



THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF ENERGY

ENERGY AND WATER UTILITIES
REGULATORY AUTHORITY
(EWURA)



GUIDELINES FOR INCLUSIVE SANITATION PLANNING IN WSSAs' SERVICE AREAS

June 2025



**THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF ENERGY**

**ENERGY AND WATER UTILITIES
REGULATORY AUTHORITY
(EWURA)**



GUIDELINES FOR INCLUSIVE SANITATION PLANNING IN WSSAs' SERVICE AREAS

JUNE 2025

FOREWORD

The Guidelines for Inclusive Sanitation Planning have been prepared to ensure equity, sustainability, and safely managed sanitation in WSSAs' service areas. This document is an important step towards achieving Sustainable Development Goal 6.2, which aims to ensure access to adequate and equitable sanitation and hygiene for all.

These Guidelines are designed to assist WSSAs and key stakeholders in developing comprehensive, inclusive sanitation plans for safely managed sanitation in their service areas. They provide a framework for tackling sanitation challenges in urban areas through collaboration and coordination among stakeholders to improve sanitation services.

By adopting a Citywide Inclusive Sanitation (CWIS) approach, WSSAs service areas will benefit from adequate and sustainable sanitation services, including the safe, effective, and sustainable management of all human waste along the sanitation service chain.

We urge all stakeholders to adopt the principles outlined in these guidelines and collaborate to develop sustainable and inclusive sanitation solutions. By doing so, we can enhance public health, protect the environment, and improve the quality of life for all Tanzanians.

We extend our sincere gratitude to all stakeholders who contributed to developing these guidelines.

Dr. James A. Mwainyekule
Director General

TABLE OF CONTENTS

FOREWORD	ii
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF ABBREVIATIONS AND ACRONYMS	vii
DEFINITION OF TERMS	ix
1. INTRODUCTION	1
1.1 Background	1
1.2 Objective of the Guidelines	2
1.3 Rationale of the Guidelines	2
1.4 Citywide Inclusive Sanitation	2
1.4.1 City-wide Inclusive Sanitation Principles	2
2. POLICY AND LEGAL FRAMEWORK FOR SANITATION	3
2.1 Sectoral National Policies	3
2.2 Related National Legislation	4
3. SANITATION BUSINESS MODEL OPTIONS	5
3.1 Sanitation Business Model	5
3.2 Capture and Containment Services Model	8
3.3 Emptying and Transportation Services Model	8
3.4 Treatment, Reuse, and Disposal Services Model	8
3.5 Combination of Emptying, Transportation, Treatment, Reuse, and Disposal Services Model	8
3.6 Combination of Capture, Containment, Emptying, Transportation, Treatment, Reuse and Final Disposal Services Model	8
3.7 Combination of Conveyance, Treatment, and Final Disposal Services Model	8
4. APPROPRIATE SANITATION TECHNOLOGY SELECTION	9
4.1 Some Available Sanitation Technologies	9
4.2 Criteria for Evaluating Sanitation Technology	9
5. FINANCING OPTIONS FOR THE SANITATION BUSINESS	10
5.1 Steps to Achieving a Sustainable Sanitation Investment Plan	10
5.2 Financing Options for Sanitation Business Models	11
6. ENGAGEMENT, COLLABORATION, RESPONSIBILITIES, AND COORDINATION OF KEY STAKEHOLDERS	12
6.1 Stakeholder Engagement Mechanism	12
6.1.1 Stakeholder Mapping and Engagement	14
6.1.2 Sector Coordination	14
6.1.3 City/Town Level Planning	14
6.1.4 Community-Level Engagement	15
6.2 Roles and Responsibilities of Key Stakeholders	16

6.3 Incentives and Opportunities for the Private Sector Along Sanitation Service Chain	16
6.3.1 Opportunities for Private Sector Participation in Sanitation Service	16
6.3.2 Incentives for Private Sector Engagement	17
6.4 Addressing Gender, Culture, and Social Inclusion	18
6.5 Addressing Menstrual Hygiene Management in Community-Based Sanitation	18
6.6 Supporting Sanitation Workers	19
7. PLANNING STAGES AND TOOLS	19
7.1 Stages in Inclusive Sanitation Planning	19
7.2 Planning Tools	21
7.2.1 Diagnostic tools	21
7.2.2 Prioritization Tool	22
7.2.3 Planning & decision-making tools	23
8. INCLUSIVE SANITATION PLAN DEVELOPMENT	24
8.1 Executive Summary	24
8.2 Introduction	24
8.3 Overview of the Water and Sanitation Authority	25
8.4 Stakeholder engagement and communication	25
8.5 Sanitation Situation Analysis	25
8.6 Sanitation Service Demand Forecast	27
8.7 Inclusive Sanitation Implementation Plan	29
8.8 Financial Plan	30
8.8.1 Sanitation Investment Plan	31
8.8.2 Operation and Maintenance Plan	32
8.8.3 Statement of Financial Performance	33
8.9 Monitoring, Review and Evaluation	34
APPENDICES	35

LIST OF TABLES

Table 1: Basic elements to be considered in each section of the Business Model	7
Table 2: Financing Options for Sanitation Business Models	11
Table 3: Summarized Stages in Implementing Inclusive Sanitation	20
Table 4: Most common diagnostic tools	21
Table 5: Most Common Prioritization Tools	22
Table 6: Planning & decision-making tools	23
Table 7: Stakeholder Involvement	25
Table 8: Current and Projected Amount of Faecal Sludge Generation	28
Table 9: Current and Projected Sewage Generation	28
Table 10: Sanitation Service Coverage	29
Table 11: Summarized Problem Identification and Way Forward	29
Table 12: Action Plan for Inclusive Sanitation	30
Table 13: Sanitation Investment Plan	31
Table 14: Operation and Maintenance Plan	32
Table 15: Income and Expenditure Statement	33

LIST OF FIGURES

Figure 1: Segments of On-site Sanitation Service Chain	5
Figure 2: Financial scheme required for a sustainable financing plan for sanitation services	11
Figure 4: The Onsite Sanitation Service Chain (non-sewered system)	26
Figure 5: The Sewered Sanitation Service Chain	26

LIST OF ABBREVIATIONS AND ACRONYMS

AT	Appropriate Technology
BWBOs	Basin Water Boards
CAPEX	Capital Expenditure
CBOs	Community-Based Organisations
CPA	Community Participatory Approach
CWIS	Citywide Inclusive Sanitation
CSOs	Civil Society Organisations
CSR	Corporate Social Responsibility
DEWATS	Decentralised Wastewater Treatment Systems
EWURA	Energy and Water Utilities Regulatory Authority
ESAWAS	Eastern and Southern Africa Water and Sanitation Regulators Association
FSTP	Faecal Sludge Treatment Plant
FSM	Faecal Sludge Management
GIS	Geographical Information System
LGA	Local Government Authority
WSSAs	Water Supply and Sanitation Authorities
MoW	Ministry of Water
MoH	Ministry of Health
M&E	Monitoring and Evaluation
NEMC	National Environment Management Council
NGOs	Non-Government Organizations
PPE	Personal Protective Equipment
RUWASA	Rural Water Supply and Sanitation Agency
SDG	Sustainable Development Goal
SFD	Shit-Flow Diagram

SSP	Sanitation Safety Plan
TBS	Tanzania Bureau of Standards
ToR	Terms of Reference
VIP	Ventilated Improved Pit
VPO-E	Vice President's Office - Environment
WHO	World Health Organisation
WWTP	Waste Water Treatment Plant
OPEX	Operating Expenditure
O&M	Operation and Maintenance

DEFINITION OF TERMS

Business Licence
A business licence is a permit authorising a private operator to provide OSS and FSM services issued by a Local Government Authority based on the Business Licensing Act (1972).
Capture /Toilet
The user interface with the sanitation system, where excreta is captured, can incorporate any type of toilet seat or latrine slab, pedestal, pan, or urinal.
Containment
The containment is only relevant to non-sewered sanitation systems and refers to the container, usually located below ground level, to which the toilet is connected.
Disposal of Faecal Sludge
End-use/disposal refers to the different technologies and methods by which treated products are ultimately discharged into the environment, either as end-use products or reduced-risk materials.
Excreta
Urine and faeces.
Faecal Sludge
Solid and liquid wastes are removed from on-site storage containers, also called septage when removed from septic tanks.
Faecal Sludge Management
Faecal sludge management is a system for the safe collection, transport, treatment, disposal and/or reuse of faecal sludge.
Household
Household means premises that are occupied by a family unit for domestic purposes.
Offsite Sanitation
A sanitation system in which excreta (wastewater) is collected and transported away from the plot where they are generated. An off-site sanitation system relies on sewer technology for transport.
Onsite Sanitation
A sanitation system in which excreta and wastewater are collected and stored or treated on the plot where they are generated.

Pollute
Means to directly or indirectly alter the physical, thermal, chemical, biological or radioactive properties of water to render such water less fit for any beneficial purpose for which it is, or may reasonably be used, or cause a condition which is hazardous or potentially hazardous to public health, safety welfare or to animals, birds, fish or aquatic life, or organism or to plant and “pollution” has a corresponding meaning.
Re-use (end-use)/Disposal of Faecal Sludge
The methods by which products are ultimately returned to the environment as reduced-risk materials and/or used in resource recovery.
Sanitation
The provision of appropriate facilities and services for the collection and disposal of human excreta and wastewater.
Service Provider
A service provider appointed in accordance with sections 19 and 37 of the Water Supply and Sanitation Act (2019).
Sanitation Service Chain
Sanitation Service Chain means all components and processes comprising a sanitation system, from toilet capture and containment through emptying, transport, treatment (in-situ or offsite) and final disposal or end use.
Sewage
Sewage means liquid waste conveyed in sewers but does not include stormwater.
Sewer
Sewer means any pipe or conduit other than a drain used, or for use, for the conveyance of sewage.
Trade Waste Agreement
The trade waste agreement as stipulated under sub-regulation 10(1) & (2) of Water Supply and Sanitation (Provision and Management of Sewage and Wastewater Services) Regulations (2019) may be entered between a water authority and private operator for sucking, transporting and disposing of wastewater and sewage to wastewater disposal works, or with a person who is connected or applying to be connected with public sewer as may be determined by the water authority.
Treatment of Faecal Sludge
Treatment refers to the process(es) that changes the physical, chemical, and biological characteristics or composition of faecal sludge or wastewater so that it is of a quality that is fit for purpose for the intended next use or disposal taking into account additional barriers in place at the end use/disposal step.
Wastewater
Wastewater means liquid waste of excremental and non-excremental nature but does not include stormwater.

1. INTRODUCTION

1.1 Background

The Energy and Water Utilities Regulatory Authority (EWURA) was established as a multi-sectoral regulatory authority by the Energy and Water Utilities Regulatory Authority Act, Cap. 414 of the laws of Tanzania. According to the Act, EWURA is responsible for the technical and economic regulation of the energy and water sectors in Tanzania mainland.

EWURA's functions in regulating water supply and sanitation services are set out in Section 7 of the EWURA Act, Cap 414, and Sections 28 and 29 of the Water Supply and Sanitation Act, Cap 272. The functions include: issuing, renewing, and cancelling licences; establishing standards for services; regulating rates and charges; making rules; monitoring the performance of water supply and sanitation authorities (WSSAs), facilitating the resolution of complaints and disputes, and disseminating information about matters relevant to its functions. Furthermore, EWURA is responsible for monitoring the performance of the regulated utilities in relation to the availability, quality, standards of services, cost of services, efficiency of production, investment levels, and distribution of services.

The Sustainable Development Goal (SDG) 6.2 aims to ensure access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women, girls, and those in vulnerable situations. "Sanitation is defined as access to and use of facilities and services for the safe disposal of human urine and faeces" (WHO Guidelines on Sanitation and Health, 2018). According to the Water Supply and Sanitation Act, sanitation services include off-site and on-site sanitation.

According to the Water Utilities Performance Review Report for FY 2022/23, the largest portion of the population, which constitutes 97.7% in the regulated service areas, depends on non-sewered sanitation, whereby 55.7% use pit latrines and 42% use septic tanks, while 1.32% of the households have no sanitation facilities. The main challenges of non-sewered sanitation include low-standard toilets which are not emptiable, leaking containers, unsafe emptying and transportation practices, inadequate faecal sludge treatment facilities, and hazardous disposal practices. Achieving the 2030 SDG target of safely managed sanitation for all requires an inclusive urban sanitation approach.

The inclusive Sanitation approach involves collaboration among many actors to ensure that everyone benefits from adequate sanitation service delivery outcomes. The approach aims to help actors develop comprehensive sanitation improvement strategies, which means that human waste is safely managed throughout the entire sanitation service chain; effective resource recovery and reuse are taken into account; a diversity of technical solutions is embraced for adaptive, mixed, and incremental approaches; and onsite and sewerage solutions are integrated, whether within centralized or decentralized systems, to better respond to the realities of service areas.

1.2 Objective of the Guidelines

These guidelines aim to guide WSSAs and key sanitation stakeholders on inclusive sanitation planning, which encompasses long-term planning, technical innovation, and financial mobilisation for safely managed sanitation. The City-Wide Inclusive Sanitation approach has been used to develop the guidelines and meet the sanitation challenges in WSSAs' service areas.

1.3 Rationale of the Guidelines

Appropriate sanitation services are essential to preserve human health, the environment, and allow economic progress. According to the Water Utilities Performance Review Report for FY 2022/23, the largest portion of the population, which constitutes 97.7% in the regulated service areas, depends on non-sewered sanitation. The main challenges of non-sewered sanitation include low-standard toilets which are not emptiable leaking containers, unsafe emptying and transportation practices, inadequate faecal sludge treatment facilities, and hazardous disposal practices. Also, currently, there is no established data for the population on safely managed sanitation. In addition, key stakeholders providing services in various components of the sanitation service chain are not well coordinated and involved in planning. To ensure the population in the WSSAs service areas receives adequately safe-managed sanitation, in line with SDG 6.2, which aims to ensure access to adequate and equitable sanitation and hygiene for all, the Guideline was developed to assist WSSAs and other stakeholders in assessing the existing sanitation condition, establishing the gaps, and developing a plan for inclusive sanitation.

1.4 Citywide Inclusive Sanitation

Citywide Inclusive Sanitation is an evolving concept for more effectively addressing the sanitation challenges in the world's growing urban areas. It aims to achieve outcomes summarized by Sustainable Development Goal 6.2: safe, adequate, equitable, and sustainable sanitation for everyone in urban areas. It builds on current sanitation technologies and practices to achieve more comprehensive, effective, and sustainable sanitation services.

The Citywide Inclusive Sanitation (CWIS) approach accelerates progress by considering different technologies and service provision models within the same city to expand sanitation access equitably and sustainably. The CWIS aims for everyone to have equitable access to safely managed sanitation services through different sanitation solutions tailored to the local realities of cities. CWIS is mainly affected by rapid population growth in urban areas, poor sanitation facilities, and poor infrastructure planning.

1.4.1 City-wide Inclusive Sanitation Principles

Addressing the urban sanitation challenge with a public service, the CWIS framework requires a shift in our common understanding of what is needed and achievable. The following Seven Principles suggest a vision and direction for CWIS implementation:

- a) Everyone benefits from safe sanitation service and public investment equitably, with a focus on reaching the poorest. The objective is to protect individuals and

- b) communities from exposure to human waste for healthier urban environments. Gender and social equity, the needs of marginalized groups are incorporated during the planning, implementation, and monitoring. Furthermore, occupational health and safety measures are implemented to protect workers' health and rights.
- c) Human waste is safely managed along the sanitation service chain, starting from containment. Infrastructure and service systems are designed to protect workers, households, and communities throughout all stages from containment to disposal or reuse while safeguarding the environment.
- d) Authorities operate with a clear, inclusive mandate, performance targets, resources, and accountability. Further, authorities work toward data-informed progressive targets linked to regulatory requirements. Financing and revenue structures are established to ensure mandates are fully supported.
- e) Authorities deploy various funding and business models to meet goals. The different business models and technologies are deployed to efficiently and equitably reach diverse customer segments within a city, including collaborations with the private sector for service execution where suitable.
- f) Comprehensive long-term planning fosters demand for innovation based on needs and resources. It also promotes coordinated, transparent planning that involves stakeholders in urban services.
- g) Political will and an accountability system should be established to incentivize improvements in capacity, leadership, and outcomes for inclusive urban sanitation. Further, transparent budget allocations based on equity and performance accountability should be promoted.

2. POLICY AND LEGAL FRAMEWORK FOR SANITATION

Developing an inclusive sanitation plan requires alignment with national policies and legislation that provide a foundation for effective, sustainable, and equitable sanitation services. These frameworks address essential aspects of infrastructure, public health, environmental protection, and community engagement. This chapter outlines key policies and legislation relevant to sanitation that WSSAs should consider to ensure consistency with national development goals and regulatory standards.

2.1 Sectoral National Policies

The key national policies guiding the development, implementation, and management of sanitation services include the National Water Policy (2002), the National Health Policy (2007), and the National Environmental Policy (2021).

The National Water Policy (2002) emphasizes sustainable water resource management and improved access to safe water and sanitation. This policy mandates the provision of water and sanitation services to WSSAs and requires them to deliver sanitation services alongside water supply. Inclusive sanitation planning is a key strategy for achieving the policy's objectives.

The National Health Policy (2007) integrates sanitation and hygiene within health programs to enhance health outcomes and encourages community-driven initiatives, supporting health education and community involvement in sanitation improvements.

This policy empowers WSSAs to engage local communities in improving safe sanitation practices. It emphasizes integrating sanitation with health programs to reduce sanitation-related diseases and promote health-centred planning.

The National Environmental Policy (2021) promotes integrated solutions to environmental and sanitation issues, sustainable resource use, and collaboration among government bodies, community organizations, and the private sector to ensure safe sanitation practices and protect the environment. It emphasizes integrated environmental and sanitation solutions and promotes collaboration with community organizations and the private sector. Inclusive sanitation planning is a key approach to achieving the policy's goal of sustainable sanitation, ensuring environmental protection while addressing the needs of all community members.

2.2 Related National Legislation

National sanitation legislation promotes public health, environmental sustainability, and equitable access to sanitation services. Key legislations include the Water Supply and Sanitation Act of 2019, the EWURA Act of 2006, the Local Government (Urban Authorities) Act of 1982, the Public Health Act of 2009, the Environmental Management Act of 2004, and the Water Resources Management Act of 2009.

The Water Supply and Sanitation Act, 2019, provides a framework for water and sanitation services and specifies the roles of government authorities. It defines WSSAs' duties, making them responsible for a reliable urban water supply and sanitation, with EWURA overseeing compliance and quality. The Act requires WSSAs to develop and implement water and sanitation plans that include marginalized groups, ensuring equitable access for all, particularly women, children, and people with disabilities.

The Energy and Water Utilities Regulatory Authority Act of 2006 defines EWURA's role in regulating water and sanitation services. This includes promoting the availability of regulated services to all consumers, including low-income, rural, and disadvantaged consumers in the regulated sectors. Further, the EWURA Act requires EWURA to take into account the need to protect and preserve the environment.

The Environmental Management Act of 2004 outlines the National Environment Management Council (NEMC)'s role in safeguarding a clean environment. The Act mandates environmental assessments for impactful projects, ensuring compliance with environmental standards. It requires WSSAs to conduct environmental assessments focusing on the impact on vulnerable and underserved communities, designing projects to prevent disproportionate negative effects on marginalised groups and ensure environmental justice.

The Public Health Act of 2009 focuses on sanitation and hygiene, restricting wastewater discharge unless it meets national standards. It requires adequate sanitary facilities in public buildings to support public health. Additionally, it mandates that WSSAs ensure sanitation infrastructures are accessible to everyone, including women, children, and people with disabilities, and that sufficient sanitation facilities are provided in public areas, particularly in underserved and informal settlements.

The Water Resources Management Act of 2009 provides a legal framework for sustainable water management, including pollution prevention. It establishes standards for constructing water structures and managing permits to protect water resources. It requires Water Supply and Sanitation Authorities (WSSAs) to design sanitation systems that safeguard water resources, ensure equitable access to clean water for marginalised communities, and prioritise vulnerable areas to prevent contamination. The Local Government (Urban Authorities) Act, of 1982 mandates Urban Authorities to maintain sanitation facilities and oversee waste removal and sewage disposal. They are empowered to establish bylaws, issue permits, and collect service fees to support public health and order. WSSAs should collaborate with LGAs to extend sanitation services to underserved areas, including informal settlements, enforce inclusive sanitation by-laws, and ensure marginalized communities have access to sanitation infrastructure and waste removal services.

3. SANITATION BUSINESS MODEL OPTIONS

3.1 Sanitation Business Model

Sanitation business models are defined as methods and strategies used to achieve improved objectives in the sanitation sector for targeted individuals and communities through the use of appropriate technologies for the end users. This section offers guidance on sanitation business models that WSSAs should consider for safely managed sanitation services. For non-sewered sanitation, the business model can encompass any segment, functioning either as a stand-alone enterprise or as a combination of one or more segments of the sanitation service chain.

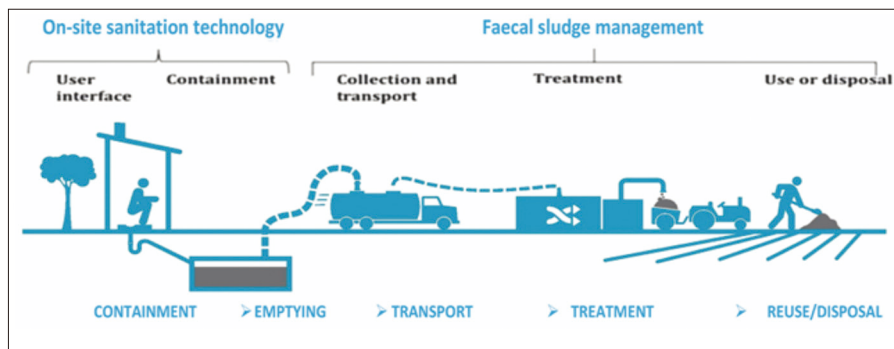


Figure 1: Segments of On-site Sanitation Service Chain (Adapted from Design, Construction, Operation, Maintenance Manual, MoW 2020)

The following are available business models for sanitation service provision:

- Capture and containment services
- Emptying and transportation services
- Treatment, reuse, and disposal services;
- Combination of emptying, transportation, treatment, reuse, and disposal services;

- e) Combination of the capture, containment, emptying, transportation, treatment, reuse, and disposal services; and
- (f) Sewered sanitation services, a combination of conveyance, treatment, reuse, and final disposal services

The selection criteria for an appropriate business model for WSSAs will be based on specific service area needs, such as community needs, availability of sanitation infrastructure and facilities, and the presence of private service operators.

In a particular WSSA's service area, option items (a) through (c) cannot be opted as a stand-alone business model since they depend on each other to complete the sanitation service chain. These business models allow different actors to play a part in a particular segment of sanitation service provision.

WSSAs need to prepare a business model(s) which are appropriate to their service areas. In developing the business model WSSA will identify key partners, key activities, value proposition, customer segment, cost structure, key resources, channels, and revenue streams. Table 1 provides guidance on how to develop the appropriate business model.

Table 1: Basic elements to be considered in each section of the Business Model

KEY PARTNER ▪ Who is the key Partners and key suppliers? ▪ Which key resources are we acquiring from partners? ▪ Which key activities does the partner perform?	KEY ACTIVITIES ▪ What key activities do our value propositions require? ▪ Distribution channel ▪ Customer relationship ▪ Revenue streams	VALUE PROPOSITIONS ▪ What value do we deliver to the customer? ▪ What services are offered to each customer segment and which problems will be solved? ▪ Are customers satisfied?	CUSTOMER RELATIONSHIP ▪ What type of relationship does each of our customer segments expect and its cost? ▪ Which one have we established?	CUSTOMER SEGMENTS ▪ For whom are we creating value? ▪ Who are our most important customers?
COST STRUCTURE ▪ What are the most important costs inherent in our business model? ▪ Which key resources are most expensive? ▪ Which key activities are most expensive?	KEY RESOURCES ▪ What key resources do our value propositions require? <i>Categories Physical, Intellectual (brand patents, copyrights, data), Human and Financial</i>	CHANNELS ▪ Which channels preferred by customer segments? ▪ How are we reaching them now? ▪ Which ones work best and are most costly – and efficient?	REVENUE STREAMS ▪ For what value are our customers really willing to pay? ▪ For what do they currently pay? ▪ How are they currently paying? ▪ How would they prefer to pay? ▪ How much does each Revenue Stream contribute to overall revenues?	

3.2 Capture and Containment Services Model

The capture and containment business model in sanitation services will mainly focus on innovation in toilet facilities. Appendix 1 stipulates the basic elements that should be considered.

3.3 Emptying and Transportation Services Model

The emptying and transportation business model in non-sewered sanitation services will mainly focus on the affordable tariff, technology used, and quality of service delivered when emptying septic tanks and/ or pit latrines. The basic elements of this model are presented in Appendix 2.

3.4 Treatment, Reuse, and Disposal Services Model

The treatment, reuse, and disposal business model in non-sewered sanitation services will mainly focus on innovative technology for treatment and reuse considerations for both liquid and solid products, as well as the final disposal of the non-biodegradable materials that can be present in faecal sludge (pads, plastic bottles, clothes, etc.). The basic elements of this model are presented in Appendix 3.

3.5 Combination of Emptying, Transportation, Treatment, Reuse, and Disposal Services Model

The combination of emptying, transportation, treatment, reuse, and disposal business model in non-sewered sanitation services will focus on an affordable tariff for emptying and transportation services, the technology to be used, and the quality of service delivered (full emptying of the septic tanks/pit latrines). Additionally, the utility will explore innovative technologies for treatment and consider reuse options for both liquid and solid products, as well as the final disposal of non-biodegradable materials that may be present in faecal sludge (pads, plastic bottles, clothing, etc.). The basic elements of this model are presented in Appendix 4.

3.6 Combination of Capture, Containment, Emptying, Transportation, Treatment, Reuse and Final Disposal Services Model

A combination of capturing, containing, emptying, transporting, treating, reusing, and final disposal within a business model for non-sewered sanitation services will examine the entire sanitation service chain and propose sustainable solutions in each case, primarily considering local community input with special attention to vulnerable groups and their local purchasing power. The fundamental elements of this model are outlined in Appendix 5.

3.7 Combination of Conveyance, Treatment, and Final Disposal Services Model

The combination of conveyance, treatment, reuse, and final disposal business model in sewerred sanitation services will primarily be applicable in cities where sewer networks exist and there is a need to connect the remaining community; individuals must already have toilets but not be linked to the sewer system. The following are the basic elements that the utility should consider for this model, as stipulated in Appendix 6.

4. APPROPRIATE SANITATION TECHNOLOGY SELECTION

Appropriate Technology (AT) refers to technology designed with careful consideration of the environmental, ethical, cultural, social, and economic aspects of the community it serves. AT is characterised by lower resource requirements, ease of maintenance, reduced overall costs, and minimal environmental impact.

4.1 Some Available Sanitation Technologies

In improving sanitation across various social settings, multiple technologies have been developed to cater to the diverse needs of rural, peri-urban, and urban communities. These technologies are carefully designed to be accessible, cost-effective, and sustainable, addressing each community's unique environmental, social, and economic conditions. Below is a highlight of some of these technologies, which can be chosen depending on factors detailed in Section 4.2.

- i. VIP Latrine (Ventilated Improved Pit Latrine) is an accessible solution for rural and low-income communities, particularly in areas where water is scarce. It provides a hygienic and simple sanitation option.
- ii. Low-Cost Bio-Digesters—These are Suitable for rural communities where affordability is key. They provide a cost-effective waste treatment system with minimal infrastructure requirements.
- iii. Ecological Sanitation (EcoSan) Toilets are a waterless solution ideal for areas with limited water supply. They convert waste into compost and address environmental sustainability concerns.
- iv. Double Vault Composting Toilet - A durable and long-term solution for rural and peri-urban communities. It facilitates the decomposition of waste without the use of water, thereby making it sustainable in low-resource settings.
- v. Twin-pit latrines are practical for rural areas where water access is limited. They allow for the alternation between pits, facilitating natural decomposition and ensuring the availability of a functional toilet.
- vi. Biogas Toilets - Ideal for communities seeking renewable energy solutions. They capture methane from waste to generate biogas, which can be utilised for cooking or lighting, thereby helping to reduce reliance on firewood.
- vii. Biodegradable Toilets and Sanitation Platforms improve hygiene practices, reduce waterborne diseases, and are suitable for communities in both rural and urban areas, particularly where traditional sanitation options may be inaccessible.
- viii. EcoSan Toilets (Reuse of Waste as Compost)—This program addresses both sanitation and agricultural needs in rural areas. Treated waste is reused as compost to improve soil fertility. Through education, it promotes sustainability and social acceptance.

4.2 Criteria for Evaluating Sanitation Technology

When selecting an appropriate sanitation technology, consider the following criteria:

- a) Accessibility: Ensure that facilities are accessible to women, girls, the elderly, disabled individuals, and the sick.

- b) Cost-effective: Technologies should be affordable for individuals and communities and should be of appropriate quality.
- c) Functionality: The technology should effectively carry out its intended function.
- d) Sustainability: Technologies ought to be sustainable in the long term, thereby minimising environmental impacts.
- e) Operation and Maintenance (O&M) Requirements: Assess the ease of operation, frequency of maintenance, and availability of spare parts.
- f) Environmental Compliance: Technologies must adhere to environmental protection regulations and minimise their ecological impact.
- g) Health Improvements: Evaluate how the technology will enhance health outcomes for the community.
- h) Social and Cultural Consideration: Consider the needs of different groups in the community. Cultural factors, such as the acceptance of treated sludge for agricultural use, should also be considered.
- i) Climate-Smart: The technology should be resilient to climate change, use resources efficiently, minimize environmental harm, and adapt to local climate conditions for long-term viability.

The selection of appropriate technology based on various proposed sanitation business models is presented in Appendix 7.

5. FINANCING OPTIONS FOR THE SANITATION BUSINESS

Developing sanitation infrastructure can be costly, making it difficult for WSSAs to cover all expenses solely through tariffs. Various funding sources, such as government grants, partnerships with the private sector, and international funding, should be considered to ensure equitable access to sanitation services. Furthermore, WSSAs should contemplate effective cost-recovery plans to maintain robust and reliable service sustainability.

5.1 Steps to Achieving a Sustainable Sanitation Investment Plan

Financial planning is an iterative process that involves minimising planned costs and identifying the appropriate mix of revenue sources. If the financing gap remains unaddressed, the sanitation infrastructure plan may need to be revised, as indicated in Figure 3. The following steps outline the financial strategy to ensure sufficient investment in sanitation services:

- a) Identify feasible and desirable activities to be financed
- b) Identify financing requirements
- c) Identify financing sources
- d) Find the best combination of financial sources
- e) Close the financing gap

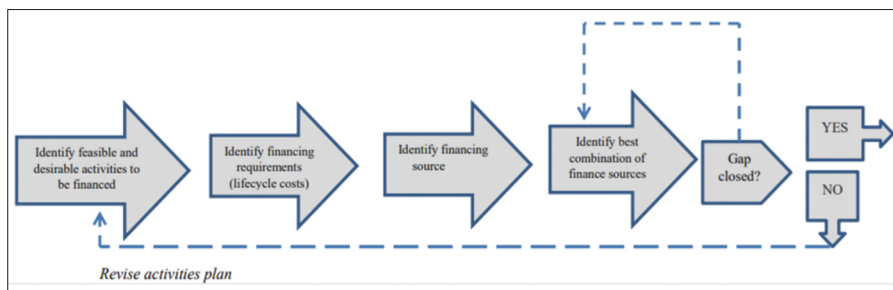


Figure 2: Financial scheme required for a sustainable financing plan for sanitation services (adopted from ESAWAS Guidelines)

5.2 Financing Options for Sanitation Business Models

To ensure effective and inclusive sanitation services, sanitation considerations must be clearly defined and integrated into every water supply project prior to approval and implementation. Each sanitation business model may require specific financing options to implement inclusive sanitation effectively within the service area. Some financing and funding mechanisms that WSSAs can consider are:

- Sanitation tariffs and charges
- Loans from commercial banks for sanitation projects
- Government loans: National Water Fund (NWF) loans for sanitation projects
- Grants from the Government and international partners, including green and environmental funds, that support sanitation initiatives.
- Bonds underpinned by government credit ratings to entice investment
- Sanitation charges ring-fenced for sanitation projects

Table 2 summarizes the available financing options for each model for WSSAs.

Table 2: Financing Options for Sanitation Business Models

Sanitation Business Model	Commercial Bank Loan	Grants	Government loans;	Tariffs	Bond	Sanitation Charge
Capture and Containment Service - Public	✓		✓ ✓	✓	✓	✓
Emptying and Transportation Service	✓	✓	✓	✓	✓	✓
Treatment, Reuse, and Disposal Service	N/A	✓	✓	N/A	N/A	✓

Sanitation Business Model	Commercial Bank Loan	Grants	Government loans;	Tariffs	Bond	Sanitation Charge
Combination of Emptying, Transportation, Treatment, Reuse, Disposal	NA	✓	✓	✓*	✓	✓
Combination of Containment, Emptying, Transportation, Treatment, Reuse, Disposal	N/A	✓	✓	✓*	N/A	✓
Combination of Conveyance, Treatment, Reuse, and Disposal	N/A	✓	✓	✓*	✓	✓

✓: Possible, N/A: Not Applicable, ✓*: need a mix with other source of funds.

6. ENGAGEMENT, COLLABORATION, RESPONSIBILITIES, AND COORDINATION OF KEY STAKEHOLDERS

Collaboration and engagement among stakeholders are vital for ensuring sustainable service delivery. Water Supply and Sanitation Authorities (WSSAs) are encouraged to involve key stakeholders, facilitating coordination and distribution of responsibilities throughout the sanitation service chain. This section outlines the necessary processes for effective collaboration among key stakeholders in relation to sanitation service provision.

6.1 Stakeholder Engagement Mechanism

Effective stakeholder engagement is essential for inclusive sanitation planning within WSSAs' service areas. WSSAs are expected to collaborate closely with LGAs, CBOs, NGOs, and key government agencies such as TARURA and RUWASA, where appropriate. This section provides a systematic guide to assist WSSAs in engaging stakeholders, ensuring coordinated efforts and sustainable sanitation solutions.

Step 1: Identify Key Stakeholders

WSSAs should identify all key stakeholders involved in the planning, implementation, and delivery of sanitation services, including:

- ✓ **Regional Secretariat (RS):** Coordinated LGAs, particularly where the service areas comprise more than one LGA
- ✓ **LGAs:** Oversee sanitation planning, health inspections, and by-law enforcement.
- ✓ **CBOs:** Manage decentralized sanitation services (e.g., public toilets, sludge management) and advocate for marginalized groups, including women, children, and people with disabilities.

- ✓ **NGOs:** Support sanitation advocacy, hygiene promotion, and capacity building.
- ✓ **Government Agencies such as TARURA** Oversee infrastructure affecting sanitation services, including road reserves
- ✓ **Private Operators:** Provide services such as pit-emptying, faecal sludge treatment, and decentralized sanitation management.
- ✓ **Financial Institutions & Development Partners:** Offer funding and investment for sanitation projects, including household and business financing.
- ✓ **Academic & Research Institutions:** Provide technical expertise, innovation, and data-driven solutions.
- ✓ **Local Communities & Informal Settlements:** Direct beneficiaries whose engagement ensures inclusivity, service acceptance, and sustainability, including representatives of marginalized groups.

Step 2: Assess Stakeholder Roles and Interests

WSSAs should analyze stakeholders' influence, interests, and contributions to sanitation service delivery. Categorize them based on their roles:

- ✓ **LGAs & Government Agencies** – Policy enforcement, planning, and infrastructure integration.
- ✓ **CBOs & NGOs** – Community mobilization, advocacy, and service provision.
- ✓ **Private Operators** – Service delivery and innovation.
- ✓ **Financial Institutions & Development Partners** – Funding and technical support.
- ✓ **Communities & Research Institutions** – Beneficiaries and knowledge providers.

Step 3: Develop a Stakeholder Engagement Plan

WSSAs should create a structured plan outlining:

- ✓ **Objectives:** Define expected outcomes for sanitation engagement.
- ✓ **Communication Channels:** Use meetings, workshops, digital platforms, and local leaders.
- ✓ **Engagement Frequency:** Schedule interactions based on stakeholder influence and role.
- ✓ **Responsible Parties:** Assign engagement tasks within WSSAs.

Engagement with LGAs may involve quarterly coordination meetings, while CBOs and local communities may require continuous interaction.

Step 4: Implement Engagement Activities

WSSAs should apply appropriate approaches for different stakeholders:

- ✓ **Government & LGAs:** Hold joint planning sessions and sector coordination meetings.
- ✓ **CBOs & NGOs:** Collaborate on community awareness campaigns and capacity building.
- ✓ **Private Operators:** Facilitate partnerships for service provision and innovation.
- ✓ **Financial Institutions & Development Partners:** Secure financing and investment opportunities.

- ✓ **Local Communities:** Organize consultations and feedback sessions to ensure inclusivity.

Step 5: Strengthen Coordination and Collaboration

To enhance efficiency, WSSAs should:

- ✓ Establish clear roles and responsibilities for each stakeholder.
- ✓ Promote joint planning and decision-making through regular forums.
- ✓ Encourage knowledge-sharing and best practices across WSSAs.

Step 6: Monitor, Evaluate, and Improve Engagement

WSSAs should track engagement effectiveness using:

- ✓ **Feedback Mechanisms:** Stakeholder surveys, community meetings, and grievance redress systems.
- ✓ **Performance Indicators:** Participation rates, project implementation success, and service improvements.
- ✓ **Periodic Reviews:** Adjust strategies based on lessons learned.

6.1.1 Stakeholder Mapping and Engagement

WSSAs are advised to identify their stakeholders based on their influence, power, legitimacy, and level of collaboration throughout the sanitation service chain. Key stakeholders include the general public, line ministries (e.g., water, sanitation, environment, health), regulators, consumers, LGAs, financiers, service providers, operators (FSTP, landfill/incineration), environmental agencies, NGOs, and researchers/universities.

6.1.2 Sector Coordination

Sector coordination involves aligning the efforts of various stakeholders to ensure the efficient use of roles, responsibilities, and resources. By improving coordination among these groups, superior sanitation outcomes in the service area can be achieved. To support this process, the following recommendations are suggested:

- Regular Meetings:** Establish regular coordination meetings among stakeholders.
- Information Sharing:** Create a centralized platform for sharing data, reports, and best practices related to sanitation services.
- Joint Planning:** Encourage stakeholders to participate in joint planning sessions to develop integrated sanitation strategies.
- Monitoring and Evaluation:** Implement a coordinated approach to monitoring and evaluating sanitation services.
- Conflict Resolution:** Establish a framework for addressing conflicts and disagreements that can appear among stakeholders.

6.1.3 City/Town Level Planning

At the local level, Inclusive Sanitation plans must be integrated within the planning area (WSSA service area) and involve key stakeholders, including the WSSA, LGAs, relevant government bodies, local communities, NGOs, civil society organizations (CSOs), the private sector, and groups representing women, low-income communities, and vulnerable persons. The following are guiding principles for effective City/ Town Level Planning:

- a) **Leadership and Integration:** WSSAs, in collaboration with LGAs, will lead inclusive sanitation plans, embedding them within urban governance. They will be responsible for technical coordination, which includes planning, monitoring and evaluation (M&E), reporting, resource mobilisation, and setting performance targets. A technical steering committee will guide these efforts and maintain close ties with LGAs. The steering committee will consist of representatives from WSSA and LGA (Heads of Environment, Health, Community Development and Social Welfare, Town Planning, and Business Licensing). Depending on the situation, some members may also be selected from other key stakeholders such as NGOs, Government Institutions, and the business community. WSSAs and LGAs will promote public consultations to engage communities in decision-making, utilising media for advocacy and raising awareness about sanitation issues.
- b) **Stakeholder Engagement:** Communities, NGOs, CBOs, and the private sector must actively participate. To ensure inclusive sanitation planning, special consideration should be given to gender, low-income communities, and vulnerable groups (e.g., disabled and elderly persons).
- c) **Zoning and Financial Viability:** Service delivery areas should be zoned, focusing on financial viability for sustainable planning and resource allocation.
- d) **Public Consultation and Advocacy:** WSSAs should ensure that public consultations are conducted for decision-making regarding sanitation services, with media engagement utilised for advocacy and enhancing public awareness.

6.1.4 Community-Level Engagement

WSSAs ought to adopt a Community Participatory Approach (CPA) to actively engage the public in planning, financing, and managing sanitation services, thereby ensuring ownership and support at all levels. The following are strategies for community engagement in inclusive sanitation:

- a) **Early Involvement and Consultation:** Community engagement should begin from the project's inception, particularly during key decisions regarding tariff proposals, infrastructure design, and service provision. Early consultation fosters trust and encourages ownership, thereby facilitating smoother implementation.
- b) **Formation of Community-Based Organizations (CBOs):** WSSAs should support the creation of CBOs to engage local groups in service delivery and ensure they play an active role in managing sanitation infrastructure.
- c) **Community Champions and Advocacy:** Establishing community champions can drive local advocacy efforts, raising awareness and mobilizing support for sanitation initiatives.
- d) **Engagement of Women's Groups and Vulnerable Communities:** Involving women's groups ensures services are gender-inclusive, while low-income and vulnerable groups (e.g., the elderly, disabled) ought to be included in promoting pro-poor sanitation services.
- e) **Behavioural Change and Awareness Campaigns:** WSSAs should carry out culturally sensitive awareness campaigns and formulate behavioural change strategies to educate communities on the importance of safely managed sanitation, thereby ensuring long-term success and the adoption of new systems.

- f) **Community Management of Infrastructure:** Where local communities can manage sanitation infrastructure, fostering ownership, improving maintenance, and enhancing service delivery. This local responsibility encourages communities to invest in service sustainability.
- g) **Consultative and Inclusive Decision-Making:** Communities should be represented through consumer consultative councils or local bodies, ensuring that their voices influence decisions regarding service provision.

WSSAs should adopt a Community Participatory Approach (CPA) to actively engage the public in the planning, financing, and management of sanitation services. This approach ensures that communities take ownership of sanitation projects, fostering support and collaboration at all levels. It is essential to involve the community from the outset, particularly in key decisions such as tariff proposals and infrastructure design, to build trust and ensure that the diverse needs of different communities are met, and that sanitation options are accepted and sustainable.

6.2 Roles and Responsibilities of Key Stakeholders

The roles and responsibilities of key stakeholders in sanitation service provision arise from the relevant laws and regulations. When stakeholders understand their responsibilities, it fosters an efficient system that enables WSSA and partners such as LGAs to manage sanitation services effectively. It is advisable to clarify overlapping roles or gaps and identify solutions for effective implementation of sanitation services. Appendix 8 presents the roles and responsibilities of stakeholders along the sanitation service chain.

6.3 Incentives and Opportunities for the Private Sector Along Sanitation Service Chain

The role of the private sector in enhancing sanitation services cannot be overstated. There are various incentives and opportunities for private entities throughout the sanitation service chain, highlighting how these partnerships can improve sanitation infrastructure and service delivery. By collaborating, WSSAs and private sector stakeholders can utilise resources, expertise, and innovation to tackle sanitation challenges more effectively.

6.3.1 Opportunities for Private Sector Participation in Sanitation Service

The private sector can actively engage in and improve sanitation services throughout the entire service chain by capitalising on the numerous opportunities available at each stage or across the whole process.

- (a) **Capture and Containment**
Private firms can provide consultancy services for the design and construction of sanitation facilities, including septic tanks and latrines. They can also foster innovation by introducing advanced technologies that improve the efficiency and safety of waste capture and containment, such as smart monitoring systems.
- (b) **Emptying and Transportation**
Private companies can provide efficient waste collection and transportation services, ensuring the timely and hygienic removal of waste from containment

systems to treatment facilities. Additionally, they can utilize logistics solutions to optimize operational efficiency in the emptying and transportation processes, including route optimization and scheduling.

(c) **Treatment**

The private sector can invest in and operate waste treatment facilities that convert waste into reusable resources, such as biogas or compost, by implementing innovative treatment processes that focus on recovering valuable materials.

(d) **Disposal/Reuse**

Private firms can establish systems for the safe disposal of treated waste, ensuring that it can be returned to the environment or reused in agriculture and energy production. Also, they can contribute to public awareness about the importance of proper disposal and reuse practices, ultimately increasing public participation and support.

6.3.2 Incentives for Private Sector Engagement

Engaging the private sector in the sanitation service chain is crucial for improving service delivery, fostering innovation, and ensuring sustainability. Various incentives encourage private enterprises to participate effectively.

(a) **Capacity Building**

Awareness programmes and workshops can enhance the skills of private sector partners in sanitation management, technology, and best practices. The ongoing technical assistance can also help private companies navigate challenges, enabling them to consistently deliver high-quality sanitation services.

(b) **Market Access**

Exclusive contracts for specific sanitation services, such as Trade Waste Agreements, can guarantee a steady income for private companies, assisting them in building long-term partnerships and stability within the industry. Collaborating on marketing can also enhance awareness of sanitation services, making it easier for companies to reach more customers and boost their service utilisation.

(c) **Innovation Incentives**

Funding for research and development of innovative sanitation technologies encourages private firms to explore new approaches within the sector. Supporting pilot projects enables companies to test new technologies or methods with reduced financial risk, fostering an environment that promotes innovation.

(d) **Social Incentives**

Participating in sanitation initiatives can substantially enhance a firm's corporate social responsibility (CSR) profile. Contributing to public health and environmental sustainability not only improves a company's reputation but also fosters customer loyalty. By actively engaging with local communities, private firms can build trust and attain social legitimacy, thereby creating a more supportive operating environment for their activities within the sanitation service chain.

6.4 Addressing Gender, Culture, and Social Inclusion

Gender, culture, disability, and social inclusion are critical issues that must be addressed, particularly at the capture level, to guarantee safe, equitable, and inclusive sanitation services. Household toilets are preferred over shared or community toilets as they are generally safer. Nevertheless, community and public toilets serve an essential sanitation function in informal, low-income, and densely populated areas where land is scarce.

Women and girls often bear the responsibilities of household sanitation, which includes cleaning and waste disposal. Their contributions to the design and management of sanitation infrastructure can enhance sustainability and ensure that the facilities meet the community's needs. The degree of their involvement should reflect the local cultural context.

Cultural practices and beliefs should be thoroughly examined and respected when constructing sanitation facilities. Important cultural factors to consider include:

- a) Women's practices and needs during menstruation;
- b) Men's perceptions of menstruation;
- c) Education on menstrual hygiene; and
- d) Local myths or traditions related to open defecation.

When considering reusing treated waste products (e.g., manure or co-composting), attention should be given to community perceptions. In some cultures, direct use of human waste is prohibited unless mixed with other organic materials.

6.5 Addressing Menstrual Hygiene Management in Community-Based Sanitation

Menstrual Hygiene Management (MHM) is crucial to ensuring the health, dignity, and well-being of women and girls, especially in community-based sanitation projects. Incorporating MHM considerations into sanitation planning and design is essential to address the specific needs of menstruating individuals, promote inclusion, and ensure access to safe and hygienic facilities. The following actionable guidelines should be integrated into sanitation services design:

- i. **Provision of Private and Safe Spaces:** Ensure that public toilets and sanitation facilities are designed with privacy. Separate spaces for women and girls, with secure doors, should be prioritized to ensure comfort and confidentiality during menstruation.
- ii. **Educational Programs and Awareness:** Organise community education and awareness programmes that address menstrual hygiene, dismantle cultural taboos, and promote understanding. This should involve men, boys, and other community members to cultivate an inclusive environment where menstrual health is not stigmatized.
- iii. **Integration of Menstrual Hygiene in Design:** When designing sanitation infrastructure, ensure there are provisions for menstrual waste disposal, as well as access to clean water and washing facilities.

6.6 Supporting Sanitation Workers

Sanitation workers are often exposed to health risks, social stigma, and discrimination. Their work includes activities such as emptying toilets and septic tanks, maintaining sewers, transporting waste, and cleaning public toilets. Ensuring the availability of personal protective equipment (PPE) for these workers is essential. An inclusive sanitation plan should aim to professionalize and safeguard sanitation workers along the service chain.

7. PLANNING STAGES AND TOOLS

7.1 Stages in Inclusive Sanitation Planning

The planning entails discussions among stakeholders regarding critical sector priorities. The Strategic Sanitation Planning Process and Implementation process includes:

- a) Form a multi-sectoral sanitation planning team and engage stakeholders.
- b) Assess the current situation.
- c) Create a shared vision and agree on guiding principles.
- d) Plan interventions for short-term, medium-term, and long-term goals, followed by implementation and monitoring to assess progress.

Key Methods for Strategic Planning:

- a) Workshops focusing on vision and guiding principles.
- b) Field trips for contextual understanding.
- c) Data collection for a precise assessment.
- d) Continual engagement with stakeholders via meetings.

Table 3: Summarized Stages in Implementing Inclusive Sanitation

Stage	Activities	Outcome / Output	Indicators
Stage 1: Build institutional commitment and partnership for planning	i. Establish a steering committee. ii. Facilitate consultations and assess priorities.	Steering committee with stakeholders,	i. No. of stakeholders engaged ii. No. of sectors represented in the steering committee.
Stage 2: Understand the existing service situation and define priorities	i. Gather data on current sanitation service, land use integration, and adaptability. ii. Review Joint Town and Water and Sanitation Safety Plans. iii. Identify service provision constraints. iv. Conduct sanitation marketing to set priorities.	A clear understanding of current sanitation issues and priority areas for improvement	i. % of areas assessed for current sanitation services. ii. No. of service provision constraints identified.
3: Create a shared vision and guiding principles	i. Define vision and priorities. ii. Agree on the planning process.	Shared vision and guiding principles established.	% of stakeholders who agree on the shared vision and guiding principles.
Stage 4: Develop systems for sanitation improvement	i. Zone areas for sanitation systems. ii. Choose appropriate toilet technologies. iii. Develop an inclusive sanitation plan along the sanitation service chain. iv. Address operation and maintenance needs.	Identified sanitation systems per zone, allocated resources, and an inclusive sanitation plan ready for implementation.	i. % of zones with implemented sanitation systems. ii. No. of toilet technologies chosen and implemented. iii. % of operational and maintenance plans in place.

7.2 Planning Tools

Recently, numerous approaches have been developed to understand and address urban sanitation, ranging from formal planning to more community-led processes. Additionally, various tools have emerged, including well-known ones like the Shit-Flow Diagrams (SFDs), which graphically depict the estimated volumes of faecal matter safely managed or otherwise. Many of these tools concentrate on non-sewered sanitation, such as decentralised systems and faecal sludge management (FSM). There are three primary types of tools available to assist planners and decision-makers in analysing their data and planning accordingly: diagnostic tools, prioritisation tools, and planning and decision-making tools.

7.2.1 Diagnostic tools

The most common diagnostic tools used in assessing the current sanitation situation are presented in Table 4 below:

Table 4: Most common diagnostic tools

No.	Tool	Description	Use
1.	Shit Flow Diagram (SFD) <i>https://sfd.susana.org/</i>	SFDs are useful tools to inform on how excreta physically flows through a city or town. It shows how excreta are or are not contained as it moves from defecation to disposal or end-use, and the fate of all excreta generated.	Useful for engaging stakeholders, advocacy (Especially realizing the current situation).
2.	Sanitation GIS Mapping (Customizable options exist)	Maps sanitation facilities and their status. Generates geographical maps showing the status of sanitation interventions.	Improve planning and monitoring of service delivery.

7.2.2 Prioritization Tool

The most common prioritization tools used in the sanitation business are explained in Table 5 below:

Table 5: Most Common Prioritization Tools

No	Tool	Description	Use
2.	Sanitation Safety Plan (SSP) WHO (2014): https://www.who.int/water_sanitation_health/publications/ssp-manual/en/	Brings health and sanitation sectors to map contamination pathways and highlight risks and priority intervention areas (geographical and/or sectoral). Uses WHO guidelines for wastewater and excreta management as a starting point.	Prioritization and linking with health professionals.
3.	Citywide Inclusive Sanitation Services Assessment and Planning (Equiserve) Tool	Helps decision-makers to compare the effects of different sanitation interventions or investments on the dimensions of equity, financial sustainability, and safety of sanitation services. The tool analyzes and illustrates how each possible intervention is likely to reach low-income areas, positively impact service providers' viability, and increase the amount of waste that is safely disposed of.	Support decision-making and communication about which interventions to prioritize.

7.2.3 Planning & decision-making tools

The most common planning and decision-making tools used in the sanitation sector are highlighted in Table 6 below:

Table 6: Planning & decision-making tools

No	Tool	Description	Use
1.	FSM Toolbox https://www.fsmttoolbox.com/	A collection of tools designed for city sanitation planners and associated consultants, following a typical city sanitation planning process. It comes with many guidelines, for example, contracts, ToRs, and training modules, and as such is more of a library of practical documents along the way.	Planning, especially going through practical steps and documents for planners
2.	Intervention Options Assessment https://www.worldbank.org/en/topic/sanitation/brief/faecal-sludge-management-tools	Guide for identification of technical interventions along the service chain – linking to program design guidelines.	Technology choice

8. INCLUSIVE SANITATION PLAN DEVELOPMENT

An inclusive sanitation plan is a formal written document containing goals, methods for achieving these goals, and the time frame within which these goals must be attained. It serves as a guide for the sanitation service in the specific city, town, or municipality, involving key stakeholders to ensure that everyone benefits from safe sanitation services. An overarching objective is to provide inclusive sanitation services that:

- a) Protects the health of users and the broader public across the whole sanitation service chain;
- b) Protects the environment across the whole sanitation service chain;
- c) Provides access to everyone, including the poor, those with disabilities, and other marginalized groups;
- d) Meets user aspirations, including privacy, and is convenient to use;
- e) Considers resources recovery and reuse, as appropriate;
- f) Utility operates with a clear, inclusive mandate, performance target, resources, and accountability;
- g) Applies a range of funding options and different business models;
- h) Relies on a variety of suitable technologies that align with social norms, consider local environmental conditions, and are founded on solid financing for both CAPEX and OPEX.

The inclusive sanitation plan should cover the utility's strategy for five years. The plan must at a minimum comprise the following chapters:

- a) Executive Summary
- b) Introduction
- c) WSSA's Overview
- d) Stakeholders' involvement
- e) Sanitation Situation Analysis
- f) Capacity Development Plan
- g) Climate Resilient Strategies
- h) Inclusive Sanitation Plan
- i) Investment Plan and Operational Plan
- j) Financial Plan
- k) Implementation Plan/ Action Plan
- l) Monitoring and evaluation

8.1 Executive Summary

The executive summary is typically written last, spanning one or two pages, and succinctly synthesises the key aspects of the Inclusive sanitation plan. It encompasses a brief mission statement of the utility; key objectives and targets; main activities (operations and investments) to be implemented; projected total annual costs; sources of funds; the impact of the proposed sanitation intervention in terms of major achievements anticipated during the plan period; and perceived major risks along with potential mitigation measures.

8.2 Introduction

The introduction section should briefly describe the sanitation plan's objectives and the document's layout. It should also indicate the major assumptions made and show how the

sanitation plan was prepared while indicating how stakeholders were involved in the whole process.

8.3 Overview of the Water and Sanitation Authority

This section gives a general description of the sanitation service and provides information on:

- a. Vision and Mission Statement;
- b. Brief history and legal status, funding, current organization structure, brief profiles of key personnel (management and board);
- c. A description of demographics, service areas and their respective population, services provided, distinguishing water supply and sanitation services, customers served, services to the poor and un-served areas within the licensed service area; and
- d. Description of the utility’s sanitation system, available sanitation practices
 - (i) description of sewerage system; (if available), number of sewer connections, the proportion served, the capacity of wastewater treatment facility, quality of effluent, effluent disposal/ reuse etc.
 - (ii) non-sewered sanitation; types of containments, sludge emptying practices, transportation or faecal sludge treatment plants, etc, and the performance of the treatment plant, number of vacuum tankers, and average annual emptied sludge and safely disposed of/reused sludge.
- e. Main sanitation stakeholders within the service area;

8.4 Stakeholder engagement and communication

The team should engage and communicate with relevant stakeholders throughout the planning process. It is imperative to remember that stakeholder engagement should be a two-way flow of information, where the utility conveys information to stakeholders and listens to and incorporates stakeholder ideas. The table below presents stakeholders’ involvement in each stage of sanitation planning and implementation.

Table 7: Stakeholder Involvement

SN	Type and Name of stakeholder	Stage of engagement	Means of Engagement

8.5 Sanitation Situation Analysis

The initial situation assessment is the first step in the planning process and is crucial as it provides the baseline information for decision-making. The sanitation service chain must be used to perform the situation analysis, considering the health and environmental dimensions. The sanitation service chain has to be viewed holistically if all of the benefits of safely managed sanitation are realized.

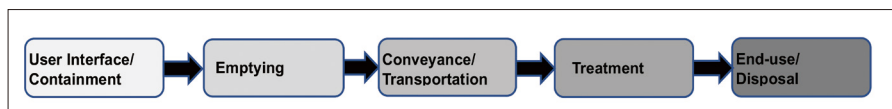


Figure 4: The Onsite Sanitation Service Chain (non-sewered system)

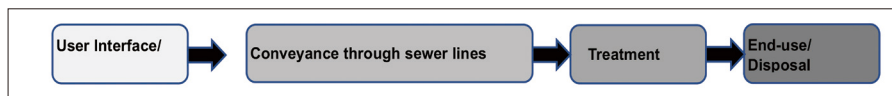


Figure 5: The Sewered Sanitation Service Chain

In developing the course of future actions, it is necessary to assess the utility's current performance and operating environment against clearly defined criteria. The situation analysis will aim to synthesize the following information;

- a) Assessment of the existing practices: must cover both existing sanitation infrastructure, types of available latrines, formal and informal sludge emptying sectors, sewerage capacity and performance, demand for sewerage system, capacity of treatment plant and organization of the system and sanitation service coverage. All assessments should consider the full sanitation service chain (Figures 5 and 6), from the user interface to end use/disposal. The current sanitation business model should be described as the current type of collection and transportation facilities.
- b) Current sanitation management: To assess the current sanitation management situation, a shit flow diagram (SFD) can be used. When developing an SFD, ensure that you have enough accurate data.
- c) Infrastructure: Existing infrastructure such as types of sanitation facilities, evaluate not only the presence/absence of key infrastructure/service provision but also the quality of the infrastructure/service provision and the different stakeholders' views on its acceptability, including an assessment of the strengths and weaknesses of existing technologies/services – from the perspectives of the stakeholders.
- d) Service level: Emptying, collection and transport service type and efficiency level, treatment efficiency, and reuse options. The volume of the effluent after treatment and the quality of the effluent and sludge disposed to the environment in comparison to the standard;
- e) Resources: Assess the availability of resources to carry out essential tasks.
- f) Institutional arrangement: Institutional capacity to implement change, legal and regulatory frameworks, institutional arrangement, skills and capacities, and financial arrangements
- g) Social and cultural issue: Assess the social norms related to sanitation, including, but not limited to, behaviours surrounding open defecation, washers versus wipers, and so on.
- h) Economic status: Current population and projected population, current income status (Low-income communities, Middle class, mixture);
- i) Marginalised groups: (e.g., women, the elderly, the urban poor, people with disabilities, etc.) and/or other groups without services.
- j) Assess the current O&M of existing facilities and their challenges.
- k) Health concern, data regarding water-related diseases, and poor hygiene

- l) Types of existing interventions regarding the technology available, the satisfaction of the local population within current conditions,
- m) Other infrastructure development available at schools, hospitals, etc....
- n) Appropriate technology: Does the existing technology fit within the current area of interventions?
- o) Costs, current tariffs/ rates of services provided e.g., connection fees, emptying fees, etc
- p) Availability of Non-government organizations for technical assistance, financing, awareness, and collaboration.

8.6 Sanitation Service Demand Forecast

After a thorough analysis, a sanitation forecast will be performed based on the existing situation and stakeholders' engagement. The forecast intends to provide a structured approach that will give realistic direction to all aspects of sanitation planning for the WSSA to achieve the five-year targets in a standardized format. The forecast shall comprise the business analysis described in sections 8.6(a) and (b).

a) Sewage and Faecal Sludge Generation and Projection

WSSAs should understand and forecast the current and future sewage and faecal sludge generation to identify infrastructural needs and facilities required for serving the population adequately. WSSAs' current and future sewage and faecal sludge generation shall be determined by conducting a thorough study in their service area and referring to the latest version of the Ministry of Water Design Manual on sewage and faecal sludge quantification. WSSAs shall demonstrate in their inclusive sanitation Plan how they arrived at the projected generation. Sewage and faecal sludge generation projections shall be in the format of Table 8 and Table 9.

Table 8: Current and Projected Amount of Faecal Sludge Generation

Year	Faecal Sludge Generation (m ³)		Total FS generation	Faecal Sludge (to be) Collected (m ³)		Total FS to be collected	Gap	Capacity of faecal sludge treatment plant
	Pit latrines	Septic tanks		Pit latrines	Septic tanks			
	(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)=(4)+(5)	(7)=(3)- (6)	
Current(n)								
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								

Table 9: Current and Projected Sewage Generation

Year	Sewage Generation (m ³)	Sewage received in the treatment plant	Gap	Capacity of sewage treatment plant
Current(n)				
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				

(b) Sanitation Service Coverage

The WSSA will determine, by location, the population directly served with sanitation services compared to the total population in all its service areas. From this analysis, the WSSA shall indicate the service gap and present strategies for extending service to unserved areas. Strategies should be feasible during the planning period.

Analysis of areas to be served will be presented in a format indicated in Table 10. In addition, WSSA may present service coverage by location on an electronic map, whereby existing and potential new customers will be located using GIS technology.

Table 10: Sanitation Service Coverage

S N	Ward/ Street Name	Total Population (No)	Current Sanitation Coverage				Sanitation Coverage Projections (%)				
			Population connected with sewerage network (No)	Population With safely managed sanitation services (No)	Total population served (No)	Proportion of Population with improved onsite sanitation services (%)	Year n+1	Year n+2	Year n+3	Year n+4	Year n+5
		(1)	(2)	(3)	(4)=(2)+(3)	(5)=(4)/(1)					
Total											

At the end of the situation analysis, the planning team will come up with a summarized description of the existing situation and problem identification, which should be presented in the following format;

Table 11: Summarized Problem Identification and Way Forward

Identified issue	Agreed intervention	Sanitation Objective	Action to be carried out	KPI/ output

8.7 Inclusive Sanitation Implementation Plan

The inclusive sanitation plan outlines the course of action, including the resources required to achieve a specific target. The Plan should state the utility objectives for five years. The utility objectives and strategies for the period must reflect progress towards the

minimum service level requirement and capacity development. The plan should consider strategies for climate resilience to ensure sustainable service during climate change. This can be achieved by having a resistant sanitation infrastructure and infrastructure with low emissions for the environment. For implementation to function well, there needs to be a definition, including: activities to be done, associated costs, responsibility, time frame, and source of funding/ financing. The Implementation plan will be presented as per Table 12.

Table 12: Action Plan for Inclusive Sanitation

SN	Objective	Action to be taken (Activities)	Responsible	Start date	Completion date	Costs					Source of fund	Comments
						Year 1	Year 2	Year n	Year 4	Year 5		

8.8 Financial Plan

For efficient and effective implementation of the planned interventions, it is necessary to know how many resources are required and when. The financial plan will cover projections of Capital Expenditures (CAPEX) and Operation and Maintenance Expenditures (OPEX) as well as their sources of financing. Financial planning aims to assist the utility in foreseeing its cash flows and achieving medium to long-term operational and financial sustainability. The revenue requirement for implementing the sanitation plan will be part of the utility business plan. Other sources of financing should also be stated, such as aid from Cooperating Partners, Government grants, and private sector participation.

8.8.1 Sanitation Investment Plan

The sanitation investment plan development will require the service provider to consider investments needed for the component of the sanitation service chain. Reference should be made to the Action Plan, all activities that are investment in nature should be presented in the investment plan. At a minimum, the investment plan should be as given in Table 13:

Table 13: Sanitation Investment Plan

Objective	Rationale	Planned investments Activities	Start date	Completion date	Benefit of investments	Funding requirement	Source of funding

8.8.2 Operation and Maintenance Plan

Operation and maintenance costs in an inclusive sanitation plan may include: sanitation training costs, community engagement and awareness campaigns, administrative operating expenses (offices, personnel, cleaning materials, etc.), costs for the repair and maintenance of sanitation facilities and infrastructure, discharge and dumping fees, operation and maintenance costs of conveyance (fuel, electricity, laboratory reagents, water for flushing, sewage pumps, etc.), operation and maintenance costs of treatment plants, stakeholders meetings throughout the project, and purchasing personal protective equipment (PPE). Operation and maintenance costs should be presented in 14.

Table 14: Operation and Maintenance Plan

Description	Operation and Maintenance Cost (Million TZS)								
	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
Fuel & Lubricants									
Sewage Treatment									
Electricity for Sewerage									
Laboratory									
New Sewer Connections									
Cesspit emptying and transportation									
Faecal sludge treatment									

Description	Operation and Maintenance Cost (Million TZS)								
	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
Repair and maintenance of sanitation infrastructure (this should be the same as the respective year in the WSSAs' Asset Management Plan)									
Add other Sanitation costs as appropriate									
Total Sanitation Costs									

8.8.3 Statement of Financial Performance

WSSAs should present a statement of financial performance that reflects income and expenditure for a single year or one operating cycle. The purpose of the income and expenditure statement is to indicate whether the WSSA has generated a surplus or incurred a deficit during the reported period. At a minimum, each WSSA should furnish the information displayed in Table 15 within its income and expenditure statement.

Table 15: Income and Expenditure Statement

Description	Historic Data (TZS)			Current (TZS)	Projections (TZS)				
	Year	Year	Year	Year	Year	Year	Year	Year	Year
	n-3	n-2	n-1	n	n+1	n+2	n+3	n+4	n+5
Income									
Own funds									
Sewerage charges									
Cesspit emptying charges									
Sludge disposal charges									
New sewer connection fees									
Add other income as appropriate.									
Operational Grants									
Government									
Donors									

Description	Historic Data (TZS)			Current (TZS)	Projections (TZS)				
	Year	Year	Year	Year	Year	Year	Year	Year	Year
	n-3	n-2	n-1	n	n+1	n+2	n+3	n+4	n+5
Expenses									
Emptying and Transportation									
Treatment expenses									
Maintenance and Repair									
Awareness costs									
Disposal fee									
Add other expenses as appropriate.									
Total Expenses									
Surplus /(Deficit)									

8.9 Monitoring, Review and Evaluation

Monitoring is a process of continuous assessment that employs regular measurements of the indicators of success as agreed upon. Evaluation assists stakeholders in reflecting on monitoring data, comparing it to goals and targets, and using the information to learn from experience, adjust implementation, and enhance future planning. Monitoring and evaluation aim to improve decision-making and performance to achieve tangible results. Additionally, it empowers and builds the capacity of all actors by increasing transparency and accountability.

The WSSA shall indicate the process of implementing its sanitation plan by having in place control mechanisms for monitoring, evaluating, and reporting its performance over time. The utility shall commit itself to undertaking bi-annual reviews and assessments of the implementation of its sanitation plan.

General indicators for measuring progress should be grounded in the defined vision, goals, and indicators. Specific indicators ought to be created for each intervention. General indicators may encompass enhancements in sanitation coverage and sustainable service delivery, improvements in public health, and so forth.

The planning and implementation process should be regularly measured so that problems can be identified and addressed immediately, and learning experiences can be integrated into the process. The method for stakeholder engagement should also be evaluated regularly to ensure that the desired results are achieved. The reviews will track any changes in output realised over the period, as well as challenges and lessons learnt. All key indicators in the plan will be included in the monitoring plan, and the WSSA, through

its steering committee team, shall prepare a data collection plan to compute the key indicators and determine their progress against set targets.

The evaluation plan will focus on determining whether the planned outcomes over the five-year sanitation plan have been achieved and, if not, what could have caused the underachievement. The intention is to improve the sanitation plan's effectiveness for the next round.

The reporting plan should show all reports that will be used in executing the plan. These reports shall include an annual review report. The WSSA shall prepare an annual review report on the plan's implementation status. The report shall be included in the WSSAS' Annual Performance Report and submitted to EWURA after the approval of the WSSA's Board.

APPENDICES

Appendix 1: Capture and Containment Services Business Model Matrix

KEY PARTNER ▪ Key partners: community and NGOs ▪ Key suppliers: offering the best option in terms of cost, technology, and durability ▪ Key resources from partners: construction materials ▪ Key activities performed by partners: Construction, and awareness campaign to sensitize the community on the provided service	KEY ACTIVITIES ▪ Feasibility study to get information on the community to be served sanitation service status ▪ Marketing of the service	VALUE PROPOSITIONS ▪ Technological options inclusive of consumer needs ▪ Improvement of health ▪ Different standardized and affordable toilet designs, installation and maintenance	CUSTOMER RELATIONSHIP ▪ Communication platform for customer feedback including Toll-Free number or Regular meeting ▪ Application and payment for services	CUSTOMER SEGMENTS ▪ The whole community in the service area depending on sanitation facilities requirement
COST STRUCTURE Capture and containment facility initial cost, Installation cost, Maintenance cost, Marketing cost, Communication cost, and Operating expenses.	KEY RESOURCES ▪ Information on the community's preferences on sanitation facilities and future requirements, etc. ▪ The best raw materials, products, and trained artisans	CHANNELS ▪ Marketing and awareness campaign on the facilities ▪ Feedback from the community ▪ Research and innovation ▪ Monitoring and evaluation		REVENUE STREAMS Capture and containment facility price, Capital contributions, Sanitation access charge, Incentives and subsidies

Appendix 2: Emptying and transportation services business model matrix

KEY PARTNER ▪ Key partners: Community, NGOs, LGAs, financial institutions, Private Operator ▪ Key suppliers: sellers of emptying trucks or mechanical pumping units and PPE sellers; ▪ Key resources: training manuals, initial funds	KEY ACTIVITIES ▪ Feasibility study on community sanitation services status ▪ Evaluation of the available FSTP capacity and efficiency ▪ Tariff proposal ▪ Purchase of emptying facilities and PPE ▪ Training of personnel ▪ Marketing ▪ Emptying and transportation services	VALUE PROPOSITIONS ▪ Reliable service ▪ Affordable tariff ▪ Improvement of health ▪ Appropriate technology ▪ Community acceptability ▪ Inclusion of vulnerable people ▪ Environmental protection	CUSTOMER RELATIONSHIP ▪ Communication platform for customer ▪ feedback including Toll Free numbers or Regular meeting ▪ Mobile payment of service fees	CUSTOMER SEGMENTS ▪ Septic tank users ▪ Lined and emptyable pit-latrines users
COST STRUCTURE ▪ Purchase of emptying and transportation facilities ▪ O&M cost of the trucks/pumps ▪ Marketing and Communication cost ▪ Replacement cost	KEY RESOURCES ▪ Initial investment funds ▪ Continuous training facilities ▪ Communication facilities (call centre, free line number)	CHANNELS ▪ Marketing ▪ Awareness campaign on the service ▪ Customer Feedback ▪ Communication ▪ Monitoring and Education		REVENUE STREAMS ▪ Tariff for the emptying service ▪ Incentives and subsidies

Appendix 3: Business Model Matrix for Treatment, Reuse, and Final Disposal Services

KEY PARTNER	KEY ACTIVITIES	VALUE PROPOSITIONS	CUSTOMER RELATIONSHIP	CUSTOMER SEGMENTS
▪ Key partners: community, Private Operator, LGAs, financial institutions. ▪ Key suppliers: construction materials for the plant, chemical suppliers if necessary, packaging materials for solid end products, plant spare parts, and PPE sellers.	▪ Design and construction/upgrade of the FSTP; ▪ Operationalization and maintenance of the FSTP; Quality monitoring of both the influent and effluent ▪ Tariff proposal for dumping the faecal sludge at the FSTP and tariff of end products ▪ Training to FSTP operators ▪ Awareness of the end product ▪ Packaging and selling of end products;	▪ Appropriate technology for the treatment and reuse option ▪ Appropriate dumping tariff ▪ Affordable tariff on the end product ▪ Low operation and maintenance cost ▪ Environmental protection	▪ Communication platform for customer feedback including Toll Free numbers or Regular meeting ▪ Payment options for purchase of endues products	▪ Community ▪ Private sector ▪ End product users
COST STRUCTURE	KEY RESOURCES	CHANNELS	REVENUE STREAMS	
▪ Construction /upgrade of the FSTP cost; ▪ Operation and Maintenance cost of FSTP; ▪ Branding, packaging, and marketing costs of the end products; ▪ Communication cost.	▪ Initial investment funds ▪ Training of the key personnel ▪ Laboratory facilities for quality monitoring ▪ Communication facilities	▪ Marketing and awareness for the end products; ▪ Customer feedback; ▪ Monitoring and evaluation	▪ Tariff for the service ▪ Sale from the end products ▪ Sanitation charges ▪ Incentives and subsidies	

Appendix 4: Model matrix for the combination of emptying, transportation, treatment, reuse, and final disposal

KEY PARTNER	KEY ACTIVITIES	VALUE PROPOSITIONS	CUSTOMER RELATIONSHIP	CUSTOMER SEGMENTS
- Key partners: Community, Private operators, NGOs, LGAS, and financial institutions. - Key suppliers: construction materials, sellers of emptying trucks or mechanical pumping units and vacuum pumps, chemical suppliers if necessary, packaging materials for solid end products, plant spare parts, PPE sellers;	- Feasibility study on community sanitation services status; - Design and construction/upgrade of the FSTP; - Purchase of emptying facilities; - Emptying and transportation services; - Tariff proposal for dumping the faecal sludge at the FSTP and tariff of end products - Packaging and selling of end products - Training of emptiers; - Operationalization and maintenance of the FSTP and transfer stations; - Quality monitoring of both the influent and - Marketing and awareness on the end product	- Reliable service; - Affordable tariff for the service and end products; - Appropriate technology for the emptying, treatment, and reuse option - Community acceptability; - Low operation and maintenance costs; - Environmental protection - Improvement of health	- Communication platform for customer feedback including Toll Free numbers or Regular meeting - Mobile payment of service fees - Payment options for purchase of endues products	- Septic tank users - Lined and emptiable pit-latrines users - End product users. - Private Operators

COST STRUCTURE • Purchase of the emptying and transportation facilities • Operation and maintenance cost of the trucks/pumps and FSTP. • Construction/upgrade of the FSTP; • Marketing and communication cost KEY RESOURCES • Available best-emptying technologies • Initial investment funds • Training facilities • Communication facilities • Laboratory facilities for quality monitoring	CHANNELS • Marketing and awareness of the service and the end product • Communication on the feedback of the services • Monitoring and evaluation	REVENUE STREAMS • Tariff for the emptying service • Sales from the end products • Incentives and subsidies
--	---	--

Appendix 5: A matrix for the business model that combines capture, containment, emptying, emptying, transportation, treatment, reuse, and final disposal.

KEY PARTNER	KEY ACTIVITIES	VALUE PROPOSITIONS	CUSTOMER RELATIONSHIP	CUSTOMER SEGMENTS
- Key partners: community, private operators, NGOs, LGAs, and financial institutions. - Key suppliers for containment, construction materials, mechanical equipment for the plant, emptying trucks or mechanical pumping units, chemical suppliers if necessary, packaging materials for solid end products, PPE sellers	- Feasibility study on community sanitation services status; - Design and construction/upgrade of the FSTP; - Purchase of emptying facilities; - Emptying and transportation services; - Tariff proposal for dumping the faecal sludge at the FSTP and tariff of end products - Packaging and selling of end products - Training of emptiers; - Operationalization and maintenance of the FSTP and transfer stations; - Quality monitoring of materials both the influent and - Marketing and awareness on the end product	- Reliable service; - Affordable tariff for the service and end products; - Appropriate technology for the capture, containment, emptying, treatment, and reuse option - Community acceptability; - Low operation and maintenance costs; - Environmental protection - Improvement of health	- Communication platform for customer feedback including Toll Free numbers or Regular meeting - Mobile payment of service fees - Payment options for purchase of endues products	- The whole community in the service area depending on sanitation facilities requirement - Septic tank users - Lined and emptyable pit-latrines users - Private operator

COST STRUCTURE	KEY RESOURCES	CHANNELS	REVENUE STREAMS
• Containment initial cost • Purchase of the emptying and transportation facilities • O&M cost of the trucks/pumps and FSTP • Construction / upgrade of the FSTP; • Marketing and Communication cost	• Available best capture, containment, and emptying technologies • Initial investment funds • Training facilities • Communication facilities Laboratory facilities for quality monitoring	• Marketing and awareness of the service and the end product • Communication on the feedback of the services • Monitoring and evaluation	• Containment price • Tariff for the emptying service • Sales from the end products • Incentives and subsidies

Appendix 6: Combination of conveyance, treatment, reuse, and final disposal business model matrix for sewerage sanitation services

KEY PARTNER • Key partners: community, Private Operator, NGOs, LGAs, financial institutions; • Key suppliers for construction materials, sellers of emptying trucks or mechanical pumping units and vacuum pumps, chemical suppliers if necessary, packaging materials for solid end products, PPE sellers;	KEY ACTIVITIES • Feasibility study on the service and water supply system, Design and construction/upgrade of the WWTP; • Tariff proposal for conveyance, treatment, and reuse; • Operationalization and maintenance of the WWTP; • Quality monitoring of both the influent and effluent • Training of personnel	VALUE PROPOSITIONS • Appropriate technology for conveyance and treatment and reuse option; • Affordable tariff for the services • Community acceptability • Installation and maintenance of the conveyance system; • Low operation and maintenance costs; • Environmental protection • Improvement of health	CUSTOMER RELATIONSHIP • Communication platform for customer feedback including Toll Free numbers or Regular meeting • Mobile payment of service fees	CUSTOMER SEGMENTS • Household toilet users • Community • End product users. • Private Operators
COST STRUCTURE • Conveyance system; • Construction /upgrade of the WWTP; • O&M cost of conveyance and WWTP; • Communication cost	KEY RESOURCES • Initial investment funds • Construction materials • Training facilities; • Communication facilities; • Laboratory facilities for quality monitoring.	CHANNELS • Awareness campaign on the service • Communication on the feedback of the services provided; • Monitoring and evaluation	REVENUE STREAMS • Tariff for the conveyance system (including treatment) • Sale of reclaimed water • Incentives and subsidies	

Appendix 7: Appropriate Technology Selection Criteria

Sanitation business model	Topography	Size of the population	Population income	Water consumption and availability	Type of toilets	Existing FS Collection and transportation system	Policy, laws and regulation including financial regulatory framework	Existing Tariffs and all related costs for the whole sanitation chain	Vulnerable people (gender, elders, women, and children)	Culture consideration
1. Capture and Containment service business model	✓	✓ ✓		✓	✓	✓	✓	✓	✓	✓
2. Emptying and transportation business model	✓	✓	✓	N/A	✓	✓	✓	✓	✓	✓
3. Treatment, reuse and disposal business model	✓	✓	N/A	N/A	✓	✓	✓	✓ (end products cost only)	/NA	✓ (for end products and reuse of treated effluent)
4. Combination of emptying and transportation, treatment, reuse, and disposal services business model	✓	✓	✓	✓	✓	✓	✓	✓ (tariff on emptying and transportation only)	✓	✓ (for end products and reuse of treated effluent)

5. Combination of containment, emptying and transportation, treatment, reuse, and disposal services business model	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6. Combination of conveyance, treatment, reuse, and disposal business model	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Appendix 8: Roles and Responsibilities of Stakeholders Along the Sanitation Service Chain

Category	Capture	Emptying	Transport	Treatment	Disposal/Reuse
POLICY					
MoW (Ministry of Water)	i. Develop policies for water resource management and sanitation infrastructures. ii. Coordinates efforts of stakeholders in sanitation investments and service delivery iii. Plan, invest and mobilize financial resources, both from the government and development partners, to support the implementation of sanitation projects across the country focusing on underserved areas.				
MoH (Ministry of Health)	Provides guidelines on sanitation services and facilities in consideration of health aspects				
VPO-E (Vice President's Office - Environment)	Ensures waste treatment follows environmental protection laws				
REGULATION					
EWURA (Energy and Water Utilities Regulatory Authority)	Regulates sanitation services provided within the designated service areas				
NEMC (National Environment Management Council)	Enforce and ensure compliance with the national environmental quality standards.				

Category	Capture	Emptying	Transport	Treatment	Disposal/Reuse
LGA (Local Government Authorities)	Enforces local regulations for sanitation facility construction.	Licensing of cesspit emptier operators and ensuring cesspit emptiers adhere to health standards		i. Enforce and ensure compliance with health and environmental quality standards ii. Allocate land for the construction of FSM and wastewater treatment facilities	
	i. Collect, analyse and disseminate OSS data ii. Collaborate with WSSAs to improve data collection tools and data requirements				
BWBOs (Basin Water Boards)	Regulates disposal to protect water bodies				
SERVICE PROVISION					
WSSAs (Water Supply and Sanitation Authorities)	May construct and provide public sanitation infrastructure (e.g., toilets)	Provide emptying services or regulate private operators	Manage waste transport to treatment facilities	i. Acquire land and construct FSM and wastewater treatment facilities ii. Operate waste treatment facilities	Handle disposal and promote the reuse of treated waste
	i. Liaise with LGAs in data collection and improvement of data collection tools ii. Engage the private sector through a Trade Waster Agreement				
Private Operators	May construct and provide public sanitation infrastructure (e.g., toilets)	Provide private emptying services	Transport waste to treatment facilities	May operate private treatment facilities	May handle disposal or commercialization of treated waste

Category	Capture	Emptying	Transport	Treatment	Disposal/Reuse
CBOs (Community-Based Organizations)	Support community construction of sanitation facilities	Offer or organize community-based emptying services	Assist with waste transport, especially in underserved areas	Support community-based small-scale treatment solutions	Promote safe reuse or disposal of treated waste
Customers	Use and maintain sanitation facilities	Hire private or public services for emptying	Rely on service providers for waste transport	Rely on service providers for waste treatment	May engage in reuse, like using treated waste in agriculture

Appendix 9: Related National Guidelines

- National Sanitation Options and Construction Guidelines (2012);
- Guidelines for Construction of Improved Toilets and Environmental Sanitation (2014);
- Design Manual for Water Supply and Wastewater Disposal (2020);
- Water Resources Monitoring and Pollution Control (WRM&PC) Guidelines (MoW-BWB) (2012);
- EWURA Performance Benchmarking guideline (2022);
- Guidelines for Onsite Sanitation and Faecal Sludge Management for Water and Sanitation Authorities, 2020.
- EWURA Water and Wastewater Quality Monitoring Guidelines for Water Supply and Sanitation Authorities, 2nd edition (2020); and
- The Guidelines for the Application of Small-Scale, Decentralized Wastewater Treatment Systems, A Code of Practice for Decision Makers, MOW (2018).

Appendix 10: Related Standards

The existing standards for CWISP is the Tanzania Standard Number TZS860 (General tolerance limits for municipal and industrial wastewater) issued by the Tanzania Bureau of Standards (TBS). This is mainly for pollution control.

Standards which have been issued by International Organization for Standardization (ISO) standards relevant to sanitation services include:

- a. ISO30500 (2018): non-sewered sanitation systems – Prefabricated integrated treatment units – General safety and performance requirements for design and testing;
- b. ISO 24521 (2016): Activities relating to drinking water and wastewater services – Guidelines for the management of basic on-site domestic wastewater service;
- c. ISO 24510 (2007): Activities relating to drinking water and wastewater services – Guidelines for the assessment and the improvement of the service to users; and
- d. ISO 24511 (2007) Activities relating to drinking water and wastewater services – Guidelines for the management of wastewater utilities and the assessment of wastewater services.

EWURA Head Office

EWURA House, 3 EWURA Street, 41104 Tambukareli,
P.O.Box 2857, Dodoma, Tanzania.

Tel: +255 26 2 329 002-4 ▪ Fax: +255 26 2329005

Toll Free Number: 0800110030

www.ewura.go.tz



ewuratanzania



ewuratv



Toll Free Number: 0800110030



Call *152*00# For Petroleum Fuel Prices