GUIDELINES FOR PREPARING A BUSINESS PLAN FOR REGULATED WATER UTILITIES (RWUs)

Revised Edition, 2016

FOREWORD

During the year 2011, EWURA issued Guidelines for Preparation of Business Plan for Water Supply and Sanitation Authorities. The objective of the Guidelines was to assist Regulated Water Utilities (RWUs) structure their Business Plans so as to effectively manage water supply and sanitation services and to comply with regulatory requirements. The Guidelines were issued pursuant to section 29(2) of the Water Supply and Sanitation Act, 2009 and preparation of RWUs' Business Plans has been following the Guidelines. On the other hand, EWURA Management has been reviewing RWUs' Business Plans based on the same Guidelines.

In the course of implementing the guidelines, EWURA Management has received comments from Water Supply and Sanitation Authorities (RWUs) and other stakeholders in the water sector. Also, during review of RWUs' Business Plans, EWURA has taken note of sections in the Guidelines that require review so as to improve its clarity.

The 2016 Revised Edition of the Guidelines has been prepared by taking into consideration comments from RWUs and other stakeholders as well as the experience gained while reviewing RWU's Business Plans. The review has covered all parts of the Guidelines including Business Plan (BP), the Long Term Financial Plan (LTFP), the Asset Management Plan (AMP) and the Capacity Development Plan (CDP). Key changes in the guidelines include restructuring the Guidelines in terms of arrangement and contents of the parts in a manner that the LTFP, AMP and CDP guidelines may be read together as one document so as to ensure coherence and comprehension.

As a minimum, RWUs are obliged to prepare their Business Plans in conformity to these guidelines.

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ACKNOWLEDGEMENT

EWURA recognizes valuable contributions and comments made by the Water Supply and Sanitation Utilities, the EWURA Consumer Consultative Council, the Government Consultative Council, GIZ and other stakeholders.

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LIST OF ACRONYMS

AMP	-	Asset Management Plan
ATAWAS	-	Association of Tanzania Water Suppliers
AWT	-	Average Water Tariff
BOT	-	Bank of Tanzania
BP	-	Business Plan
CAPEX	-	Capital Expenditure
CR	-	Current Ratio
DMA	-	District Metering Area
DSCR	-	Debt Servicing Coverage Ratio
EWURA	-	Energy and Water Utilities Regulatory Authority
GIZ	-	Deutsche Gesellschaft fur Internationale Zusammenarbeit GmbH (*German Development Cooperation*)
IPSAS	-	International Public Sector Accounting Standards
KSI	-	Key Strategic Issue
LCM	-	Life Cycle Management
NBS	-	National Bureau of Statistics
NRW	-	Non Revenue Water
OI	-	Other Income
PESTEL	-	Political, Economic, Social, Technological, Environmental and Legal
PPE	-	Property Plant and Equipment
PS	-	Performance Indicator Target on Sewerage
PVC	-	Polyvinyl Chloride
PW	-	Performance Indicator Target on Water Supply
RAB	-	Regulated Asset Base
RR	-	Revenue Requirement
ROI	-	Return on Investment
RUL	-	Remaining Useful Life
RWU	-	Regulated Water Utility
SWOC	-	Strengths, Weaknesses, Opportunities and Challenges
WACC	-	Weighted Average Cost of Capital
WSS	-	Water Service Standard

MEASUREMENT UNITS AND SYMBOLS

m^3	-	cubic metre
kWh	-	kilowatt hour
m^3/year	-	cubic metre per year
TZS	-	Tanzania Shillings
%	-	percent

DEFINITIONS

Regulated Water Utility (RWU): Is a Water Supply Sanitation Authority established under Section 9 of the Water Supply Sanitation Act, Cap 272 and any other person that provides water supply and sanitation services except a community water supply organisation established under section 31 of the Water Supply Sanitation Act, Cap 272.

Overall Quality of Service Targets defines a quality of service which affects not only the individual customer but the sector as a whole.

Guaranteed Minimum Service Targets defines a quality of service assured to the individual customer and must be met by a given utility.

1 INTRODUCTION

Under the Energy and Water Utilities Regulatory Authority Act Cap 414, EWURA is responsible for issuing licences, establishing standards for the delivery of water supply and sewerage services; regulating rates and charges and monitoring the performance of licensees in meeting the terms and conditions of the licence and related performance agreements.

The objective of this guidance document is to assist Regulated Water Utilities (RWUs) structure their Business Plans (BPs) so as to comply with the regulatory requirements of EWURA Act Cap 414. The BPs will be used by EWURA to monitor RWU's performance, review attained progress and approve water supply and sanitation tariffs and charges. Also, the BP is an essential tool for the effective management by RWUs.

A BP serves as an overarching planning document for a RWU in accomplishing its mission, plans, strategies, performance targets and corresponding activities as well as financial projections. The capital investments in the water and sanitation sector are found to be large and lumpy, and go towards financing long lived assets. Therefore the financial projections of the BPs should reflect the financing pattern and the lifespan of the assets. The first three years of the BP shall be much more detailed and accurate, while 4 to 10 years shall be an approximation and 20 to 30 years shall be indicative projections.

2 APPROVAL AND RESPONSIBILITY

The Board of Directors of RWUs shall approve the BP. Prior to its approval, the BP shall first be discussed and endorsed by the Board of Directors of RWUs and then be submitted to EWURA for review and providing recommendations for modification of the Business Plan. RWUs shall submit their draft BPs together with an application for tariff review. During the tariff review process EWURA shall conduct a detailed review of the BP prior to approval of the tariff. Upon approval of the tariff, the RWU shall resubmit a revised final BP which has taken into consideration the comments provided during the tariff review process and the impact of the approved tariffs. The implementation of the final BP shall be monitored by EWURA in terms of attainment of targets therein. Interim amendment of the BP due to variation of the performance targets shall be submitted to EWURA without being accompanied with a tariff review application.

The Board of Directors of the RWUs have the ultimate responsibility to ensure the implementation of the BP. Section 24(4) of the Water Supply and Sanitation Act, 2009 also requires RWUs to prepare the annual budget in conformity to the approved BP. The BP implementation shall be used as one of the tools for performance evaluation of RWUs Managing Directors / Executive Officers as well as for the Boards' self-assessment.

3 PRESENTATION LAYOUT OF THE BUSINESS PLAN

RWUs will present their BPs by observing the structure shown in Annex A of these Guidelines.

4 ELEMENTS OF A BUSINESS PLAN

4.1 Executive Summary

The executive summary should set out the key aspects of the BP in a concise manner (one to two pages) and shall include an overview of the following:

a. Mission statement
b. Strategic objectives and targets;
c. Main activities (operations and investments) to be implemented;
d. Projected total annual costs
e. Sources of funds;
f. Impact of proposed/approved tariffs in terms of major achievements to be realized during the plan period and
g. Perceived major risks and the possible mitigation measures.

4.2 Introduction

The introduction should describe briefly the objectives and layout of the BP and how it was prepared, emphasising on the extent to which employees and other stakeholders have been involved in the process and major assumptions made.

4.3 Description of the Regulated Water Utility (RWU)

The description of the RWU should provide brief statements on:

a) The history and legal status, current organization structure, brief profiles of key personnel (management and board), their qualification and experience;
b) Description of water supply and sewerage facilities i.e. water resources (abstraction and capacity of the source), installed water production capacity, infrastructure (including water pumping stations, water treatment plants, main and distribution water pipelines, water storage tanks, sewerage pipes, waste water treatment plants and effluent disposal);
c) A description of demographics, service area, services provided distinguishing water supply and sanitation services, customers served, services to the poor and un-served areas within the licensed service area;
d) Main stakeholders, customer care and communication;
e) Confirmed major contracts/agreements (including obligations of parties to the contracts/agreements); and
f) Changes in the business - which lists any significant changes which may have occurred since the last BP which could have an impact on the management philosophies. Examples of these could be:
    (i) Change in legal status;
    (ii) Changes in ownership structure;
    (iii) Major legal changes which impact the RWU;

(iv) Changes in the regulatory requirements;
(v) Changes in board of directors or organisational structure; and
(vi) Change in major organizational policies.

4.4 Vision and Mission

BPs should be supported by the Vision, Mission Statements and Objectives as defined below:

a) **Vision Statement:** - An inspirational description of what a RWU would like to achieve or accomplish in the mid-term or long term future. It is intended to serve as a clear guide for choosing current and future courses of action.
b) **Mission Statement**: - A concise statement of the purpose of existence of the RWU and its scope of work, which should fit within the policy and legal framework for the sector, i.e. the National Water Policy, National Water Sector Development Strategy and the Water Supply and Sanitation Act. In developing a mission statement, the RWU should ask itself the following questions:
    (i) What do they do as a utility?
    (ii) What is the ultimate goal of their work?
    (iii) What are the priorities and values?
    (iv) What are their standards of performance?

    The mission statement should clarify on why the RWU was created in the past and why it presently exists.

4.5 Current and Future Performance of the RWU

In order to develop the course of future actions it is necessary to assess the current performance of the RWU against clearly defined criteria. This assessment should be conducted in the light of quality of service and water supply and sewerage performance targets. Assessment of current and future performance of the RWU shall be in the format shown in **Annex B** of these Guidelines and includes:

(a) The current quality of service levels and the performance targets.

(b) Brief descriptions of the on-going operational activities and projects as well as committed interventions and projects to improve performance.
The descriptions should indicate the starting dates, expected completion dates and the costs involved. A RWU should ensure continuity of the ongoing operational activities/projects to improve the current performance by including them in the Outline Investment Plan and Action Plan as appropriate.

(c) Setting of future quality of service and performance targets.
This is an iterative process calling for re-assessment as the process proceeds. While setting out the targets the RWUs should be aware of the

financial implications of achieving the proposed targets as this has implications on the investment requirements. Having determined what the RWU commits itself to be as the future targets, subsequent elements of the Business Plan, and in particular financial plan, may indicate that the targets are not financially achievable within the planning period. This will result in the need to reassess the future targets so that they can be achieved. However, a RWU is bounded in its Level of Service by two criteria: the level of service should not go below the minimum level of service requirements specified in these Guidelines and the water supply and sewerage system cannot go above the maximum capabilities of the assets (the maximum a system can provide). Between these two boundaries, the RWU can set any Level of Service it deems appropriate, acceptable to the public, management, and is affordable.

The definitions of the quality of service targets and performance indicators are provided in **Annex C**. The assessment of current and future performance will presented as Appendix A to the Business Plan.

4.6 Business Plan Forecast

The aim of the forecast is to provide a structured approach that will give realistic direction to all aspects of Business Plan formulation for the RWU to achieve the **three year** targets in a standardised format. The forecast shall comprise the business analysis and marketing strategy as described in section 4.6.1 and 4.6.2.

4.6.1 Business Analysis

Business analysis serves eight essential purposes in the planning process, namely:

(a) identification of potential opportunities to improve the revenues to the RWU through expansion of the consumer base and customer care measures, or to reduce the expenditure of the RWU through efficiency improvements;
(b) to determine the basic immediate changes in structure and policies necessary if long term objectives are to be achieved;
(c) to increase immediate cost recovery and liquidity by more effective use of existing resources; thus providing a more stable base for the development and achievement of long term objectives;
(d) to prepare mitigating strategies by which the risk to revenues and cash flows through the potential impact of external factors can be minimised;
(e) identify how best the authority serve the low income and disadvantaged consumers;
(f) to prepare measures to counter other competitors in the market;
(g) to prepare the mitigation measures on the risk resulting from external financing; and
(h) to assess the availability of key capabilities of management and staff, (human capital) and the RWU as an institution; which are necessary to achieve the

required standards and performance targets, thus identifying capacity development needs over the plan period.

Business environment needs to be analysed by assessing both internal and external business environment factors and variables that affect business operations positively and negatively. The aim is for a RWU to enhance its ability to deliver services in the best manner possible within its operating environment.

(a) Internal Environment – Self Assessment

The RWU should carry out a self-assessment to identify those functional areas which are regarded as strong, and those that require improvement - both classifications require reasons. Wherever improvement is required, a ranking of the needed improvement should be done in order of priority. The assessment is done based on the areas of the Performance Targets set as illustrated in Annex B. However, presentation of the assessment should be done as indicated in Table 1 and will be Appendix B to the Business Plan. For example, in Table 1, Quality of service will be assessed by considering performance targets on water quality compliance (E-coli and Turbidity) and response to written complaints.

Most RWUs have limited areas of major strength and often suffer from a variety of weaknesses that are not always apparent without an in depth analysis. Each function or activity should therefore be appraised to enable future strategy and planning to be based on a sound foundation of factual data.

The key to success for any RWU is to concentrate on those areas in which it has proven competence, to build on its strengths and specialised experience, and wherever possible to eliminate its weaknesses and reduce its vulnerability.

Table 1: RWU Assessment

Functional Activities ***(As in Annex B, Table 3 and Table 4)***		**Strength in this area and reasons for strength**	**Improvement needed in this area and reasons for improvement**	**Rank of the required improvement***
Protection of user interest	Service accessibility *(PW1-PW4 and PS1-PS4)*			
	Quality of service *(PW5 - PW6 and PS5)*			
Sustainability of the operator	Financial and economic sustainability *(PW7-PW13 and PS6-PS8)*			
	Cost indicators *(PW14-PW16)*			

Functional Activities *(As in Annex B, Table 3 and Table 4)*		Strength in this area and reasons for strength	Improvement needed in this area and reasons for improvement	Rank of the required improvement*
	Infrastructure sustainability *(PW17 –PW19)*			
	Operational sustainability *(PW20 and PS9-PS10)*			
	Human resource efficiency *(PW21-PW22)*			
Environmental Sustainability	*PW 23 and PS11-PS13*			

* Rank is provided in the order of priority

(b) External Environment (PESTEL Analysis)

Planning and strategizing is about adapting the RWU and its services to a changing world so as to create and maintain success. Every RWU will have various external factors over which it has little or no control that are of particular importance. A RWU needs to consider the impact of various events and policies on its operations. Examples of issues to be considered may include:

i. **P**olitical (changes in sector policy, legislation and regulations. Also, change in government term, government organization and attitude, and political stability);
ii. **E**conomical (prices, availability and reliability of energy, prices and availability of chemicals for water treatment, economic well-being of customers, inflation, and interest rates);
iii. **S**ocial (population growth, customer attitudes and opinions and religious beliefs);
iv. **T**echnological (changes in information and communication technology and lifecycle and speed of technological obsolescence);
v. **E**nvironmental (environmental issues including water and wastewater quality standards); and
vi. **L**egal (labour laws affecting employment and wages, and tax regulations).

Table 2 requires an assessment of the changes in critical external factors to which the RWU must respond. The table also attempts to determine the importance of these changes by applying measures of impact, probability, overall importance, and preparedness of the RWU to deal with these external factors. Guidance on how to analyse external factors is provided below as a key to **Table 2**. In the comments section of **Table 2**, a RWU will state briefly the basis/assumptions behind the

information filled for each external factor. Also, it has to be noted that action is required for external changes with preparedness score of less than or equal to 2 and overall importance of greater or equal to 6. **Table 2** will be presented as Appendix C to the Business Plan.

Table 2 : Analysis of External Environment – PESTEL analysis

Changes in external factors to which the RWU must Respond to		**Possible changes for RWU**	**Impact**	**Probability**	**Overall Importance**	**Preparedness**	**Planned Actions** (*for external changes with preparedness score of less than or equal to 2 and overall importance of greater or equal to 6*)	**Comments**
POLITICAL								
ECONOMIC								
SOCIAL								
TECHNOLOGICAL								
ENVIRONMENTAL								
LEGAL								

Key to Table 2: External Factors

What is real effect (impact) if the change occur	**Probability/likelihood of the change to occur in three(3) years period**	**Overall Importance** (Highlight scores that are greater than or equal to 6)	**Preparedness: (**Highlight scores that are less than or equal to 2)**)**
3= High impact	3 = A certainty	Multiply Impact by Probability.	3. Completely prepared – Well to fairly developed plan
2 = Medium impact	2 = Very likely to occur		2.Not well prepared – Only general ideas
1 = Low impact	1 = Highly unlikely		1. Not at all prepared – vaguely mentioned and not thought about it
4 = Don't know	4 = Don't know		

(c) Competitors and Collaborators Analysis

A competitor analysis is an important requirement in any BP because it reveals the utility's competitive position in its area of service and assists the utility to develop strategies to be competitive. Although water supply and sanitation services are mostly monopolistic in nature, alternative service providers are available in service areas of most of the RWUs. RWUs will first identify their competitors, the extent of the market which they control, their strengths and weaknesses. Secondly, RWUs will detail their competitive advantage, explaining why and how their utility will be able to compete with these competitors and establish themselves as a successful business.

Also, collaboration with private sector actors is vital for effective and efficient operations. In this section a RWU will analyse and identify opportunities for collaboration with private sector in provision of water and sanitation services in its service area.

(d) SWOC Analysis

SWOC (*Strengths, Weaknesses, Opportunities and Challenges*) analysis refers to an examination of the entire organisation from different angles. The purpose of SWOC analysis is to analyse the strengths and weaknesses of the RWU in relation to its declared objectives and in the light of what is known about possible challenges and opportunities in the environment.

The format of presentation of SWOC analysis together with **examples** of guiding questions is shown in **Table 3** and will be presented as Appendix D to the business plan.

Table 3: SWOC Analysis

CORPORATE APPRAISAL		
STRENGTHS		**WEAKNESSESS**
- *What does the utility do exceptionally well?* - *What advantages does the utility have?* - *What valuable assets and resources does the utility have?* - *What do the utility's customers identify as its strengths?*		- *What could the utility do better?* - *What is the utility criticized for or receive complaints about?* - *In which area is the utility vulnerable?*
OPPORTUNITIES		**CHALLENGES**
- *Which opportunities exist?* - *Are there emerging trends on which the utility can capitalize?*		- *What external roadblocks exists that inhibits the utility's progress?* - *Is there significant change coming in the water sector?*

4.6.2 Marketing Strategy

The focus of any RWU must be its customers and, therefore all efforts must be exerted to meet customers' needs. RWUs need to provide actionable strategic measures on how to meet customers' needs which include water demand, increasing service coverage and enhancing customer and community relations. The marketing strategy will include analysis of water demand, service coverage and customer and community relations as described below:

a) Water Demand

RWUs should understand and forecast the current and future demand for its services to serve the population adequately. Water demand projection shall be derived from water supply projections (after projecting the future population to be served). RWUs will project future water demand by making a thorough study of their service area and referring the guidance on calculation of water demand provided in the latest version of the Design Manual issued by Ministry of Water. RWUs will demonstrate in their BPs how they arrived at the projected demand. Water demand projection will be in the format of **Table 4** and will be presented as Appendix E to the BP. Water demand projections shall lead to determining the requirements for water production.

Table 4: Water Demand Projection (m^3/year)

Year	**Domestic**	**Institution**	**Commercial**	**Industrial**	**Kiosks**	**Others (Please specify)**	**Total Water Demand**	**Total Water Production**
Current(n)								
Year n+1								
Year n+2								

Year	Domestic	Institution	Commercial	Industrial	Kiosks	Others (Please specify)	Total Water Demand	Total Water Production
Year n+3								
Year n+4								
Year n+5								
Year n+6								
Year n+7								
Year n+8								
Year n+9								
Year n+10								

b) Service Coverage

Water supply coverage is best expressed in terms of Population Served with Water [Refer Annex C – PW 1(b)]. A RWU will determine the population directly served with water and sewerage services compared to the total population in all its service area. The difference between the total population in the service area and the population directly served is the service gap. RWUs will present a strategy to bridge the gap such as extension of service to unserved areas taking into consideration the respective water demand. The strategies should be feasible during the business plan period. The analysis of areas to be served will be presented in the format of Table 5 and Table 6 and will be presented as Appendix F and Appendix G to the BP respectively.

Table 5: Water Service Coverage

SN	Ward / Street Name	Total Population (No)	Current			Water Supply Coverage Projections (%)									
			Population Directly Served with Water (No)	Service Gap (No)	Population Directly Served with Water (%)	Year n+1	Year n+2	Year n+3	Year n+4	Year n+5	Year n+6	Year n+7	Year n+8	Year n+9	Year n+10
Total															

Table 6: Sewerage Service Coverage

SN	Ward/ Street Name	Total Population (No)	Current			Sewerage Coverage Projections (%)									
			Population connected with sewerage network (No)	Service Gap (No)	Proportion of Population connected with sewerage network (%)	Year n+1	Year n+2	Year n+3	Year n+4	Year n+5	Year n+6	Year n+7	Year n+8	Year n+9	Year n+10
Total															

c) Customer Relations

RWUs need to maintain good customer relations by, among other things, providing a quality service, keeping customers informed of their intentions and responding to customer needs. RWUs will review their customer relations; identify areas of improvement and device means for improving and maintaining good customer relations. The means may include:

(i) Setting and meeting agreed quality of service targets (*Section 4.5 above*);
(ii) Improving performance in dealing with customers such as handling of customer complaints;
(iii) Meeting demand and extend services to un served areas;
(iv) Ensuring adequate communication with customers so as avoid misunderstandings; and
(v) Developing a good tariff design.

Also, RWUs need to establish effective processes to manage and improve interaction with their customers. The actions taken by the utility and in particular the RWU's personnel at all levels, create an image of the utility to the customers and affects the relationship between the RWU and customers.

d) RWUs and Community Relationships

RWUs need to evaluate their relationships with the wider community in their service areas. This is because the provision of water supply and sanitation services may lead to conflict within the community due to implementation of projects or daily operations which have social and environmental impacts. The conflicts can often be due to lack of understanding, reaction to decisions made or negative publicity of RWU's activities. RWUs need to review their community consultation processes so as improve and maintain community relations. Community relations can be enhanced by implementing measures to improve awareness of the community through, among other things, public meetings; newsletters; television and radio interviews; presentations to schools, service clubs and focus groups such as councillors and journalists; newspaper

advertisements; community notice boards, exhibitions and undertaking corporate social responsibility.

4.7 Asset Management Plan

All water and wastewater systems are made up of assets, some are buried assets and some are visible. These are the physical components of the water supply and sewerage system and can include: pipes, valves, tanks, pumps, wells, hydrants, treatment facilities and any other components that make up the system. The assets that make up a water or wastewater system generally lose value over time as the system ages and deteriorate. Along with this deterioration, it may be more difficult to deliver the type of service that the utility's customers want.

There is an approach to managing the assets of the system that can assist the utility with making better decisions on managing these assets. This approach is called Asset Management.

The conceptual framework for implementation of Asset Management revolves around five key issues as demonstrated in **Figure 1.**

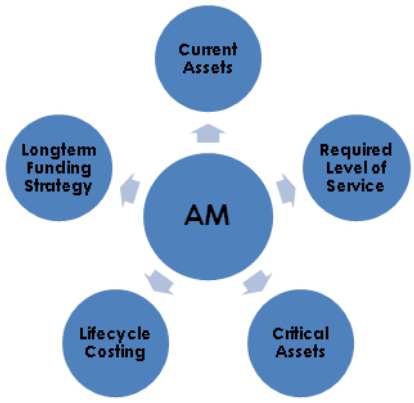

Figure 1: Asset Management Framework

Within the framework, RWUs are involved in answering the five key Asset management questions as summarized below:-

(a) What is the current state of the system's existing assets?
(b) What is my required sustained level of service?
(c) Which assets are critical to sustained performance?
(d) What are the minimum life cycle costs?
(e) What is the best long term financing strategy?

In response to the above Asset Management questions and in view of implementing the Asset Management framework, the Asset Management Plan for RWUs shall as a minimum contain the following sections:

4.7.1 Assets and Value of Assets

The first core component of asset management is the asset inventory. This component is probably the most straightforward of all. It is also, arguably, the most important as it underlies all other aspects of asset management. The types of questions that RWUs will ask themselves in this component are: What do I own? Where is it? What condition is it in? What is its remaining useful life? And what is its value?

The best practices to address these questions include:

a) Preparing an asset inventory and system map;
b) Assessing the condition of each asset;
c) Assessing the remaining useful life of assets; and
d) Determining replacement costs and asset values.

4.7.2 Asset Inventory and System Map

An asset inventory helps RWUs identify what they own and where assets are located. In addition, creating or obtaining a map of the water supply and sewerage system is an important step in preparing an asset inventory. A system map can help operators and managers conceptualize the system as whole. A map should show everything that the water system owns, and identify where the assets are located. With the arrival of modern IT technology it is recommended to have the system map captured in GIS because then the same information can also serve other purposes without additional effort.

In order to understand the current state of assets, every RWU shall maintain an assets register which shall include a minimum of the following:

(a) Name and Location (with reference to the attached map of water and sewerage system and other assets i.e. offices);
(b) Historical cost/value or Re-valued amount;
(c) Useful life-span and estimated remaining useful life;
(d) Replacement cost;
(e) Annual depreciation;
(f) Accumulated depreciation
(g) Book value;
(h) Functional purpose;
(i) Size and/or capacity;
(j) Construction materials;
(k) Construction / Installation date; and
(l) Manufacturer.

4.7.3 Assessment of the Condition of each Asset.

It is critical that utilities have a clear knowledge of the condition of their assets and how they are performing. All management decisions regarding maintenance, rehabilitation, and renewal revolve around these two aspects. Not knowing the current condition or performance level of an asset may lead to the premature failure of the asset, which leaves the utility with only one option: to replace the asset (generally the most expensive option).

There are many ways to assess the condition of the assets. For example, some assets can be visually assessed, water lines can be pressure tested, or leak tested and buildings can be monitored for energy efficiency. Sometimes the only suitable way to assess an asset is to compare its performance (repair history) to its expected life. This assessment will provide accurate information about the current as well as the expected future level of performance of the asset (including of pumps and vehicles).

Conditions of assets can be classified as follows:

Very Good: Very good condition, where only normal **maintenance** is required.

Good: Minor defects only where **minor repair** is required to approximately 5% of the the value of the asset.

Fair: Maintenance required returning to accepted level of service where **major repair** is required to 10-20% of the value of the asset.

Poor: Requires **rehabilitation** where significant renewal or upgrade is required to 30-60% of the asset.

Very Poor: Asset unserviceable where more than 60% of the asset requires **replacement**.

4.7.4 Estimating Useful Life Span and Remaining Useful Life

Determination of asset useful life depends on quality of the materials and operating local conditions. For example, a pump will wear out sooner if it is used more and will last longer if it is used less. The actual age of the pump is not as important as the amount of work the pump has done. On the other hand, pipe assets wear out based more on the length of time in the ground. If a pipe is in the ground for decades it has had considerable time to contact the soil around it and the water within it and may start to corrode.

Because of these site-specific characteristics, asset life must be viewed within the local context and the particular conditions of that utility. It is best to make judgments on asset life based on past experience, system knowledge, existing and future conditions, prior and future operation and maintenance, and similar factors in determining useful life. In the absence of any better information, a system can use standard default values (life span of various assets shown in Table

7) as a starting point. However, over time, the utility should use its own experiences to refine the useful lives.

The time-lapse between to-day and until an asset reaches its end of useful life is called Remaining Useful Life (RUL). If the year of procurement or installation is known, the RUL can be calculated; otherwise it has to be estimated. The RUL gives an indication when the asset may have to be replaced although local context and conditions will still influence it.

4.7.5 Replacement Cost

Generally, when utilities consider the value of assets, they think about the cost of initially installing the assets. This cost has no other importance than historical information or it can be used by a system that depreciates the costs of assets over time. The installation cost does not have a direct bearing on what it will cost to replace that asset when it has reached the end of its useful life. The asset may not be replaced by the same type of asset (e.g., cast iron pipe may be re placed by PVC pipe) or it may be replaced by a different technology entirely (e.g., a chlorination system replaced by an ultraviolet disinfection facility). Furthermore, costs of various assets may change drastically over time, such that the cost of installing a pipe in 1966 in no way reflects the costs of installing a pipe 50 years later in 2016. Some prices may increase, such as materials, while technological advances may decrease other costs.

Replacement cost is the cost of rebuilding the existing infrastructure using present day technology while maintaining the originally designed level of service. Assuming present technology ensures that any additional cost of out-dated and expensive methods of construction is not reflected in the valuation. The real value of the assets is the cost it would be to replace the assets using the technology the system would employ to replace them. If the system has asbestos cement pipe now, but would replace the system with PVC pipe, the real value of the assets is the cost of replacement using PVC and the installation cost associated with PVC.

4.7.6 Depreciation

Depreciation expresses the wear and tear of the assets based on use. Consistent to IPSAS 17, annual depreciation charge of assets shall be computed taking cognizance of the salvage value. EWURA recommends the straight line method for computation of annual depreciation charge. RWUs should use realistic useful life so as to reduce the impact of depreciation on tariff calculations. The following table shows the recommended limits for useful life of assets.

Table 7: Useful life of Assets

Asset	Expected useful life in years	
	Lower bound	**Upper bound**
Dams	75	100
Intake structures	35	45
Shallow Wells / Boreholes	15	20
Chlorination equipments	10	15
Storage tanks	30	60
Pumps	10	20
Buildings	30	50
Water treatment plants	40	50
Electrical systems	7	10
Transmission mains	35	40
Distribution pipes	35	40
Valves	10	15
Meters	10	15
Sewerage network	35	40
Laboratory/Monitoring equipments	5	7
Office furniture/equipments	5	10
Intangible assets	3	5
Workshop equipment and tools	10	15
Computers	3	5
Vehicles, motorcyles and bicycles	3	5
Transportation equipment /heavy duty vehicles	8	10

4.7.7 Summarized Asset Register

Assets should be grouped consistent with the Property Plant and Equipment (PPE) schedule grouping presented in the most recent audited financial statements of a utility. All data of assets are compiled best in an Asset Register either as Excel table or Access database. An example of a summarized asset register is as shown in Table 8 and will be an appendix to the BP. A RWU should state key assumptions and considerations taken in arriving at the register.

Note that Table 8 is just an example. Each RWU should present its asset grouping according to the most recent audited financial statement - movement of assets as shown in the PPE schedule. The summarized Asset Register will be presented as Appendix H to the Business Plan.

Table 8: Summarized Asset Register and Value of Assets

Group of Assets	Location	Quantity	Condition/Age	Current Book Value (TZS)	Expected useful life (Years)	Replacement Value (TZS)	Method of Estimation of Replacement Value
WATER SUPPLY							
PRODUCTION							
Intake Structures							
Shallow wells / Boreholes							
Dams							
Water Treatment Plant							
Lab. / Monitoring Equipments							
Reservoirs / Clear Water Tanks							
Transmission Mains							
Pumps and Other Peripherals							
DISTRIBUTION							
Distribution Mains							
Storage tanks							
Booster Pumps and other peripherals							
Valves							
Meters							
Chambers							
Hydrants							
SEWERAGE							
CONVEYANCE AND TREATMENT							
Pumps and Other Peripherals							
Main sewer							
Lateral sewer							
Manholes							
Wastewater treatment plant							
MISCELLANEOUS							
Land							
Buildings							
Furniture							
Vehicles and Motorcycles							
Bicycles							
Computers and accessories							
Intangible assets							
Electrical/office equipments							
Workshop equipments and tools							
Sewerage Maintenance Equipment							

4.7.8 Assessment of Risks and Consequences

Risk assessment includes the systematic application of management policies, procedures and practices to the tasks of identifying, evaluating, managing, mitigating and monitoring those risks that could prevent a RWU from achieving its strategic or operational objectives or plans or from complying with its regulatory and legal obligations including attaining its performance targets and quality of service levels.

As assets wear out/ fail due to passage of time and usage, managing the consequences of failure is vital for the RWU. Not every asset presents the same failure risk, or is equally critical to RWU's systems and operations. Therefore, it is important to know which assets are required to sustain a given water system's performance.

Critical assets are those that have a high risk of failing (old, poor condition, obsolete technologically etc.) and/or major consequences occur if they do fail (major expense, system failure, safety concerns, security failure etc).

As a first step in determining the risk of failure, a utility needs to look at what it knows about the likelihood that a given asset is going to fail. The data available to assist in this determination is: asset age, condition assessment, obsolete technology and failure history. An asset may be highly likely to fail if it is old, has a long history of failure, has a known failure record in other locations, and has a poor condition rating. An asset may be much less likely to fail if it is newer, is highly reliable, has little to no history of failure and has a good to excellent condition rating. For ease of handling, risk of failure may be summarised as low, medium or high based on age, condition, technology, and failure history.

In terms of the consequence of failure, it is important to consider all of the possible costs of failure. The costs include: cost of repair, social cost associated with the loss of the asset, repair/replacement costs related to collateral damage caused by the failure, legal costs related to additional damage caused by the failure, environmental costs created by the failure, and any other associated costs or asset losses. The consequence of failure can be high if any of these costs are significant or if there are several of these costs that will occur with a failure. The detailed costing of consequences may be appropriate for large and sophisticated water supplies in a developed environment. For most utilities in the Tanzanian context a classification of consequences as low, medium or high will again suffice.

A classification of risk of failure and related consequences as either medium/high or high/high may then compel the management to look further into a possible

need for rehabilitation or even replacement of the respective asset even if other criteria as age, Remaining Useful Life or condition may not yet require doing so.

In the analysis risks and consequences the RWU shall:

(a) identify and highlight those assets that could cause a major system breakdown;
(b) list major technical data such as age and condition of the assets;
(c) list the history of failure of these assets;
(d) evaluate their risk of failure either as high, medium or low;
(e) evaluate the consequences of failure as either high, medium or low;
(f) determine for which assets risk of failure and consequences require action;
(g) outline strategies and measures to prevent failure and/or to minimize consequences if the asset fails (including insurance).

A RWU will conduct an assessment of risks for its assets using the guidance in Table 9 and will present it as Appendix I of the Business Plan. In the main document of the Business Plan, a RWU shall discuss the key assumptions and considerations for assessing the risks of its assets.

Table 9: Assessment of Risks and Consequences

Asset description	Risk assessment							Maintenance and repair strategy (Strategy to prevent failure)	Rehabilitation/replacement Strategy (Strategy to Mitigate failure)
	Condition	Asset age	Obsolescence	Failure history	Risk of failure	Consequence	Risk management strategy		
	(A)	(B)	(C)	(D)	(E)	(F)	(G)		
	1-5	**1-3**	**1-3**	**1-3**	**1-3**	**1-3**			
pump	2	2	1	1	1	3	rehabilitate		

Key to risk assessment:

Condition	1= very good; 2=good; 3=fair; 4=poor; and 5=very poor as detailed in section 4.7.3
Asset age	1=less than 1/3 of useful life; 2 = Between 1/3 and 2/3 of useful life; and 3 = Greater than 2/3 of useful life.
Obsolescence	1=No; 2 =uncertain; and 3=Yes.
Failure history	1=No; 2 =uncertain; and 3=Yes.
Risk of failure	If (A+B+C+D) is ≥1 but ≤ 6 then E=1; If (A+B+C+D) is ≥7 but ≤ 9 then E=2; else E=3.
Consequences	low=1; medium= 2; and high = 3
Risk management strategy	If (E+F) < 4 then G= maintain/repair; If (E+F) = 4 then G= rehabilitate; else G=replace

4.7.9 Life Cycle Management (LCM)

Life Cycle Management (LCM) is the management of assets through the cycle from planning and acquisition through O&M and repair to replacement and disposal which may take between 5 and 50 years of the useful life of an asset. During this process assets pass through phases which are best described by their condition and related costs which are necessary to make them continue to deliver the expected service level.

The Key stages in the asset life cycle are:

(a) Asset Planning: This is when the new asset is conceived. Decisions made at this time influence the sustainability of the asset, the cost of operating the asset and the lifespan of the asset. Alternative, non-asset solutions must also be considered;

(b) Asset creation or acquisition: This is when the asset is purchased and constructed. Sustainability, capital cost, designs and construction standards, commissioning the asset, and guarantees by suppliers influence the cost of operating the asset and the lifespan of the asset;

(c) Asset operations and maintenance: This is when the asset is operated and maintained. Operation relates to sustainability, efficiency, power costs, throughput etc, and is usually more applicable to mechanical plant rather than static assets such as pipes. Maintenance relates to preventative maintenance where minor work is carried out to prevent more expensive work in the future and reactive maintenance where a break is fixed;

(d) Asset condition and performance monitoring: This is when the asset is examined and checked to ascertain when and how an asset will fail, what corrective action is required and when (i.e. maintenance, rehabilitation or renewal);

(e) Asset rehabilitation and renewal: This is when the asset is restored to ensure that the required level of service including sustainability can be delivered; and

(f) Asset disposal and rationalization: This is when a failed or redundant asset is sold off, put to another use, or abandoned.

4.7.9.1 Options for Dealing with Assets over Time

Options for dealing with the actual assets over time include operation and maintenance, repair, rehabilitation and replacement. These options are intimately connected to each other. Choosing to do more or less of one impacts how much of the others is done, whether or not the other is done at all, or the time frame in which one of the others is done. For example, choosing to spend more on operating and maintaining assets will decrease the need to repair the asset and will increase the amount of time until the asset is replaced. Choosing to rehabilitate an asset will eliminate the need to replace the asset in the short term and will increase the amount of time until the asset ultimately need to be

replaced. The rehabilitation will also reduce the amount of operation and maintenance that needs to be done and reduce the need for replacement.

Each of these options has its own costs and considerations. The expenditure of funds becomes a balance between monies spent in each of these four categories. The purpose of asset management is to try to determine the optimal way to spread the money between each of these categories, while maintaining the levels of service desired. Generally, the most expensive option is replacement of the assets. Therefore, keeping the assets in service longer, while still meeting levels of service conditions, will usually be the most economical for the utility over the long term. The other options: maintenance of the asset, repair of the asset, and rehabilitation are options that can be used to keep the asset in service longer as described below.

(a) Maintenance and Repair

Maintenance and repair keep an asset in a condition at which it is able to provide the required service level. Maintenance or 'preventive maintenance' is meant to prevent possible breakdowns and subsequent necessary repairs. The more maintenance is done the fewer repairs become necessary. This is why motors, engine and pumps have stipulated service intervals at which certain parts are to be checked or even exchanged before they are completely worn out and before they break down.

Maintenance work is executed at shorter intervals and typical such work is the change of engine oil and filters on a vehicle. But also the change of brake pads or clutch plates can be considered maintenance if it is executed before further harm can be done to break discs or clutch pressure plate. If the brake pads are exchanged too late, the brake discs may become affected and would require overhauling or even replacement, which is then considered as repair work on the vehicle. Depending on repair costs compared to the asset value, the repair may be classified as minor (< 5%) or major (10-20%).

Most assets being in very good, good or fair condition can be expected to fall in the phases of maintenance and repair within the lifecycle of the asset. Exceptions may apply to assets which have a high risk of failure, i.e. pumps which are still running well (fair condition) but are labelled 'high risk' due to their age plus their technical obsolesce which make spare parts difficult to come by. If these pumps carry also high consequences if failing, the risk assessment will label them for 'rehabilitation' or even 'replacement'. It is then up to management to decide which recommendation to follow and which costs to consider in AMP and BP for the planning period. Costs for maintenance and repair fall under O&M costs of the current budget and must be covered by respective current income.

(b) Rehabilitation and Replacement

Rehabilitation of an asset comprises the replacement of some of its major parts with the intention of extending considerably the life-time of the whole asset. The need for rehabilitation or replacement is in the first place derived from the asset's condition being labelled poor or very poor. But as explained in the previous chapter also assets of good or fair condition may have to be considered at least for rehabilitation if the risk of failure and/or the consequences of failure are assessed as being medium to high. It is always the responsibility of management to look at those assets and decide individually about their fate.

It is obvious that any asset which is considered being of very poor condition and/or having a high risk of failure with medium or high consequences in case of failure needs to be replaced.

Costs of rehabilitation and replacement are part of the investment budget and are supposed to be financed either through savings from depreciation, from grants (Government or donors) or from loans (banks or Government). Rehabilitated and replaced assets are activated when put into service and are then also depreciated along the applicable standards.

4.7.9.2 Estimation of Maintenance, Repair, Rehabilitation and Replacement Costs

A RWU will estimate the life cycle costs and summarize them as shown in Table 10 and presented as Appendix J to the BP. In the main document of the BP, a RWU shall discuss the key assumptions and consideration in estimating maintenance, repair, rehabilitation and replacement costs of its assets.

Table 10: Life Cycle Costs in the Asset Management Plan

Asset Group	Detailed description of Maintenance and repair activities	O & M costs (maintenance and repair)										Detailed description of Rehabilitation/replacement activities	Investment costs (rehabilitation and/or replacement)									
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20	Year 25	Year 30		Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20	Year 25	Year 30

4.7.10 Funding of the Asset Management Plan

Funding for the Asset Management Plan is incorporated in the overall funding of the Business Plan as follows;

(a) The timing of operation, maintenance and repair activities of various assets and corresponding costs in Table 10 are an input to the forecasting of annual repair and maintenance costs in Table 22 and Table 24.

(b) The timing of the rehabilitation and replacement of various assets and corresponding costs in Table 10 are an input to the forecasting of rehabilitation/renewal and replacement activities and costs that will be reflected in the action plan and investment plan of the RWU (Table 15 and Table 16).

4.8 Capacity Development Analysis

A RWU will analyze capacity development requirements by undertaking a review of its organization structure, staffing levels and skills as well as training needs as described below.

4.8.1 Review of Organization Structure

An organization structure gives a description of functions, tasks and authorities of the departments, sections and individual employees. It defines:

(a) how decisions are made;
(b) flow of information in the entire organization; and
(c) the roles and responsibilities of each position in the organization.

The organization structure is usually summarized in an organization chart.

Definitely, the RWU's organization structure will impact the way it executes its mission and progress towards attaining its vision. Hence, it is vital for the RWU to review its current organisation structure in line with the review of its BP. The review will assist the utility to identify whether the current organisation structure responds well to current needs and challenges faced by the utility which include responding to the needs of the customers and effective and efficient performance of the utility. While organization structures of most RWUs are in accordance to the standard organization chart issued by the Ministry of Water, RWUs need to take note that it was intended to be a general guidance which has to be customized according the needs of a utility. Organization structures of RWUs may vary based on, among other things, size of the utility (customer base), technical complexity of the systems and size and nature of its operational area.

In the main document of the BP, RWUs shall briefly discuss a review of their organization structure and present their revised organization chart as an Appendix K to the BP.

4.8.2 Staff Numbers and Skills

RWUs need to ensure that they have **appropriate staff numbers** with the **necessary skills** to meet current and future requirements in order that the

projected levels of service and performance targets can be met. Appropriate staff numbers and skills are also required for efficient operation and maintenance of the RWUs' assets. In this regard, a RWU will therefore undertake the following:-

(a) Position Analysis – Identifying the staff positions required to meet the projected levels of service and performance targets as well as efficiently managing the assets;
(b) Work Force Auditing – Evaluating the numbers, skills, qualifications, experience and performance of the available work force so as to identify the necessary actions for ensuring availability of adequate staff. The audit will give an indication of the necessary variations in the available work force.

The staffing requirements identified by the RWU have a direct relationship to staff costs (salary and benefits) which are among the major cost items for water utilities. While determining staff requirements, RWUs should ensure continuous improvement in the performance indicator for personnel costs which *is personnel expenditure as a percentage of collection from water and sewerage bills*. RWUs are expected to be within the benchmark of at most 30%. In addition, RWUs need to control their number of staff by observing a staff productivity indicator namely *staff per 1000 water and sewerage connections*. With the exception of Bulk Water Supply Utilities, RWUs are expected to be within the benchmark of at most 5 staff per 1000 connections.
A summary of staff numbers shall be presented as shown inTable 11.

Table 11: Summary of Staff Requirements and Efficiency

Target level in the RWU	**Current staffing level (No)**	**Required total staffing levels (No)**			**Clarification on changes in staffing levels**
		Year 1	**Year 2**	**Year 3**	
Management					
Supervisors					
Support staff					
Other Levels (add as appropriate)					
Total Number of Staff					
Total Number of Water and Sewerage Connections					
Staff per 1000 water and sewerage connections					

4.8.3 Training needs

RWUs shall identify the training needs for their staff and design a training programme which will enable a RWU to implement its BP and will form part of the BP. Generally, a RWU is expected to conduct training needs by conducting:

(a) Organizational Analysis: Examining the entire RWU as an organization and identify areas where training is needed. This includes identification of future knowledge, skills and abilities that the RWU requires.

(b) Task Analysis: Examining job requirements and compare employee knowledge and skills. The difference between the actual performance of the staff and job requirements gives an indication of the need for task training.

(c) Individual Analysis: Examining how individual employees perform their jobs and determine their training needs. This is usually done using data from employee's performance review.

The training needs will enable the RWU to prepare a training programme which includes indication of their timing and costs. While deciding on the timing and costs, consideration should be given on prioritizing the training requirements based on:

(a) How urgent are the training needs;

(b) The benefit of the identified training; and

(c) How important are the skills for the success of the utility

The training programme will be summarized as shown in Table 12 and presented as an Appendix L to the BP. The projected costs will be an input to Table 22 (staff training costs under administration costs).

Table 12: Training Needs Assessment

Target level in the RWU	Description of the general content of the required training	Projected Costs (million TZS)		
		Year 1	Year 2	Year 3
Board				
Management				
Supervisors				
Support staff				
Other Levels (add as appropriate)				
Total Cost				

4.9 Key Strategic Issues (KSIs)

The Key Strategic Issues form an inventory of the major areas of intervention for which RWUs need to focus on in order to realize the set targets in Annex B of these guidelines. It has to be noted that the Key Strategic Issues mentioned here should

be derived from the analysis done from section 4.6 to 4.8 and may not necessarily be the same as the strategic issues indicated in the RWU's Strategic Plan.

Table 13: List of Key Strategic Issues

SN	Key Strategic Issues	Remarks (Brief explanation on rationale for selection of the KSIs)

As a general guidance, strategic issues that may be addressed by RWUs may include:

(a) High Non Revenue Water;
(b) Insufficient water production/sources;
(c) Inefficient operations (such as treatment, transmission, storage, distribution, billing, community relationships and customer service and relations);
(d) Low water supply coverage;
(e) Low sewerage coverage;
(f) Unavailability of sewerage services (disposal and treatment);
(g) Inappropriate offsite sanitation services and facilities;
(h) Non-compliance to water quality standards;
(i) Non-compliance to wastewater quality standards;
(j) Inadequate institutional capacity (such as board, staff, working tools and equipment, offices, transport, computers and software); and
(k) Unsatisfactory payment of customer bills.

RWUs should ensure that the identified KSIs can be realistically addressed during the three years period of the BP. It is suggested that within the period of the BP, at most five to eight KSIs could be practically addressed.

The KSIs presented in Table 13, set the basis for the objectives, major next steps and the actions to be taken by the RWU. For each KSI, a RWU shall derive SMART (Specific, Measurable, Attainable, Realistic and Time bound) objectives and the major next steps and the corresponding actions to be taken towards attaining projected performance targets. The *next steps* are the milestones that the RWU sets in addressing the key strategic issues while the *actions to be taken* are the

key activities that the RWU will implement in order to achieve the next steps/milestones. In other words, *actions to be taken* are detailed activities which can be costed and be assigned responsible persons. Take note that objectives and targets should not contradict projected performance targets in Appendix B of these Guidelines. Presentation of Objectives, Next Steps and Actions for Addressing Key Strategic Issues is shown in Table 14.

Table 14: Objectives, Next Steps and Actions for Addressing Key Strategic Issues

Key Strategic Issue	Objectives	Next Steps (milestones/targets)	Actions to be Taken
Example: High Nonrevenue water	Reduce NRW from 40% to 30% by June 2018	Improve metering ratio from 85% to 100% by June 2017.	• Procure 10,000 water meters • Install 10,000 water meters
		Establish 5 District Metering Areas (DMAs) by June 2017.	• Procure 100, 200mm valves and 30, 200mm Bulk Water Meters • Install valves to create 5 zones • Install 30 bulk water meters

4.10 Action Plan

The action plan sets out the RWU's actions to address each of the identified objectives (section 4.9). For each objective, the plan should describe:

(a) The activities to be undertaken which are the same as actions to be taken indicated in **Table 14** ;
(b) Who is responsible for ensuring that the activity is carried out;
(c) Starting and completion dates;
(d) The costs involved and whether this will be covered by capital or operational expenditure funds;
(e) Source of funding; and
(f) Any additional relevant information.

Item (f) above will be described in the comments column. The action plan shall be presented as shown in **Table 15** and will be in the main document of the BP.

Table 15: Action Plan

Objectives	Next Steps (milestones)	Activities (Actions to be taken)	By Whom	Start date (month and year)	Completion Date (month and year)	Costs (Million TZS)			Nature of Expenditure (O&M or Investment)	Source of Funding	Comment
						Year 1	Year 2	Year 3			
Total Cost											

4.11 Investment Plan

The Investment Plan should be derived and be consistent with the Action Plan and include additional details from the Asset Management Plan. The Investment Plan will be in the format as detailed in **Table 16** and will be presented in the main document of the BP.

(a) purpose or target to be achieved by investment;
(b) summary of physical works to be carried out;
(c) design and construction period;
(d) capital expenditure year by year; and
(e) potential or agreed sources of funding .

Table 16: INVESTMENT PLAN

Purpose or target or activity to be achieved by investment	Asset	Asset Group	Summary of physical works to be carried out	Design period (months)	Implementation period (months)	CAPEX in YEAR 1 (Million TZS)		CAPEX in YEAR 2 (Million TZS)		CAPEX in YEAR 3 (Million TZS)		Source of funding
						New Investment	Rehabilitation & Replacement	New Investment	Rehabilitation & Replacement	New Investment	Rehabilitation & Replacement	
Example: Increase water production from 2,000m^3/day to 3,000m^3/day	Borehole B2	Boreholes	Rehabilitation of borehole B2	2	3		10					OWN
	Submersible Pump at borehole B2	Pumps and peripherals	Replacement of pump at borehole B2	2	3				15			OWN
	Borehole B3	Boreholes	Drill new borehole (B3)	3	4	20						OWN
	Submersible Pump at borehole B3	Pumps and peripherals	Installation of pump at borehole B3	2	3			30				OWN
SUBTOTAL						**20**	**10**	**30**	**15**	**-**	**-**	
GRAND TOTAL						**30**		**45**		**-**		

Note that RWUs shall group their assets in a manner similar to their PPE schedule in most recent audited financial statements.

5 FINANCIAL PLAN

A financial plan is fundamental to enable a RWU to meet its projected performance over the business plan period. The financial plan will cover projections of Capital Expenditures (CAPEX) and Operation and Maintenance Expenditures (OPEX) as well their sources of financing. The objective of financial planning is to assist RWUs to foresee their cash flows in achieving medium to long term operational and financial sustainability.

5.1 Assumptions for Financial Projections

As part of the financial planning process the following are the assumptions to be made by RWUs:

(a) economic parameters such as inflation, average household income, GDP growth rate, obtained from the National Bureau of Statistics (NBS), which affect the RWU's future costs and revenues;
(b) working capital parameters which is about the ability of RWU to maintain enough cash/liquidity to pay for day to day operations and
(c) operational assumptions including water production, number of connections, number of staff and any other assumption that the RWU considers appropriate for facilitating financial projections

Presentation of assumptions for Financial Projections is as provided in **Table 17**:

Table 17: Financial Projections Assumptions

Projection Metrics	Unit	Year n-3	Year n-2	Year n-1	Current Year n	Year n+1	Year n+2	Year n+3	Year n+4	Year n+5	Year n+10	Year n+15	Year n+20	Year n+ 25	Year n+30
Inflation rate - annual	%														
Average Household Income	TZS/year														
Cash Position in months of operating expenses	Months														
Accounts Receivable in months of annual revenues	Months														
Prepaid Expenses as % operating expenses	%														
Inventories in months of operating expenses	Months														
Accounts Payable in months of operating expenses	Months														
Water Production	Million m3														
Bulk water purchase volume (if applicable)	Million m3														
Bulk water purchase price (if applicable)	TZS/m3														
Number of new connections	Number														

Projection Metrics	Unit	Year n-3	Year n-2	Year n-1	Current Year n	Year n+1	Year n+2	Year n+3	Year n+4	Year n+5	Year n+10	Year n+15	Year n+20	Year n+ 25	Year n+30
Average electricity tariff	TZS/kWh														
Number of employees	Number														
Any other appropriate assumptions (add rows as appropriate)															

5.2 Estimating Annual Capital Expenditures (CAPEX)

A capital expenditure is incurred when a RWU spends money either to buy fixed assets or to add to the value of an existing fixed asset with a useful life that extends beyond one financial year. CAPEX for RWUs shall include renewal and replacement of existing assets as derived from the Asset Management Plan (Lifecycle Management) and New Investments from the Business forecast. In reporting CAPEX, shall ensure consistency with the investment plan (Table 16).

The format of presentation of renewal and replacement requirements is as shown in Table 18 which shall be Appendix M to the BP.

Table 18: Renew and Replacement of Non-Current Assets

Year	Source of Funds	Asset Group 1	Asset Group 2	Asset Group 3	*Add other Asset Groups as appropriate*	Total
Year n-3	Own					
	Grants					
	Loan					
	Subtotal					
Year n-2	Own					
	Grants					
	Loan					
	Subtotal					
Year n-1	Own					
	Grants					
	Loan					
	Subtotal					
Curent Year n	Own					
	Grants					
	Loan					
	Subtotal					
Year n+1	Own					
	Grants					

Year	Source of Funds	Asset Group 1	Asset Group 2	Asset Group 3	*Add other Asset Groups as appropriate*	Total
	Loan					
	Subtotal					
Year n+2	Own					
	Grants					
	Loan					
	Subtotal					
Year n+3	Own					
	Grants					
	Loan					
	Subtotal					
Year n+4						
Year n+5						
Year n+10						

The format of presentation of new investment requirements is as shown in Table 19 and will be Appendix N to the BP.

Table 19: New Investments

Year	Source of Funds	Asset Group 1	Asset Group 2	Asset Group 3	*Add other Asset Groups as appropriate*	Total
Year n-3	Own					
	Grants					
	Loan					
	Subtotal					
Year n-2	Own					
	Grants					
	Loan					
	Subtotal					
Year n-1	Own					
	Grants					
	Loan					
	Subtotal					
Curent Year n	Own					
	Grants					
	Loan					
	Subtotal					
Year n+1	Own					
	Grants					
	Loan					

Year	Source of Funds	Asset Group 1	Asset Group 2	Asset Group 3	*Add other Asset Groups as appropriate*	Total
	Subtotal					
Year n+2	Own					
	Grants					
	Loan					
	Subtotal					
Year n+3	Own					
	Grants					
	Loan					
	Subtotal					
Year n+4						
Year n+5						
Year n+10						

The total CAPEX shall be obtained by summing up the costs presented in Table 18 and Table 19 above and presented as shown in Table 20 and will be Appendix O to the BP:

Table 20: Total CAPEX

Year	Source of Funds	Asset Group 1	Asset Group 2	Asset Group 3	*Add other Asset Groups as appropriate*	Total
Year n-3	Own					
	Grants					
	Loan					
	Subtotal					
Year n-2	Own					
	Grants					
	Loan					
	Subtotal					
Year n-1	Own					
	Grants					
	Loan					
	Subtotal					
Curent Year n	Own					
	Grants					
	Loan					
	Subtotal					
Year n+1	Own					
	Grants					
	Loan					

Year	Source of Funds	Asset Group 1	Asset Group 2	Asset Group 3	*Add other Asset Groups as appropriate*	Total
	Subtotal					
Year n+2	Own					
	Grants					
	Loan					
	Subtotal					
Year n+3	Own					
	Grants					
	Loan					
	Subtotal					
Year n+4						
Year n+5						
Year n+10						

5.3 Forecasting Operating and Maintenance Expenditures (OPEX)

OPEX are the regular, usual and customary recurring costs of operating and maintaining the equipment or facility of the RWU. OPEX shall include production costs, distribution costs, repair and maintenance costs, sewerage disposal costs, personnel costs, administration costs, business promotion expenses, events and donation expenses and bank charges. The forecasting method for each of the OPEX categories is as detailed below:-

(a) Water Production costs

Water production costs shall include fuel and lubricants costs, chemicals costs, electricity for water production, laboratory costs, water source upkeep and water user fees. Projection shall be made based on the unit cost, inflation and projected water production. However, changes in the prices of electricity and water user fees shall not be affected by inflation because they are determined by their respective regulatory bodies.

(b) Distribution costs

Water distribution costs shall comprise of electricity for water distribution, fuel and lubricants, pipelines for new connections, water meter installation and other water distribution expenses. Electricity for water distribution and fuel and lubricants costs shall be projected using the same approaches as discussed in the water production cost section. Costs for pipelines system shall be projected based on inflation and the projected number of new connections. In estimating the number of meters to be installed consideration shall be given on metering ratio target in the respective years.

(c) Repair and maintenance costs

Repair and maintenance costs consist of maintenance of water production infrastructure (including water intake, pumps, switch gears, treatment plant equipment including dosing pumps and backwash equipment), maintenance of water pipe lines including valves and hydrants, water meter repairs, motor vehicles & cycles, upkeep of sewerage infrastructure, plant and heavy equipment, buildings and other maintenance and repair expenses. Projection for repair and maintenance costs shall be based on the detailed analysis of repair and maintenance requirements that should be indicated in the RWU's Asset Management Plan (Table 10). The total repair and maintenance costs in Table 10 will be an input to Table 22.

(d) Sewerage disposal costs

Sewerage disposal costs shall include sewage treatment, electricity for sewerage and sanitation, laboratory, new sewer connections, cesspit emptying, on-site sanitation activities and other sewerage disposal expenses. Sewerage treatment, laboratory, cesspit emptying and on-site sanitation activities costs shall be projected by adjusting the costs of a previous year by inflation. For new sewer connections the costs shall be projected based on inflation and the projected number of new sewer connections. Costs for electricity for sewerage and sanitation shall be projected based on the unit cost and the projected volume of sewage to be pumped.

(e) Personnel costs

Personnel costs include salaries, payment to social security funds, all allowances and gratuity. RWUs shall project personnel costs based on inflation. However, personnel costs shall be limited by the target set in the Memorandum of Understanding (MoU) with the Ministry of Water or Local Government, which among other things, specifies the ratio of personnel costs to the total collections from water and sanitation related services.

(f) Administration Costs

Except for insurance costs, electricity for offices, audit fees, directors' fees and other administration costs for the first year shall be projected by adjusting the costs of a previous year by inflation. Insurance costs shall be projected based on the actual contract values. Electricity for offices shall be projected based on average usage and current approved electricity tariffs. Audit fees shall be projected based on applicable law and practice. Directors' fee shall be projected based on approved rates and number of directors.

(g) Business Promotion Costs

Business promotion costs shall comprise of information, education, communication & publicity, customer outreach, customer survey, research and feedback, documentary and upkeep of audio visual, newspaper and periodicals, upkeep of public garden and monument and other business promotion expenses. Business promotion costs shall be projected by adjusting the costs of a previous year using inflation.

(h) Events and Donation Costs

Events and donation costs shall comprise of ATAWAS expenses, maji week expenses, mazingira week, nanenane day, annual general meeting contribution, donations and may day expenses. ATAWAS expenses shall be projected based on the applicable rates set by ATAWAS. Other event and donation expenses shall be projected by adjusting the costs of a previous year using inflation..

(i) Financial Costs

Financial costs comprises of bank charges, bank overdraft and interest on term loan. Interest on term loans and bank overdraft shall be projected based on applicable rates and for the bank charges, costs shall be projected based on past three years trend.

Operation and Maintenance Expenditures shall be projected as shown in Table 22 and shall be Appendix P to the BP.

Table 22: Operations and Maintenance Expenditures

Description	Operation and Maintenance Cost (Million TZS)													
	Year n-3	Year n-2	Year n-1	Curent Year n	Year n+1	Year n+2	Year n+3	Year n+4	Year n+5	Year n+10	Year n+15	Year n+20	Year n+ 25	Year n+30
Water Production costs														
Electricity for Water Production														
Chemicals														
Fuel & Lubricants (Generator)														
Water User Fee														
Laboratory														
Water Source Upkeep														
Other Water Production costs														
Bulk water purchase costs														
Total Water Production costs														
Water Distribution costs														
Electricity for Water Distribution														

Description	Operation and Maintenance Cost (Million TZS)													
	Year n-3	Year n-2	Year n-1	Curent Year n	Year n+1	Year n+2	Year n+3	Year n+4	Year n+5	Year n+10	Year n+15	Year n+20	Year n+ 25	Year n+30
Fuel & Lubricants (Generator)														
Pipelines - New connections														
Water Meter Installation - Replacements/testing														
Other Water Distribution costs														
Total Distribution costs														
Sewerage Disposal and Sanitation costs														
Sewage Treatment														
Electricity for Sewerage and Sanitation														
Laboratory														
New Sewer Connections														
Cesspit Emptying														
On-site Sanitation Activities														
Other Sewerage Disposal costs														
Total Sewerage Disposal costs														
Maintenance and Repair costs (as per Asset Management Plan)														
Personnel costs														
Basic Salary														
Wages														
Employer's Pension Contribution														
Travelling on leave														
Allowances														
Other staff costs														
Total Personnel costs														
Administration costs														
Insurance														
Electricity for Offices														
Audit Fees														
Directors Fees														
Staff Training														
Provision for doubtful debts														
Fuel for motor vehicles/cycles														
Other Administration costs														

Description	Operation and Maintenance Cost (Million TZS)													
	Year n-3	Year n-2	Year n-1	Curent Year n	Year n+1	Year n+2	Year n+3	Year n+4	Year n+5	Year n+10	Year n+15	Year n+20	Year n+ 25	Year n+30
Total Administration costs														
Business Promotion														
Events and Donations														
ATAWAS costs														
Other Events and Donation costs														
Total Events and Donation costs														
Financial costs														
Interest on bank overdrafts														
Bank charges														
Interest on term loans														
Total Financial costs														
TOTAL OPEX														

5.4 Financing of CAPEX and OPEX

The available options for financing CAPEX are basically tariffs, loans and grants while for OPEX are tariffs and grants. In case of tariff financed CAPEX, the limit is the derived Depreciation amount and Return on Investment (ROI). The ROI shall be computed as provided in the applicable Tariff Guidelines issued by EWURA and the Depreciation shall be the amount derived from the Asset Management Plan based on the guidance provided in section 4.7.6. The information needed to calculate the capital repayments for future RWU borrowings are the terms and conditions of the loan including amount, interest payable, down-payments and grace period where applicable. It is important to note that during the three years of the BP, only loans that have firm commitments that they will be obtained during the year of planning shall be included in the CAPEX projections. Other sources of CAPEX financing may be grants from donors or the Government and should only be included in the CAPEX when there is firm commitment of receiving such grants which include a signed Financial Resources Utilization Agreement. Project financing will be summarised as shown in Table 21 and will be Appendix Q

Table 21: Project Financing

Description	Unit	Year n-3	Year n-2	Year n-1	Curent Year n	Year n+1	Year n+2	Year n+3	Year n+4	Year n+5	Year n+10	Year n+15	Year n+20	Year n+ 25	Year n+30
A. Interest Payment															
Loan 1 - Amount	Million TZS														
Year															
Duration of the loan	Years														
Rate of interest	%														
Grace period	Years														
Annual interest payment	Million TZS														
Loan 2 - Amount	Million TZS														
Start Year															
Duration of the loan	Years														
Rate of interest	%														
Grace period	Years														
Annual interest payment	Million TZS														
Total interest payment per year	**Million TZS**														
B. Principal payment															
Loan 1 Start Year Balance	Million TZS														
Repayment per year	Million TZS														
Closing loan balance	Million TZS														
Loan 2 Start Year Balance	Million TZS														
Repayment per year	Million TZS														
Closing loan balance	Million TZS														
Total Loans	Million TZS														
Total Principal Payment Per Year	**Million TZS**														
Total Closing Balance	Million TZS														
Total Annual Payment (Principal + Interest)	Million TZS														
Donor Grants	Million TZS														
Government Capital Contributions (Subsidies)	Million TZS														
Own source of financing (from tariffs – Depreciation + Return on Investment)	Million TZS														

5.5 Tariff Setting

Tariffs shall be computed using the applicable Tariff Guidelines issued by EWURA (available at www.ewura.go.tz). Computation of the tariff shall be based on Revenue Requirement (RR) methodology and shall be cost based which implies

that tariffs should cover the total cost of service including operation and maintenance, depreciation (of all assets – own and grant funded assets) and return on investment (excluding grant financed assets) as follows:

$$RR = OM + D + T + WACC \times RAB$$

Where:

RR	=	Revenue Requirement for the financial year;
OM	=	Operation and maintenance costs;
D	=	Depreciation charge;
T	=	Corporate Taxes;
WACC	=	the Weighted Average Cost of Capital
RAB	=	Regulated Asset Base. These are the assets of the RWU which are used in the provision of water service to the public. The RAB can be financed by any of the four sources: the Authority, Donor, Government of Tanzania or loans.

RWUs shall compute the average water tariff for each year based on the projected costs as follows:

$$AWT = \frac{RR - OI}{Q * (1 - NRW)}$$

Where:

AWT	=	Average Water Tariff.
RR	=	Revenue requirement as determined above.
OI	=	Other Income (including income from service charge, sewerage charges, new connection fees, reconnection fees and operational grants).
Q	=	Annual water production.
NRW	=	Non Revenue Water.

While in principle tariffs are aimed at recovering operational costs of RWUs, it is important to take on board the social acceptability of the proposed tariff by considering the ability to pay of customers. Presentation of tariffs will be as summarized in **Table 23** and will be an Appendix R to the BP.

Table 23: Tariff

Description	Year													
	Year n-3	Year n-2	Year n-1	Current Year n	Year n+1	Year n+2	Year n+3	Year n+4	Year n+5	Year n+10	Year n+15	Year n+20	Year n+ 25	Year n+30
Water Tariff														
Average water tariff (TZS/m3)														
Service Charge (TZS/Month)														
Domestic														
Institutional														
Commercial														
Industrial														
New water connection fees (TZS)														
Domestic														
Institutional														
Commercial														
Industrial														
Reconnection fees (TZS)														
Domestic														
Institutional														
Commercial														
Industrial														
Other water charges (add as appropriate)														
Sewerage Tariff														
Average Sewerage Tariff (TZS/m^3)														
New sewer connection fees (TZS)														
Domestic														
Institutional														
Commercial														
Industrial														
Other sewerage charges (add as appropriate)														

5.6 Preparing Financial Statements

In principle, financial statements should comply with requirements of International Public Sector Accounting Standards (IPSAS). The financial statements should be consistent with the projected CAPEX, OPEX and financing arrangements as outlined in Sections 5.1 to 5.5. Three basic financial statements are expected from RWUs which are:

(a) Statement of Financial Performance;
(b) Statement of Financial Position; and
(c) Statement of Cash Flow

5.6.1 Statement of Financial Performance

A statement of financial performance is a financial statement that shows income and expenditure for a period of one year or one operating cycle. The purpose of the income and expenditure statement is to show whether the RWU has generated surplus (profit) or incurred losses during the period being reported. As a minimum, each RWU should provide the information shown in Table 24 in its income and expenditure statement.

Table 24: Statement of financial performance

	Historic Data			Current	Projections		
	Year n-3	Year n-2	Year n-1	Year n	Year n+1	Year n+2	Year n+3
Income							
Own funds							
Water Charges							
Sewerage disposal charges							
New connection fees							
Reconnection Fees							
Service Charge							
Other operating income							
Operational Grants							
Government							
Donors							
Other grants							
Total Income							
Expenses							
Water production							
Water Distribution							
Sewerage disposal and Sanitation							
Maintenance and Repair							
Personnel							
Administration							
Business promotion							
Events and Donation							
Board							
Financial							
Depreciation							
Surplus /(Loss)							

5.6.2 Statement of Financial Position

A statement of financial position or commonly referred to as a balance sheet is a statement showing the balances of assets and sources of financing of those assets of an entity at a given point in time, preferably at the end of the financial year or

one operating cycle. In this guideline presentation of statement of financial position is recommended to be in the format shown in Table 25 .

Table 25: Statement of Financial Position

Description	Historical			Current	Projections		
	n-3	n-2	n-1	n	n+1	n+2	n+3
ASSETS							
Non Current Assets							
Property, plant and equipment							
Intangible assets							
Capital work in progress							
Total Non Current Assets							
Current Assets							
Inventories							
Trade receivables							
Other receivables							
Cash and cash equivalents							
Total Current Assets							
TOTAL ASSETS							
LIABILITIES AND EQUITY							
LIABILITIES							
Non Current Liabilities							
Long term debt							
Deferred Government Grant							
Total Non Current Liabilities							
Current Liabilities							
Trade payables							
Other payables							
Total Current Liabilities							
TOTAL LIABILITIES							
EQUITY							
Capital fund							
Grants							
Accumulated Surplus/Deficit							
Revaluation reserves							
TOTAL EQUITY							
TOTAL LIABILITIES AND EQUITY							

5.6.3 Statement of Cash Flows

A statement of cash flows provides information on the inflow and outflow of cash and cash equivalents and serves as an indicator of the liquidity of the RWU. RWUs

shall include cash flow from operating, investing and financing activities. Cash flow from operating activities are primarily derived from the principal revenue generating activities. Cash flow from financing activities refers to activities that alter the equity capital and borrowing structure of the entity while cash flow from investing activities refers to acquisition and disposal of long-term assets and other investments that are not included in the cash equivalents. In this guideline the indirect method of presentation of statement of cash flow is recommended and will be in the format shown in Table 26. The indirect method of reporting adjusts profit or loss by transactions of noncash nature, any deferrals or accruals of past or future cash receipts or payments and items of income or expense associated with investing or financing cash flows.

Table 26: Statement of Cash Flow (Indirect Method)

Description	Historical			Current	Projections		
	n-3	n-2	n-1	n	n+1	n+2	n+3
Cash flow from Operating Activities							
Net cash (surplus/loss)							
Add adjustments for:							
Depreciation and amortization							
(Increase)/decrease in receivables							
Increase in inventories							
Increase/(decrease) in trade payables							
Foreign exchange (loss)/gain							
Net cash from operating activities							
Cash flow from Investing Activities							
Acquisition of Property, Plant and Equipment							
Acquisition of Intangible Assets							
(Increase)/decrease in capital work in progress							
Proceeds from sales of Equipment							
Interest received							
Net cash from investing activities							
Cash flow from Financing Activities							
Repayment of long term borrowings							
Proceeds from long term borrowings							
Increase/decrease in provisions							
Increase/(decrease) in revaluation surplus							
Net cash from financing activities							
Net increase in cash and cash equivalent							
Cash and cash equivalent at the beginning of the period							
Cash and cash equivalent at the end of the period							

5.7 Financial Ratios

A number of financial ratios can be derived from the financial projections. These not only indicate the financial health of the RWU over time but can also be used by EWURA for comparison of performance between authorities.

Financial Ratios calculation for RWUs should at the minimum provide information on:

(a) Liquidity: liquidity ratios measure the ability of RWUs to meet their short term maturing obligations from the current assets;
(b) Activity or operating performance;
(c) Leverage ratios which show the extent of indebtedness or also ability of RWUs to service their long term debts; and
(d) Other ratios that have been provided in the Performance Indicators which include Account Receivable Collection period, Revenue Collection Efficiency, Operating ratio and Personnel expenditure as % of collection from water and sewerage bills.

In these guidelines, the typical financial ratios used to define or measure a RWU's performance are not self-explanatory and, thus, require elaboration on their meaning and implications. It should be emphasized that the interpretation of the ratios given herein should always be related to the context of each RWU as it applies them.

The financial ratios frequently used in analyzing performance of RWUs as well as serve the purpose for financial projections would include the following:

(a) Current Ratio

The current ratio (CR) measures whether or not a RWU has enough resources to pay its debts over the next 12 months. It compares a RWU's current assets to its current liabilities. The current ratio is an indication of a RWU's liquidity and ability to meet creditor's demands

The formula used to calculate the current ratio is as follows, while its interpretation is given in the **Table 27**.

Current Ratio(CR) = Current Assets / Current Liabilities

Table 27: Interpretation of Current Ratio

CR Value	Interpretation	Possible Action
>2	The RWU may not be efficiently using its current assets or it may be having a lot of current assets tied up in	The RWU – in tendency - is having excessive current assets i.e. accounts receivable and needs to increase

CR Value	Interpretation	Possible Action
	debtors/accounts receivable.	collection efficiency, billing efficiency etc. The RWU should look also at its inventory.
1<CR<2	The RWU is in very good liquidity position (the higher the number, the better). For instance a ratio of 1.25 means that for every 1 Shilling the RWU owes it has 1.25 Shillings in assets.	The RWU should maintain its revenue base and use the surplus to undertake investments to extend the network
CR<1	The RWU may have problems meeting its short-term obligations.	The RWU may consider engaging in a rigorous cost recovery program, increase collection efficiency.

(b) Operating Ratio

The operating ratio is an indicator that is used to measure RWU's ability to recover operating costs (including depreciation) from its annual revenues. Operating ratio is calculated by dividing the RWU's total annual operating expenses with the annual revenue.

Formula: Operating Ratio = total operating costs / total revenue

Operating ratio should be less than 1.

(i) Under normal circumstances a ratio less than 1 would mean that the RWU is able to meet all of its expenditures with its revenues over the reporting period.

(ii) If the ratio is less than 0.7 the RWU has an excellent revenue position (operating surplus) and should work to extend the network.

(iii) If the ratio is close to 1 then the RWU's financial situation is likely not strong and should be improved by cutting down costs and applying a range of available instruments to achieve better cost recovery.

(iv) If the ratio is greater than 1, the RWU has an operating deficit and is, thus, not likely to meet its present and accumulated expenditures using its own revenue. Again, the RWU should urgently cut costs and apply suitable means to achieve cost recovery. In detail, the following interpretations may apply.

Table 28: Interpretation of Operating Ratio

OR Value	Interpretation	Possible Action
< 0.7	The RWU has an operating surplus and is in good financial condition	The RWU should maintain its revenue base and use the surplus to undertake investments to extend the network
> 07 </= 1	Despite the slight operating surplus, the RWU is progressively weak, the closer the ratio is to being = 1. The RWU would likely not be able to cope with external shocks or	The closer the ratio is to being = 1, the more the RWU should try to exercise budget control and to cut expenditures where necessary. The focus should be on increasing operational efficiency and large

OR Value	Interpretation	Possible Action
	anything that would further weaken its revenue base.	investments should be carefully weighted as to whether or not they cut costs or increase the revenue base significantly.
> 1	The RWU is running an operational deficit. Performance is not satisfactory as the RWU is actually spending more than the revenues being generated. Its performance is poor and thus financial situation is weak.	The RWU should focus all efforts in implementing steps to increase operational efficiency, to increase the customer base and – most importantly – to cut costs radically. Possible means to achieve these goals are to reduce NRW, reduce administrative and general expenses and restructure the tariffs.

(c) Debt Servicing Coverage Ratio

The Debt Servicing Coverage Ratio (DSCR) measures the ability of an entity to carry out payments of the loan (principal + interest). It indicates the percentage of total revenue income that is spent towards paying the annuities (interest and principal) on loans taken by the RWU.

Formula: Debt Servicing Coverage Ratio = Total annuities / Total revenue

Table 29: The interpretation of Debt Servicing Coverage Ratio

DSCR Value	Interpretation	Possible Action
> 0.3	If the DSCR is > 0.3 then it means that the RWU is overleveraged with the existing loans and any further loan funding will push the RWU into a debt trap.	The RWU should not take up new loans, but focus on cost-recovery.
< 0.3	If the DSCR < 0.3 it means that the RWU can contract additional loan and will be in a position to repay the loan annuities without compromising on the need for day-to-day expenditures.	The RWU would have enough financial room to the next steps to increase the network/ customer base.

(d) Account Receivable Collection period

Account Receivable Collection period indicates the amount of money owed to water utilities by their customers expressed as the average duration in months the utility takes to collect their bills. It is calculated by taking the total accounts receivable during the year divided by the total water and sewerage sales (bills) multiplied by 12. A value between 1 and 2 months is considered reasonable.

(e) Personnel expenditure as % of current collection from water and sewerage bills

Total personnel expenditures expressed as a percentage of the total collection from current water and sewerage bills plus collections from other water and

sewerage related services (excluding grants and subsidies). The limit for this indicator is as provided in the MoU between the Ministry of Water and RWUs.

(f) Collection Efficiency (%)

This ratio refers to total collection from water and sewerage services expressed as percentage of total water and sewerage billings. A value of at least 95% is considered reasonable.

The financial ratios shall be presented as shown in Table 30.

Table 30: Financial Ratios

SN	Description	Unit	Historical			Current	Projections		
			n-3	n-2	n-1	n	n+1	n+2	n+3
1	Current Ratio	Ratio							
2	Operating Ratio	Ratio							
3	Debt Service Coverage Ratio	Ratio							
4	Account Receivable Collection Period	months							
5	Personnel Expenses as % of Collections	%							
6	Collection Efficiency	%							

6 MONITORING, EVALUATION AND REPORTING

A RWU shall indicate the process of implementation of their business plan by having in place internal control mechanisms of monitoring, evaluation and reporting its performance over a period of time. A RWU shall commit itself to undertake an annual review and assessment of implementation of their business plan in line with preparation of their annual budget.

ANNEX A: PRESENTATION LAYOUT OF A BUSINESS PLAN

RWUs shall present their Business Plans by observing the following structure.

Executive Summary

1. Introduction
2. Description of the RWU
3. Vision and Mission
4. Current and Future Performance of the RWU
5. Business Plan Forecast
   - 5.1 Business Analysis
     - 5.1.1 Internal Environment Analysis
     - 5.1.2 External Environment (PESTEL) Analysis
     - 5.1.3 Competitors and Collaborators Analysis
     - 5.1.4 SWOC Analysis
   - 5.2 Marketing Strategy
     - 5.2.1 Water Demand Projection
     - 5.2.2 Service Coverage Projection
     - 5.2.3 Customer Relations
     - 5.2.4 Community Relations
6. Asset Management Plan
   - 6.1 Summarised Asset Register
     - Key Assumptions and Considerations
   - 6.2 Assessment of Risks and Consequences
     - Key Assumptions and Considerations
   - 6.3 Lifecycle Management
     - Key Assumptions and Considerations
7. Capacity Development Analysis
   - 7.1 Organization Structure
   - 7.2 Staff Numbers and Skills
   - 7.3 Training Needs
8. Key Strategic Issues
9. Action Plan
10. Investment Plan
11. Financial Projections and Ratios
    - 11.1 Statement of Comprehensive Income
    - 11.2 Statement of Financial Position
    - 11.3 Statement of Cashflow
    - 11.4 Financial Ratios
12. Monitoring and Reporting

Appendices

Appendix A: Current and Planned Performance

ANNEX B: CURRENT AND PLANNED PERFORMANCE

Table 1: Overall Quality of Service Targets
Table 2: Guaranteed Quality of Service Targets
Table 3: Water Supply Performance Targets
Table 4: Sewerage Performance Targets

TABLE 1: OVERALL QUALITY OF SERVICE TARGETS

Code	Focus and Description	Minimum Service Level Requirement by the RWU	Current Service Level:	Description of ongoing projects/operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
WSS01	**Water Quality** Testing samples for impurities	To ensure that water is within standards as specified by TZ Standards.							
WSS02	**Water Pressure** Minimum/maximum water pressure	Must maintain a pressure ranging from 0.5 to 2 bars ***(1bar is equivalent to 10m of column of water)***							
WSS03	**Reliability of supply** Notify public of intention to interrupt supply – planned interruptions	Minimum notification time of 12 hours for short interruptions (less than 4 hours) and 24 hours for longer interruptions (more than 4 hours)							
WSS04	Reliability of supply:	Maximum time of 24							

Code	Focus and Description	Minimum Service Level Requirement by the RWU	Current Service Level:	Description of ongoing projects/operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
	Restoration after emergency lock-off	hours to restore supply in urban areas.							
WSS05	**Sewerage** Correction of sewerage problems	Maximum of 24 hours to correct minor sewerage problems i.e. blockage after being informed.							
WSS06	**Sewerage** Sewerage affluent quality	Ensure that sewerage affluent is within the standards specified by Tanzania Standards.							
WSS07	**Water meters** Changing meters	Maximum of 5 working days after meter change, the Licensee must provide consumers with details of the old and new meters on the following: date of change, meter readings and serial numbers.							
WSS08	**Delivery of bills** Issue of first bill	Maximum time of 30 working days after connection.							

Code	Focus and Description	Minimum Service Level Requirement by the RWU	Current Service Level:	Description of ongoing projects/operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
WSS09	**Appointments** Keeping appointments	Licensee must make and keep an appointment at customers request and must notify customer prior to appointed time. If upon arrival at premises, the customer has already left, the field officer should leave details related to the complaint, including time of visit and contact number to the customer premises. Also Licensee's should notify him/her within 5 days for new appointment.							
WSS010	**Complaints** Response to complaints not bill related	Maximum of 5 working days to acknowledge customer's complaints, after receipt. Maximum time of 20 working days to complete investigation and respond, from date							

Code	Focus and Description	Minimum Service Level Requirement by the RWU	Current Service Level:	Description of ongoing projects/operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
		of receipt of complaint.							
WSS011	**Complaints** Response to billing complaints	Maximum of 5 working days to acknowledge customer complaints, after receipt. Maximum time of 10 working days to complete investigation and respond, from date of receipt of complaint.							
WSS012	**Account status** Issue of account status	A maximum of five (5) days notice is required from the customer for the meter to be read on the same day (or within 2 days if on a weekend) the customer is moving. Maximum time of 15 working days to provide final bill after move.							

TABLE 2: GUARANTEED QUALITY OF SERVICE TARGETS

Code	Focus and Description	Minimum Service Level Requirement by the RWU	Current Service Level	Description of ongoing projects/ operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
WSSG1	**Access** Connection to supply	Maximum time of 7 working days.							
WSSG2	**Water meters 1** Meter installation for Licensee's with 100% metering	Maximum of 30 working days to install meter on customer's request.							
WSSG3	**Water meters 2** Repair or replacement of faulty meters	Maximum time of 30 working days to repair or replace meter after being informed of defect.							
WSSG5	**Water meters 3** Meter reading	Meter reading done at least once every two months as long as it can be accessed by Licensee.							
WSSG5	**Unjustified disconnection**	A maximum of 24 hours to restore							

Code	Focus and Description	Minimum Service Level Requirement by the RWU	Current Service Level	Description of ongoing projects/ operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
	Stop Unjustified disconnection	wrong/unjustified disconnection after being notified/ aware.							
WSSG6	**Reconnection**	Within 24 hours after debt settlement.							
WSSG7	**Compensation** Payment of compensation	Maximum of 30 days after claim is received to process and make payment. Customer must make claim within 60 days of perceived breach.							

TABLE 3: WATER SUPPLY PERFORMANCE

ID.NO	Performance Indicator	Current Performance	Description of ongoing projects/operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
Protection of the user interests								
User service accessibility								
PW 1(a)	Proportion of population living within the area with water network (%)							
PW 1(b)	Proportion of population served with water (%) (WSDP Indicator)							
PW 2	Ratio of the total number of water connections to the total number of households (%) (WSDP indicator)							
PW 3	No. of public water kiosks							
PW 4	Average hours of supply							
	Quality of service supplied to users							
PW 5	Water quality compliance (%)							
	3.1 E-coli							
	3.2 Turbidity							

ID.NO	Performance Indicator	Current Performance	Description of ongoing projects/operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
PW 6	Response to written complaints (%)							
Sustainability of the Operator								
	Operator's financial and economic sustainability							
PW 7	Metering ratio (%)							
PW 8	Non Revenue water (%)							
PW 9	Payment of electricity bills in %							
PW 10	Revenue collection efficiency (%)							
PW 11	Working ratio							
PW 12	Operating ratio							
PW 13	Contribution to investment							
	Operator's Cost Indicators							
PW 14	Personnel expenditure per m3 of water produced							
PW15	Personnel expenditure as %							

ID.NO	Performance Indicator	Current Performance	Description of ongoing projects/operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
	of collection from water and sewerage bills							
PW16	Administration costs per m3 of water produced							
Operator's infrastructural sustainability								
PW 17	Treated water storage capacity (hours)							
PW 18	Water Mains rehabilitation (% per year)							
PW 19	Water service connections rehabilitation (% per year)							
Operator's operational sustainability								
PW 20	Mains failures (nr/km/year)							
Operator's human resource Efficiency								
PW 21	Personnel/1000 (W&S) connections							
PW 22	Revenue per staff per year (							

ID.NO	Performance Indicator	Current Performance	Description of ongoing projects/operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
	Million/staff)							
Environmental sustainability								
PW 23	Energy consumption (kWh/cu.m)							

TABLE 4: SEWERAGE PERFORMANCE

IND.NO.	Name of Indicator	Current performance	Description of ongoing projects/operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
Protection of the user interests								
	User service accessibility							
PS 1	Proportion of population connected with sewerage network (%)							
PS 2	Number of people sensitized and trained in sanitation							
PS3	Number of latrine constructed at household levels							
PS 4	Number of households with connection to sewerage							
	Quality of service supplied to users							
PS 5	Response to written complaints (%)							
Sustainability of the								

IND.NO.	Name of Indicator	Current performance	Description of ongoing projects/operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
Operator								
	Operator's financial and economic sustainability (are combined with water)							
	Operator's infrastructural sustainability							
PS 6	Treatment of collected wastewater (%).							
PS 7	Sewerage Mains rehabilitation (% per year)							
PS 8	Sewerage service connection rehabilitation (% per year)							
	Operator's operational sustainability							
PS 9	Sewer blockages (nr/100km of sewers/year)							
PS 10	Sewer collapses (nr/100km of							

IND.NO.	Name of Indicator	Current performance	Description of ongoing projects/operational activities to improve the current service levels	Starting and completion dates	Costs (Million TZS)	Provisional Service level Target: Year 1	Provisional Service level Target: Year 2	Provisional Target Service level: Year 3
	sewers/year).							
Environmental sustainability								
PS 11	Wastewater quality compliance (%)							
	8.1 BOD_5 compliance							
	8.2 COD compliance							
PS 12	Energy consumption (kWh/cu.m)							
PS 13	Safe disposal of sludge (%)							

ANNEX C: DEFINITIONS OF QUALITY OF SERVICE AND PERFORMANCE TARGETS

CODE	DESCRIPTION	DEFINITION
1. OVERALL QUALITY OF SERVICE		
WSS01	**Water Quality** Testing samples for impurities	It is the duty of the Licensee to make periodical analyses of water samples to ensure water quality. RWUs are required to take any water samples necessary for analysis, at both source and distribution points, and check if the samples are within the standards specified by Tanzanian Bureau of Standards. 100% of all samples should meet the required standards. The RWU must also comply with Water Quality Monitoring Guidelines issued by EWURA.
WSS02	**Water Pressure** Minimum/maximum water pressure	The minimum pressure should be 0.5 bars (5 meters head pressure) at the ingoing pipe to the premise with a minimum flow of 7 liters per minute. A maximum standard of pressure should not be more than 2 bars (20 meters head pressure) so as to protect consumers from damages due to excessive pressures, i.e. If the main supplying pipes leading to the properties of the consumers within a living quarter do not reach 1 bar (10 meters head pressure), it shall be concluded that the pressure at the connections served by the main is not sufficient.
WSS03	**Reliability of supply** Notify public of intention to interrupt supply – planned interruptions	A RWU is required to inform customers at least 24 hours beforehand when there is need to turn off the water supply for more than 4 hours and the duration of the outage. The RWU also has to give at least 12 hours notice of work that is expected to last between 1 and 4 hours. The public is to be advised and apologies issued in the appropriate medium if the RWU cannot restore water supply at the specified time. Notification of outage, in the first instance, should be by means to enable the most effective communication to the affected customers. The required notification time should be given for at least 90% of planned interruptions, (for work of duration of not more than 4 hours as well as those of duration more than 4 hours).
WSS04	Reliability of supply: Restoration after emergency lock-off	If there is burst of water main or other emergency, the RWU may not be able to warn customers that there will be water lock-offs. The RWU shall, however, inform customers through the appropriate communication within 2 hours after interruption. The RWU will be required to provide an alternative supply of water if necessary (trucking water to affected areas), and to restore supply within 24 hours. The RWU must inform customers of unplanned lock-offs (within 2 hours after interruption) at least 90% of the time. Similarly, supply must be restored within 24 hours at least 90% of the time. Alternative supply of water, if necessary, must be provided to at least sensitive areas which include Hospitals, Schools and Prisons.
WSS05	**Sewerage** Correction of sewerage problems	The RWU must correct all problems, which result in flooding from sewers, within 24 hours of being informed.
WSS06	**Sewerage**	A RWU is required to periodically take any effluent samples necessary for analysis and check if

CODE	DESCRIPTION	DEFINITION
	Sewerage affluent quality	the samples are within the standards specified by the Tanzania Bureau of Standards. 99% of all samples must meet the required standards.
WSS07	**Water meters** Changing meters	If a RWU needs to change a customer's meter, they are required to leave written details to a customer no later than 5 working days of the date of the date of the exchange, meter readings (of old and new meters) no later than 5 working days of the day of change and serial numbers of the new meter at all times.
WSS08	**Delivery of bills** Issue of first bill	A RWU must issue (print and mail) a bill to a new customer within 30 days after connection
WSS09	**Appointments** Keeping appointments	A RWU has a responsibility to satisfy a customer's request for a representative to visit the customer's premises to deal with an identifiable problem. Appointments should be made with a RWU (and its field officers) from 8:00am to 3:00pm. The RWU must guarantee to keep all appointments or to notify the customer prior to the appointed time, if an emergency prevents them from keeping the appointment. If upon arrival at the premises the customer has already left, the field officer should leave details, including time of visit and contact number, to the customer premise or at other place agreed with the customer. Also the RWU should notify the customer within 5 days for new appointment.
WSS010	**Complaints** Response to complaints not bill related	Complaints not related to billing include, faulty meters, insufficient pressure, leakage, poor water quality, insufficient pressure, sewer flooding, interruption of water supply, unjustified delay on new connections, unjustified disconnections, insufficient information, no or late response to inquiries, undue behavior of provider's personnel etc. Records and reports shall be made based on this categorization. If a complaint is made in writing to the RWU, the RWU must acknowledge the complaint 5 working days after receipt of complaint (by dispatching letter and any other mode of communication). It should also undertake, in the response, its intent to conclude its investigation and reply within 20 working days of the receipt of the inquiry. The RWU is required to take details of complaints made by telephone or in person, at the time of the call or visit. If the complaint requires investigation, conclusion of investigation as well as response to customer should be within 20 working days of receipt of complaint.
WSS011	**Complaints**	Complaints related to billing include, no bill received, wrong or no meter reading, non

CODE	DESCRIPTION	DEFINITION
	Response to billing complaints	consideration of previous payment etc. Records and reports shall be made based on this categorization. A RWU is required to acknowledge complaint within 5 working days and reply to all complaints whether written or by phone regarding bills within 10 working days of receiving the inquiry
WSS012	**Account status** Issue of account status	If a customer is moving and requests an account status and/or service to cease, a RWU is required to read the customer's meter on the day the customer is moving, if on a working day, as long as 5 working days notice of the move is given to a RWU by a customer. If the customer is moving on a weekend, the RWU should read the meter within two (2) days of the move. The RWU is also required to provide the relevant bill within 15 working days of the customer moving.
2. GUARANTEED QUALITY OF SERVICE		
WSSG1	**Access** Connection to supply	A RWU is required to connect all new customers, where water supply is available at the property boundary, within 7 working days after making full payment of connection costs.
WSSG2	**Water meters 1** Meter installation for Licensee's with 100% metering	A RWU with 100% metering ratio is required to fit a meter, where an unmetered customer requests one, within 30 working days of receiving the customer's order. If, for some reason, a RWU is unable to meet the request, the RWU should advice the customer and make a commitment as to when the meter will be provided.
WSSG3	**Water meters 2** Repair or replacement of faulty meters	If a customer's meter is verified by the Licensee's as faulty, the Licensee shall repair or replace it within 30 working days of being first informed of the defect by the customer or after detection by the Licensee.
WSSG5	**Water meters 3** Meter reading	A RWU has the responsibility to provide at least one bill every month and will guarantee to read customers' meters at least once every two months as long as it can be accessed. If the meter is not accessible, a RWU should make arrangements to relocate it.
WSSG5	**Unjustified disconnection** Stop Unjustified disconnection	A RWU is required to make sure that no customer is disconnected contrary to the laid down regulations and guidelines. Licensee's is required to reconnect customers, whose supply has been wrongly or unjustifiably disconnected, within 24 hours after knowledge of/ being reported of the unjustified disconnection.
WSSG6	**Reconnection**	A RWU is required to reconnect customers, whose supply has been locked off for debt and who

CODE	DESCRIPTION	DEFINITION
		have settled all their accounts or as agreed with the RWU within 24 hours after debt settlement. This standard does not apply in those circumstances where the supply has been illegally reconnected and the RWU has subsequently removed all infrastructures. In these circumstances a request for reconnection will be treated as a new connection and the WSSG 1 would apply.
WSSG7	**Compensation** Payment of compensation	A RWU has 60 days after claim within which to verify and/or make payment to the customer.
3. WATER SUPPLY PERFORMANCE		
PW 1(a)	Proportion of population living within the area with water network (%)	The proportion of population living within the area with water network expressed as a percentage. It is obtained by dividing the population living within 200 meters from the water distribution pipe by the total population living in the service area.
PW 1(b)	Proportion of population served with water (%) (WSDP Indicator)	Is the percentage of population served to the total population living in the service area. The population served is arrived at by adding the following; (i) the number of domestic connections multiplied by the average members using that connection. (ii) the number of public stand posts and/or kiosks is multiplied by the average number of the population served by public stand posts and/or kiosks (iii) the population living in residential institutions, industrial and commercial complexes.
PW 2	Ratio of the total number of water connections to the total number of households (%)	Ratio of the total number of water connections to the total number of households. The total number of households is derived from census figures.
PW 3	No. of public water kiosks	The total number of active water kiosks at the end of a financial year.
PW 4	Average hours of supply	Are the hours per day a consumer can draw drinking water from the tap at his household connection or the public stand post. The best practice is 24 hours.
PW 5	Water quality compliance (%)	This indicator measures the % of the water samples that pass particular water quality tests for potability = Total Number of Samples Passed / Total Number of Samples Tested x 100.
PW 6	Response to written complaints (%)	Number of written complaints within the target time (5 working days) during a year /number of written complaints during the year x 100.
PW 7	Metering ratio (%)	The percentage of number of water connections that have operating water meters to the total number of active water connections.

CODE	DESCRIPTION	DEFINITION
PW 8	Non Revenue Water (%)	Is the amount of water that a water utility produces (or purchases from other water utilities) minus the amount that is sold to consumers, presented as a percentage of water produced and/or purchased. The recommended value is less than 20%.
PW 9	Payment of electricity bills in %	This is the annual amount set aside by a RWU for payment of electricity bills as a percentage of annual electricity bill.
PW 10	Revenue collection efficiency (%)	This indicator measures the ratio of collection to the billings during the year calculated as the Amount of Revenues Collected /Amount Billed x 100.
PW 11	Working ratio	This is the ratio of operational expenses / operational revenue. The operational expenses do not include depreciation, interest and debt service. Sound financial management requires that this ratio should be well below 1.
PW 12	Operating ratio	Ratio of operating costs to operating revenues. Operational costs include all the expenses together with depreciation and interests costs (but no debt service payments). Sound financial management requires that this ratio should be less than 1.
PW 13	Contribution to investment	Is the proportion of capital expenditures financed by the net internal cash generated by the RWU.
PW 14	Personnel expenditure per m3 of water produced	Is the ratio of total personnel expenditure (TZS) to the total amount of water produced (m3)
PW15	Personnel expenditure as % of collection from water and sewerage bills	Total personnel expenditure (TZS) expressed as a percentage of the total collection from current water and sewerage bills plus collections from other water and sewerage related services (excluding grants and subsidies).
PW16	Administration costs per m3 of water produced	Total Administration costs (TZS) / total amount of water produced (m^3).
PW 17	Treated water storage capacity (hours)	Total capacity of treated water storage (private storage tanks excluded) / average daily consumption x 24hours.
PW 18	Water Mains rehabilitation (% per year)	Length of mains (a pipe of diameter ≥ 2") rehabilitated during the year / total length of mains x 100.
PW 19	Water service connections rehabilitation (% per year)	Number of service connections replaced or rehabilitated during the year / total number of connections x 100.
PW 20	Mains failures (nr/km/year)	Number of mains (a pipe of diameter ≥ 2") failures leading into service interruption in a year / total mains length.
PW 21	Personnel/1000 (W&S) connections	This indicator measures the staffing level and is calculated as the ratio of total personnel to total water and sewerage connections multiplied by 1000.
PW 22	Revenue per staff per year (	Total Revenue per year / total number of staff.

CODE	DESCRIPTION	DEFINITION
	Million/staff)	
PW 23	Energy consumption (kWh/cu.m)	Energy consumption during the assessment period / Total amount of water produced (m^3).
4. SEWERAGE PERFORMANCE		
PS 1	Proportion of population connected with sewerage network (%)	Is the percentage of population served with sewerage service to the total population living in the service area. The population served is arrived at by adding the following; (i) the number of domestic sewerage connections multiplied by the average members using that connection. (ii) the number of people living in residential institutions, industrial and commercial complexes that are connected with sewerage services.
PS 2	Number of people sensitized and trained in sanitation	Total number of persons sensitized and trained in sanitation.
PS3	Number of latrine constructed at household levels	Number of latrines constructed in a year.
PS 4	Number of households with connection to sewerage	Total number of households with sewerage connection.
PS 5	Response to written complaints (%)	Timely worked complaints/total complaints received x 100
PS 6	Treatment of collected wastewater (%).	Maximum daily volume of sewerage treated in treatment plants during a year/maximum daily capacity of the existing treatment plants x100
PS 7	Sewerage Mains rehabilitation (% per year)	Length of sewer mains rehabilitated during the year/total sewer mains length x 100
PS 8	Sewerage service connection rehabilitation (% per year)	Number of sewer connections replaced or renovated during the year / total number of sewer connections x 100.
PS 9	Sewer blockages (nr/100km of sewers/year)	Number of sewer blockages in a year/ total sewer length x 100
PS 10	Sewer collapses (nr/100km of sewers/year).	Number of sewer collapses in a year/ total sewer length x 100
PS 11	Wastewater quality compliance (%)	This indicator measures the % of the sewerage effluent samples that pass particular quality tests as per Tanzanian sewage quality standards: Total Number of Samples Passed / Total Number of Samples Tested).
PS 12	Energy consumption (kWh/cu.m)	Energy consumption for pumping during the assessment period/sum of the volume elevated during the assessment period
PS 13	Safe disposal of sludge (%)	Volume of sludge safely disposed/total volume of sludge.