and municipality councils, ward leaders) were consulted by providing them with relevant information on the project and the proposed interventions, obtaining their views on possible issues and their involvement in planning and operation of the planned facilities. Issues discussed with the consultees included the perceived positive impacts (water supply, improved sanitation conditions, the possibility of improved roads for operation and maintenance of the systems, increased property value, employment and skills) as well as their concerns. The latter included expected hindrance from the construction works, such as noise, dust, soil pollution and soil erosion; improper interference of workers with residents particularly the youth; and influx of infected workers (HIV/AIDS risks). To the extent possible these concerns have been addressed in the design and management plans. The consultations also resulted in that privately owned land plots on which three of the six water tanks will be built have been released, and are available for the constructions.

Description of the major significant impacts

Impacts of the proposed interventions will mostly be positive through improved health conditions in the targeted implementation areas and reduced inflow of raw untreated effluent into Lake Victoria. Negative impacts such as noise, injuries, dust, solid and liquid waste generation are mostly associated with the construction works, are of a temporary nature and of low significance, and can be mitigated at low cost with proper management. Biodiversity in the selected intervention sites is low and limited to common urban species that are neither threatened nor endangered. Major significant impacts of the planned interventions are not expected. Tanzanian government legislation, particularly the *EIA and Audit Regulations* (2005) do not require the preparation of a full EIA study for this sort of local and low-impact development, reason why the regulatory authority, NEMC, has instructed to prepare the present limited ESMP only. The EIB has indicated that for this sort of local and low-impact development in Europe usually no environmental or social assessment is needed.

Alternative considered

No alternatives to the planned interventions have been identified, other than doing nothing or delaying the works. The latter will not benefit anyone.

Environmental and social management

The core of the present report is the Environmental and Social Management Plan (ESMP), provided in Chapter 7 that outlines for each of the identified Project activities for the planned water supply works what the expected negative impacts may be, which mitigation measures are recommended, and who is responsible for the implementation of these measures. This has been done for three distinct phases: construction, operation of the facilities, and decommission (closure). Negative impacts are considered to be of a local nature and small-scale, and can easily be mitigated through proper management and at limited costs.

Proposed monitoring and auditing

By using the ESMP as a base, for each identified Project activity associated with the planned water supply works a monitoring matrix has been designed, which again for each of the three project phases, indicates who should perform the monitoring, what, and how often. Frequent monitoring of construction, operation and decommissioning of the water supply facilities will help the users and authorities to learn from actions taken, and to adapt management of the facilities as may be needed.

Decommissioning

The decommissioning plan, outlined in Chapter 9, is specifically designed for the unlikely event that the construction works will need to be terminated prematurely (i.e. prior to operation of the facilities), and for demolition of the facilities at the end of their lifetime. The latter is not expected within the coming 25 years.

It is essential to include the present signed off and approved ESMP in the invitations to tender and contracts for construction, otherwise it is both difficult and expensive to get the contractor to implement any of the required environmental and social management measures respectively.

1. Introduction

1.1 Lake Victoria Water and Sanitation (LVWATSAN)

The Lake Victoria Water and Sanitation (LVWATSAN) Initiative was launched in 2004 by the Ministers responsible for Water from Kenya, Tanzania and Uganda with the aim of achieving the Millennium Development Goals (MDG) for water and sanitation in secondary centres within the Lake Victoria Basin.

The Water Sector Development Programme (WSDP; 2005-2023) established under the Ministry of Water and Irrigation (MoWI), under which LVWATSAN resorts, is the main financing mechanism for the water sector in Tanzania. Its past five year programme has foreseen almost USD 1 billion of funding for the WSDP. An Environmental and Social Management Framework (ESMF) and a Resettlement Management Framework (RMF) for the programme were prepared and completed in 2006.

1.2 LVWATSAN – Mwanza Project Preparatory Studies

Following a request from the ministers in 2009, the European Investment Bank (EIB) launched a project formulation study in 2010, with the aim to develop plans to scale up the UN-HABITAT-promoted LVWATSAN Initiative to the major settlements of Kisumu in Kenya, and Mwanza, Musoma and Bukoba in Tanzania together with three smaller satellite towns around Mwanza, i.e. Misungwi, Magu and Lamadi. This study, concluded by Atkins in August 2012, resulted in a Project Formulation Report (PFR) covering the six fore-mentioned Tanzanian shore towns. Volume 3 of the PFR deals with the proposed project interventions in Mwanza City. Supplementary studies were conducted by R-Solve, the findings of which are reflected in the Supplementary Engineering Report (SER, August 2012). Both the PFR and SER include sections on preliminary perceived environmental and social impacts of the interventions, which were regarded as mostly positive.

EIB's Environmental and Social Datasheet, of 5 February 2013, concluded for the LVWATSAN project that "the majority of the investments will need to be subjected to Environmental and Social Impact Assessments (ESIAs) at town level, with development of Resettlement Action Plans at intervention level tailored in accordance with the spatial footprint as ultimately determined".

1.3 LVWATSAN – Mwanza Project Implementation

Implementation of the LVWATSAN – Mwanza Project started in October 2014, with the engagement of a Detailed Engineering Design (DED) consultant, COWI, followed by UN-HABITAT being responsible for community liaison and starting in February 2015, and finally, a Project Management Consultant (PMC), Mott MacDonald, commencing in April 2015. Meanwhile, Halcrow had been contracted by EIB to develop a project-specific Resettlement Policy (Planning) Framework (RFP) in late-2014, whereas UN-HABITAT was entrusted with the task to develop a project-specific Stakeholder Engagement Plan (SEP) – the resulting RPF and SEP, meant to guide Project implementation, were endorsed by the MoWI on 8 January 2016.

Key deliverables of the COWI/DED consultant (October 2014 – mid-2016) include the following:

1 **Immediate Investment Plan (IIP) –** i.e. a study report and tender documents for planned interventions in Mwanza City for (i) sanitation in selected schools and public places; (ii) water supply extension and rehabilitation of pipelines; (iii) simplified sewerage and sewer rehabilitation and extensions.
2 **Satellites Investment Plan –** study report and tender documents for planned [immediate] water supply, wastewater and sanitation interventions in Misungwi, Magu and Lamadi.
3 **Master Plan for Mwanza City –** a water supply, wastewater and sanitation strategy for Mwanza and satellites covering the period 2015-2040 and including the Short-term Investment Plan (STIP) for proposed (i) funded and (ii) unfunded works.

With regard to item 1, 2 and 3 (above) and as part of the DED Consultant's responsibilities, COWI prepared for the planned project interventions in Mwanza City two 'project briefs/registration requests' on environmental and social impact assessment for rehabilitation and expansion works, i.e. on (i) sanitation and (ii) water supply & sewerage respectively, and submitted these to the National Environmental Management Council (NEMC), Dar es Salaam, on 18 February 2015. The rationale behind this submission being that (i) as per Tanzania´s EIA and Audit Regulations (2005) planned interventions of this kind are to be registered and (ii) proposed interventions need NEMC approval prior to implementation.

Subsequently, NEMC responded by letters of 4 March 2015 that both works had been registered (under number **5034** and **5033**, respectively) but that as per the GoT Environmental Impact Assessment and Audit Regulations (2005) further EIA study would be needed.

The DED Consultant then requested, by letter of 9 April 2015, to proceed with so-called "Normal Practice" elements of the works, i.e. mainly maintenance and minor extensions works which could be implemented as soon as design and procurement are completed, in other words the IIP works, and simultaneously to the preparation of EIAs. The rationale for this being that these Normal Practice works are considered as minor works with minimal negative impacts but that will bring significant, immediate health and environmental benefits to the citizens of Mwanza City, and therefore are planned for speedy implementation.

Permission by NEMC to proceed with these IIP works without an EIA study been carried out was not given but following consultation with NEMC resulted in the agreement, concluded in December 2015, that the IIP works would not require full EIA studies but that for the planned IIP works in Mwanza City three (3) simplified Environmental and Social Management Plans (ESMP) would suffice, i.e. for the following components:

(i) Schools and public places sanitation (latrines) – see separate ESMP
(ii) Water supply extensions and rehabilitation of pipelines – the current ESMP
(iii) Simplified sewerage in informal areas, together with some minor associated sewer extensions, and some sewer rehabilitation works – see separate ESMP.

Minutes of the meeting between NEMC and PMC/UN-HABITAT held in Mwanza on 8 December 2015, as well as the agreed ESMP contents list, are provided in Appendix 1.

1.4 LVWATSAN – Mwanza Project Funding

The Project is financed under the European Union (EU) Africa Infrastructure Trust Fund within the overall context of the EU and Africa Strategic Partnership. The European Investment Bank (EIB) and the Agence Française de Developpement (AFD) have signed two loan agreements with the Republic of Tanzania for an amount of EUR 45m each for the financing of 86% of the investment costs associated to the extension and upgrading of water supply and sanitation in Mwanza City and satellite towns (Misungwi, Magu, Lamadi), as well as sewerage systems in the towns of Bukoba and Musoma. The total Project cost is estimated at EUR 104.5m, including EUR 14.5m provided by the Tanzanian government.

1.5 Scope of the Present ESMP and Methodology

The present ESMP deals *exclusively* with IIP category (ii) *water supply extension and rehabilitation of pipelines for Mwanza City*. Prior to and after submission by COWI of the draft designs (in October 2015) the proposed sites were visited, concerned stakeholders were consulted, and possible impacts were assessed. Reporting took place in November 2015 to January 2016.

2. Project Background and Description

General information on the LVWATSAN Project is provided in Chapter 1; this Chapter 2 exclusively describes the planned project interventions for the water supply extension and rehabilitation works that are part of the Immediate Investment Plan (IIP) for Mwanza City (see Section 1.3).

2.1 Mwanza

Mwanza is in size the second largest town in Tanzania and is the Regional Headquarters for Mwanza Region. Mwanza is the key industrial and commercial centre in north-western Tanzania. In addition to many light and service industries, Mwanza accommodates large water-intensive industries including textile mills, leather tanning factories, bottling industries, vegetable oil factories, fish processing plants, soft drink manufacturers and cosmetic/soap factories. There are numerous institutions including hospitals, dispensaries and health centres as well as many primary and secondary schools and a university.

The Mwanza urban area comprises two districts i.e. Nyamagana and Ilemela. According to the countrywide 2002 census, the area of the two districts including rural and semi-rural areas had a population of 476,000. The census in 2012 stated that the population had reached 706,000. Located on the southern shores of Lake Victoria, some 72% are supplied with water and 23% are using sewerage services from MWAUWASA, the Mwanza Urban Water and Sewerage Authority. About 28 % of the Mwanza population get water from groundwater sources i.e wells, boreholes etc. for their domestic needs. Lake Victoria is still the major source of public water supply in Mwanza City with enough water to accommodate the planned extension project.

The city is characterised by gently undulating terrain with isolated hill masses and rock inselbergs. It is also characterised by well-drained sandy loamy soil generated from coarse grained cretaceous rock. The vegetation cover is typical savannah with scattered tall trees and tall grass. Administratively, the city is run by councillors under leadership of the Lord Mayor. However, the day-to-day administration of the city is by the City Director, assisted by heads of departments and sections.

Many people in Mwanza live in unplanned settlements. These settlements, apart from lacking basic facilities like roads, schools and water, are located on steep rocky hills where providing basic sanitation is difficult. In recent times housing in Mwanza City has extended further and further up the hills in an uncontrolled manner. This has created numerous problems such as improper wastewater disposal. In such areas conventional sewer systems are difficult to establish and maintain due to the rocky nature, steep slopes, problematic pipe alignments due to uncontrolled house layouts, etc.

2.2 The Proposed IIP Water Supply Works in Mwanza City

The proposed water supply works of the Immediate Investment Plan (IIP) for Mwanza City are described in two documents, i.e.:

- COWI IIP Study Report, Final (11 December 2015)
- COWI IIP Tender Documents, Draft (14 January 2016)

These IIP water supply works for Mwanza City are divided into two (2) components (i.e. replacement of existing pipes and construction of water tanks) and nine (9) sub-components[1] as outlined in Table 2-1.

Table 2-1. Proposed IIP water supply works in Mwanza City

IIP (Sub)-Component	Works	Location	Described in	Pages
1	**Component 1 – Rehabilitation works**			
1.1	Replacement of existing pipes in Makongoro Zone	Kirumba and Kitangiri	COWI IIP Study Report, Final (11/12/2015)	59-72
1.2	Replacement of existing pipes in Nyakato Zone	Nyakato	COWI IIP Study Report, Final (11/12/2015)	59-72
1.3	Replacement of existing pipes in Mkuyuni Zone	Kenyatta Road	COWI IIP Study Report, Final (11/12/2015)	59-72
2	**Component 2 – Extension works**			
2.1	Construction of one (1) storage tank (500 m^3 capacity) and pipe works	Kitangiri	COWI IIP Study Report, Final (11/12/2015)	73-88
2.2	Construction of one (1) storage tank (600 m^3 capacity) and pipe works	Nyasaka and Zenze sub-wards	COWI IIP Study Report, Final (11/12/2015)	73-88
2.3	Construction of one (1) storage tank (1,200 m^3 capacity) and pipe works	Mjimwema and Nyakabungo	COWI IIP Study Report, Final (11/12/2015)	73-88
2.4	Construction of one (1) storage tank (200 m^3 capacity) and pipe works	Capri Point	COWI IIP Study Report, Final (11/12/2015)	73-88
2.5	Construction of two (2) storage tanks (300 and 500 m^3 capacity) and pipe works	Bugarika	COWI IIP Study Report, Final (11/12/2015)	73-88
2.6	Construction of one (1) storage tank (1,200 m^3 capacity) and pipe works	Nyegezi	COWI IIP Study Report, Final (11/12/2015)	73-88

Source: COWI, Study Report, 2015

The works are scheduled to be implemented between July 2016 and December 2017 (18 months), followed by a defects period of 12 months.

2.3 IIP Component 1: Water Supply – Rehabilitation Works

Rehabilitation of the existing water network will be done by replacing weak and broken pipes (e.g. PVC), or pipes with too small diameter, with larger HDPE piping during the implementation of IIP. PVC pipes have the highest priority, reportedly; replacement of CI and GS pipes has second priority. Approximately 15.8 km of pipelines are planned to be replaced during IIP implementation (Table 2-2).

[1] The IIP of December 2015 considers a fourth sub-component in Nyakato-Mahina (Mkuyuni Zone) of 5,540 km of pipeline to be replaced , however this first needs hydraulic modelling, and therefore the IIP suggests to include these works in the STIP

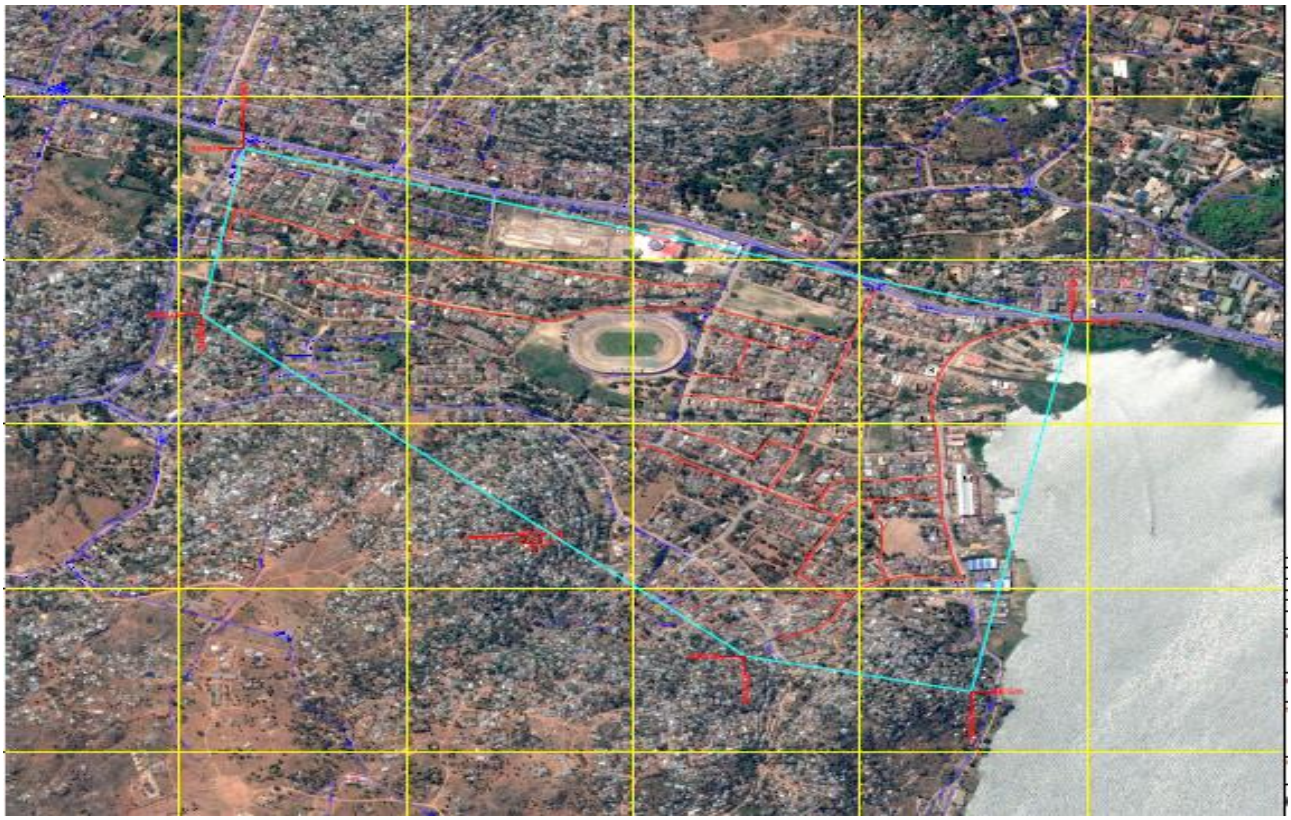
Table 2-2. Pipe replacement during IIP implementation

SC	Name	Pipe length (m)	Description *
1	Makongoro Zone	8,280	Replacement of existing pipeline (OD50-90) with OD63-160 HDPE
2	Nyakato Zone	5,950	Replacement of existing pipeline (OD225 HDPE) with OD315 HDPE
3	Kenyatta Road (Mkuyuni Zone)	1,540	Replacement of existing pipeline (OD250 PVC) with OD250 HDPE
	Total	*15,770*	

* OD = Outside diameter (in mm)

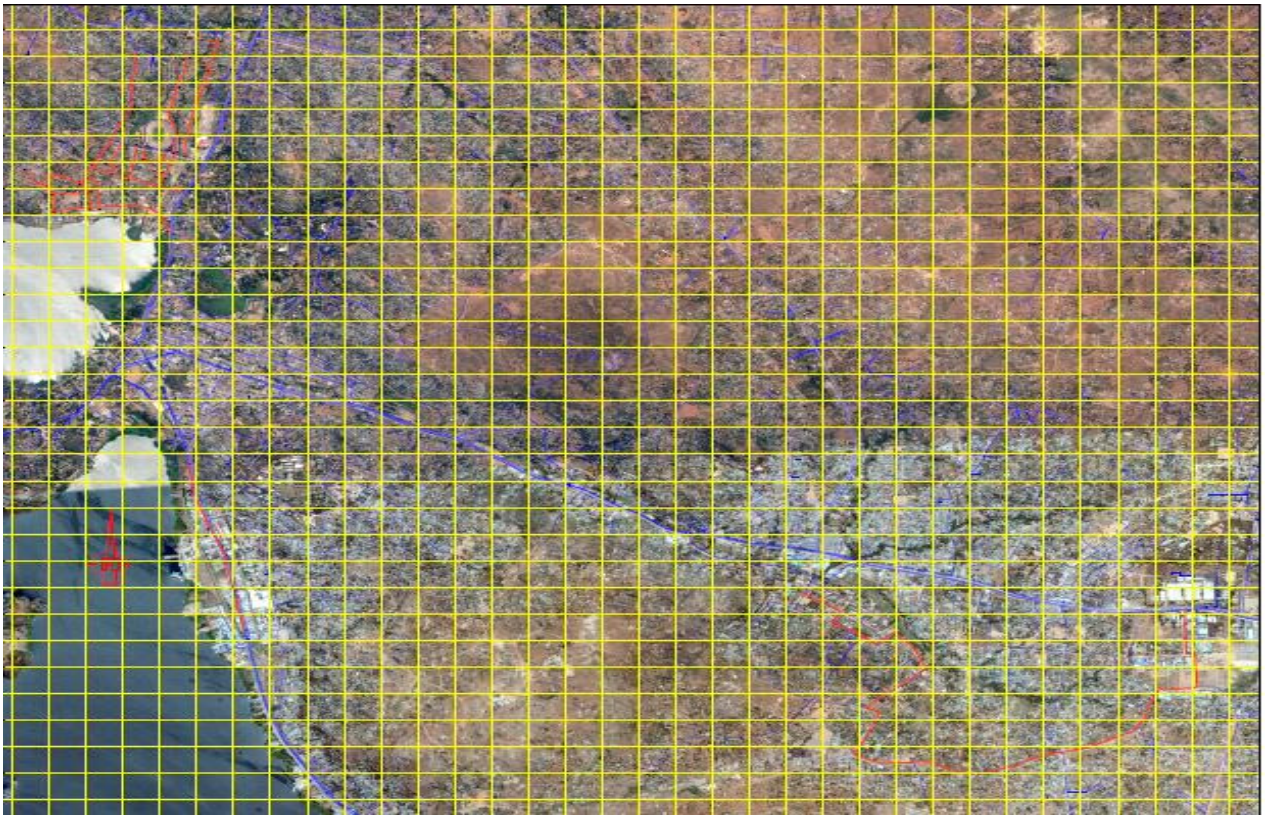
Source: COWI IIP Study Report, December 2015

Figure 1: Pipeline for Rehabilitation (Makongoro Pipeline System Location Map)



Source: COWI IIP Study Report, December 2015

Figure 2: Pipeline Replacement (Nyakato, Kenyata Road and Makongoro)



Source: COWI IIP Study Report, December 2015

Note: interventions described in the IIP Study Report are inconsistent (in terms of pipe material and diameter to be replaced), so the data provided in Table 2-2 should be considered as approximate.

The water supply system rehabilitation component of the IIP for Mwanza City includes a number of other elements that in the framework of the present ESMP will not be further considered because these are replacement of parts that do not impose any negative environmental or social impact. These are:

- Replacement of 25 valves in pipe sections;
- Replacement of 27 malfunctioning hydrants (hydrants are points where a fire hose can be connected);
- Replacement of 20 bulk meters;
- Work on variable speed pumps at Capri Point Intake;
- Pump and valve replacement at the existing Water Treatment Plant;
- Various equipment replacement at the Mabatini Booster Station;
- Pump for Kisesa Booster Station;
- Electrical works for various pump stations and the WTP.

Total cost for the IIP water supply rehabilitation works are currently estimated EUR 1.94 million for pipe replacement, and EUR 1.25 million for the above listed additional works.

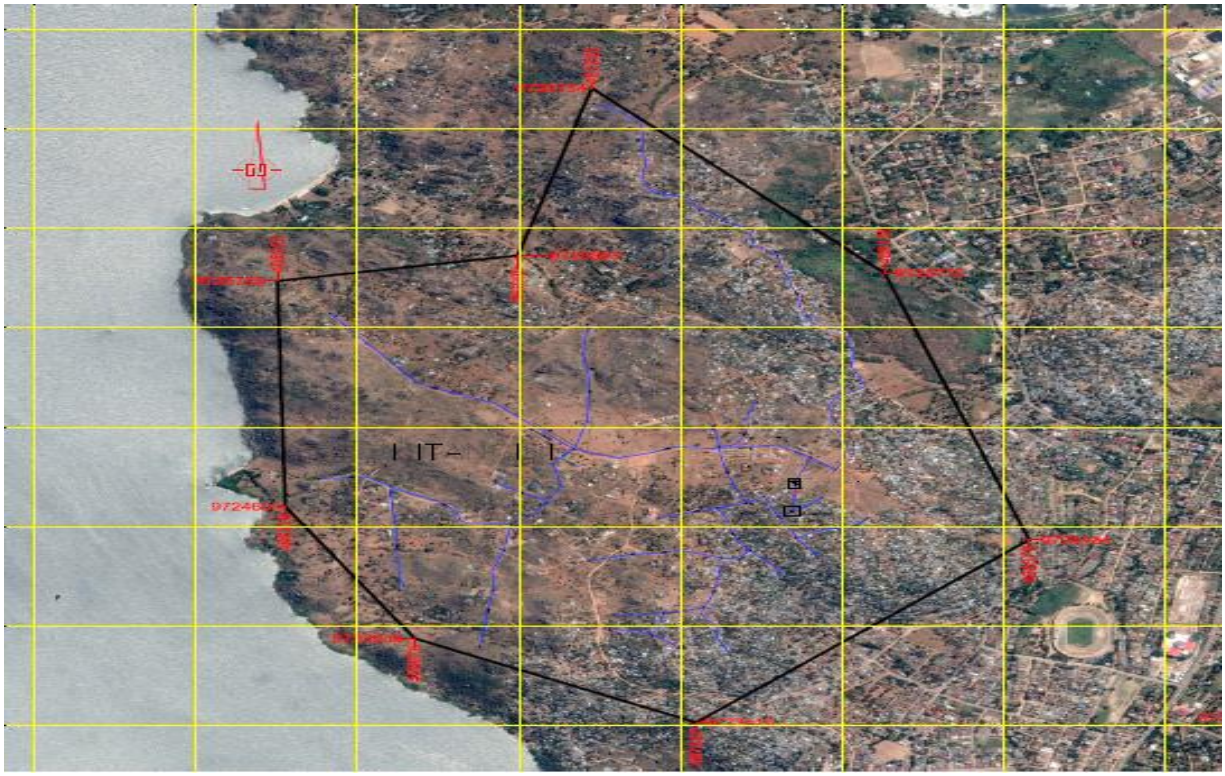
2.4 IIP Component 2: Water Supply – Extension Works

This component focuses on the extension of the water supply network to six (6) hills where potential customers have already settled but who do not yet receive water due to topographical conditions, and who have been defined as highest priority for extensions under the IIP. For the extension of water supply networks at the six hilltops, HDPE OD63 to OD90 piping will be used for the distribution network and OD110 to OD280 for the transmission mains. In rocky areas that are problematic for HDPE, steel pipes will be used. Ongoing hydraulic analyses will elaborate on the exact required diameter of the pipes. The mains will feed water storage tanks that will be constructed on the hilltops concerned (Table 2-1).

Total cost for the IIP water supply extension works (water tanks at 6 hilltops, mains and distribution pipes) are, as stated in the IIP Study Report, estimated EUR 3.8 million.

The hilltop reservoirs plots proposed for Nyasaka, Bugarika and Nyegezi Zone were privately owned, but during the preparation phase of the planned works an elaborate consultation and land release process was conducted which resulted in that all required tanks sites have been made available for the IIP works. Land release letters, all in Swahili, are on file, and can be made available on request.

Figure 3: General Pipeline Extension Layout Plan.



Source: COWI IIP Study Report, December 2015

3. Policy, Administrative and Legal Framework

3.1 Tanzanian Government

3.1.1 Relevant Policies and Laws

Development and implementation of the LVWATSAN – Mwanza Project is a response to a number of international and national policies adopted by the Government of Tanzania that have been outlined in other project documentation, such as:

- Agenda 21 of the United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro (1992);
- National Environmental Policy (1997);
- National Water Policy (2002);
- National Land Policy (1997);
- National Human Settlement Development Policy (2000).

These have resulted in a number of laws, relevant for LVWATSAN, including the:

- Local Government (District Authorities) Act Cap 287 (1982);
- Occupation health and Safety Act No. 5 (2003);
- Construction Industry Policy (2003);
- Environmental Management Act Cap 191 (2004);
- Urban Planning Act No. 8 (2007);
- Land Use Planning Act No. 6 (2007);
- Water Resources Management Act No. 11 (2009);
- Public Health Act (2009).

Of particular relevance to preparing the present ESMP for the water supply extension and rehabilitation of pipelines works of the Immediate Investment Plan for the LVWATSAN are the *Environmental Impact Assessment and Auditing Regulations* (2005). These spell out when and how environmental and social assessment is to be carried out for what sort of development.

3.1.2 Institutions

The institutional arrangement for environmental management in Tanzania is provided in the Environmental Management Act (2004). There are seven (7) institutions mentioned by the act, as well as their responsibilities, 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;
- Minister Responsible for Environment;
- Director of Environment;
- National Environment Management Council (NEMC);

- Sector Ministries;
- Local Government Authorities (Municipal, District, Ward, Village, sub-village "Mtaa / Kitongoji")
- Environmental Management Regulation in Tanzania.

As the Project interventions on which the present ESMP is focusing are of a limited and low-scale nature only, not all of these bodies are relevance in this case; the most relevant are the following.

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

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

Concerning the LVWATSAN project, NEMC Lake Zone was responsible for registration of this project component (see Section 1.3), it determined the scope of the work to be conducted and recommended the preparation of the present limited ESMP, reviews the ESMP, and rejects or approves it.

Sector Ministries – These are required to establish Sector Environmental Sections headed by the Sector Environmental Coordinator. The Sector Ministries' Environmental Sections responsibilities are:

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

- Work closely with the ministry responsible for local government to provide environmental advice and technical support to district level staff working in the sector.

With reference to the LVWATSAN project, the Environment Department under the Ministry of Water and Irrigation (MoWI) is responsible to ensure MWAUWASA complies with various regulations, guidelines and procedures during construction and operation of the Project.

Local Government Authorities – Under the Local Government Act of 1982 (Urban and District Authorities), Local Government Authorities include the City Councils, Municipal Councils, District Councils, Town Councils, Township, Kitongoji, Ward, Mtaa and Village. The Environmental Management Committee of each jurisdiction shall:

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

Since initiation of the LVWATSAN – Mwanza Project, environmental management committees at all levels have been involved in every stage to understand the project's objectives as well as their level of participation during construction and operation phases. 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;
- Advice the Environmental Management Committee on all environmental matters;
- Promote awareness in their areas on the protection of the environment and conservation of natural resources;
- Collect and manage information on the environment and the utilization of natural resources;
- Prepare periodic reports on the state of the local environment;
- Monitor the preparation, review and approval of EIA's for local investors;
- Review by-laws on environmental management and on sector specific activities related to the environment;
- Report to the DoE and the Director General of the NEMC on the implementation of the Environmental Management Act and;
- Perform other functions as may be assigned by the local government authority from time to time.

Their involvement in the LVWATSAN – Mwanza Project will give an opportunity to schedule their time to advise and monitor the performance of the project especially during operation.

3.2 European Investment Bank

3.2.1 Relevant Policies and Regulations

Environmental protection and improvement, and benefits to people's welfare form key operational priorities for the European Investment Bank, the European Union's long-term lending institution. The EIB's

environmental and social safeguard policies are based on the EU approach to environmental sustainability. The principles, practices and standards derived from these policies are highlighted in the Declaration on the European Principles for the Environment (EPE), agreed to by the EIB and four other European multilateral financing institutions in May 2006. The general approach of the Bank is described in a number of public documents (Table 3-1).

Table 3-1. EIB documents presenting the general approach to environmental and social safeguards

Document	Date
Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment	2014
Environmental and Social Handbook	2013
The EIB Statement of Environmental and Social Principles and Standards	2009
European Principles for the Environment	2006
Environmental Statement	2004
The EIB and its Contribution to Sustainable Development	2002
The EIB Project Cycle	2001

Source: EIB, 2006

The EIB aims to maximise the environmental benefits and to minimise the environmental costs of the projects that it finances through appropriate screening, mitigation and compensation measures.
Environmental considerations are taken into account at all stages of the project cycle. In the case of co-financing with other institutions, the EIB may agree to apply the environmental standards of the co-financing institution, where these are comparable to EU standards, in the light of local conditions. However, the EIB will always carry out is own independent assessment.

The EIB's environmental safeguard measures include that:

- the Bank's approach to financing projects is based on the precautionary principle, preventative action rather than curative treatment should be taken, environmental damage should be rectified at source and the polluter should pay, according to the Treaty Establishing the European Community;
- all projects financed by the Bank are the subject of an Environmental Assessment (EA), normally carried out by its own staff, but if by others according to the requirements of the Bank.

For this purpose, projects are screened into four categories, based on the guidelines of the EU Environmental Impact Assessment (EIA) Directive:

Category A Those for which an EIA is mandatory (Annex 1 of the Directive);
Category B Those for which the competent authority determines the need for an EIA according to specified criteria (Annex II of the Directive, with ref. to Annex III);
Category C For which a limited environmental assessment, if any, is required according to any likely adverse environmental impacts of the project (projects outside the scope of the Directive);
Category D No environmental assessment required.

All projects financed by the EIB are also screened according to their potential impacts on sites of nature conservation. Where the impacts are expected to be significant, a special biodiversity assessment is carried out, according to the principles and practices of the EU Habitats Directive (ref. Art. 6 of the Directive).

The main responsibility for scrutinising the environmental aspects of projects lies with the Bank's Projects Directorate, which has about 80 engineers and economists, all with adequate environmental skills, who

undertake the environmental assessment of projects at the EIB. The project teams, made up of engineers, economists, financial experts and lawyers, have front-line responsibility for managing environmental issues. They bring together significant cross-sectoral and cross-regional resources, experience and professional knowledge. However, environmental management is further reinforced by a number of dedicated support units to provide direction and advice on the Bank's environmental policy, ensure a consistently high quality of assessment, improve awareness and create stronger capacity for external dialogue with relevant third parties.

EIB's *Environmental and Social Handbook* (2013) provides generic guidance on performing EIA, and specific information on, among others, involuntary resettlement (in its Chapter 6), stakeholder engagement (in its Chapter 10 and Annex 6), and objectives and structure of an Environmental and Social Management Plan (ESMP) in its Annex 11. It states that the latter "can follow a decision on scoping or after a full EIA".

3.3 Comparison between GoT and EIB Standards – and Conclusion

NEMC's screening decision on the proposed water supply infrastructure and wastewater collection and treatment works in Mwanza City (of 4 March 2015) was for *all* water supply and sewerage works under the LVWATSAN Project (IIP and STIP and unfunded works), and this entails conducting an EIA study. However, for the water supply extension and rehabilitation of pipelines works for the IIP in Mwanza City the preparation of the (present) ESMP suffices. Note is taken of the fact that the term "ESMP" does not appear in the GoT legislation, and that the First Schedule under the Regulations (2005) "Projects requiring EIA" *does* include Item 21 "water supply" but the descriptions given are understood to refer to new, *large-scale* interventions such as the construction of 'plants', 'facilities', '(transfer, bulk) systems', while the "list of small-scale activities and enterprises that require registration (may or may not require EIA)" does not include any reference to the type of interventions covered by the present ESMP. This could mean that, legally, for implementation of the IIP activities there is no need for an EIA or ESMP.

EIB preparatory studies for the LVWATSAN Project have concluded that there is a need for EIA studies (see for example the LVWATSAN Environmental and Social Datasheet – 2013) but these refer to the *entire* project and not (sub)components hereof. Moreover, none of the developments listed in EU Directive, Annex I (requiring EIA) or Annex II (case-by-case examination of meeting threshold criteria) refers to developments of the nature and scale covered by the present ESMP, while Paragraph 12 of Annex I of the EIA Directive explicitly states that "transfers of piped drinking water are excluded" from EIA requirement. During the EIB progress mission, held in December 2015, the mission leader informed that in Europe the local, low-cost and low-impact developments considered under this ESMP normally do not require any environmental or social assessment.

It is therefore concluded here that the purpose of the present ESMP is merely a systematic screening exercise to assess any specific adverse impacts that otherwise may be overlooked and for which adequate mitigation measures would be needed. It is furthermore noted that the present ESMP does include most of the elements of an ESMP as recommended in the EIB Handbook, but that some are not applicable in this case, and have therefore been excluded.

It is essential to include the signed off and approved ESMP in the invitations to tender and contracts for construction recommended, otherwise it is both difficult and expensive to get the contractor to implement any of the required environmental and social management measures respectively.

4. Baseline / Existing Conditions

4.1 Physical Environment

4.1.1 Climate

Mwanza City lies at an altitude of about 1,100 m above sea level. Mean temperature ranges between 25 and 30°C in the hot season and 15 and 18°C in cooler months. The area experiences between 700 and 1000 mm of rainfall annually, falling in two fairly distinct seasons i.e. between the months of October and December and between February and May.

4.1.2 Geology and Structure

The Municipality in general is characterised by gently undulating granites and granodiorite physiography with isolated hill masses and rock inselbergs. It is also characterised by well-drained sandy loamy soil generated from course grained cretaceous.

4.1.3 Topography and Land Use

The locations for the proposed works (water supply extension and rehabilitation of pipelines) are generally on sloping terrain, and have sandy loamy soils that are well-drained. Most of the proposed works are typically located in densely populated residential areas. Existing water supply pipes that will be rehabilitated or extended are mostly located underground, usually in existing roads (Figure 4-1); elsewhere water supply systems may be installed along narrow footpaths on (steeply) sloping rocky terrain and may need therefore to be installed above ground level.

Figure 4-1. Typical rocky terrain in which water supply systems will be built

Source: COWI Study Report, 18, April 2016

4.1.4 Surface Water Catchments

Lake Victoria is the main nearby surface water body for Mwanza City, in which all surface drains discharge. The lake is considered as one of the most important shared natural resources by the East African Community (EAC) partner states and is a major source of water and fisheries in the region. The ecosystem around the lake is comprised of savannah, forests and wetlands.

4.1.5 Groundwater

Groundwater in Mwanza is generally found at varying level beneath the surface, depending on local topography and time of the year (dry/wet season).

4.2 Biological Environment

4.2.1 Biodiversity

All proposed water supply intervention sites are intensely used; there is little natural, undisturbed vegetation onsite, however most localities have to a smaller or larger extent shrub or trees. These, as well as the roofs of existing dwellings in compounds and in the surroundings support some birdlife, but all of these are common species that are normally associated with urban settings in Tanzania and none of these is regarded as threatened or endangered.

4.2.2 Air Quality and Noise

Air quality and noise levels are results of normal human activities and are all considered of acceptable levels.

4.3 Socio-economic Environment

4.3.1 Population and Key Stakeholders

The proposed Project water supply works under the IIP for Mwanza City are expected to provide a significant number of inhabitants with potable water. Most of these inhabitants reside in the immediate surroundings of the proposed works – housing in these areas varies from high class housing along some roads to low class houses in densely populated areas up the hills where little space is available for laying pipes.

4.3.2 Water Supply

Mwanza is supplied with water from the public network managed by MWAUWASA. The existing water network contains different pipe materials, i.e. cast iron, CI, galvanised steel, GS which have expired their lifespan, and PVC. The latter often break causing high Non Revenue Water (NRW) losses. About 72% of the Mwanza City population is connected to public water supply network and those who depend on groundwater sources including wells and boreholes makes 28% of the total population.

4.3.3 Sewerage System

Parts of Mwanza City have existing underground conventional sewerage systems but parts of these are in poor condition and need to be replaced. Residential areas in hilly terrain are usually not connected to a conventional sewerage system but many have shallow pit latrines, and some have septic tanks or no sanitary facility at all. Problematic in most of these cases is the emptying of latrines and tanks due to the inaccessible terrain. Often facilities do overflow during heavy rains. A study by World Bank (1996) showed that in urban areas and shoreline settlements, the main sources of nutrients loading for Lake Victoria were human wastes especially from raw and partially treated sewage and the obtaining unsanitary conditions. Only 23% of the population in Mwanza City is connected to the sewerage systems and waste water treatment facilities. The project is expected to add 7.2% to the existing water supply connection and thus contribute towards reducing the current nutrient loading of Lake Victoria from sanitation facilities unconnected to the sewerage system and waste water treatment facilities.

4.3.4 Solid and Liquid Waste Management

The Municipality is responsible for providing solid waste collection and disposal services within its area of jurisdiction. This includes the periodical emptying of septic tanks.

4.3.5 Economic Activities

In the immediate surroundings of most Project intervention sites small businesses form a major economic activity such as shops, commuter transportation, food vendors, etc.

4.3.6 Health and Welfare

Good sanitation and hygiene conditions are indicators of community health and welfare. Currently, in most parts of the Municipality there are insufficient and unsanitary water supplies, low standards of communal hygiene, and poor knowledge on basic personal health care.

5. Stakeholder Consultation

5.1 Overview and Legal Requirement

Stakeholders entail those individuals and institutions that have an interest with the proposed project. Further, stakeholders may be defined as all those people and institutions that have an interest in the successful design, implementation and sustainability of the project. This includes those positively and negatively affected by the project (Hewlett and Nagu, 1997). Stakeholder involvement involves processes whereby all those with a stake in the outcome of a project actively participate in decisions on planning and management. They share information and knowledge, and may contribute to the project, so as to enhance the success of the project and hence ultimately their own interests. For effective environmental management of the project, stakeholder involvement is very essential as may have the impacts on the overall sustainability of the project both environmentally, socially and economically.

The process of stakeholder consultation and disclosure of information is an ongoing overarching requirement that applies to the ESIA -and in this case ESMP- process. The consultation was of critical importance in gaining insights into the key environmental and social issues, concerns of communities and other stakeholders, and in aiding the development of potential strategies for addressing these impacts.

Effective consultation with stakeholders is (i) key to understanding the concerns and requirements of affected communities/schools and ensuring their participation in the formulation and refinement of the project design; and (ii) a prerequisite for sustainable development of toilets and water tanks. Effective disclosure through the release of timely accurate and comprehensive information to stakeholders is essential to ensure that the likely impacts (both positive and negative) are understood by stakeholders and allow the stakeholders to provide feedback to the project. It also enables the consultant in:

- Determining the scope of the ESIA / ESMP;
- Deriving specialist knowledge about the site;
- Evaluating relative significance of the likely impacts;
- Improve project design and, thereby, minimize conflicts and delays in implementation;
- Proposing mitigation measures;
- Ensuring that the ESIA / ESMP report is objective, truthful and complete;
- Facilitate the development of appropriate and acceptable entitlement options;
- Increase long term project sustainability and ownership;
- Reduce problems of institutional coordination;
- Make the resettlement process transparent (if any);
- Increase the effectiveness and sustainability of the facility, and improve coping mechanisms;
- Monitoring any conditions of the development agreement.

The Environmental Management Act of 2004 requires that all ESIA Studies undertake public consultation as part of the study. The aim of public consultation and disclosure is to ensure that all stakeholders interested in a proposed project (including project beneficiaries and the general public in the vicinity of the proposed project) be identified and their opinions considered during project planning, design, construction, and operation and decommission phases. In compliance to the requirements of the regulations, the consultant conducted public consultation in the period June-November 2015.

5.2 Objectives and Methodology

The main objective of the consultations was to inform involved communities involved on:

- Impacts related to land disturbance resulting from construction of the planned water supply systems;
- Social relations resulting from activities onsite, presence of people on the site and health and safety impacts from the operation of the facility including , infectious diseases such as HIV/AIDS, social conflicts, property theft;
- Impacts on air quality (pollution) resulting from construction such as dust, oil, etc.;
- Noise and vibration resulting from construction of the works;
- Impacts on surface and groundwater quality during construction and operation (e.g. oil spillage and waste generated);
- Disruption of norms and values due to interaction of workers onsite;
- Obtained concerns and perceptions of the population and their representatives regarding the project;
- Costs anticipated during operation of the project.

Consultations were carried out to mainly communities contiguous to the proposed project area notably residents of Kitangiri, Nyasaka, Nyakabungo and Mjimwema, Bugarika and Nyegezi, i.e. the areas where the water tanks will be constructed (Figure 5-1). Fundamentally these consultations intended to disseminate project information and to collect data regarding the project. Also it was intended to collect information regarding sources of livelihood, living standards, other social welfare, issues and views and perceptions of stakeholders regarding the proposed water supply developments.

Figure 5-1. Locations where some of the water tanks will be constructed

Bugarika hilltop

Kitangiri hilltop

	
Water tank at Kitangiri	NyakabungoMjimwema hilltop

Source: COWI Study Report, 18 April 2016

The meetings were intended to ensure that the community discussed issues related to the construction of water tanks in the hilltops in an open manner thus fostering a community participatory approach prior to project implementation. Clarifications and affirmations were made with regard to the expected impacts on individuals and the community in general. Minutes of the consultative meetings, including participant lists, is appended in this report.

Perceived positive impacts

People in the study area are eager to get enough water for domestic use including sewerage services. Such feelings emanate from their expectation that the construction will bring the following advantages to their localities:

- Constant supply of water at minimum cost as well as raising hygienic status of the area.
- The project will increase access to safe water and improve the existing sanitation situation (sporadic and rampart spread of diarrhoea, intestinal worms and eye infections transmitted by flies from this uncontrolled excreta disposal).
- The project will lead to improvement of sludge management and regular maintenance of the water systems
- The project will also lead into improvement of the roads system along which the water system will be installed
- The project will add value to the houses and rents will increase (landowners will benefit).
- During water tank construction there will be employment opportunities to local people (youths and women), either directly or indirectly. Through employment local people will acquire capital for further investments. Indirect impact is for women to carry out businesses such as selling of food to the construction workers.
- Stimulation of technology and skills is another expected positive impact. There will be interaction and exchange of technology between the local people and the new immigrants hence stimulate the adoption of new technologies.

In general, the construction of the water tanks and water mains will have significant positive impacts on the wards and, indirectly, Mwanza City.

Perceived negative impacts

Consulted people expressed concern about the following:

- Environmental degradation resulting from noise, dust, soil erosion and air pollution.

- Culture interference may negatively affect the moral among the youth.
- Influx of job speculators from other parts of the Lake Zone and neighbouring regions will increase interaction, and possibly an increase in HIV/AIDS infection. Infidelity among job speculators and local people may lead to divorce and separation of some families.

Land release

The communities within the selected areas for construction of water tanks were requested to provide space/areas. Subsequently the communities of Nyasaka, Nyegezi and Nyakabungo and Mjimwema have released their plots for construction of water tanks as stipulated in their release letters to MWAUWASA through the respective Municipal Directors. Lands at Kitangiri, Bugarika and Capri Point are already public areas under management of MWAUWASA.

6. Assessment of Impacts and Identification of Alternatives and Mitigation Measures

This chapter describes the expected positive and negative impacts that may arise as a result of the proposed project interventions, i.e. per phase of the Project: pre-construction, construction and operation of the facilities, as well as alternatives for interventions that have or may have significant adverse impacts. Possible impacts of decommissioning of the works are described in Chapter 9, whereas mitigation measures for the decommissioning phase are included in Chapter 7.

6.1 General

Based on the public consultations conducted and expert judgement, positive and negative impacts associated with the planned IIP water supply works in Mwanza City were identified, i.e. for each of the two (2) components, i.e. rehabilitation and extension, and for both the construction phase as well as the operational phase of the works (Table 6-1).

Table 6-1. Project activity / impact matrix for the planned IIP water supply works in Mwanza City

	Construction		Operation	
Potential impact on	Component 1 WS Rehabilitation (pipe replacement)	Component 2 WS Extension (water tanks, mains, distribution NW)	Component 1 WS Rehabilitation (pipe replacement)	Component 2 WS Extension (water tanks, mains, distribution NW)
Surface water			+	+
Groundwater				
Soil	--	---		--
Air (dust, fumes, noise)	--	--		
Biodiversity				
Population			+	+
Economy / employment	+	+	+	+
Traffic	--	--		
Land use / loss	--	--		
Health	--	--	+	+
Safety	--	--		
Education / skills	+	+		

+ = positive impact; -- = negative impact

Positive impacts of the planned IIP water supply works for Mwanza City are mostly associated with the Operational Phase of the interventions, and with some activities of the Construction Phase. First and foremost improved water supply will lead to improved health in residential areas, better operating sanitation and sewerage facilities and therefore reduced inflow of nutrients into Lake Victoria. Other positive impacts

include some employment to local labour and improved construction skills, and revenue for communal service providers (Table 6-1).
Some negative impacts can be expected from some of the construction works but these are mostly of a local, low-significant and temporary nature that all can be mitigated through proper and adequate management.

As outlined in Chapter 2, no negative impacts are expected from the additional works of the rehabilitation component (replacement of parts such as valves, hydrants, etc.) and therefore these works are not further considered in this ESMP.

Significant impacts (positive or negative) on the local biodiversity are not expected, although, indirectly better operation sanitation and sewerage systems, as a result of improved water supply, may improve to some extent lakeshore habitats.

As construction works and operation for both components require similar activities, the environmental and social impacts (positive and negative) as similar as well.

6.2 Impacts

Component 1 entails the replacement of some 15.8 km of existing underground water pipes in various diameters. These works require excavation of soil and possibly crushing of rock, temporary storage of excavated material, and backfilling. Once installed and operational these elements do not require other inputs than periodical checking and maintenance.

Component 2 aims at extending water supply systems in six (6) hilltop areas where water tanks will be constructed and mains and distribution systems will be installed.

Table 6-2: Environmental Impact Matrix for the Water Supply Project in Mwanza City

ITEMS FOR IMPACTS	TIME FRAME																		
ACTIVITIES	Construction Phase											Operation Phase				Decommission Phase			
IMPACTS	Recruitment of staff and casual labourers	Staff and labourers retrenchment	Delivery of construction equipments	Excavation and delivery of construction materials	Demolition of buildings and infrastructures	Digging of trenches	Movement of heavy machineries and trucks	Solid and liquid waste management	Mixing and compaction of soils and gravels	Site maintenance and repair.	Traffic movement	Levelling and measuring	Fencing of the sites	Transportation of materials	Management of solid and liquid waste	Staff and labour retrenchment	Management of debris and all sort of site waste	Management of spoil materials	Demolition of temporary built structures/camps
PHYSICAL ENVIRONMENT																			

1.Land degradation	0	0	-1	-2	-3	-2	-1	-1	-3	0	-1	0	0	-1	-1	0	0	+2	0
2.Soil erosion	0	0	-1	-3	-1	-2	-1	-2	-3	0	-1	0	0	-1	-1	-2	-1	-1	-1
3 Noise	0	0	-2	-2	-3	-2	-3	-1	-3	-1	-3	-2	-1	0	0	0	0	-2	0
4. Increased pressure on the source of water	0	0	-1	-1	-2	-3	-1	-3	-3	-1	-1	-1	-1	0	-1	-1	0	-2	-1
5. Ground water quality	0	0	0	-2	0	-3	0	-3	-1	0	0	-1	0	0	-2	0	0	-1	-2
6. Air quality/air pollution	0	0	-1	-1	-2	-2	-3	-3	-1	-2	-2	-1	-2	-2	0	0	0	-2	-2
7.Increased surface water runoff	0	0	-1	-2	-3	-3	-1	-2	3	0	-1	-2	-1	0	-1	-1	0	-2	-1
NATURAL ENVIRONMENT																			
8. Loss of vegetation	0	0	-1	-2	-3	-3	-1	-3	-3	0	-1	-2	-1	-1	-2	-1	0	-2	-3
SOCIO-ECONOMIC ENVIRONMENT																			
9. Benefit to local and national economy	+3	-3	+1	+1	-2	+2	0	+1	-2	0	-2	+2	+2	+2	+2	0	-3	+2	+2
10.Employment opportunities	+3	-3	+2	+2	-2	+3	+2	+2	+1	+2	-2	+1	+3	+2	+2	0	-3	+2	+1
11. Education skills	+3	-3	+1	+2	-3	-2	+1	+3	-2	-2	-2	+2	+2	+2	+2	0	-3	+2	+1
HUMAN HEALTH																			
12.Hazards of HIV/AIDS	-3	-3	-1	-1	-3	-3	-2	-3	-1	0	-1	-2	-3	0	-1	0	-2	-1	-2
13. Dust and Air pollution	0	0	-1	-2	-3	-2	-2	-3	-1	-2	-2	-1	-2	-2	-1	0	0	-1	-3

Key:
+3 Very high positive impact *0 No impact* *-3 Very high negative impact*
+2 High positive impact *-2 High negative impact*
+1 Minor positive impact *-1 Minor negative impact*

6.3. Impacts Evaluation Criteria

To determine the significance of impact of the proposed water supply project, the criteria below stipulates the impacts basing on specified criteria shown in the impact evaluation matrix. The criteria for evaluation of impacts were based on the following factors:

- *Type of impact-whether positive of negative*
- *Its effects-whether direct, indirect or cumulative*
- *Intensity – whether low, intermediate or high*
- *Magnitude- whether site specific, local or regional*
- *Duration-whether permanent, or temporary; short term or long term;*

- *Reversibility – reversible or irreversible.*
- *Significance-whether low intermediate or high.*

The frequency of occurrence of each factor for a given impact has been used to obtain the characteristics of impacts as shown in the matrix (Table 6.2) above. The results indicate that most of the impacts are:

- *Negative.*
- *Indirect.*
- *Have low intensity;*
- *Site specific;*
- *Temporary (Short term)*
- *Reversible.*
- *Have no significance, low, medium, high or very high.*

The most important output in this analysis is the significance of impacts, which is determined by considering intensity, magnitude and duration.

Construction Phase

6.2.1 Positive Impacts

(i) **Economy / employment** – The works will or may (depending on the contractor) provide some temporary employment to local residents, which will support the local economy. It is expected that the works for Component 1 (more than 15 km of pipe work) and Component 2 (construction of 6 reservoirs) require 200-250 temporary jobs for unskilled labourers and some 25-50 jobs for skilled workers.

(ii) **Education / skills** – If local workers are employed by the contractor this may result in enhanced skills.

(iii) **Income Gain among Local Suppliers. The contractor(s) will source most of the construction materials locally in Mwanza City; therefore most people shall gain income through supply of construction material and other services.**

6.2.2 Negative Impacts

(i) **Soil excavation and removal** – Excavation works may lead to erosion of temporary piles of excavated earth that block drainage lines.

Mitigation:

- *Minimize the area of disturbance by limiting excavation works.*
- *Use excavated stockpiles for rehabilitation around trenches after construction to reduce volume of earth remaining in stockpiles or transport to other areas.*
- *As applicable (off road/footpath conditions): re-vegetate as soon as possible to encourage reestablishment or organic topsoil layer and to overcome soil erosion around the facility.*

(ii) **Generation of dust, fumes, noise** – Excavation works are likely to cause substantial inconvenience to local residents and passers-by as excavation and rock crushing will generate dust, fumes and noise.

Mitigation:

- *Contractors are required use equipment that minimizes to the extent possible noise and to water excavation sites before and during operations.*

- *The contractors will provide protective gears to the workers on site*

(iii) **Traffic** – Substantial hindrance may be expected as a result of the excavation works, particularly if pipes need to be replaced or installed in or along roads, due to excavators and other vehicles placed on or along roads, and movement and storage of excavated material.

Mitigation:

- *Contractors are required to develop and implement a traffic management plan that minimizes to the extent possible traffic congestion. This will include signposting, signalmen, and providing alternative routing of traffic.*

(iv) **Land use / loss** – Installation of the water supply extension systems will take some space that in some instances may limit to some extent the area available for footpaths and near or around houses. It is understood from the consultations conducted that people generally provide access to their premises because they are provided with water supply.

Mitigation:

- *It may be considered to incorporate pipes of distribution networks into the concrete stairs that will or may be constructed – this will provide some protection to the pipes and reduces the risk of pipe weakening or damage.*

(v) **Health** – Influx of workers may increase the risk of HIV/AIDS and other STD infections. Workers may have a bad effect on residents, particularly children.

Mitigation:

- *Contractors are required to impose a Code of Conduct on their workers and assure that these comply to it.*
- *The contractors are required to provide health prevention education to raise workers awareness on diseases and illness.*

(vi) **Safety** – Excavation trenches for pipe removal and laying and dumps of excavated materials may impose risks to workers, bystanders, other people and traffic as persons and vehicles may fall into the trenches or collide with dumps or parked equipment.

Mitigation:

- *Contractors are required to provide proper signboards and safety tape around excavation areas and have these adequately marked with lights at night.*
- *The contractors will be required to provide protective gears to the workers on site.*

(vii) **Solid and Liquid Waste generation –** Replacement will result in piles of pipes that cannot be reused for water supply purposes. Construction of the water tanks will generate solid waste such as stone, bricks, cement, planks, package material, etc. whereas liquid waste may be in the form of oil and fuel left-overs, wastewater etc.

Mitigation:

- *Contractors are to produce and implement a solid and liquid waste management plan and dispose of waste in accordance with regulations of local authorities (municipality, NEMC) on locations that have been agreed by these authorities.*
- *Asbestos containing materials (e.g. pipes) if encountered are advised to be left untouched, or be handled, removed, transported and disposed of by specialized and certified contractors only.*

(viii) **Soil and groundwater pollution**

Poor storage of fuels and oils during the construction phase may contaminate ground water if not carefully handled. The oil may also contaminate shallow wells in the nearby residential houses causing a health problem to the users. Oil leakages from machines and vehicles, waste water generated in the sites and other types of liquid waste leftovers may lead into soil and groundwater pollution too.

Mitigation

- *The contractors are to ensure on the proper site waste collection facilities are working properly*
- *The contractors will have to ensure the equipments and machines are of minimal leakages*
- *The contractors will have to ensure workers are aware of proper waste generation and disposal*

(ix) **Increased pressure on the source of water supply**

The project may increase pressure and thus affects the quantity of water at the source.

Mitigation

- *Proper water obstruction from the source will be maintained by the client*
- *The project client will have a water use permit from Lake Victoria Basin office for guaranteeing such water use from the source.*
- *Adhere to national and International water use standards*

Operation Phase

6.2.3 Positive Impacts

(i) ***Surface waters –*** *Once op*erational the water supply systems are expected to improve the operation of sewerage networks and therewith are expected to contribute to better wastewater treatment, reduced inflow of nutrient into Lake Victoria and therefore help in a healthier environment. (Add % of additional to the current water supply)

(i) **Population** – People living and working in the areas where water supply (and indirectly sewerage) systems will be improved will benefit from a healthier and less polluted environment.

(ii) **Economy / employment** – Living and working conditions will be improved by better working water supply (and sewerage) systems.

(iii) **Health** will be improved by better functioning water supply (and sewerage) systems.

6.2.4 Negative Impacts

No negative impacts are expected from the operation of rehabilitated water supply systems.

Decommissioning Phase

6.2.5 Positive Impacts

Employment: Activities during decommission phase will create an employment for local people in the project area.

6.2.6 Negative Impacts

Dust, noise, injuries and solid waste generation are expected negative impacts during decommission phase of the project.

Mitigation

- *The contractors will adhere to safety management plan for the workers at the site*
- *The contractors will provide safety gears (PPE) to workers at the site*
- *The contractor will place warning signboards to the project area*
- *Solid waste collection facilities will be located in the project area.*

6.3 Project Alternatives

Only one alternative may be considered.

6.3.1 Do Nothing or Delay Implementation

Clearly it is in nobody's interest not to construct the planned development or to delay its implementation. There is a great need for improvement of water supply (and indirectly) sanitation conditions in the targeted areas, and funds are available through the GoT and EIB. Failure to complete the works within the relatively limited project duration may result in no improvement being realized for considerable time to come.

7. Environmental and Social Management Plan

This chapter provides a description of recommended measures to mitigate and enhance the identified negative and positive impacts during construction, operation and closure (decommissioning) of the interventions in a matrix for environmental management, as well as an indication of responsibilities for organisations, institutions or individuals for implementation. The Plan comprises section of impacts, mitigation and enhancement measures, time to take action, institutional responsibilities as well as the relative costs to be used. The proposed costs are only indicative and the developer will have to work out actual costs and include them in the overall cost of the project. With reference to EMA Act (URT, 2004), the National Environmental Management Council (NEMC) will be responsible to ensure compliance of all the agreed conditions as stated in the Environmental and Social Management Plan (ESMP) for authorization.

7.1 Objectives of Environmental and Social Management Plan

The objective of environmental and social management plan is to set out explicitly the key components of environmental and socio-economic management for the Project and thereby ensure that the following concepts are realized throughout the project phases i.e. construction, operation and decommissioning phases of the proposed Project (i.e. Water Supply Extension and Rehabilitation of Pipelines in Mwanza City).

That;

- negative impacts on the physical, biological and socio-economic environments are mitigated;
- information flow between the project supervisory team and contractor is optimized to ensure all are aware of their particular responsibilities;
- benefits that will arise from the development of the Project are enhanced;
- good will and good relations with communities, organizations and governments at local and national levels are maintained
- precautions against damage or claims arising from damage are taken timely;
- affected communities are better off after implementation of the project; and
- accurate records of progress on site are kept in the event of claims against the client
- enhance the environmental and social benefits of a proposed development;
- avoid, minimize or remediate adverse impacts; and
- ensure that residual adverse impacts are kept within acceptable levels.

In general, environmental and social impacts that will occur through implementation of the proposed water supply works include both positive and negative impacts that may emerge in the short, medium and/or long term. The various impacts have been presented in the previous chapter.

Responsibility for most of the mitigation measures during construction and decommission is with the respective contractor and costs involved are expected to be part of and be included in the contractor's contracts. Likewise, some operational measures are the responsibility of the municipality and/or MWAUWASA and any costs for implementation of these are considered to be part of their respective regular operational expenses.

Table 7-1. Environmental and Social Management Plan (ESMP)

Nr	Impact	Project Phase	Mitigation /Enhancement Measures	Responsible institution	Mitigation cost
1	Excavation and soil removal	Construction	• Minimize the area of disturbance by limiting excavation works. • Use excavated stockpiles for rehabilitation around trenches after construction to reduce volume of earth remaining in stockpiles or transport to other areas. • As applicable (off road/footpath conditions): re-vegetate as soon as possible to encourage reestablishment or organic topsoil layer and to overcome soil erosion around the facility.	Construction contractor	2000
		Operation	N.a.		
		Closure	• Disturbed areas to be filled with earth materials, contoured and re-vegetated as soon as possible to encourage natural tillage through root development.	Decommission contractor	2000
2	Air and noise pollution	Construction	• Disturbed area to be kept to a minimum • Number of trips required for construction materials, especially sand and aggregate movement from collection points to the site to be minimized to the extent possible • Regular water spraying around construction sites • All activities to be carried out in accordance with the OSHA Act to minimize health and safety effects • All machinery operators be provided by appropriate PPE • Provide site holding around the construction area	Construction contractor	4000
		Operation	• Check/lock and maintain pumps / generators for unnecessary fumes and noise	MWAUWASA	2000
		Closure	• Water spraying around the demolished area/structures • All demolition activities to be carried out in accordance with the OSHA Act to minimize health and safety effects • Appropriate PPE to be provided to all workers	Decommission contractor	3000
3	Soil and groundwater pollution	Construction	• Proper handling of soil excavation and rock demolition, i.e. redistribution on site or transport to agreed disposal areas. • Proper collection and disposal of construction spoils and solid waste at designated disposal sites. • Restrict refuelling of trucks and machines on site. • Liquid-tight installation of pipes and other elements of the sewerage system.	Construction contractor	4000

Nr	Impact	Project Phase	Mitigation /Enhancement Measures	Responsible institution	Mitigation cost
		Operation	• Timely and frequent inspection and maintenance of the pipes, pumps and generators for leakage • Prevent and or provide immediate repairs.	MWAUWASA	3000
		Closure	• Proper collection of and disposal of demolition spoils and solid waste at designated disposal sites.	Decommission contractor	2000
4	Water supply	Construction	• Use water efficiently	Construction contractor	-
		Operation	• Use water efficiently	Residents	-
		Closure	• Use water efficiently.	Decommission contractor	1000
5	Solid and liquid waste	Construction	• Reduce the generation of unnecessary solid waste by reusing the construction materials where necessary.	Construction contractor	500
		Operation	• Training on unnecessary water consumption to limit the volume of wastewater generated.	MWAUWASA Municipality	500
		Closure	• Provide in advance arrangements for solid and liquid waste management.	Municipality	500
6	Injury to people due to falling into pits and trenches or collision with roadside storage sites	Construction	• Backfill trenches & pits immediately; provide proper signposting, safety tape around excavation and storage sites, and lighting at night.	Construction contractor	2000
		Operation	• N.a.		-
		Closure	• Demolish / uproot and backfill trenches and pits immediately.	Decommission contractor	2000
7	Injuries from work related activities	Construction	• Provide adequate PPE and awareness.	Construction contractor	3000
		Operation	• N.a.		-
		Closure	• Provide adequate PPE and awareness.	Decommission contractor	3000
Enhancement Measures					
8	Economy/Employment creation	Construction	• Employ local labour • Purchase locally available materials for construction purposes	Construction contractor	3000
		Operation	• Increase of employment opportunities through availability of water	MWAUWASA	-
		Closure	• N.a		-
9	Health	Operation	• Ensure an improved community health through availability of safe and clean water and efficient sewage disposal mechanisms	MWAUWASA	-

Nr	Impact	Project Phase	Mitigation /Enhancement Measures	Responsible institution	Mitigation cost
10	Population	Operation	• Efficient collection of water bills due to increased water connection	MWAUWASA	-
11	Surface waters	Operation	• *W*ater supply systems are expected to improve the operation of sewerage networks and therewith are expected to contribute to better wastewater treatment, reduced inflow of nutrient into Lake Victoria and therefore help in a healthier environment.	MWAUWASA	500

8. Environmental and Social Monitoring Plan

This chapter provides a description of recommended monitoring activities for implementation of the Environmental and Social Management Plan (ESMP – see Chapter 7). i.e. during construction, operation and closure (decommissioning), as well as an indication of responsibilities for organisations, institutions or individuals that will conduct the monitoring. The chapter describes the mitigation and monitoring measures that will be carried out throughout the Project to mitigate the impacts and enhance the benefits discussed in the previous chapter. The Environmental Management Act. No. 20 of 2004 and EIA Audit and Regulations No. 349 of 2005 set a clear link between mitigation and monitoring of outcomes in the EIA process. In this regard, therefore, NEMC is mandated by the law to undertake monitoring of such the project activities in collaboration with relevant sectors and other stakeholders.

Implementation of the E&S Monitoring Plan is the responsibility of the developer / end-user on site to ensure compliance and implementation of the ESMP.

The objective of monitoring is two-fold:

- To alert Project authorities by providing timely information about the success, or otherwise, of the environmental management process outlined in this ESMP in such a manner that changes can be made as required to ensure continuous improvement to the Project's environmental management process (even beyond the project's life).

- To make a final evaluation in order to determine whether the mitigation measures incorporated in the technical design and the ESMP have been successful in such a way that the pre-project environmental and social condition has been restored, improved upon or is worse than before and to determine what further mitigation measures may be required.

Implementation of monitoring of the interventions, whether during construction, operation or decommission of the facilities, comprises primarily regular or periodical onsite visual checks and is considered to be part of the regular operational practices of the project supervisor, MWAUWASA and municipality.

Table 8-1. Environmental and Social Monitoring Plan

Nr	Impact	Project Phase	Monitoring location	Frequency	Parameters	Responsibility	Monitoring cost
1	Excavation and soil removal	Construction	Project site	Weekly	Soil erosion Safety	Supervising consultant	3000
		Operation	N.a.	N.a.	N.a.	N.a.	-
		Closure	Project site	Weekly	Soil erosion	Supervising consultant	2000
2	Air and noise pollution	Construction	Project site	Weekly	Dust (PM_{10}) Noise (dB)	Supervising consultant	2000
		Operation	Project site	Bi-annually, or responding to complaints	Smell	MWAUWASA	3000
		Closure	Project site / area	Weekly	Dust (PM_{10}) Noise (dB)	Supervising consultant	2000
3	Soil and groundwater pollution	Construction	Project site	Weekly	Oil and fuel leakage	Supervising consultant	3000
		Operation	Project site	Bi-annually, or responding to complaints	Sewage leaks Groundwater quality	MWAUWASA	2000
		Closure	Project site	Weekly	Oil and fuel leaks Groundwater quality	Supervising consultant Municipality	3000
4	Water supply to pilot areas to assure proper operation of simplified sewerage systems	Construction	N.a.	N.a.	N.a.	N.a.	-
		Operation	Pilot areas	Monthly	Peak Water Demand (m^3/hr)	MWAUWASA	3000
		Closure	N.a.	N.a.	N.a.	N.a.	-
5	Solid and liquid waste	Construction	Project site	Weekly	Contractor's waste collection/disposal	Supervising consultant	2000
		Operation	Project site	Monthly	Waste collection and disposal	Municipality	2000

Nr	Impact	Project Phase	Monitoring location	Frequency	Parameters	Responsibility	Monitoring cost
		Closure	Project site	Weekly	Contractor's waste collection/disposal	Supervising consultant	2000
6	Injury to people due to falling into pits and trenches or collision with roadside storage sites	Construction	Project site	Weekly	Immediate backfilling; fencing or safety tape	Supervising consultant	3000
		Operation	N.a.	N.a.	N.a.	N.a.	-
		Closure	Project site	Weekly	Immediate backfilling; fencing or safety tape	Supervising consultant	2000
7	Injuries from work related activities	Construction	Project site	Weekly	PPE to workers	Supervising consultant	2000
		Operation	Project site	During maintenance	Safety	MWAUWASA	2000
		Closure	Project site	Weekly	PPE to workers	Supervising consultant	2000
8	Employment creation	Construction	N.a.	N.a.	N.a.	N.a.	-
		Operation	N.a.	N.a.	N.a.	N.a.	-
		Closure	N.a.	N.a.	N.a.	N.a.	-

9. Decommissioning

This chapter provides guidance to unlikely event that the construction works need to be terminated prematurely, or dismantled at the end of the lifetime of the constructions. The constructions are expected to have a minimal operational lifespan of 25 years. According to the Tanzania's EIA Guidelines and Procedures (2005), the proponent will be required to prepare a decommissioning report that will be submitted to NEMC for review and approval. All the costs pertaining to site rehabilitation and ecosystem restoration before the winding up the construction work will be borne by the proponent. The decommissioning procedures should always be undertaken within established guidelines and limits of the appropriate regulatory agencies. The decommissioning plan will remain a "living document," and revisions will be made throughout the operating life of the project. MWAUWASA (developer) and the selected contractor shall be responsible to monitor environmental impacts during and after project removal. The contractor shall remove the project components and ancillary structures safely and in a manner that minimizes environmental impacts, satisfy the proponent obligation to various policies and legal requirements and restore the site to a condition suitable for the other uses, pay all dues (workers, government, suppliers etc).

Decommissioning During Construction

In the event that construction activities and associated work cease prior to facility completion and commissioning (with no expectation of construction re-start) the constructions would need to be decommissioned in a manner as described below. Mitigation measures will also be implemented where appropriate (e.g. to stabilization of exposed soils).

Decommissioning after Ceasing Operation

Decommissioning activities will occur in the sequence indicated below.

Table 9-1. Summary of decommissioning plan

Nr	Activity	Impact	Mitigation measure	Timing	Costs
1	Removal of pipes and demolished constructions	Dust, noise, injuries, solid waste generation	• Provide PPE to workers according to the use, i.e. nose & ear masks, safety goggles • Provide site holding fence • Sell materials for reuse if in good condition	tbd	5000
2	Filling of trenches and pits	Dust and noise generation, injuries to workers	• Provide PPE to workers according to the use, i.e. nose & ear masks, safety goggles	tbd	5000
3	Landscaping	Dust and noise generation, injuries to workers	• Provide PPE to workers according to the use, i.e. nose & ear masks, safety goggles	tbd	5000

10. Summary and Conclusions

In a joint effort, the Government of Tanzania and the European Investment Bank are implementing the Lake Victoria Water and Sanitation Project – Mwanza (2014-2019) with the main overarching aim to achieve the Millennium Development Goals (MDG) for water and sanitation in secondary centres within the Lake Victoria Basin, i.e. in Mwanza City, its three satellite towns of Misungwi, Magu and Lamadi, as well as the towns of Bukoba and Musoma.

One of the components of the Project is developing and implementing the Immediate Investment Plan (IIP) for Mwanza City, consisting of three 'categories', of which 'water supply extension and rehabilitation of pipelines' is the focus of the present report.

The planned IIP water supply works for Mwanza City comprise two (2) components, i.e. (i) rehabilitation (replacement) of existing water pipes in three areas; (ii) extension of water supply systems (water tanks, mains and distribution networks) on six hilltops.

Although Tanzanian legislation and EIB regulations do not require a full Environmental (and Social) Impact Assessment for this sort of local, small-scale, relatively low-cost and low-impact development, the Tanzanian National Environment Management Council (NEMC) informed that for these interventions an Environmental and Social Management Plan (ESMP) is required, the present report has been prepared in accordance with the required scope and contents for such report.

The targeted developments will all be built in an urban environment that is characterised by densely populated low-cost residential areas or sites that serve a more public function. In these areas there is generally no surface water. Biologically, flora and fauna at these localities is typically limited to some shade trees and some common urban birdlife but species present are neither threatened nor endangered.

Public consultations on the planned interventions were conducted in the period June-November 2015. General agreement was achieved among a wide group of consultees on the selected sites where the constructions will be implemented. Concerns expressed during these consultations included a range of suggestions that to the extent possible have been incorporated in the design.

A systematic assessment of expected impacts of the interventions learns that the planned development is expected to lead to a number positive impacts notably improved water supply, and indirectly, to better functioning sanitation and sewerage systems (and improved health) that lead to reduced inflow of nutrients into Lake Victoria, and some employment. Some negative impacts of the interventions are associated with the construction and (whenever applicable) decommissioning phases, that all can be management and mitigated to acceptable levels by the various parties for which responsibility has been indicated in the report

11. References

Atkins, August 2012
Project Formulation Report (PFR) for LVWATSAN – Volume 3: Mwanza

COWI, 18 February 2015
Project Brief on environmental and social impact assessment for rehabilitation and expansion of water supply infrastructure, wastewater collection and treatment for Mwanza City

COWI, 11 December 2015
Study Report for Immediate Investment Plan for LVWATSAN – Mwanza City

COWI, 14 January 2016
IIP Tender Documents (draft) for water supply rehabilitation and extension in Mwanza City

COWI, 18 April 2016
IIP Tender Documents (draft) for water supply rehabilitation and extension in Mwanza City

EIB, February 2013
Environmental and Social Datasheet for LVWATSAN

EIB, 2013
Environmental and Social Handbook

EIB, 2014
Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment

EIB/Halcrow, December 2015
Resettlement Planning Framework for LVWATSAN

EIB/UN-HABITAT, December 2015
Stakeholder Engagement Plan for LVWATSAN

Howett, D.J.B. and Nagu, J. (1997). Agriculture Project Planning in Tanzania. Institute of Development Management Mzumbe, Tanzania and Development Project Planning Centre, University of Bradford, United Kingdom.

R-Solve, August 2012
Supplementary Engineering Report for LVWATSAN

Tanzania Ministry of Water, 2006
Environmental and Social Management Framework (ESMF) for Water Sector Development Programme

Tanzania Ministry of Water, 2006
Resettlement Management Framework (RMF) for Water Sector Development Programme
World Bank, 1996
Final project funding proposal for Lake Victoria Environmental Management Programme.

Appendix 1. Meeting Minutes NEMC-PMC

Record of meeting/discussion

Project title:	Lake Victoria Water & Sanitation – Mwanza	**Division**	IDD
Subject:	Meeting with NEMC to discuss MWAUWASA ESMPs	**Project No.**	350199
Location:	NEMC Office Mwanza	**Date of Meeting:**	8 December 2015

Present:			
	Anna Masasi	NEMC	(AM)
	Boniphace Paul Guni	NEMC	(BG)
	David Rogers	PMC/ Mott MacDonald	(DR)
	Joyce Ndesamburo	UN-HABITAT	(JN)

Absentees with Apologies:	
Recorded by	**Distribution**
DR	

Item	Text	Action on
	1 Purpose of the Meeting The meeting was held at the request of the PMC in order to clarify the requirements for the ESMPs currently being prepared for the MWAUWASA IIP (Immediate Investment Plan) project works. **2 Contents of the ESMP documents(s)** Mr Wandert Benthem, the PMC's International E&S expert, had sent a suggested draft contents list which he had also suggested could be one document covering all the components/sub-projects being considered. However AM said that the contents list in the EIA regulations was similar but the sequence differs, therefore the list in the EIA regulations should be used. AM noted that the purpose of the current exercise was only to provide environmental screening and mitigation measures so the contents of the documents(s) could be simplified with elaborate ESMP. It was confirmed that the document(s) to be prepared should be called "Environmental and Social Management Plans" or ESMPs as they were not required to be full ESIAs. (Copy of the required contents list attached). After discussion it was agreed that a total of three ESMP documents are to be prepared and submitted to NEMC, each covering a different category of the IIP project interventions. It was noted that all the works under IIP are in Mwanza only.	

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Record of meeting/discussion
Continuation sheet

Mott MacDonald

Project No. 350199 **Date of Meeting:** 21st July 2015

Item	Text	Action on
	The agreed **three ESMP categories** are: (i) Schools and public places Latrines (ii) Water supply extensions and rehabilitation of pipelines (iii) Simplified Sewerage in Informal areas, together with some minor associated sewer extensions, and some sewer rehabilitation works. For each of the 3 ESMPs, individual locations (for example for the different schools latrine sites) will be dealt with in the relevant ESMP report using tables and where necessary short sections to deal with specific environmental impacts or other relevant location-specific features. In addition to the ESMPs, **Project registration** documents are also to be provided for each of the three categories, following the template already provided. These should be submitted before submitting the ESMPs. It was confirmed that separate "**Project Briefs**" are NOT required, this information to be included in the ESMPs. There was a discussion about the use of soakaways associated with septic tanks where these are necessary at certain schools. Justification for these will be provided based on the basis of the unacceptable cost to the community of total reliance on tankers to empty the septic tanks. Information on local water supplies to be included. DR asked about the use of steps (infrastructure to support construction of sewer pipes) in the informal areas, AM replied that this would be a good idea but only provided that it has been confirmed that the informal areas are being considered legalised settlements. DR and JN thanked AM and BG for taking the time to make all the clarifications made as above.	

NEMC's recommended ESMP outline

From Page 12 of the regulations:

Without prejudice to the generality of sub-regulation (1), the environmental impact statement shall closely be styled and contain the following information:
(a) Format of the environmental impact statement: (for our project, "**Environmental and Social Managament Plan – ESMP – as understood before**)

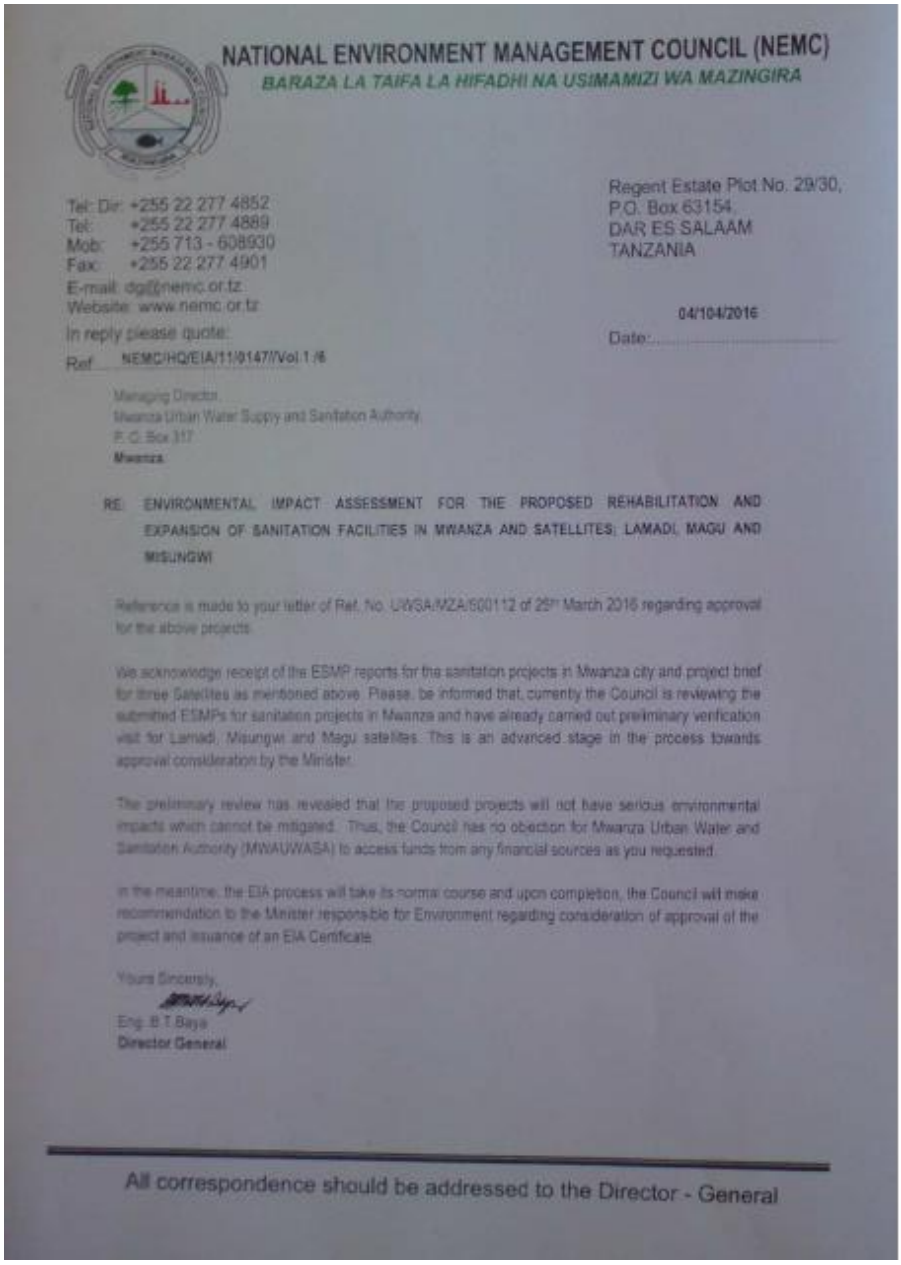
(i) executive summary;
(ii) acknowledgement;
(iii) acronyms;
(iv) introduction;
(v) project background and description;
(vi) policy, administrative and legal framework;
(vii) baseline or existing conditions;
(viii) assessment of impacts and identification of alternatives;
(ix) impacts management or environmental mitigation measures;
(x) environmental and social management plan;
(xi) environmental and social monitoring plan;
(xii) resource evaluation or cost benefit analysis;

(xiii) decommissioning;
(xiv) summary and conclusions
(xv) references;
(xvi) appendices;

(b) Cover page of the environmental impact statement: (**ESMP**)
(i) title of the proposed project;
(ii) location of proposed development;
(iii) developer;
(iv) lead consultants;
(vi) contact address and phone;
(vii) date of submission.

(3) Executive summary shall contain the following:
(a) title and location of the project or undertaking;
(b) name of the proponent and contact;
(c) names and addresses of experts or firms of experts conducting EIA;
(d) A brief outline and justification of the proposed project or undertaking showing-
(i) a brief description of the project environment;
(ii) project stakeholders and their involvement in the EIA process;
(iii) explanation on why some impacts are not addressed;
(iv) list of developer, consultant, local planning authorities and other people and organisations consulted;
(v) results of public consultation;
(vi) description of the major significant impacts;
(vii) alternative considered;
(viii) recommendations and plan for mitigation of the impacts;
(ix) environmental and social management;
(x) proposed monitoring and auditing;
(xi) resource evaluation or cost benefit analysis; and
(xii) decommissioning.

Appendix 2. NEMC's Letters



NATIONAL ENVIRONMENT MANAGEMENT COUNCIL (NEMC)
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Ref: NEMC/HQ/EIA/11/0147/Vol.1 /6

Regent Estate Plot No. 29/30,
P.O. Box 63154,
DAR ES SALAAM
TANZANIA

Date: 04/104/2016

Managing Director
Mwanza Urban Water Supply and Sanitation Authority
P. O. Box 317
Mwanza

RE: ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED REHABILITATION AND EXPANSION OF SANITATION FACILITIES IN MWANZA AND SATELLITES; LAMADI, MAGU AND MISUNGWI

Reference is made to your letter of Ref. No. UWSA/MZA/500112 of 25th March 2016 regarding approval for the above projects.

We acknowledge receipt of the ESMP reports for the sanitation projects in Mwanza city and project brief for three Satellites as mentioned above. Please, be informed that, currently the Council is reviewing the submitted ESMPs for sanitation projects in Mwanza and have already carried out preliminary verification visit for Lamadi, Misungwi and Magu satellites. This is an advanced stage in the process towards approval consideration by the Minister.

The preliminary review has revealed that the proposed projects will not have serious environmental impacts which cannot be mitigated. Thus, the Council has no obection for Mwanza Urban Water and Sanitation Authority (MWAUWASA) to access funds from any financial sources as you requested.

In the meantime, the EIA process will take its normal course and upon completion, the Council will make recommendation to the Minister responsible for Environment regarding consideration of approval of the project and issuance of an EIA Certificate.

Yours Sincerely,

Eng. B.T.Baya
Director General

All correspondence should be addressed to the Director - General

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E-mail: nemcmza@gmail.com
Location: Lake Victoria Basin Water Board, Igogo.

Mwanza Zonal Office,
P.O. Box 11045,
MWANZA,
TANZANIA

In reply please quote:
Ref. No.NEMC/EA/01/Vol.1/16

Date: 28/04/ 2016

Managing Director,
MWAUWASA,
P.O.Box 317,
MWANZA.

RE: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR ESTABLISHMENT OF WATER SUPPLY (EXTENSION AND REHABILITATION OF PIPELINES IN MWANZA CITY)

Kindly refer the heading above.

National Environment Management Council (NEMC) Mwanza Zonal Office has reviewed the submitted ESMPs for afore mentioned project.

Following the review of your document the Council has noted that the ESMP is insufficient in that it cannot stand as a comprehensive tool to safe guard the environment during construction and operation phases.

Now therefore, to make it comprehensive you are directed the following;

1. Ensure that the project Background and all project activities are well addressed and associated impacts are identified.
2. For each identified impact ensure that feasible are practical mitigation measures are proposed.
3. Attach the documents indicating the legal ownership of the areas to be installed water storage tanks;
4. Ensure that the title of the project appears as Environmental and Social Management Plan for Establishment of Water Supply Extension and Rehabilitation of Pipelines in Ilemela and Nyamagana Districts - Mwanza Region
5. Ensure that all relevant stakeholders are consulted and their views views/concerns are documented and addressed in the final document.

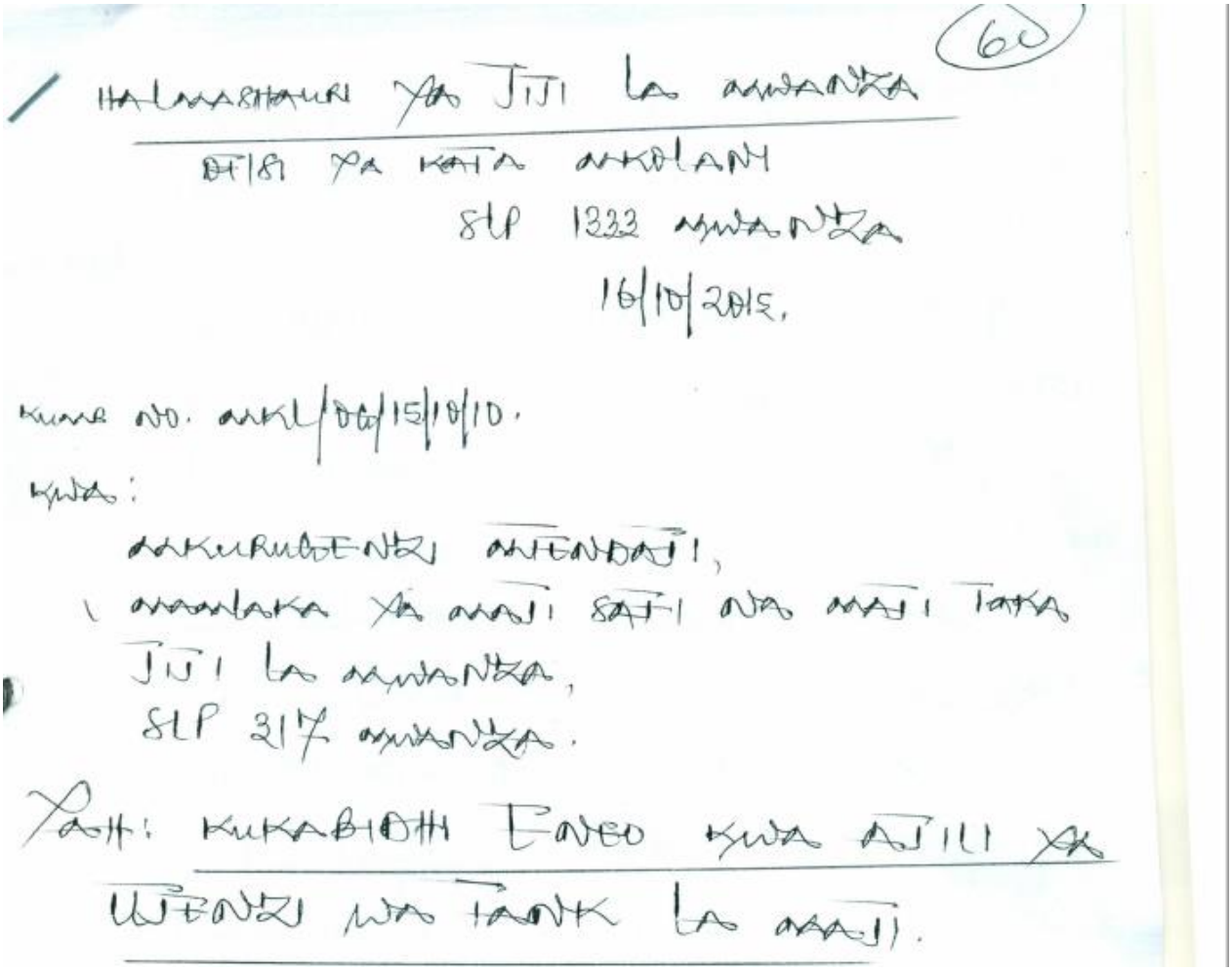
Having incorporated all the directives, you will re submit the improved ESMP for approval.

Yours Sincerely,

Jamal Baruti
ZONAL COORDINATOR

Cc: Ally Salim
P.O. Box 175,
Sengerema - Mwanza

Appendix 3. Land Release Letters, meeting minutes and List of consulted stakeholders



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HALMASHAURI YA JIJI LA MWANZA
IDARA YA KATA MKOLANI
SLP 1333 MWANZA
16/10/2015.

Kumb NO. MKL/06/15/10/10.

Kwa:

MKURUGENZI MTENDAJI,
MAMLAKA YA MAJI SAFI NA MAJI TAKA
JIJI LA MWANZA,
SLP 317 MWANZA.

Yah: KUKABIDHI ENEO KWA AJILI YA UJENZI WA TANK LA MAJI.

Tumepata eneo kwa ajili ya ujenzi wa tank la maji. Eneo hilo tumelipata kutoka kwa Ndugu Japheth Makweba. Amehiari mwenyewe kutupatia eneo hilo. Eneo hilo lipo ndani ya Utemini. Linao ukubwa wa mita za mraba 270. Urefu ni mita 22.5 na upana mita 12. Lipo sehemu ya mwinuko.

Ofisi ya kata Mkolani haina pingamizi juu ya eneo hilo.

Ofisi inakabidhi eneo hilo Ofisini kwako. Kama tank litajengwa litasaidia mitaa ya Mkolani, Mjengo pamoja na Utemini. Mitaa hiyo inao upungufu mkubwa wa maji.

Tunaomba wataalamu wakafanyie kazi eneo hilo. Kama litastahili tutashukuru. Jamii inayozunguka eneo hilo iko tayari kutoa ushirikiano utakaohitajika.

Naambatanisha mkataba wa kukabidhiwa eneo na Ndugu JAPHETH MAKWEBA.

Natanguliza shukrani.

FREDRICK F. [illegible]

59

JAPHETH MAKWEBA
SLP 3014
NYEGEZI, MWANZA
15/10/2015.

AFISA MTENDAJI WA KATA
KATA YA MKOLANI
SLP 1333
MWANZA

Imepokelewa
AFISA MTENDAJI WA KATA KATA YA MKOLANI JIJI LA MWANZA 15/10/2015

YAH: KUKABIDHI ENEO KWA AJILI YA MRADI WA MAJI

Ndg.

Husika na kichwa cha habari hapo juu. Mimi ndg. Japheth Makweba, nakabidhi eneo langu lililoko Mkolani kwa ajili ya ujenzi wa mradi wa maji. ~~kwa~~ ng. Eneo hilo urefu wa mita 225 na upana wa mita 12.

SAHIHI ZA MAKABIDHIANO:

1. JAPHETH MAKWEBA (MWENYE ENEO) 0754848242
2. AYUBU CHUMA (BALOZI) 0756521336
3. FREDRICK KITWALA (KAIMU WEO) 0755497624
4. MUHOJA KAMBA (MWENYEKITI) 0755

AFISA MTENDAJI WA KATA
KATA YA MKOLANI
JIJI LA MWANZA
15/10/2015

HALMASHAURI YA MANISPAA YA ILEMELA

OFISI YA SERIKALI YA MTAA
MTAA WA IBANDA JUU.
S.L.P. 735
MWANZA
19/10/2015

RECEIVED ON 21 ... 2015
MWANZA URBAN WATER ... AUTHORITY

MKURUGENZI WA MWAUWASA
MKOA WA MWANZA
S.L.P.
MWANZA

K.K.

AFISA MTENDAJI WA KATA
KATA YA KIRUMBA
S.L.P. 735
MWANZA.

AFISA MTENDAJI
KATA YA KIRUMBA
MANISPAA-ILEMELA
21.10.2015

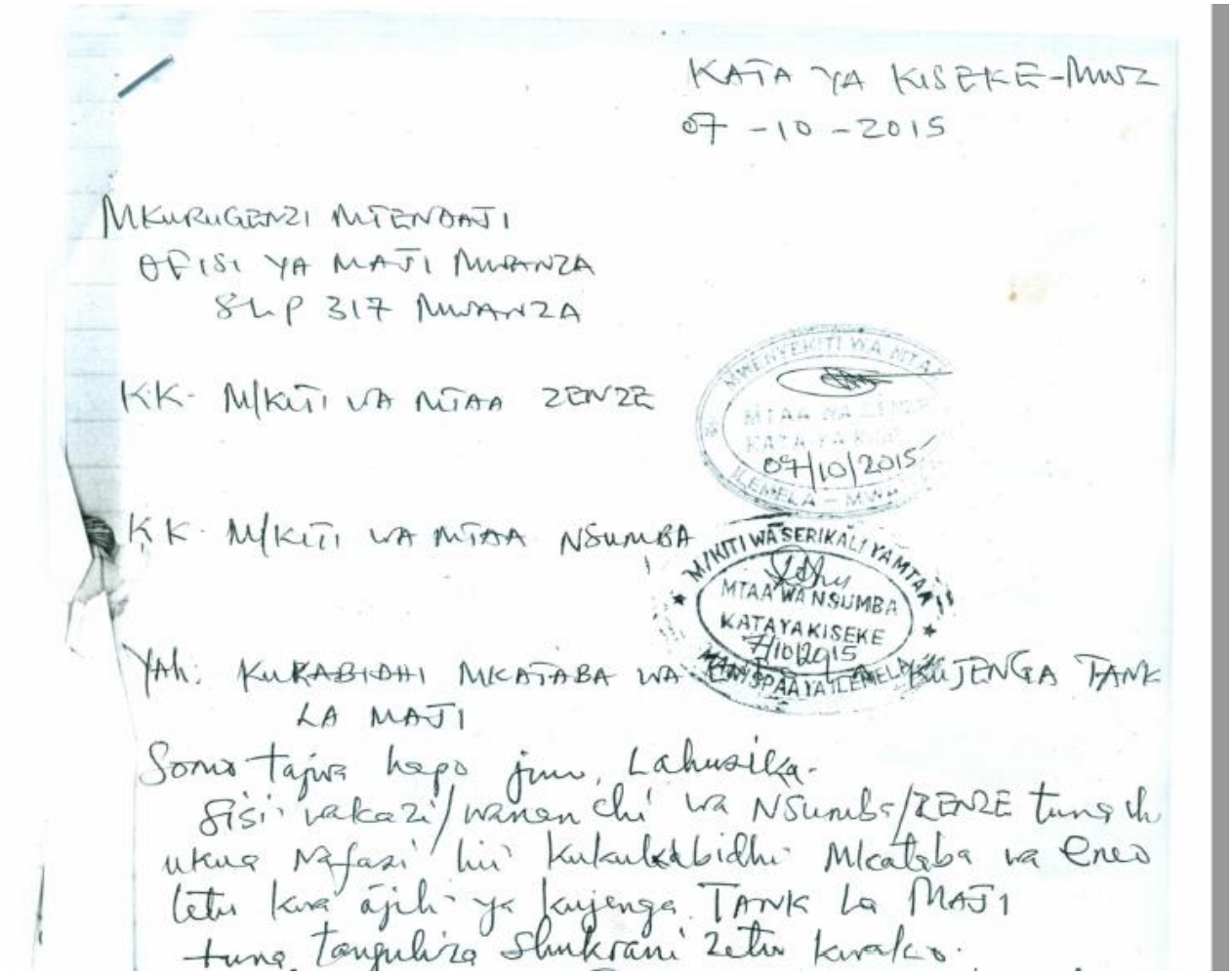
YAH: UTAMBULISHO WA ENEO LA UWEKAJI WA TANK LA MAJI LILILOKO IBANDA KABUHORO

Husika somo tajwa juu lajieleza.
Naomba kutambulisha eneo la uwekaji wa tank la maji lililopo Ibanda Kabuhoro eneo hilo linao wamiliki wachache ambao wamekubali maendeleo yafanyike kwa kupitia kikao cha uongozi wa mtaa pamoja na wamiliki wa maeneo hayo tulichokaa tarehe 7.10.2015 pamoja na majirani na jamaa zao wa karibu.

Hivyo eneo hilo limekubaliwa kuwekwa tank kwa maendeleo ya mtaa na jamii kwa ujumla. wakati fidia za maeneo husika zikiendelea kufatiliwa kwa Mkurugenzi wa halmashauri ya Manispaa ya Ilemela.

Natanguliza shukrani.

AFISA MTENDAJI
MTAA WA IBANDA JUU
KATA YA KIRUMBA
MANISPAA YA ILEMELA
19/10/2015



KATA YA KISEKE-MWZ
07-10-2015

MKURUGENZI MTENDAJI
OFISI YA MAJI MWANZA
S.L.P 317 MWANZA

K.K- M/KITI WA MTAA ZENZE

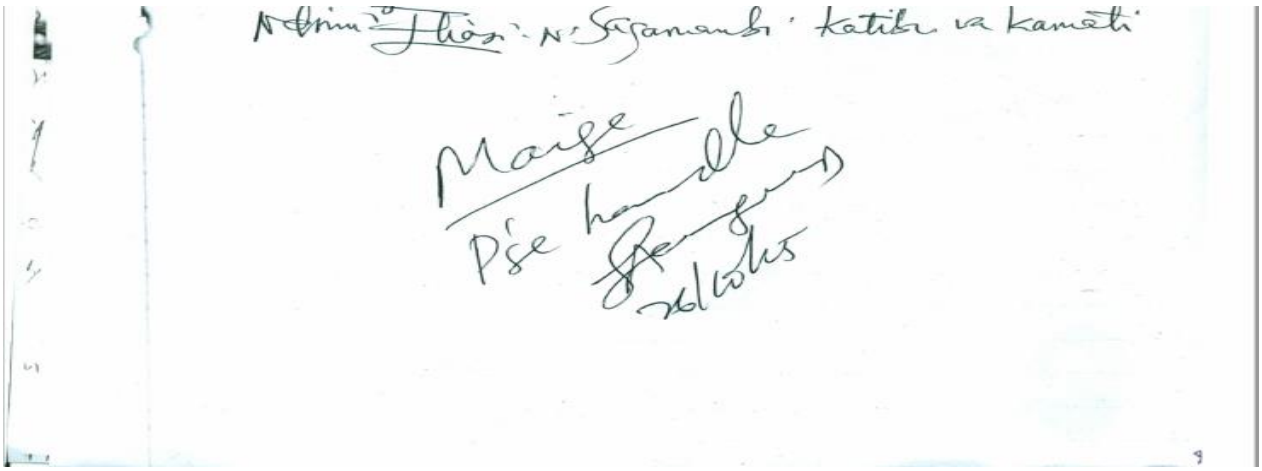
K.K- M/KITI WA MTAA NSUMBA

MWENYEKITI WA MTAA
MTAA WA ZENZE
KATA YA KISEKE
07/10/2015
ILEMELA - MWZ

MWENYEKITI WA SERIKALI YA MTAA
MTAA WA NSUMBA
KATA YA KISEKE
07/10/2015
ILEMELA - MWZ

YAH: KUKABIDHI MKATABA WA KUJENGA TANK LA MAJI

Sorry tajwa hapo juu, Lahusika.
Sisi wakazi/wanachi wa Nsumba/Zenze tunashukuru Mfasiri kukabidhi Mkataba wa eneo letu kwa ajili ya kujenga TANK LA MAJI tunatarajia shukrani zetu kwako.



Maise
Pse handle

HAI MASHAURI YA WILAYA YA ILEMELA – MWANZA.
KATA YA KISEKE.
MTAA: ZENZE NA NSUMBA 11/09/2015
YAH: MAKUBALIANO YA KUUZIANA ENEO LA KUJENGA TENKI LA MAJI KATIKA MTAA WA ZENZE.

Mimi REVOCUTUS G. KYARUZI nimewauzia wanamtaa wa Zenze na Nsumba eneo lenye lililopo mtaa wa Zenze jirani na Msikiti kwa thamani ya shilingi milioni mbili tu (2,000,000) fedha hii imelipwa yote kwa pamoja na hakuna deni.
Eneo hili wanamtaa wamelinunua kwa ajili ya ujenzi wa tenki la maji katika eneo husika. Eneo hilo halina kitu chochote cha thamani

Mauziano haya yamefanyika mbele ya viongozi wa mitaa miwili ya Zenze na Nsumba.

1. Jina la mwenyekili wa mtaa wa Zenze
SHIJA DAUDI NDUNGILE

MWENYEKITI WA MTAA
MTAA WA ZENZE
KATA YA KISEKE
11/09/2015
ILEMELA – MWANZA

2. Jina la mwenyekiti wa mtaa wa Nsumba
DAUD LAURENT KASUBI

MTAA WA NSUMBA
KATA YA KISEKE
11/9/2015
MANISPAA YA ILEMELA

Mashahidi walioshuhudia mauziano haya ni:-

1. HASSAN R. KAGIMBO 0753777672 Zenze
2. YUNIS BURUGU NZALANG'OSHA 0753601846 Nsumba
3. ELIETH RWEGOSHORA MIGEYO 0766467171 Nsumba
4. DIANA BUTANGA MALULU 0767517475 Zenze
5. ABDALLAH BWIRE JIRABHI 0763379516 Zenze

Jina na Sahihi ya muuzaji:
REVOCUTUS G. KYARUZI 0755855410
11/09/2015

ST. AUGUSTINE UNIVERSITY OF TANZANIA
P.O. BOX 307
MWANZA, TANZANIA

Ref. No. SAUT/AD/202/Vol.II/29 08 /10/2015

MAMLAKA YA MAJISAFI NA USAFI WA MAZINGIRA
JIJINI MWANZA
BARABARA YA MAKONGORO
S.L.P. 317
MWANZA

MWANZA URBAN WATER & SEWERAGE AUTHORITY RECEIVED ON 26 2015

YAH: KUJENGA TENKI LA MAJISAFI ENEO LA CHUO ISAMILO

Kichwa cha habari chahusika.

Tafadhali rejea barua yako ya tarehe 23/09/2015 yenye kumbukumbu namba UWSA/MZA/103/VOL.II/240.

Chuo Kikuu cha Mtakatifu Agustino Tanzania kinakiri kupokea ombi lenu la kujenga tenki la majisafi eneo la Chuo Isamilo.

Chuo kinaomba ufafanuzi juu ya hasa ni upande gani wa tenki dogo ambapo mnatarajia kujenga tenki kubwa, mtatumia eneo kiasi gani, njia za maji zitapita upande gani. Hivyo basi Chuo kinaomba ramani ya hilo tenki pamoja na michoro inayoonyesha njia ya maji.

Vilevile uongozi wa Chuo unaomba kujua ni namna gani chuo kitanufaika na mradi huo. Aidha uongozi wa Chuo unawaruhusu kutumia tenki dogo lililopo katika eneo hilo wakati mnasubiri ujenzi wa tenki kubwa.

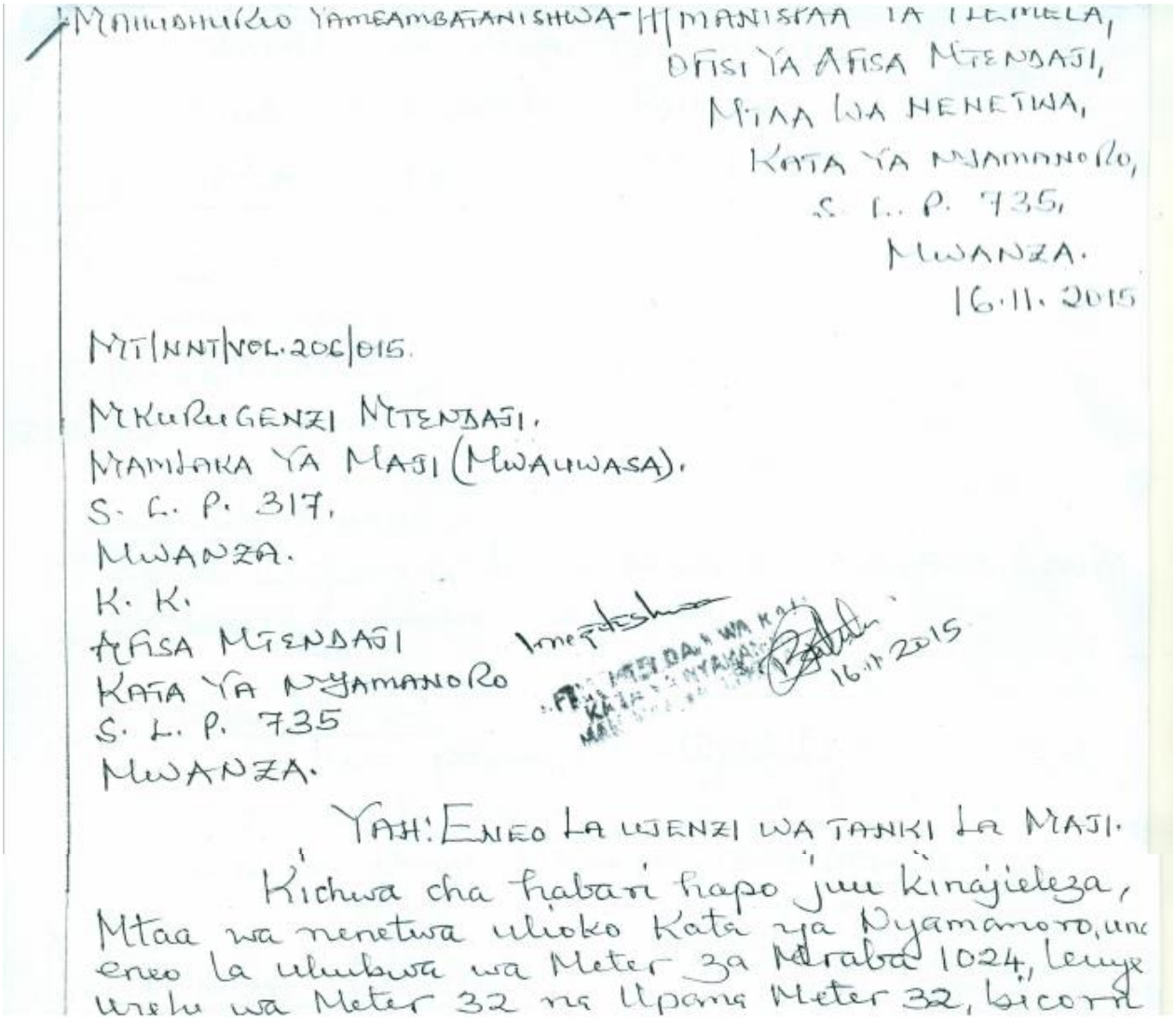
Natanguliza shukrani za dhati.

wako katika utendaji,

Fr Cleophas Mabula
Naibu Makamu Mkuu wa Chuo Utawala na Fedha

CC: Makamu Mkuu wa Chuo, Mwanasheria Mkuu wa Chuo, Msarifu, Afisa Mipango

Tel: 255-28-2552725, 2550560, 2550166 Fax: 255-28-2550167
Email: sautmalimbe@yahoo.com Website: http//saut.ac.tz



MAMLAKA YAMEAMBATANISHWA-H|MANISPAA YA ILEMELA,
OFISI YA AFISA MTENDAJI,
MTAA WA NENETWA,
KATA YA NYAMANORO,
S. L. P. 735,
MWANZA.
16.11.2015

MYT|NNT|VOL.206|015.

MKURUGENZI MTENDAJI.
MAMLAKA YA MAJI (MWAUWASA).
S. L. P. 317,
MWANZA.
K. K.
AFISA MTENDAJI
KATA YA NYAMANORO
S. L. P. 735
MWANZA.

Imepokelewa
16.11.2015

YAH: ENEO LA UJENZI WA TANKI LA MAJI.

Kichwa cha habari hapo juu kinajieleza, Mtaa wa nenetwa ulioko Kata ya Nyamanoro, una eneo la ukubwa wa Meter 3a Mraba 1024, Lenye Urefu wa Meter 32 na Upana Meter 32, bicon

MUHTASARI WA KIKAO CHA WAJUMBE WA SERIKALI YA MTAA WA NENETWA KUHUSU UJENZI WA TANKI LA MAJI TAREHE 15.11.2015.

AGENDA:

1. KUFUNGUA KIKAO
2. KUPITISHA MRADI
3. KUFUNGA KIKAO

1. KUFUNGUA KIKAO:
- M/Kiti alifungua kikao, Muda wa Saa 5.00 Asubuhi na kuwakaribisha Wajumbe.

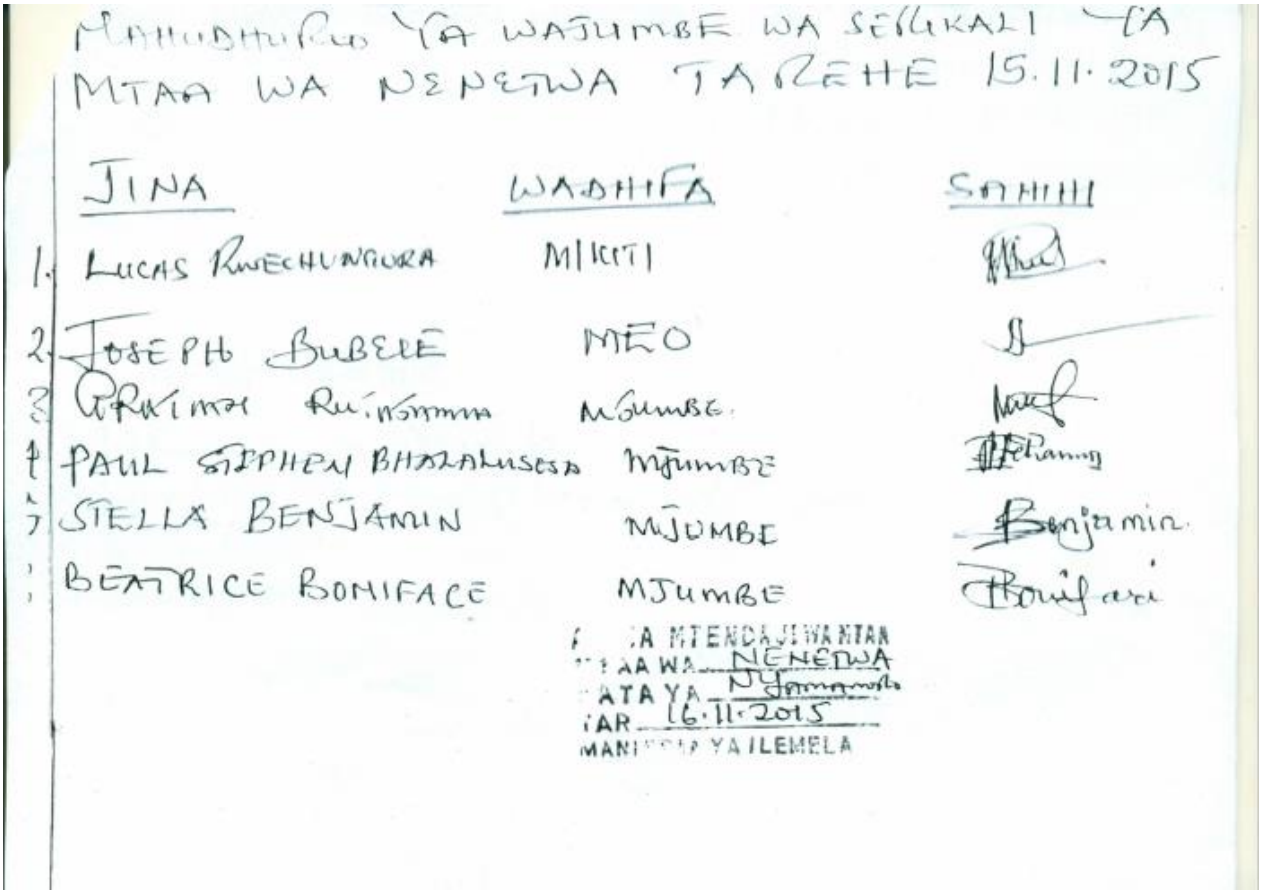
2. KUPITISHA MRADI:
- Wajumbe kwa pamoja walijadili kuwa lina faida la mradi wa Ujenzi wa tanki la maji na kusema jamii italiwa imenufaika na mradi huo.

3. KUFUNGA KIKAO:
- M/Kiti Alwashukuru Wajumbe wote kwa uchangamfu wa Mawazo Mazuri na kuahirisha Kikao muda wa Saa 8.00 Mchana.

M/MKITI

16.11.2015
M/KITI SERIKALI YA MTAA
MTAA WA NENETWA
KATA YA NYAMANORO
MANISPAA YA ILEMELA.

MTAA WA NENETWA
KATA YA NYAMANORO
TAR 16.11.2015
MANISPAA YA ILEMELA

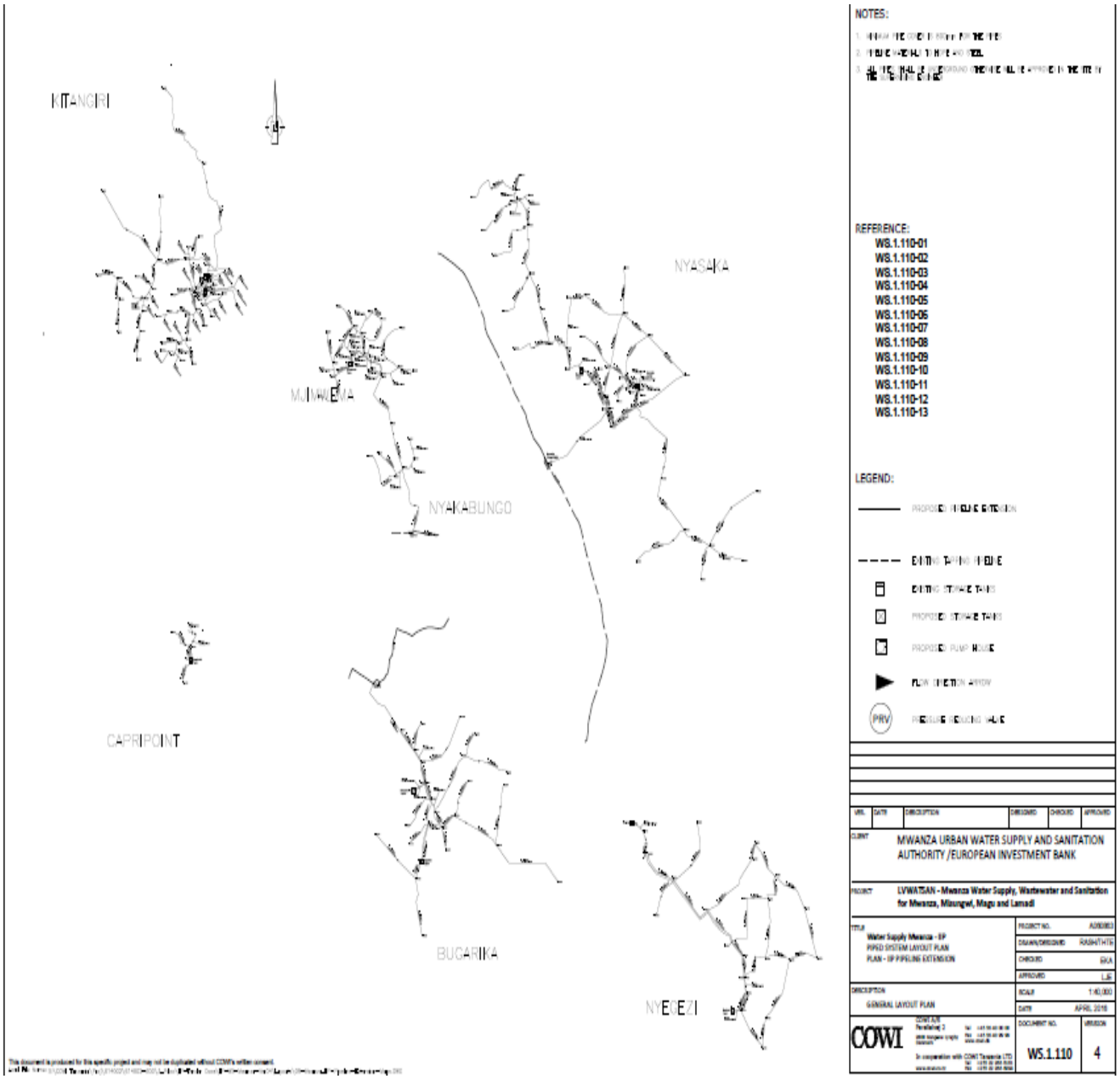


MAHUDHURIO YA WAJUMBE WA SEKRETARIETI YA MTAA WA NYAMAGANA TAREHE 15.11.2015

	JINA	WADHIFA	SAHIHI
1.	LUCAS RWECHUNGURA	M/KITI	
2.	JOSEPH BUBELE	MEO	
3.	[illegible]	MJUMBE	
4.	PAUL STEPHEN BHALALUSESA	MJUMBE	
5.	STELLA BENJAMIN	MJUMBE	Benjamin
6.	BEATRICE BONIFACE	MJUMBE	

[illegible] YA MTENDAJI WA KATA
[illegible] WA NYAMAGANA
[illegible] YA NYAMAGANA
[illegible] 16.11.2015
MANISPAA YA ILEMELA

Appendix 4. Piped System Layout Plan



Appendix 5. Comments Received on Draft ESMP and PMC Response

This Appendix provides the comments received from NEMC (of 28 April 2014) and the Lender's Supervisor (of 23 February 2016), *in italics*, on the Draft ESMP of 4 February 2016, as well as PMC's responses, in normal font, on how these comments have been addressed in the current ESMP.

Comments of NEMC received on 28 April 2016

Nr	NEMC Comment	PMC's response
1	*Ensure that the project background and all project activities are well addressed and associated impacts are identified.*	Project background and planned project activities are already described in Chapter 2; impacts in Chapter 6. See PMC's response on LS's comments on how these sections have been amended.
2	*For each identified impact insure that feasible and practical mitigation measures are proposed.*	See PMC's response on LS's comments on how these sections have been amended.
3	*Attach the documents indicating the legal ownership of the areas to be installed water storage tanks*	Appended see appendix 5
4	*Ensure that the title of the project appears as Environmental and Social Management Plan for Establishment of Water Supply Extension and Rehabilitation of Pipelines in Ilemela and Nyamagana Districts – Mwanza Region;*	Amended.
5	*Ensure that all relevant stakeholders are consulted and their view/concerns are documented and addressed in the final document.*	Attached stakeholders response.

Comments of Lender's Supervisor received on 23 February 2016

	General Comment	PMC's response
	The report is well written and covers most of the aspects required for this kind of report - ESMP. However, there are some substantial issues which still need to be addressed by the Consultant to further upgrade the quality of the report/ ESMP. In most sections, guidance has been provided on how to address the observed issues.	Noted, see below.
	Specific Comments	
1	*The abbreviation for Sexually Transmitted Diseases is not STP.*	Amended.
2	There is an urgent need to consult the National Environment Management Council (NEMC) Lake Zone and HQ in Dar es Salaam (where the broader project(s) were screened and registered in March 2015) on the following:	
2a	To obtain a written confirmation that full EIA study was not required for the project but ESMP suffices. The letter should be appended to the report.	See NEMC letter of "04/104/2016" as provided in Appendix 2
2b	If the ESMP suffices, it required to be submitted to NEMC for review and approval for issuance of EIA certificate?	Amended. The final version of the ESMP will be submitted to NEMC Zonal office for review and approval before issuing a certificate of compliance. This has been proposed by NEMC on 31st, May, 2016 in the Mission meeting held at LVB office in Mwanza

	General Comment	PMC's response
2c	Subject to a & b, the ESMP will have to be revised in some sections to reflect the required changes as especially in (i) Executive Summary (Description of the major significant impacts) – pg vi; (ii) Section 1.3 (all paragraphs talking about NEMC) – pg 2; (iii) Section 3.3 – pg 10; and (iv) Section 10 – pg 26.	See present ESMP.
3	Inserting a map showing locations of the proposed water supply extensions and rehab of pipelines would add some value in Section 2.3 and 2.4, pg 4-5. I wonder if COWI IIP Study Report, Final (11 December 2015) do not have this map.	Map showing locations inserted.
4	The Land release letters mentioned in the last paragraph of Section 2.4 – pg 8, should be appended to the report.	Appended
5	Indicate source under all the figures and tables presented in the report.	Worked out
6	In Section 3.1.1 – pg 6, add the following policies and laws: Construction Industry Policy (2003); Urban Planning Act No. 8 (2007); and Water Resources Management Act No. 11 (2009).	Added.
7	In Section 4.3.2 – pg 12, the Consultant could obtain from MWAUWASA the following (i) an estimated percentage of the Mwanza City population that are connected to public water supply network and those who depends on groundwater sources (wells, boreholes etc) for their domestic needs; (ii) the source of the public water supply network (is it Lake Victoria or what?); and (ii) are does the source have enough water to accommodate the planned extensions or an alternative source has been added for the network?.	Amended
8	In Section 4.3.3 – pg 12, find out from MWAUWASA, what percentage of the city population is connected to public sewerage system?	Amended
9	In bullet 6 under Section 5.1 – pg 13, the word "compete" should be changed to "complete".	Amended.
10	Under Section 5.3 – pg 15, bullet 3 is unclear so should be paraphrased/ revised.	Amended.
11	From section 5 – pg 13-15, create an appendix for the consulted people/ stakeholders indicating date, name, position, institution, and contacts. The appendix should be appended to the report/ ESMP. If minutes of the consultative meetings were recorded, the minutes should also be appended to the report.	Added
12	In Table 6-1 – pg 16 shows that there will be no impact on soil but the ESMP (Table 7-1, pg 20) says there will be an impact from soil excavation and removal that has to be mitigated.	Table 6-1 and Section 6.2.2 amended.
13	In Section 6.2 –pg 17-18, consider making a clear characterization of all the identified positive and negative impacts in terms of their nature (positive or negative), their duration (long-term or short-term) and their area of influence (site specific, local or general area of influence); impact significance as "major impact", "moderate impact", "minor impact", and "no impact"; etc.	Amended
14	In Section 6.2.1 – pg 17, add "Income Gain among Local Suppliers" as another positive impact. The contractor(s) will source most of the construction materials locally in Mwanza City.	Amended
15	In Section 6.2.1 – 6.2.4, pg 17-18, consider numbering (either as 1, 2 … or i, ii …) the impacts instead of using alphabets.	We aim at avoiding 4th level numbering (e.g. Section 6.2.1.1) and have kept the current numbering. (Amended)

	General Comment	PMC's response
16	In Section 6.2.2 – pg 17, the negative impacts are cursorily described and the suggested mitigation measures are not exhaustive.	Well elaborated
17	The following possible negative impacts are not mentioned under Section 6.2.2 – pg 17 (i) soil and groundwater pollution; (ii) soil excavation and removal; (iii) solid and liquid waste generation; and (iv) increased pressure on the source for water supply.	Amended
18	In Section 6.2.3 – pg 18, suggest possible enhancement measures for the identified positive impacts and include the same in the ESMP, Table 7-1 – pg 20-21.	Amended
19	In section 6.2.3 – pg 18, consider renaming impact to "improved water supply" and link it to the comment made to Section 4.3.2 – pg 12, and say what % will the proposed add to the current water supply coverage. Literature review could be a good attempt to establish how much this project will contribute to reducing the current nutrient loading of Lake Victoria from sanitation facilities unconnected to sewerage systems and wastewater treatment facilities.	Amended
20	Impacts associated with Decommissioning/ Closure Phase are not described/ mentioned in Section 6 but they appear in the ESMP (Table 7-1 – pg 20-21). It's probably worthwhile making a highlight of it in Section 6 as it is separately covered in detail in Section 9 – pg 25.	As per the NEMC recommended structure for the ESMP decommissioning has been dealt with in Chapter 9. Reference to decommissioning has been added in the intro of Chapter 6.
21	Relative/ estimated cost for implementation of mitigation measures is not given or said any how in Section 7 – pg 19-21.	Added
22	Revisit the whole of Table 7-1 to incorporate the suggestions given in Section 6 as appropriate.	Appended
23	Consider including all identified positive impacts and their enhancement measures in Table 7-1.	Amended
24	Relative/ estimated cost for implementation of monitoring plan (Table 8-1) is not given or said any how in Section 8 – pg 22-24.	Added
25	Consider revisiting the monitoring plan in line with the suggestions given in Section 6 and 7.	Added
26	In the first paragraph of Section 10 – pg 26, change Misungwe to Misungwi.	Amended
27	In Section 11 – pg 27, add other relevant policies and laws as suggested in Section 3.1.1 – pg 6.	Amended
28	Consider adding the following Appendices:	
28a	Appendix 2: NEMC letter (refer to comment 2a above);	Amended
28b	Appendix 3: Land Release Letters (as suggested in Section 2.4 – pg 5);	Amended
28c	Appendix 4: List of Consulted Stakeholders; and	Amended
28d	Appendix 5: Minutes of Consultative Meetings.	Amended