



**REGIONAL BENCHMARKING OF
WATER SUPPLY AND SANITATION UTILITIES
2022/2023 REPORT**



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FOREWORD

The Eastern and Southern Africa Water and Sanitation (ESAWAS) Regulators Association is a network of water supply and sanitation regulators, created to promote effective water supply and sanitation regulation through regional cooperation. The premise of regulation is to ensure that Government policy is implemented, and service providers are accountable and supported in delivering efficient, affordable, reliable and quality services.

The 2030 target for Sustainable Development Goal (SDG) 6 on universal access to safe drinking water and adequate and equitable sanitation and hygiene is fast approaching, yet statistics indicate that sub-Saharan Africa is already lagging behind. With heightened calls for pragmatic approaches to accelerate access to water supply and sanitation (WSS), the recognition of the significant role of regulation in this, is taking centre stage. When instituted effectively, regulation has the potential to catalytically drive increased access and improvements in service delivery.

ESAWAS is therefore supporting countries to strengthen regulation for regulators existing, newly formed or under establishment. Core to this effort is the introduction of a dedicated WSS Regulation Training Centre by ESAWAS to cater not only to regulators, but all sector actors, by delivering training by sector practitioners, for practitioners. Also core, is the strengthening of public data systems to enhance data for decision-making and performance monitoring, from the local level up to global monitoring systems. This is coupled with innovations to enhance the functions and operations of regulators.

At the country and continent level, regulators and ESAWAS remain cognisant of the pressures and emerging issues that the sector is facing and need consideration in regulatory design. Service resilience concerns that include climate change impacts, economic downturn, technology advancements etc have become top priority. The benchmarking results indicate a decline in O&M Cost Coverage by Billing. This raises serious concern for the sustainability of Utilities, particularly where tariffs have remained low and unadjusted for many years. The role of the regulator in the sector finance framework needs to be strengthened to better support service providers with access to innovative financing, beyond the tariff.

In the quest for quality WSS services, attaining efficiency gains by service providers is a core focus of regulators. Non-Revenue Water remains high in the sector with selected examples of success, despite high metering ratio. ESAWAS is exploring cardinal support required in this area, tied to enhancing the business acumen of service providers. Efforts to further support service providers through regulation include Rural WSS, small water supplies, inclusive sanitation, service resilience, digital public infrastructure and integrity.

In 2023, a major milestone for ESAWAS was the endorsement by WSS regulatory institutions from 44 countries to expand to continental level. This is a very high recognition of ESAWAS work in promoting the development of effective WSS regulation. The Association is poised to rise to the challenge and grow organically beyond the region, while raising the value of benefits for membership.



Yvonne Magawa
ESAWAS Executive Secretary

ABBREVIATIONS/ ACRONYMS

AdRMM	Águas da Região Metropolitana de Maputo
ADERASA	Association of Regulators of Water and Sanitation of the Americas
AFUR	African Forum for Utility Regulators
AfWASA	African Water and Sanitation Association
AGM	Annual General Meeting
AMCOW	African Ministers' Council on Water
AREEN	Autorité de Régulation des secteurs de l'Eau potable et de l'Energie
AURA	Autoridade Reguladora de Águas, Instituto Público
BMGF	Bill and Melinda Gates Foundation
CWIS	Citywide Inclusive Sanitation
DAWASA	Dar es Salaam Water and Sewerage Authority
DWS	Department of Water and Sanitation
EPAL	Empresa Pública de Águas de Luanda
ESAWAS	Eastern and Southern Africa Water and Sanitation Regulators Association
EWURA	Energy and Water Utilities Regulatory Authority
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IBNET	International Benchmarking Network
IWA	International Water Association
KPI	Key Performance Indicators
LWSC	Lusaka Water and Sanitation Company
LEWA	Lesotho Electricity and Water Authority
NCW&SC	Nairobi City Water and Sewerage Company
NSS	Non-Sewered Sanitation
NRW	Non-Revenue Water
NWASCO	National Water Supply and Sanitation Council
NWSC	National Water and Sewerage Corporation
REGIDESO	Régie de Production et de Distribution d'Eau et d'électricité
RWSS	Rural Water Supply and Sanitation
RURA	Rwanda Utilities Regulatory Authority
SDGs	Sustainable Development Goals
TeCRI	Technical Committee on Regulatory Issues
WASAC	Water and Sanitation Corporation
WASCO	Water and Sewerage Company
WASREB	Water Services Regulatory Board
WIN	Water Integrity Network
WSS	Water Supply and Sanitation
WSUP	Water and Sanitation for the Urban Poor
WUPI	Water Utility Performance Index
WURD	Water Utility Regulation Department
ZAWA	Zanzibar Water Authority
ZURA	Zanzibar Utilities Regulatory Authority

EXECUTIVE SUMMARY

The ESAWAS Regulators Association has been conducting regional benchmarking of Water Supply and Sanitation Utilities since 2015. The platform allows for the comparative analysis of the performance of utilities with the prime objective to enhance water supply and sanitation service provision and sector performance. The regional benchmarking exercise also allows for the identification of weaknesses and gaps in utilities' operations that require regulatory interventions and guidance. At the continental level, the exercise informs the development of harmonised regulatory instruments for adoption by countries to respond to identified specific challenges.

This report presents the results of the 9th edition covering the period 2022/2023. The number of benchmarked utilities increased from nine to eleven and these include: Nairobi City Water and Sewerage Company (NCW&SC) of Kenya; Lusaka Water and Sanitation Company (LWSC) of Zambia; Dar Es Salaam Water and Sanitation Authority (DAWASA) of Tanzania; Águas da Região Metropolitana de Maputo (AdRMM) of Mozambique; Water and Sewerage Company (WASCO) of Lesotho; Water and Sanitation Corporation Ltd (WASAC) of Rwanda; Régie de Production et de Distribution d'Eau et d'Electricité (REGIDESO) of Burundi; Zanzibar Water Authority (ZAWA) of Zanzibar; National Water and Sewerage Corporation (NWSC) of Uganda; Lilongwe Water Board (LWB) of Malawi and Empresa Pública de Águas de Luanda (EPAL) of Angola.

The report comprises seven chapters highlighting the performance of ESAWAS and benchmarked Utilities in the period under review. Chapter 1 presents an overview of the ESAWAS Regulators Association; Chapter 2 discusses the performance of the Association with regard to the implementation of the fourth Strategic Plan (2022 to 2024), while Chapter 3 presents the key milestones recorded by the Association in the period. Chapter 4 describes the regional benchmarking framework highlighting the indicators while Chapter 5 provides the comparative performance analysis of the Utilities on the various indicators. Chapter 6 presents the comparative performances of the best performing utilities in the region and Chapter 7 summarises the main conclusions and recommendations based on the results of the benchmarking exercise.

The reporting period marked the second year of the implementation of the ESAWAS fourth strategic plan spanning 2022-2024. Key achievements in the period include the implementation of a public Data Systems Strengthening Strategy to assist countries to improve data accuracy and reliability from the local level and the endorsement of a feasibility strategy for an Africa-based WSS Regulation Training Centre.

Concerning the Utility Benchmarking, the average performance declined in almost all indicators and the utilities only managed to meet the acceptable benchmark in two indicators. For **Quality of Service** indicators, the averages for Water Service Coverage declined from 79% to 71.6%, Sewerage Service Coverage dropped from 15.8% to 15.1%, Water Quality declined from 96.7% to 93.4 % and Hours of Supply decreased from 17 to 15. For **Economic Efficiency** indicators, the average O&M Cost Coverage by Billing declined from 115% to 99%, Collection Efficiency improved from 94% to 107% and Staff Cost vs O&M Cost declined from 38.5% to 39.4%. For **Operational Sustainability** indicators, slight improvement was recorded in Staff/1,000 Water & Sewerage Connections from 4.55 to 4.16 while NRW and Metering Ratio declined from 45.5% to 47.4 and 86.9% to 81% respectively.

The exercise also compared the performance of the best performing utilities in the region. WASAC of Rwanda remained the best performer among the large/national Utilities while **Nakuru WSP of Kenya emerged the best of the best performers in the region for the year 2022/2023.**

CHAPTER 1. OVERVIEW OF ESAWAS REGULATORS ASSOCIATION

1.1 REGIONAL WSS REGULATORY COOPERATION

Achieving universal access to safe drinking water by 2030, requires concerted efforts and inclusive approaches that leave no one behind. Governments have made significant progress towards improving access to quality water supply and sanitation services. Water sector reforms instituted from around the 1990s established water supply and sanitation (WSS) regulators in several countries across Africa to address deteriorating service delivery as a result of a variety of compounding factors.

Regulation directly impacts service delivery and has the potential to drive service improvements and extensions where it is effectively instituted. A strong regulatory environment is one that balances social, environmental and economic interests, and increases public confidence and trust in government institutions, regulators and their decision-making process.

There is no single 'best-practice', or one-size-fits-all model for WSS regulation. Every country must instead find the 'best-fit' according to their specific context. Nevertheless, while implementation of regulation should be aligned to country context, the principles and fundamentals of regulation are the same. This allows knowledge and experiences in regulatory governance and substance to be shared across several institutions for adoption or adaptation of what works.

Thus, in recognising the need for collaboration and promotion of the effective development of WSS regulation, several regulators came together to form an association to address common challenges and opportunities through regulatory cooperation.

1.2 OBJECTIVES OF ESAWAS

The Eastern and Southern Africa Water and Sanitation (ESAWAS) Regulators Association is a network of water supply and sanitation (WSS) regulators that seeks to enhance the regulatory capacity of members to deliver quality and effective regulation to achieve public policy objectives, through cooperation and mutual assistance.

The ESAWAS Regulators Association began informally in 2007 and was officially formed in 2009 by a Memorandum of Understanding. It gained legal personality in 2012 as a registered society in Zambia. The activities of the Association are governed by a Constitution and Rules of Operation.

The objectives of the ESAWAS Regulators Association as stated in its Constitution are:

a) Capacity Building and Information Sharing

Facilitate information sharing and skills training at national, regional and international level to enhance the capacity of members in WSS regulation;

b) Regional Regulatory Co-operation

Identify and encourage the adoption of best practices to improve the effectiveness of WSS regulation in the region.

1.3 MEMBERS OF ESAWAS

As of 2023, the ESAWAS Regulators Association was composed of the following twelve members as shown in Table 1:

- **Nine autonomous WSS regulators:** the Water Services Regulatory Board (WASREB) of Kenya; the Autoridade Reguladora de Águas, Instituto Público (AURA,IP formerly CRA) of Mozambique; the Rwanda Utilities Regulatory Authority (RURA) of Rwanda; the Energy and Water Utilities Regulatory Authority (EWURA) of Tanzania; the National Water Supply and Sanitation Council (NWASCO) of Zambia; the Lesotho Electricity and Water Authority (LEWA) of Lesotho; the Autorité de Régulation des secteurs de l'Eau potable et de l'Energie (AREEN) of Burundi; the Zanzibar Utilities Regulatory Authority (ZURA) of Zanzibar; and the Instituto Regulador dos Serviços de Electricidade e de Água (IRSEA) of Angola;
- **Two ministry departments:** the Water Utility Regulation Department (WURD) of Uganda; and the Department of Water and Sanitation (DWS) of South Africa; and
- **One association** of water and sanitation Utilities with regulatory oversight: the Water Services Association of Malawi (WASAMA).

This was an increase of members from ten in the previous period. The ESAWAS Annual General Meeting approved the membership of the Department of Water and Sanitation (DWS) of South Africa and the Instituto Regulador dos Serviços de Electricidade e de Água (Regulatory Institute for Electricity and Water Supply Services) - IRSEA of Angola.

- DWS under the Ministry of Water and Sanitation is responsible for the formulation and implementation of policy governing the sector in South Africa. The Chief Directorate: Economic and Social Regulation was established in 2014 under the Branch- Regulation, Compliance and Enforcement.
- IRSEA of Angola is a multi-sectoral economic regulator established by Presidential Decree No. 59/16, of March 16. Under the supervision of the Ministry of Energy and Water, IRSEA is mandated to regulate electricity, water supply, wastewater and sanitation services.

1.4 FUNCTIONS OF REGULATORS

The regulators are generally mandated to undertake both economic and technical regulation of WSS service provision, ensuring a balance between the quality of service, the interests of consumers, and the financial sustainability of service providers.

For effective regulation, regulators have put in place a number of instruments and tools which include licensing; development and enforcement of guidelines, regulations, rules and standards; tariff setting and performance monitoring and quality control.

Sector performance reporting and information dissemination is a key function of regulators. Most regulators have in place systems for data collection on the performance of the Utilities that is used for sector reporting. All the regulators produce annual reports on the performance of the sector which is published and disseminated to the public.

Table 1: Overview of ESAWAS Members

	Regulator	Established by	Year begun operations	Number of regulated WSS Utilities
1	National Water Supply and Sanitation Council (NWASCO) , Zambia	Water Supply and Sanitation Act No. 28 of 1997	2000	11
2	Autoridade Reguladora de Águas, Instituto Público (AURA,IP) , Mozambique	Decree No. 8 of 2019 preceded by Decree No. 74 of 1998	2000	57
3	Water Services Regulatory Board (WASREB) , Kenya	Water Act of 2002	2003	93
4	Rwanda Utilities Regulatory Authority (RURA) , Rwanda	Law No. 39 of 2001	2003	1
5	Energy and Water Utilities Regulatory Authority (EWURA) , Tanzania	Cap 414 of 2001	2006	87
6	Lesotho Electricity and Water Authority (LEWA) , Lesotho	LEA Act of 2002, LEA Amendment Act of 2011	2013	1
7	Autorité de Régulation des secteurs de l'Eau potable et de l'Energie (AREEN) , Burundi	Decree No. 100/320 of 2011	2014	1
8	Zanzibar Utilities Regulatory Authority (ZURA) , Zanzibar	Act No. 7/2013	2015	1
9	Water Services Association of Malawi (WASAMA) , Malawi	Trustee Act	1998	5
10	Water Utility Regulation Department (WURD) , Uganda	Cap 152 of the water Act	2009	7
11	Instituto Regulador dos Serviços de Electricidade e de Água (IRSEA) , Angola	Presidential Decree No. 59/16, of March 16	2016	18
12	Department of Water and Sanitation (DWS) , South Africa	Water Services Act No. 108 of 1997 National Water Act No. 36 of 1998	2014	151 ¹

¹ 144 Water Service Authorities and 7 Water Boards

CHAPTER 2. PROGRESS ON 2022-2024 STRATEGIC PLAN IMPLEMENTATION

The activities of the ESAWAS Regulators Association are guided by three-year Strategic Plans. This reporting period marks the second-year of implementing the fourth Strategic Plan spanning 2022-2024 that was developed to specifically respond to pertinent issues within the water supply and sanitation sector that require regulatory attention at regional level. Over three years, the Association aspires to achieve the following four Strategic Objectives:

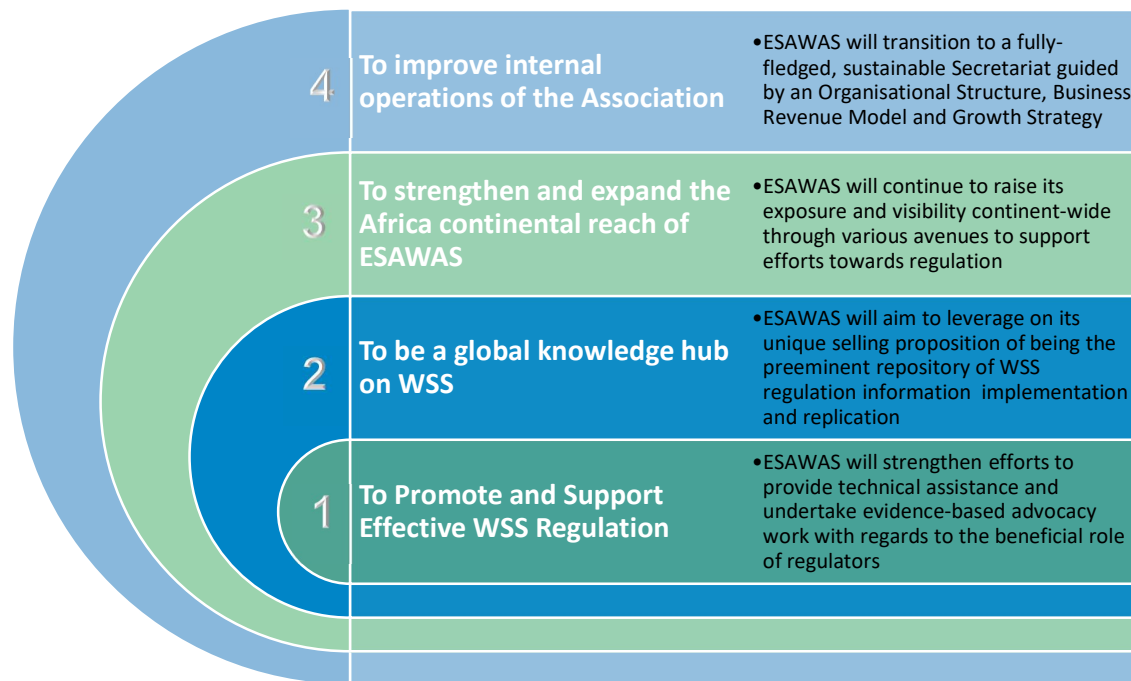


Table 2 highlights the progress made by the Association towards the achievement of the set objectives.



ESAWAS participation in sector conversations

Table 2: Performance on 2022-2024 Strategic Plan

STRATEGIC OBJECTIVE 1: TO PROMOTE AND SUPPORT EFFECTIVE WSS REGULATION		
Key actions	Key Expected Results	Performance
1.1 Provide advocacy and technical assistance in regulation across the continent and globally	<p><i>At least eighteen (or six annually) institutions with regulatory responsibility (existing, newly formed and under establishment) supported with</i></p> <ul style="list-style-type: none"> • <i>Advocacy</i> • <i>Technical expertise</i> • <i>Guidance on WSS policy formulation incorporating regulation</i> • <i>Increased awareness creation and education of stakeholders</i> 	<p>Technical Assistance provided on Licensing for DWS of South Africa and Belize Utility Regulator; Sanitation regulation for the Department of Water Affairs (DWA) of Botswana and Ethiopia Water and Sanitation Stakeholders; Regulatory governance and substance for South Asia Regulators from Bangladesh, Nepal and Odisha-India</p>
1.2 Scale up the integration of Citywide Inclusive Sanitation (CWIS) in Regulation	<p><i>Number of member regulators supported in implementing clearly measurable CWIS regulation roadmaps increased from one to eight</i></p>	<ul style="list-style-type: none"> • Zambia, Tanzania, Kenya, Burundi, Mozambique, Uganda and Zanzibar and Kenya regulators supported in implementing CWIS regulation through subgrants
1.3 Enhance annual regional benchmarking exercise for WSS utilities	<p><i>Improved benchmarking mechanism by introducing</i></p> <ul style="list-style-type: none"> • <i>innovative ICT Tools</i> • <i>new utilities</i> • <i>new indicators</i> 	<ul style="list-style-type: none"> • Agreement signed with NewIBNET to support benchmarking framework • All 12 members trained in KPI formulation
1.4 Promote equity in terms of service provision (Rural WSS, pro poor/vulnerable communities, households and social inclusion)	<p><i>Guidance developed and/or refined to</i></p> <ul style="list-style-type: none"> • <i>address regulation of WSS in the rural areas and small schemes</i> • <i>improve measurement and identification of service levels to poor communities</i> 	<p>ESAWAS contributed to the development of WHO guidelines for small water supplies. The guidelines will inform the elaboration of a regulatory framework for rural WSS and small supplies.</p>
1.5 Promote resilience in WSS service provision	<p><i>Resilience strategies/tools developed for shock resistance and recovery mechanisms</i></p>	<p>Service Resilience and Emergency preparedness concept formulated for tool development</p>
1.6 Identify new technologies and processes that can significantly enhance regulation	<p><i>Technology for enhanced regulation developed or documented and disseminated</i></p>	<ul style="list-style-type: none"> • Guidance developed with support from AfDB in GIS development for WSS services • Development of Sanitracker digital system initiated to close sanitation data gaps from the local level
1.7 Develop a youth and gender engagement strategy	<p><i>Youth and women incentivized to participate in regulation and ESAWAS activities</i></p>	<p>Three female final-year student dissertations supported to contribute content relevant to improve sanitation regulation</p>

STRATEGIC OBJECTIVE 2: TO BE A GLOBAL KNOWLEDGE HUB ON WSS REGULATION		
Key actions	Key Expected Results	Performance
2.1 Undertake a feasibility assessment for the establishment of an Africa-based dedicated training centre for WSS Regulation	<ul style="list-style-type: none"> Regulatory training content developed based on a needs assessment Feasibility strategy formulated for the establishment of a dedicated and formalized financially viable WSS regulation training centre with region and continent-specific content, but as a resource center for a global audience 	Feasibility strategy for WSS Regulation training centre developed: Core curriculum, trainer requirements, setup options and business model elaborated
2.2 Offer tailored capacity development for Members and non-Members	<ul style="list-style-type: none"> At least three in-country capacity development interventions conducted annually to Members and non-Members addresses varying cardinal audiences (such as high-level policy makers, regulators, utilities, private operators etc) Focused capacity development for non-members generates revenues for the operations 	In-country capacity development conducted for: <ul style="list-style-type: none"> AREEN, Burundi – through mentorship agreement with NWASCO and in Equiserve by Athena EWURA, Tanzania in Equiserve tool DWS, South Africa in licensing WURD, Uganda in general regulatory training NWASCO, Zambia in integrity by WIN Capacity building for South Asian Regulators conducted on different aspects of WSS regulation
2.3 Identify, undertake and document regulatory studies/research	<ul style="list-style-type: none"> Three key research finding documented and shared At least two good practices that enhance the capacity of Members to deliver effective regulation promoted. 	Three MSc student research projects were supported to contribute to ESAWAS body of knowledge in sanitation
2.4 Expand technical and leadership skill building and training for member regulatory staff	<ul style="list-style-type: none"> Two leadership skill building facilitated for staff for members Members participate in hand-on learning opportunities annually. 	<ul style="list-style-type: none"> CEOs leadership development training undertaken Regulatory exchange visit to Lisbon, Portugal facilitated for senior managers from all 12 members Technical trainings undertaken in KPI formulation and Sanitation Safety Planning for all members



ESAWAS Members learning visit to Portugal

STRATEGIC OBJECTIVE 3: STRENGTHEN AND EXPAND THE AFRICA CONTINENTAL REACH OF ESAWAS		
Key actions	Key Expected Results	Performance
3.1 Increase and strengthen membership through various options and incentives	<ul style="list-style-type: none"> • Strategy developed and implemented to strengthen member services to existing and potential members within the east and southern Africa region • Membership base increased by 30% through expanded membership types and benefits 	<ul style="list-style-type: none"> • DWS-South Africa and IRSEA-Angola joined ESAWAS • Engagements with Botswana and Zimbabwe initiated for regulatory support
3.2 Increased awareness of ESAWAS	Marketing strategy implemented that facilitate the growth and visibility of ESAWAS and its service offerings	ESAWAS participated in various international events as session conveners/ presenter or lead
3.3 Establish/ strengthen strategic partnerships with other like-minded WSS sector organisations	Collaborative framework with strategic partners renewed or established for mutual benefits.	New agreements signed with NewIBNET for strengthening data and benchmarking and with WHO-RegNet for support in sanitation regulation
3.4 Influence and support the formation of a dedicated Africa WSS Regulators Association	<p>Demand and agreement to establish an Africa WSS Regulators Association rallied through regional and country advocacy</p> <p>ESAWAS knowledge and experience feeds into development of a roadmap to support continent efforts for formation of an Africa-wide WSS Regulators Association</p>	Feasibility strategy for Africa WSS Regulators Association developed. The 2 nd Africa WSS Regulators Conference endorsed the expansion of ESAWAS offerings and organic membership growth to continental level.



IRSEA-Angola and DWS-South Africa officially joining ESAWAS

STRATEGIC OBJECTIVE 4: IMPROVE INTERNAL OPERATIONS OF ESAWAS REGULATORS ASSOCIATION		
Key actions	Key Expected Results	Performance
4.1 Operationalise an independent sustainable Secretariat in line with Organisational Structure, Business Revenue Model and Growth Strategy	<ul style="list-style-type: none"> • <i>Full-time Executive Secretary and staff engaged that can absorb increased demand for ESAWAS offerings</i> • <i>Independent sustainable secretariat operationalized</i> 	<ul style="list-style-type: none"> • Business Development Manager recruited as full-time staff • Coordination meetings with partners held for planning and execution of mutual works
4.2 Improve organisation of annual conferences to raise the value / benefits for participation	<ul style="list-style-type: none"> • <i>Increased annual participation</i> • <i>Introduction of revenue generation option from conferences</i> 	2 nd Africa WSS Regulators meeting held. More than 150 participants from 44 countries and 18 partners attended the conference.
4.3 Set up a specialist group to support ESAWAS technical assistance activities	<ul style="list-style-type: none"> • <i>Provision of technical assistance generates revenues for operations</i> • <i>Former staff of members as an expertise resource alleviate Secretariat load in peak-demand periods</i> 	External Service Unit operational and generated revenue from TA.
4.4 Implement a quality management system	<ul style="list-style-type: none"> • <i>Institute quality management processes towards ISO 9001:2015 certification</i> • <i>Evaluate the impact of ESAWAS interventions to members</i> 	ESAWAS members trained in ISO 9001:2012 QMS Standards

CHAPTER 3. KEY HIGHLIGHTS OF THE PERIOD

This section outlines the major activities undertaken by ESAWAS in the 2023 period.

3.1 PUBLIC WSS DATA SYSTEMS STRENGTHENING

Regulation of water supply and sanitation is data intensive. Without reliable data, regulatory decisions and actions can be weakened or rendered ineffective and service provision improvements compromised. The 2022 ESAWAS landscape study report findings revealed that up-to-date country reported data was not readily available. Out of 24 countries in the Eastern and Southern African region, recent data (2020/21) was obtained from seven. The unavailability of recent country data signals an urgent and pressing need to address data systems at the country level.

Effective regulation relies on data to provide a sound basis for regulatory decisions to improve utility and sector performance. Closing data gaps means addressing data systems at the local service level that can be integrated with regulatory and national data systems and inform global monitoring systems to support data integrity and reliability.

To achieve this, ESAWAS is implementing a Data Management Systems Strengthening Strategy under its Strategic Plan that outlines a data vision for 'Purpose responsive data systems based on reliable and accurate data'. ESAWAS has thus vested interest to support institutions with regulatory responsibility to strengthen public data systems by providing guidance, tools, capacity development and incentives to close the data gap and improve the reliability and accuracy of data towards informed decision-making/interventions for improved WSS service delivery.

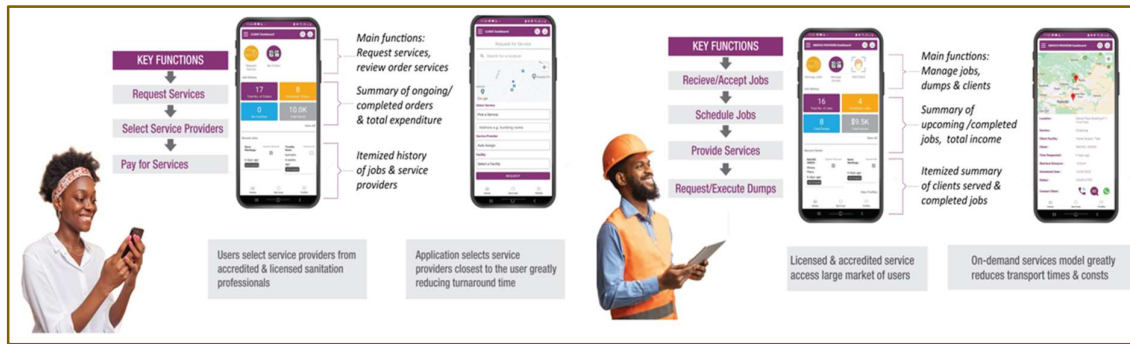
3.1.1 GIS Guidance for WSS

ESAWAS in collaboration with the African Development Bank (AfDB) facilitated the development of guidance for setting up a GIS based Management Information System (MIS) as a decision-support tool for performance monitoring, planning, resource allocation and utilities management, to enhance WSS service delivery. The MIS and GIS framework support mapping, management, and monitoring of water and sanitation systems in relation to geographic features, allowing stakeholders to assess performance, progress, and gaps in the sector using spatial analysis.

The guidance document outlines the data collection process, roles and responsibilities of actors involved in data management, parameters for collection, ICT infrastructure required and financial considerations. The regulators in Zambia, Kenya, Tanzania and Burundi made significant headway in implementing GIS systems for WSS, supported by sanitation baselines.

3.1.2 SANITRACKER, Enhancing sanitation service delivery through digital technology

SaniTracker is a comprehensive digital system designed to manage and monitor non-sewered sanitation services. Developed by ESAWAS, it serves as a real-time solution for faecal sludge management, enabling clients to request emptying services and operators to manage service delivery using an App, while utilities and regulators oversee operations and compliance using a web-based interface. The development was undertaken through a consultative and piloting process with regulators, utilities and sanitation operators from Zambia, Kenya and Uganda.



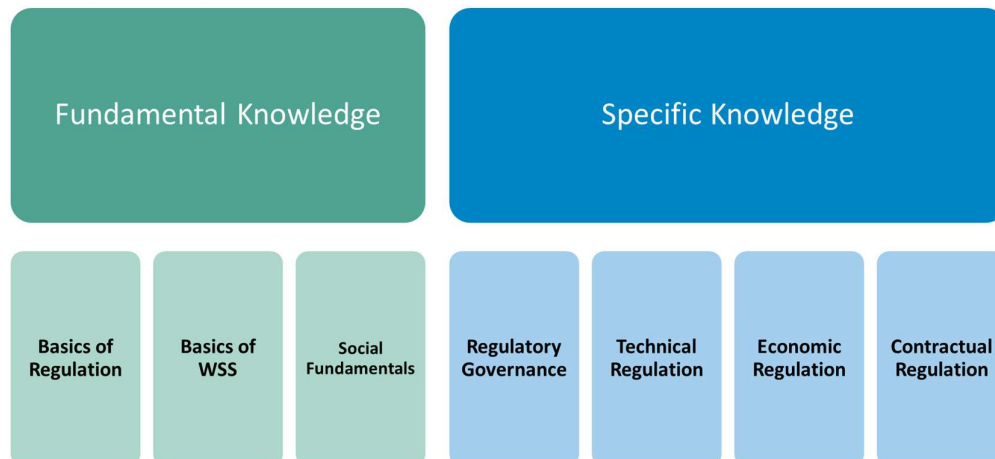
SaniTracker provides regulators with real-time data on service delivery, compliance, and performance of sanitation service providers. It facilitates the monitoring of all aspects of non-sewered sanitation services, ensuring that public health and environmental standards are maintained. The system generates detailed reports and analytics, that supports informed decision-making, enabling regulators to identify gaps in service provision and plan accordingly. SaniTracker is scheduled for roll-out in 2024.

3.2 FEASIBILITY STRATEGY FOR DEDICATED WSS REGULATION TRAINING CENTRE

One of ESAWAS's core objectives is capacity development for effective WSS regulation. Based on a notable absence of dedicated WSS regulation training, particularly at the African continental level, ESAWAS set out to explore the establishment of a training centre to close this gap.

With technical assistance support from the World Bank, a feasibility strategy document outlined how ESAWAS could establish an Africa-based dedicated training centre for water supply and sanitation regulation with region and continent-specific content, but also as a resource centre for a global audience.

The ESAWAS-WSS Regulation Training Centre, designed as a roving centre (not a physical location), was highly lauded and endorsed by Africa WSS regulatory institutions during the 2nd Africa WSS regulatory conference which gathered 44 African countries in October 2023. The courses are designed to meet the needs of both regulators and sector actors such as policy makers, service providers and other stakeholders including cooperating partners, NGOs and CBOs. The first paid training courses were planned to be delivered before June 2024.



3.3 SECOND AFRICA WSS REGULATORS CONFERENCE

The first Africa WSS Regulators Conference held in 2022 highlighted a number of areas of mutual interest and challenges among the different regulatory institutions that could be tackled at a continental level and provided the motivation for a second Africa WSS regulators conference. Hosted by the Water Utility Regulation Department (WURD) of the Ministry of Water and Environment in Uganda from 3rd to 5th October 2023, the second Africa WSS Regulators Conference attracted more than 150 participants from 44 African countries and over 18 partners supporting regulation.

Under the theme of “Initiatives for Regulatory Impact”, the conference was an opportunity to showcase various initiatives instituted by regulators, policy makers and stakeholders to address sector challenges and create positive lasting impacts in the WSS sector through effective regulation. The conference also served as a podium for gathering evidence on the beneficial role of regulation on WSS service provision. The presented initiatives were grouped into three categories:

Initiatives in policy, legal and regulatory mechanisms

- Effective Regulatory framework in an evolving sub-national water sector - *positive impacts of establishing the state regulator of WSS in Ekiti State of Nigeria;*
- Enhancing urban sanitation regulation - *regulatory mechanisms deployed by Kampala Capital City Authority to improve onsite sanitation service delivery;*
- Regulating for impact and innovation to achieve universal access to water and sanitation services -*novel incentives and to enhance WSS service delivery to marginalized communities;*
- Minding the gap: guidelines for small and rural water supplies - *WHO’s guidelines for drinking water quality emphasizing risk-based regulation, management and surveillance of small water supplies.*

Initiatives in regulatory tools

- Tariff policy for emerging utilities - *the water tariff policy review undertaken by Uganda to cater for both on grid and off grid water and sanitation systems;*
- SaniTracker Digital System - *a digital solution to enhance regulatory oversight and strengthen private sector engagement and accountability in non-sewered sanitation service provision;*
- SERVQUAL Model - *for the evaluation of water consumer satisfaction in terms of reliability, responsiveness, assurance, tangible and empathy towards the service delivered;*
- WASHREG Approach - *a practical tool to improve regulation by understanding the elements of WASH regulation, identifying the gaps and providing conceptual framework for regulatory reform.*

Initiatives in cooperation and joint action

- African Sanitation Leaders Program - *initiated by NIYEL to build the capacity of mid-level managers equipping them with leadership skills needed to lead innovation within the sanitation sector;*
- RegWAS LAC programme – *regulatory platform for cooperation and joint action aiming improve public policies and regulation at scale.*

Among the major outcomes of the conference, was the endorsement of the strengthening and expansion of ESAWAS Regulators Association to continental level.



2nd Africa WSS Regulators Conference

3.4 NEW PARTNERSHIPS

Sustainable Development Goal 17 calls for cross-sectoral and cross-national partnerships to achieve the goals. ESAWAS recognises that strategic collaborations with like-minded organisations in regulation constitutes a central pillar to achieve its strategic objectives and the SDGs. As such, ESAWAS entered into new partnership with:

- **New International Benchmarking Network for Water and Sanitation (NewIBNET)** – the partnership aims at promoting the use of good quality data for effective WSS service provision. It also amplifies the importance of data in achieving sustainable development goals, and the role of partnerships in advancing this agenda.
- **The African Forum for Utility Regulators (AFUR)** – through a memorandum of Understanding to formalize the long-standing collaboration on aspects that included climate change and NRW. The cooperation aims at exploring opportunities to build a non-exclusive partnership program in relation to regulation of water and sanitation within the framework of information sharing, capacity building, development of harmonized approaches to water and sanitation regulation, among others.

The new partnerships add on the existing collaborative relations with African Minister's Council on Water (AMCOW), African Water and Sanitation Association (AfWASA), WHO-REGNET, Gates Foundation (BMGF), African Development Bank (AfDB), World Bank, Water and Sanitation for the Urban Poor (WSUP), International Water Association (IWA) and Water Integrity Network.

CHAPTER 4. REGIONAL BENCHMARKING FRAMEWORK

4.1 RATIONALE FOR REGIONAL BENCHMARKING

In order to design appropriate performance incentives and set minimum targets for key indicators, regulators need to establish where a Utility is coming from (past trends), how it has performed against others (comparative performance) and how it has performed against good practice (industry standards or set acceptable performance).

Benchmarking is thus a key regulatory tool for assessing and encouraging improvement in performance of WSS Utilities by comparing the performance of a Utility against that of others or industry's best practices or standards. However, in the Eastern and Southern African region, the largest Utility, in-country, tends to have no peers while some countries have a single national WSS provider, thus making reasonable comparison of performance difficult.

Therefore, for large or single Utilities that have no comparable peer within a country, regional benchmarking becomes an essential tool to gauge and incentivise performance improvements. While the operating environments may differ from country to country, by benchmarking against similar sized Utilities, lessons can be drawn by both the regulator and the Utility, on how to improve performance.

With the foregoing, in 2015, ESAWAS developed a regional benchmarking framework by a process of harmonising the Key Performance Indicators (KPIs) and benchmarks used by the different regulators.

The regional benchmarking presents a platform by which large Utilities can be compared to similar sized Utilities within the region. The results of the benchmarking exercise are therefore intended to serve as a support tool to:

- foster improvement in the WSS services by creating competition among the benchmarked Utilities;
- identify strengths and weaknesses within the Utilities and areas for improvements;
- generate information for decision making; and
- contribute to the attainment of targets with respect to country visions and SDGs.

The regional benchmarking exercise is not restricted to the members of the ESAWAS Regulators Association due to the value generated from the exercise. Therefore, any country can participate and individual regulators can use the exercise to further compare the performance of more Utilities in-country against other Utilities in the region and thereby draw comprehensive conclusions regarding the performance of the local Utilities.

4.2 BENCHMARKING KPIs and WUPI

Ten KPIs are used for regional benchmarking as follows:

- i. Water Coverage
- ii. Sewerage Coverage
- iii. Water Quality
- iv. Hours of Supply
- v. Non-Revenue Water
- vi. Operational and Maintenance (O&M) Cost Coverage
- vii. Collection Efficiency
- viii. Metering Ratio
- ix. Staff per 1,000 Connections
- x. Staff Cost as a proportion of O&M Costs

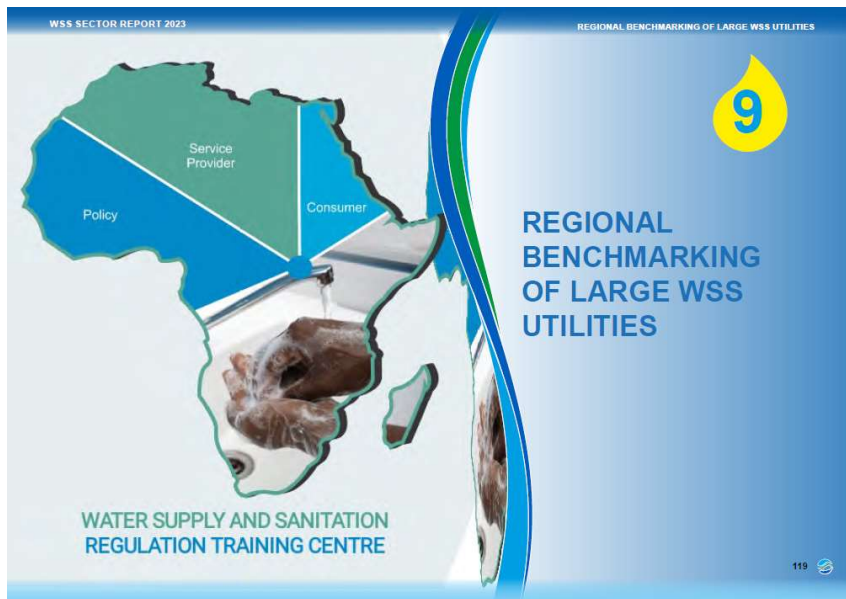
The indicators are grouped into three main components namely,

- a) Quality of Service- *relating to the extent and assurance of the service;*
- b) Economic Efficiency - *relating to the viability of the service provider;* and
- c) Operational Sustainability – *relating to operational efficiencies.*

Performance boundaries for regional benchmarking were defined by considering the minimum average performance of the Utilities, as well as the minimum for the acceptable benchmarks among the countries. The weights were arrived at by a process of normalisation of the various weights defined by the different regulators.

Water Utility Performance Index (WUPI): Analysing single KPIs individually is a useful way to analyse the performance of a Utility at technical level. However, by only using single KPIs in the performance analysis, it is difficult to conduct an integrated evaluation of the overall performance of the Utilities in closely related indicators. Thus, the WUPI is a composite indicator to evaluate the performance of the Utilities in an integrated way for a set of similar indicators (see Annex 3 for a detailed description).

Table 3 shows the framework used for regional benchmarking.



ESAWAS Benchmarking report in NAWASCO country sector performance report

Table 3: Regional Benchmarking KPIs and Performance measurements

	INDICATOR	DEFINITION	CALCULATION	ACCEPTABLE BOUNDARIES	WEIGHT
QUALITY OF SERVICE					
1	Water Coverage	% of total population with access to improved water supply: individual household connection, kiosk, public standposts, communal/shared tap	[Total Population Served/Total Population in the Service Area]	75-90%	10
2	Sewerage Coverage	% of total population with access to sewerage services	[Total Population Served/Total Population in the Service Area]	40-70%	5
3	Water Quality <ul style="list-style-type: none"> Residual Cl (w0.4) Bacteriological (w0.6) 	% of water samples undertaken meeting quality requirements	% of tests compliant in relation to applicable / national standards	95-99%	15
4	Hours of Supply	Aggregated average number of hours of supply (per town/zone/area etc) in the reporting period	Sum of weighted averages per town	18-23	10
ECONOMIC EFFICIENCY					
5	O&M Cost Coverage by Billing	% of costs covered by billed amounts	[Billed Amount/O&M Costs]	100-150%	10
6	Collection Efficiency	% of collected amounts from the billing	[Collected amount/Billed amount]x100	90-99%	15
7	Staff Cost	% of personnel Cost as a proportion of O&M cost	[Personnel Cost/ O&M Costs] *100	30-35%	5
OPERATIONAL SUSTAINABILITY					
8	Staff/1000 Connections	Number of staff per 1,000 water & sewerage connections	[Total Number of Staff x 1,000]/[No. of Water + Sewerage Connections]	5-8	5
9	NRW	% of water that does not produce revenue in a given period	[System Input Volume (imported + produced) –billed Volume]/System Input Volume	30-35%	15
10	Metering Ratio	% of metered customers from the total connections	[Functional Metered Connections]/Total Connections]x100	90-99%	10

CHAPTER 5. PERFORMANCE ANALYSIS

This section presents an analysis of the performance of eleven Utilities in urban areas based on ten set KPIs and benchmarks.

5.1 REPORTING PERIOD

In conformity with country requirements, the regulators have different reporting periods as follows:

- July-June for WASREB, RURA, EWURA, WURD, AREEN and ZURA
- April- March for LEWA and WASAMA
- January –December for AURA, NWASCO and IRSEA

Hence, the data used in this report is drawn from the respective reporting periods as applicable.

5.2 OVERVIEW OF BENCHMARKED UTILITIES

The benchmarking exercise considers only the largest or single national Utilities from each country.

The number of Utilities participating in the benchmarking exercise increased from nine in the 2021/2022 period to eleven, with the inclusion of Régie de Production et de Distribution d'Eau et d'électricité (REGIDESO) of Burundi and Empresa Pública de Águas de Luanda (EPAL) of Angola.

The eleven Utilities considered in this report are: Nairobi City Water and Sewerage Company (NCW&SC) of Kenya; Lusaka Water and Sanitation Company (LWSC) of Zambia; Dar Es Salaam Water and Sanitation Authority (DAWASA) of Tanzania; Águas da Região Metropolitana de Maputo (AdRMM) of Mozambique; Water and Sewerage Company (WASCO) of Lesotho; Water and Sanitation Corporation Ltd (WASAC) of Rwanda; Régie de Production et de Distribution d'Eau et d'Electricité (REGIDESO) of Burundi; Zanzibar Water Authority (ZAWA) of Zanzibar; National Water and Sewerage Corporation (NWSC) of Uganda; Lilongwe Water Board (LWB) of Malawi and Empresa Pública de Águas de Luanda (EPAL) of Angola.

The general overview of the Utilities is presented in Table 4, while a detailed profile is presented in Annex 2. All the Utilities are publicly owned companies.

Table 4: General profile of benchmarked Utilities

Utility	Abbreviation	Country	Areas of operation	Year Established
Nairobi City Water and Sewerage Company	NCW&SC	Kenya	City of Nairobi	2003
Lusaka Water and Sanitation Company	LWSC	Zambia	Lusaka city; Kafue; Chongwe; Luangwa; Chilanga, Chirundu	1989
Dar Es Salaam Water and Sanitation Authority	DAWASA	Tanzania	Dar Es Salaam city; Kibaha; Bagamoyo;	2005
Águas da Região Metropolitana de Maputo	AdRMM	Mozambique	Greater Maputo City	1999
Water and Sewerage Company	WASCO	Lesotho	Maseru + 15 urban centres	2010
Water and Sanitation Corporation	WASAC	Rwanda	Kigali + all urban centres in the country	2014
Régie de Production et de Distribution d'Eau et d'Électricité	REGIDESO	Burundi	Bujumbura + all urban centres in the country	1962
Zanzibar Water Authority	ZAWA	Zanzibar	Zanzibar	2006
National Water and Sewerage Corporation	NWSC	Uganda	Kampala + 217 towns	1972
Lilongwe Water Board	LWB	Malawi	Lilongwe	1947
Empresa Pública de Águas de Luanda	EPAL	Angola	Municipalities of Luanda Province	1995

The basic operational data about the Utilities is shown in Table 5.

Table 5: Basic operational data of benchmarked Utilities

Utility	Urban Population in the Service Area 2021/22	Number of Water Connections 2021/22	Annual Water Production (mil m ³ /yr) 2021/22	Urban Population in the Service Area 2022/23	Number of Water Connections 2022/23	Annual Water Production (mil m ³ /yr) 2022/23
NCW&SC, Kenya	5.02 Million	244,813	178.523	5.03 Million	255,221	180.816
LWSC, Zambia	3.01 Million	134,807	106.068	2.99 Million	142,079	114.967
DAWASA, Tanzania	8.17 Million	370,982	141.098	6.66 Million	409,717	129.250
AdRMM, Mozambique	2.91 Million	301,718	91.349	2.91 Million	312,027	89.540
WASCO, Lesotho	0.767 Million	114,638	26.621	0.792 Million	117,417	27.253
WASAC, Rwanda	6.75 Million	287,608	69.454	8.07 Million	321,115	73.329
REGIDESO, Burundi	ND	ND	ND	1.55 Million	130,267	57.191
ZAWA, Zanzibar	1.89 Million	166,636	69,596	1.89 Million	321,300	74.539
NWSC, Uganda	23.36Million	840,508	164.608	23.36Million	892,099	161.558
LWB, Malawi	1.14 Million	102,051	28.522	1.18 Million	115,348	37.828
EPAL, Angola	ND	ND	ND	9.08 Million	533,288	202.210

ND=No data

Table 5 indicates that there was an increase in the number of water connections for all Utilities. The highest increase was recorded by ZAWA which almost doubled the number of water connections from 166,636 to 321,300 connections followed by WASAC and DAWASA which added 33,507 and 38,735 new water connections respectively. The significant improvement for ZAWA was attributed to the completion of two water projects which resulted in the extension of water supply network and connections.

For water production, LWB reported the highest increase of 33% equivalent to an additional 9 million cubic meter. Other utilities also recorded an increase in water production except DAWASA, AdRMM and NWSC.

5.3 PERFORMANCE BOUNDARIES

In order to obtain an integrated view of the Utilities' performance, benchmarking has been done using both single KPIs and composite indicators as defined under the WUPI. The single and components for grouped indicators are shown in Table 6.

The KPIs boundaries established by ESAWAS are not fixed and could be revised as trends progress towards the benchmarks.

Table 6: KPIs and Performance boundaries

Component	KPI	Good	Acceptable	Poor
Quality of Service	Water Coverage	>90	90-75	< 75
	Sewerage Coverage	>70	70-40	< 40
	Water Quality	100	>95	< 95
	Hours of Supply	24	23-18	< 18
Economic Efficiency	O&M Coverage	>150	150 – 100	< 100
	Collection Efficiency	>100	99 – 90	< 90
	Staff Cost	<30	30-35	>35
Operational Sustainability	Staff/1,000 Water and Sewerage Connections	<5.0	5.0 – 8.0	>8.0
	NRW	<30	30 – 35	>35
	Metering Ratio	100	99 – 90	< 90

5.4 PERFORMANCE ANALYSIS

The performance analysis was done according to the clusters of indicators in the components of:

- i. Quality of Service
- ii. Economic Efficiency
- iii. Operational Sustainability

Per component of indicators, the performance results by single KPIs are presented first, then the performance is analysed using the WUPI, which integrates the single KPIs.

5.4.1 QUALITY OF SERVICE

The quality of service is measured using four KPIs: water supply coverage, sewerage coverage, water quality and hours of water supply.

5.4.1.1 Water Supply Service Coverage

Water supply coverage is the proportion of domestic population served through individual household connections, public standpipes and water kiosks from the total population in the service area.

Table 7 presents the number of domestic water connections per Utility. An increase in water coverage typically indicates that there is a corresponding growth in domestic connections against population increase. It is to be noted, however, that public taps also serve a significant portion of the population.

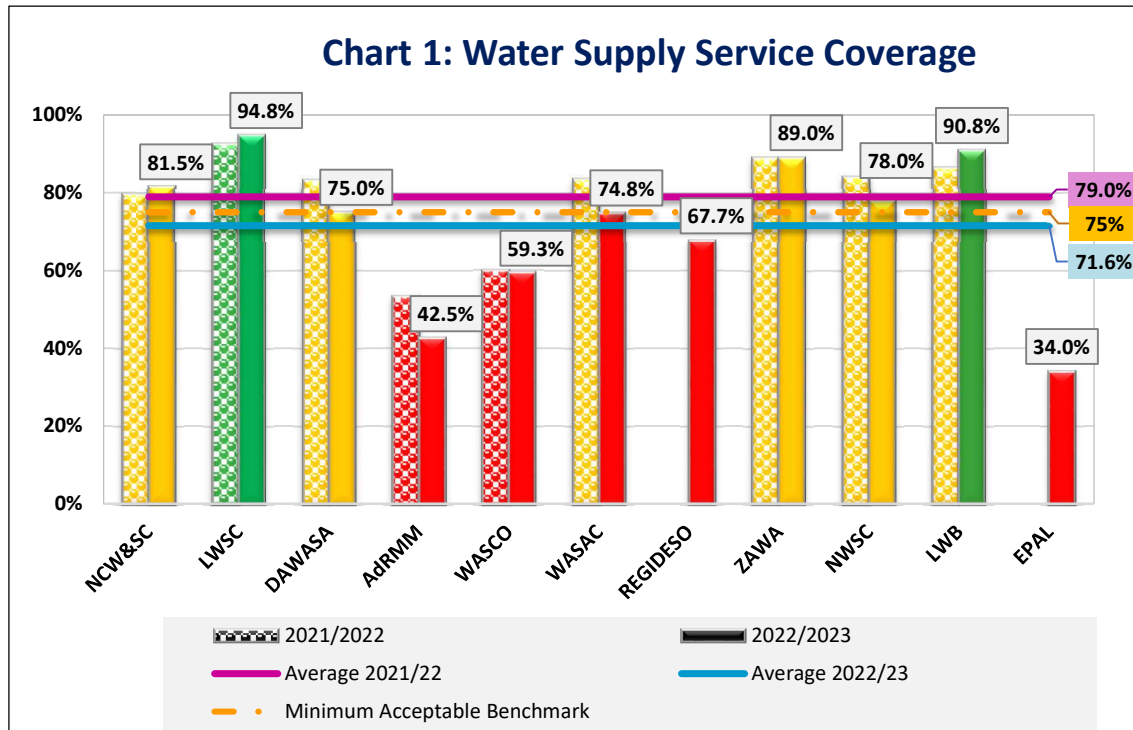
Table 7: Domestic water connections

Utility	Domestic Connections 2021/22	Domestic Connections 2022/23
NCW&SC	212,652	233,164
LWSC	119,555	126,826
DAWASA	358,762	397,808
AdRMM	286,300	296,175
WASCO	104,147	106,849
WASAC	263,708	286,861
REGIDESO	ND	123,709
ZAWA	143,636	297,208
NWSC	675,644	715,808
LWB	91,715	107,785
EPAL	ND	514,312

ND=No data

Table 7 shows an increase in the number of domestic water connections for all utilities from 2021/22 period. ZAWA made a significant jump in domestic water connections of 153,572 following the completion of two water projects. Notable increase was also observed for NWSC and DAWASA which added 40,164 and 39,046 new domestic connections, respectively.

Despite the increase in domestic connections, the average water service coverage declined from 79% to 71.6% as shown in Chart 1. This was attributed to the decline recorded by DAWASA, WASAC and NWSC. Five Utilities performed below acceptable benchmark, namely AdRMM, REGIDESO, WASCO and EPAL. Nevertheless, LWSC recorded an increase and maintained the good benchmark with the highest water service coverage of 94.8% followed by LWB with increased coverage from 86.4% to 90.8%.



KPI	Good	Acceptable	Poor
Water Coverage	>90	90-75	< 75

5.4.1.2. Sewerage Service Coverage

Following the implementation of Citywide Inclusive Sanitation which incorporates both sewered and non-sewered sanitation, utilities started reporting on comprehensive sanitation figures.

For this indicator, sanitation services by sewer networks were reported by NCW&SC, LWSC, DAWASA, WASCO, REGIDESO, ZAWA, NWSC and LWB. The data on onsite sanitation systems such as septic tanks, pit latrines and other forms of off-grid sanitation were also reported by NCW&SC, LWSC, DAWASA, REGIDESO and ZAWA.

It is to be noted that in Malawi, Mozambique and Rwanda, sewerage and sanitation services are provided by different entities: Local Authorities in Malawi and City Councils in Mozambique. In Rwanda, in addition to the absence of centralised sewerage system, sanitation services dominated by faecal sludge collection and transportation are provided by private operators. Data collection on onsite sanitation in these countries has not yet been initiated.

The number of sewerage connections are shown in Table 8 while service coverage is presented in Chart 2.

i. Sewerage Service Coverage

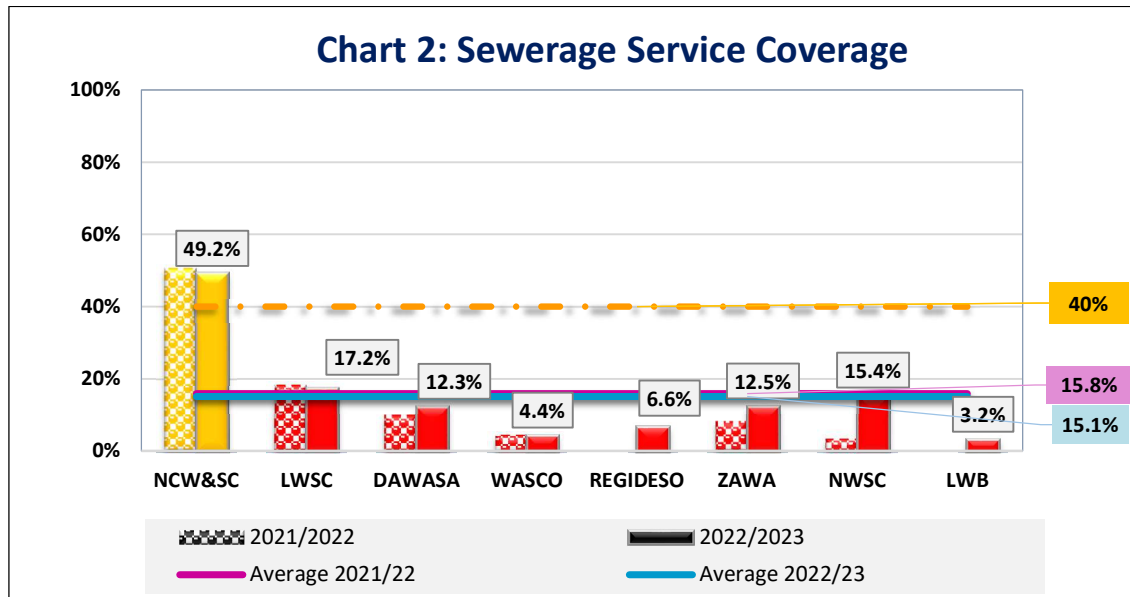
The number of sewerage connections are shown in Table 8 while service coverage is presented in Chart 2.

Table 8: Sewerage connections per Utility

Utility	Sewerage Connections 2021/22	Sewerage Connections 2022/23
NCW&SC	184,070	189,438
LWSC	43,221	48,220
DAWASA	19,203	18,487
WASCO	8,505	8,670
REGIDESO	ND	1,925
NWSC	28,007	28,703
ZAWA	3,022	3,022
LWB	ND	7,817

As presented in Table 8, except ZAWA with the same number of connections and DAWASA which reported a decrease from 19,203 to 18,487 connections due to data clean-up; all other utilities the experienced increase in the number of sewerage connections.

Despite the improvement made by NWSC, ZAWA and DAWASA, the average sewerage service coverage decreased slightly from 15.8% to 15.1% and remained significantly below the minimum acceptable benchmark of 40% as shown by chart 2. Only NCW&SC continued to meet the acceptable benchmark of sewerage service coverage despite a decline from 50.6% to 49.2%. LWSC also recorded a decline while WASCO maintained its performance in sewerage service coverage at 4.4%.



KPI	Good	Acceptable	Poor
Sewerage Coverage	>70	70-40	< 40

ii. Sanitation Service Coverage

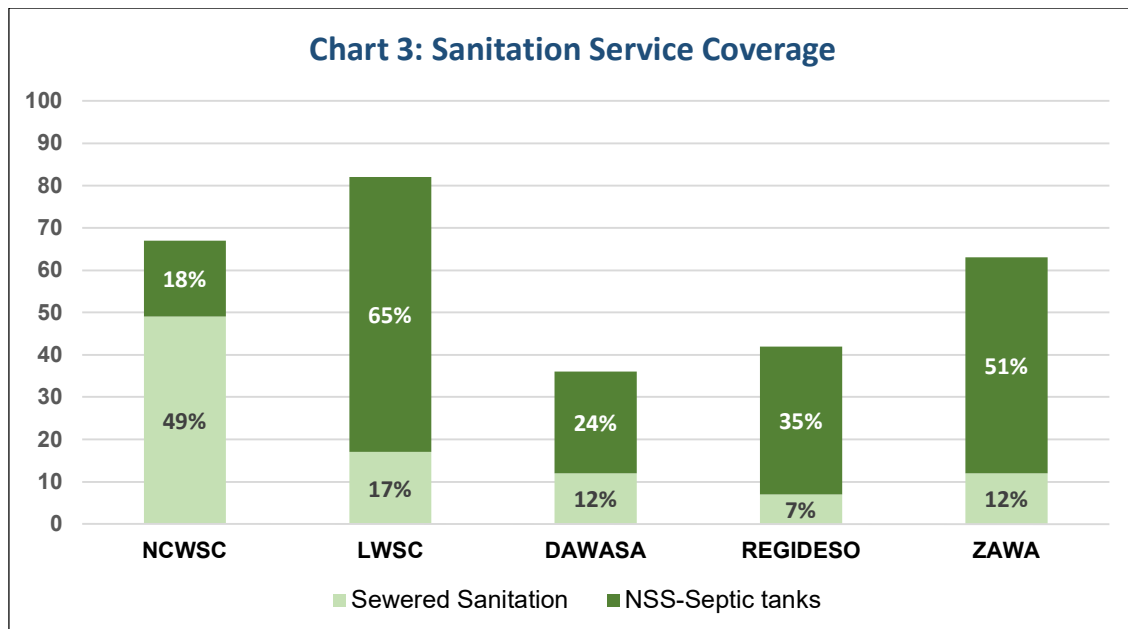
Table 9 provides the picture of sanitation coverage by different types of sanitation facilities.

Table 9: Sanitation coverage by utility

Utility	Urban Population in the Service Area 2022/23	Proportion of population served – sewerage sanitation %	Proportion of population served – Non sewerage sanitation		
			Septic tanks %	VIP %	Pit latrines %
NCW&SC, Kenya	5.02 Million	49	18	8	23
LWSC, Zambia	3.01 Million	17	65	10	2
DAWASA, Tanzania	8.17 Million	12	24	18	27
REGIDESO, Burundi	1.55 Million	7	35	10	36
ZAWA, Zanzibar	1.89 Million	12	51	21	12

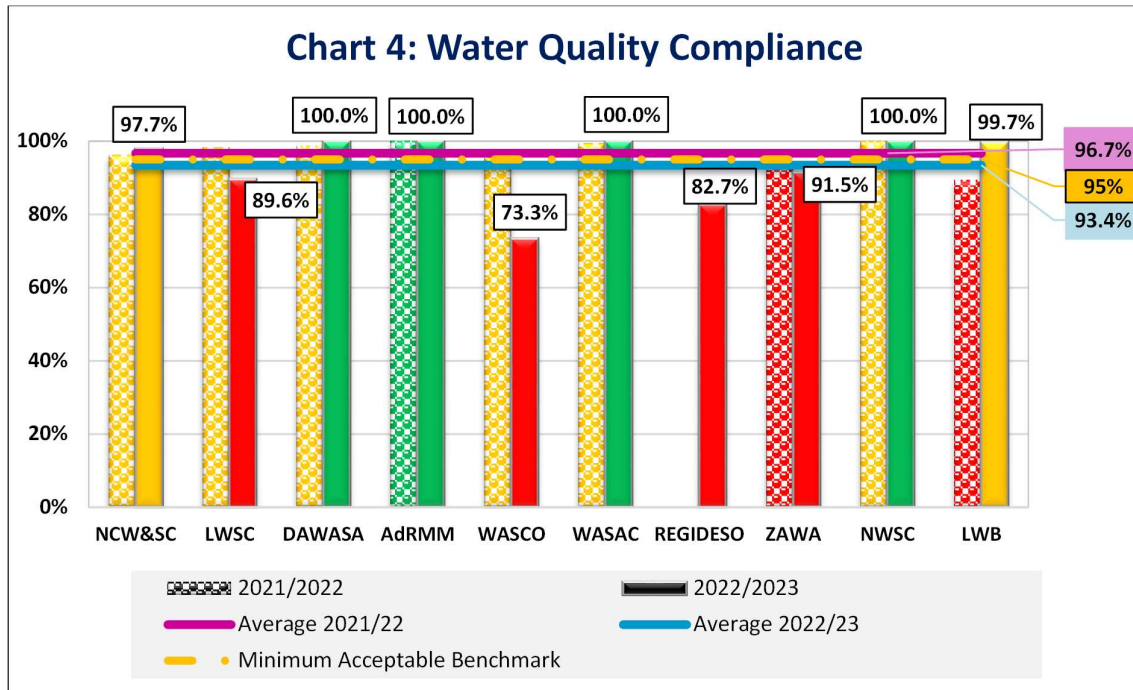
The majority of population continued to be served by non-sewered sanitation options. Regulators concerted efforts to develop regulatory guidelines for onsite sanitation and fecal sludge management, upgrade information systems to incorporate new parameters for sanitation reporting and supporting the undertaking of sanitation baselines in selected cities,

Chart 3 shows the sanitation coverage in terms of the proportions of population served by sewerage sanitation and septic tanks only, as acceptable sanitation facilities for urban areas. LWSC had the highest sanitation coverage of 82%, followed by NCWSC with 67% and ZAWA with 63%.



5.4.1.3. Water Quality

Drinking water quality measures the potability of water supplied by a Utility. It is a critical performance indicator since it has a direct impact on the health of consumers. With individual countries having different standards, the drinking water quality result presented in Chart 4 is a composite indicator. It considers compliance in the parameters of Residual Chlorine (40%) and Bacteriological (60%) in terms of number of tests carried out against the required, and number of tests meeting the respective national standards.

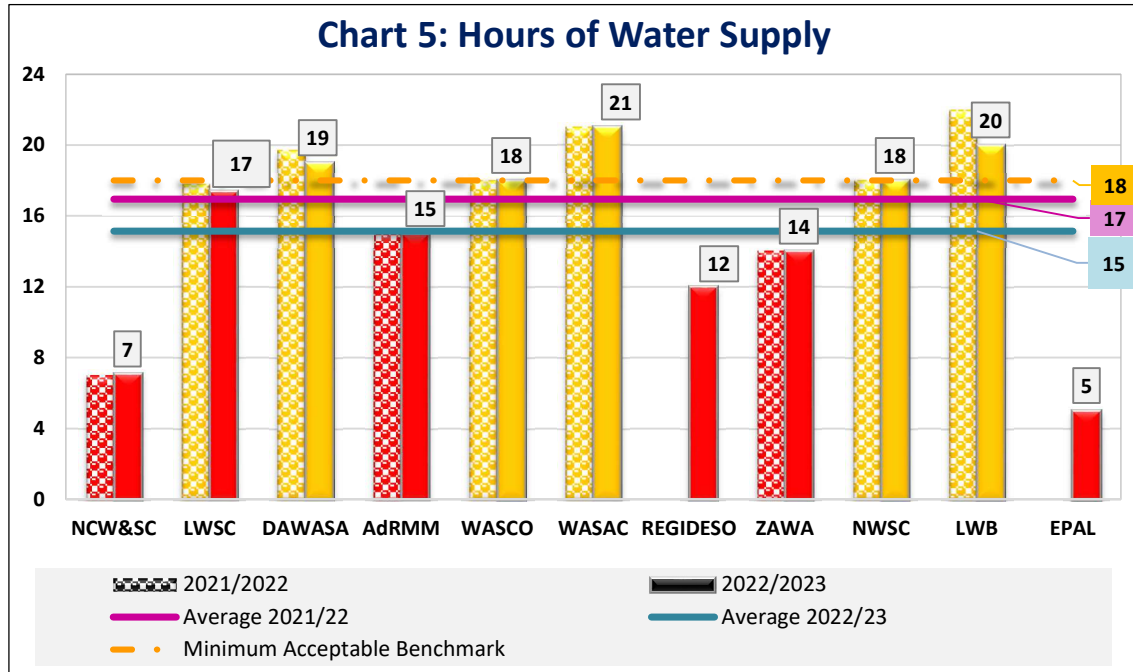


KPI	Good	Acceptable	Poor
Water Quality	100	>95	< 95

From Chart 4, the average compliance with water quality standard dropped from 96.7% to 94.6% and fell below the acceptable benchmark of 95%. AdRMM maintained the good benchmark for water quality which was also achieved by WASAC and NWSC. LWB moved from poor performance to acceptable performance improving its compliance by of 10.4%. WASCO experienced a significant drop in water quality compliance from 95.4% to 73.3%. This is attributed to less than the required number of tests conducted and a decline in the number of tests meeting the standards. LWSC also dropped despite conducting more tests than required, a number of tests failed to meet the standards.

5.4.1.4. Hours of Water Supply

Hours of Supply refers to the average number of hours per day that a Utility provides water to its customers. It measures the continuity of services by a Utility and thus the availability of water to the customer. It is an important indicator of quality of service and shows the extent to which the Utility is making progress towards the fulfilment of the human right to water and sanitation in terms of availability of water in sufficient quantities.



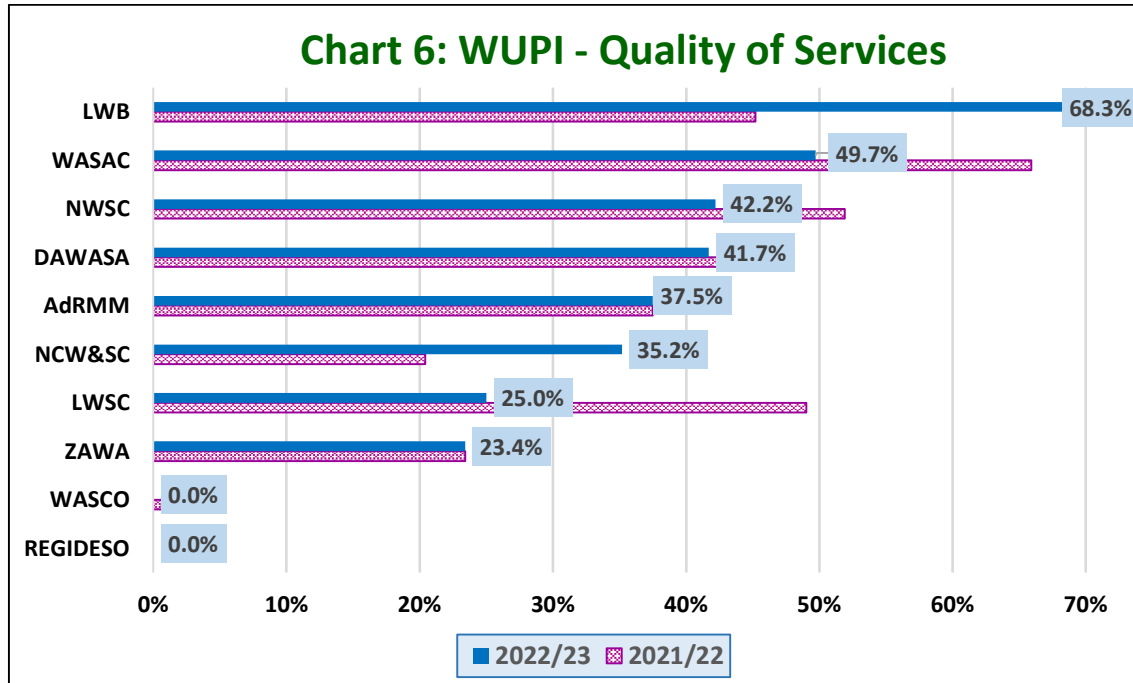
KPI	Good	Acceptable	Poor
Hours of Supply	24	23-18	< 18

As per chart 5, the average hours of supply dropped by two hours from 17 recorded in the last period to 15 and remained below the acceptable benchmark of 18. This is attributed to the decline in the performance of LWB, DAWASA and LWSC and poor performance recorded by NCW&SC, AdRMM, REGIDESO, ZAWA and EPAL. WASAC maintained the highest number of hours of supply while EPAL had the lowest performance.

It must be noted that with climate change effects and water variability, a lower number of hours of supply would be deemed acceptable in times of emergency rationing to conserve supplies.

5.4.1.5. Integrated Performance - Quality of Services

The integrated performance for the WUPI-Quality of Services shown in Chart 6 was measured by combining the Water Supply Coverage, Sewerage Coverage, Water Quality and Hours of Supply indicators.



LWB made notable improvement in its performance from 45.2% to 68.3% and moved from the fourth to the top position in quality of services, displacing WASAC. This was attributed to good performance in water service coverage and improved water quality compliance. Improvement was also observed for NCW&SC which moved from 8th position to 6th.

On the other hand, significant drop in overall performance was observed for 4 Utilities, following a decline in sewerage service coverage, water quality compliance and hours of supply for LWSC (from 3rd to 7th position) and decline in water service coverage for WASAC, NWSC and DAWASA.

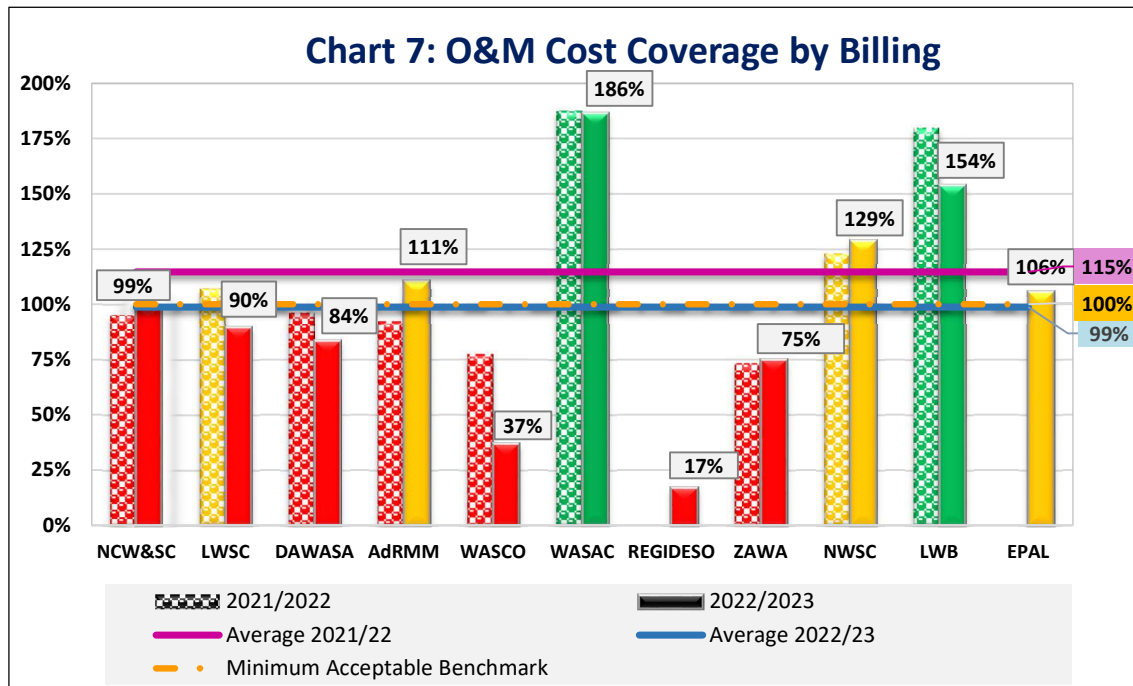
WASAC which maintained the top position in Quality of Services since 2014/15 emerged the second while REGIDESO and WASCO, were the least performing utilities. EPAL is not included following the submission of incomplete data for this component.

5.4.2 ECONOMIC EFFICIENCY

Economic Efficiency performance is analysed using three KPIs: Operation and Maintenance (O&M) Cost Coverage by Billing, Collection Efficiency ratio and Staff Cost as a proportion of O&M Costs.

5.4.2.1 Operation and Maintenance Cost Coverage by Billing

The Operation and Maintenance (O&M) Cost Coverage is the extent to which internally generated funds from billing for water and sewerage services, cover the cost of running a Utility. It is a measure of the financial sustainability of a Utility. It is desirable that Utilities achieve full cost coverage at some point. However, a good performance of 150% O&M Cost Coverage is set in order to encourage the Utilities to not only meet the O&M costs but also generate funds for some capital investments.



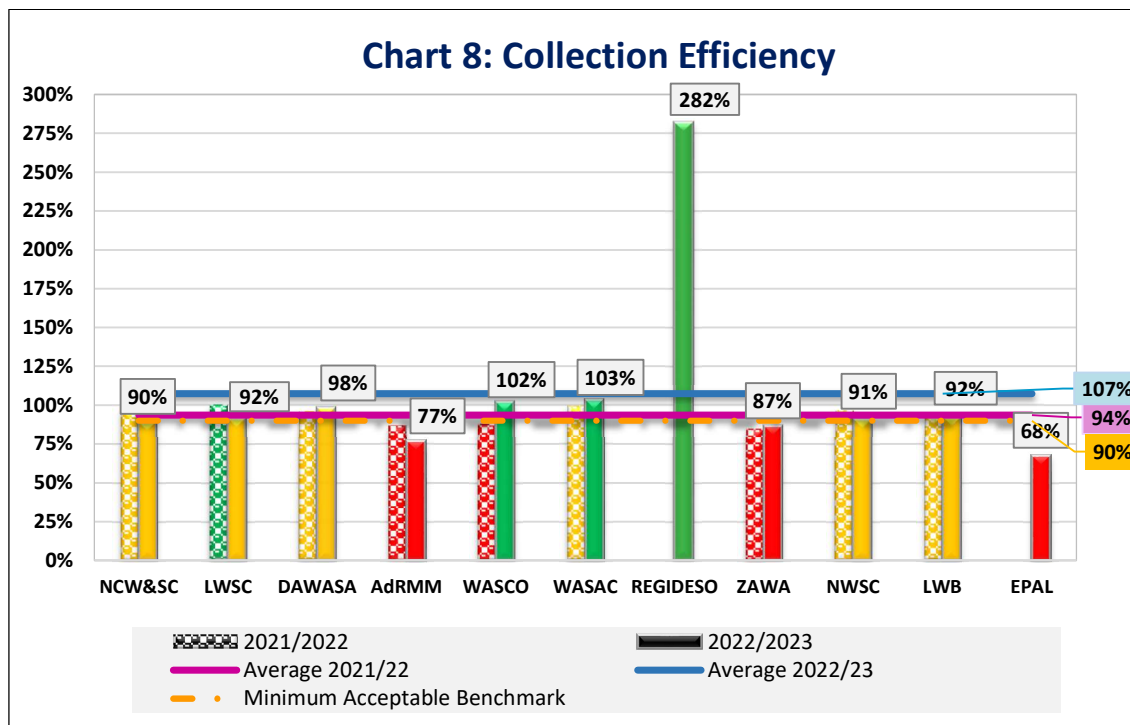
KPI	Good	Acceptable	Poor
O&M Coverage	>150	150 – 100	< 100

As per Chart 7, the average performance in O&M Cost Coverage by Billing dropped below the minimum acceptable benchmark of 100 following the decline and poor performance of the majority of utilities. WASAC and LWB maintained good performance with a decline while AdRMM, NWSC and EPAL achieved acceptable benchmark for O&M cost covered by billing with AdRMM recording notable improvement from 92% to 111%.

The drop in billed revenue and almost doubled operational expenses of WASCO resulted in significant decline in its performance from 77% to 37%. The decline was also observed for DAWASA and LWSC mainly due to a rise in expenses without matching revenues. REGIDESO recorded the lowest performance of 17% in this indicator with costs far outweighing billed revenues, flagging possibility of a very low tariff that places the sustainability of the Utility at risk.

5.4.2.2. Collection Efficiency

Collection Efficiency in Chart 8 indicates the cash income of the Utility against the billed amounts for water and sewerage services only. Collection ratios above 90% are a key factor in sustaining financial performance of water and sanitation service Utilities. Because collections include arrears, current and advance payments, a collection efficiency of above 100% is accepted.



KPI	Good	Acceptable	Poor
Collection Efficiency	>100	99 – 90	< 90

On average, the average collection efficiency increased from 94% to 107% and remained above the acceptable benchmark of 90% majorly owing to high performance of REGIDESO attributed to the collection of past arrears. WASCO and WASAC achieved the good benchmark. Conversely, NCW&SC, LWSC, NWSC and LWB recorded a decline in their performance while AdRMM, ZAWA and EPAL had below acceptable performance.

The implementation of digital payment platforms by a number of Utilities has seen an improvement in collections – without the need to visit an office pay-point. This is a good demonstration of the uptake of technology to support service provision.

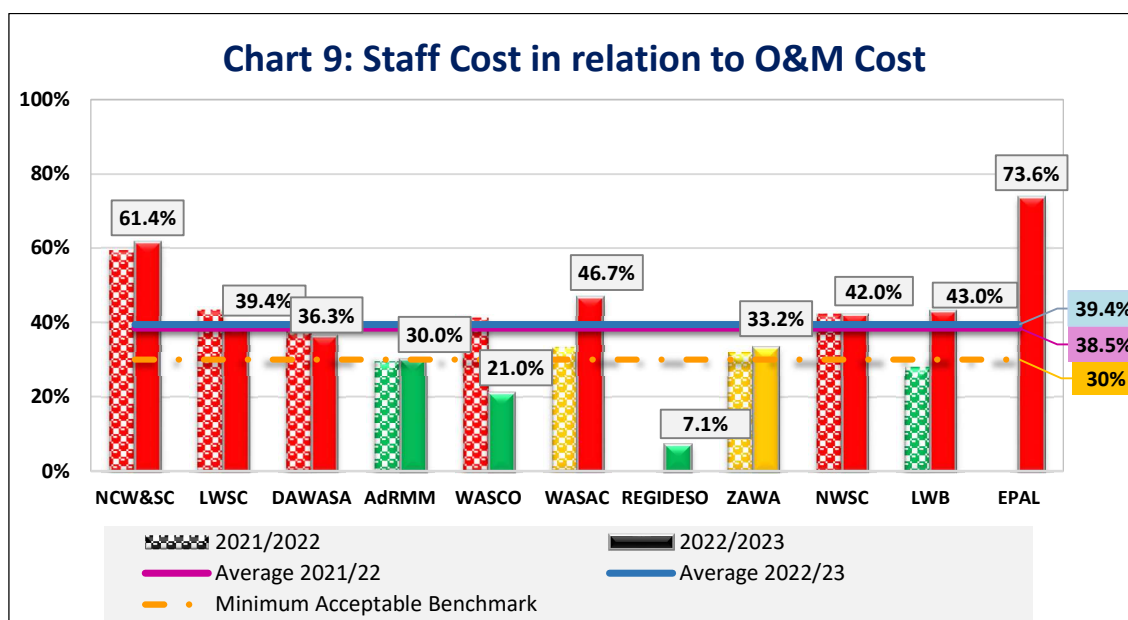
5.4.2.3. Staff Cost as a proportion of O&M Costs

The staff cost is analysed against the O&M costs of the Utility. It is expressed as the proportion (%) of the total O&M costs spent on staff. The internationally accepted “bottom line” for the staff cost is 30% of the total cost and is considered as the maximum acceptable benchmark in this report. To put the cost proportion in perspective, the number of staff per Utility is shown in Table 10.

Table 10: Total Staff per Utility

Utility	Total Staff 2021/22	Total Staff 2022/23
NCW&SC	3,143	3,117
LWSC	680	722
DAWASA	1,552	1,513
AdRM	983	1,152
WASCO	490	464
WASAC	1,441	1508
REGIDESO	ND	580
ZAWA	574	574
NWSC	4,467	4,600
LWB	509	605
EPAL	ND	1,686

NWSC and AdRMM increased the number of staff while other utilities reported notable reductions in the number of staff due to turnover.

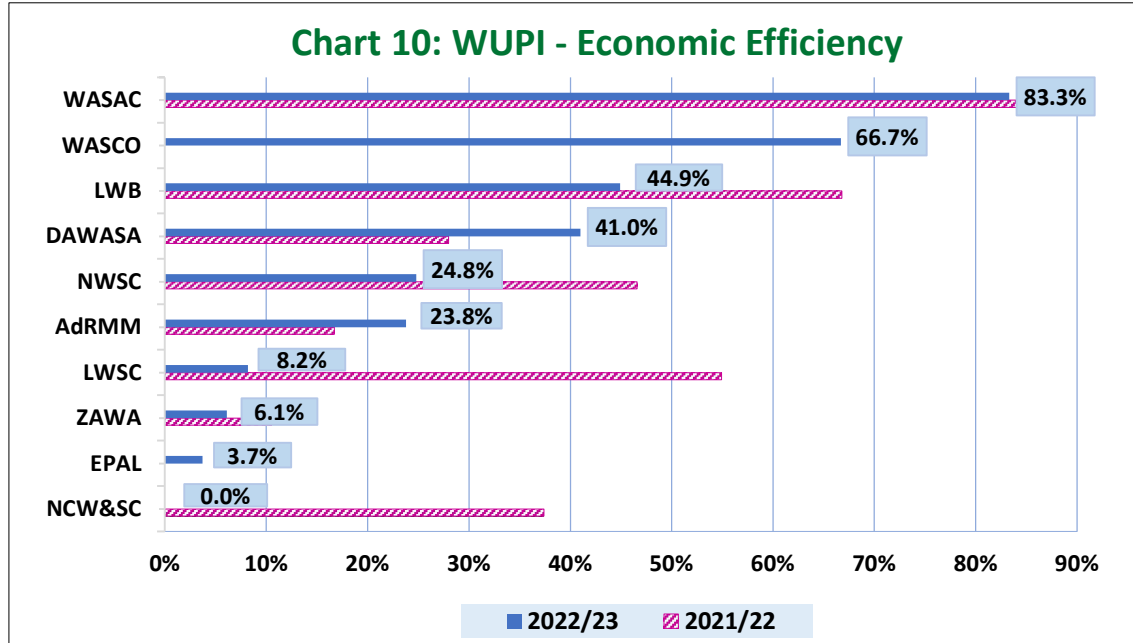


KPI	Good	Acceptable	Poor
Staff Cost	<30	30-35	>35

Chart 9 shows an increase in the average for Staff Cost in relation to O&M Cost from 38.5% to 39.4%, WASCO and AdRMM achieved the good benchmark despite an increase in the number of staff by AdRMM. The apparent good benchmark of REGIDESO could be a flag for very low salaries with low cost-coverage ratio. ZAWA maintained its performance within the acceptable benchmark while the performance of WASAC and LWB deteriorated significantly. EPAL and NCW&SC recorded the highest staff cost ratio, far beyond the acceptable minimum benchmark for staff cost in relation to O&M cost.

5.4.2.4. Integrated Performance – Economic Efficiency

The WUPI-economic efficiency, shown in Chart 10, shows an integrated view of the Utilities' performance in the three KPIs of Operation and Maintenance (O&M) Cost Coverage by Billing, Collection Efficiency and Staff Cost as a proportion of O&M Costs.



From Chart 10, WASAC maintained the first position despite a slight decline from previous performance. WASCO made tremendous improvement from bottom to second position owing to good performance in collection efficiency and staff cost indicators. Similarly, DAWASA and AdRMM made notable stride in their performance due to improvement in collection efficiency for DAWASA and good performance in staff cost and increased O&M cost covered by billing for AdRMM.

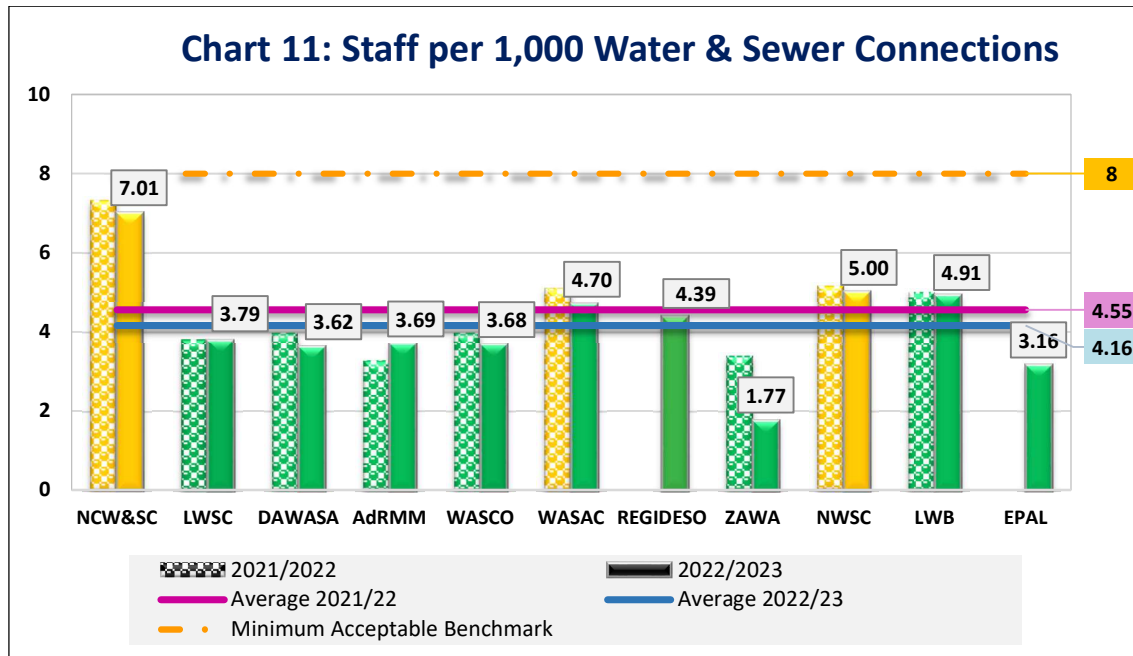
On the other hand, the performance of LWSC, NWSC and NCW&SC dropped significantly from 3rd, 4th and 5th positions, respectively. This was resulting from declining performance in all indicators considered for this component for both LWSC and NCW&SC and the poor performance in staff cost by NWSC. REGIDESO was not considered due to the uncertainty of data submitted.

5.4.3 OPERATIONAL SUSTAINABILITY

The Operational Sustainability component is measured using Staff per 1,000 Water and Sewer Connections, Non-Revenue Water and Metering ratio.

5.4.3.1. Staff per 1,000 Water and Sewer Connections

Staff per 1,000 Water and Sewer Connections, shown in Chart 11, represents the number of employees servicing 1,000 connections. It indicates the efficiency of Utilities in utilising their staff and hence a low figure is desirable. However, this measure is affected by factors such as nature of human settlements, skills mix, Utility business model (for instance, outsourcing of services), geographical distributions of the served areas and whether a Utility provides water supply only or both water and sewerage services.

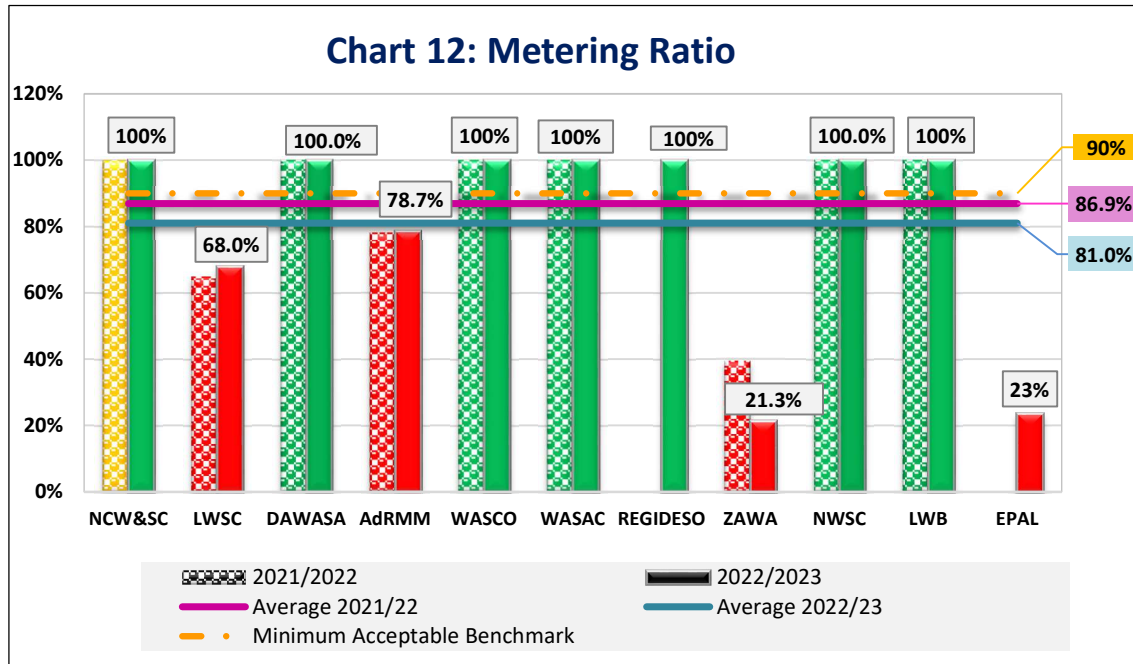


KPI	Good	Acceptable	Poor
Staff/1,000 Water and Sewerage Connections	<5.0	5.0 – 8.0	>8.0

As shown by chart 11, the average performance improved from 4.55 to 4.16. Except NCW&SC and NWSC which recorded acceptable performance, all other utilities achieved good performance in the staff efficiency indicator. The highest performance was achieved by ZAWA with 1.77 Staff/1,000 connections largely due to the significant increase in the number of water connections. This demonstrates that Utilities are concerting efforts to increasing connections on the ground.

5.4.3.2. Metering ratio

Metering ratio is the proportion of metered connections compared to the total connections. Metering is closely linked to the management of water losses as it measures the volume of water consumed by customers.



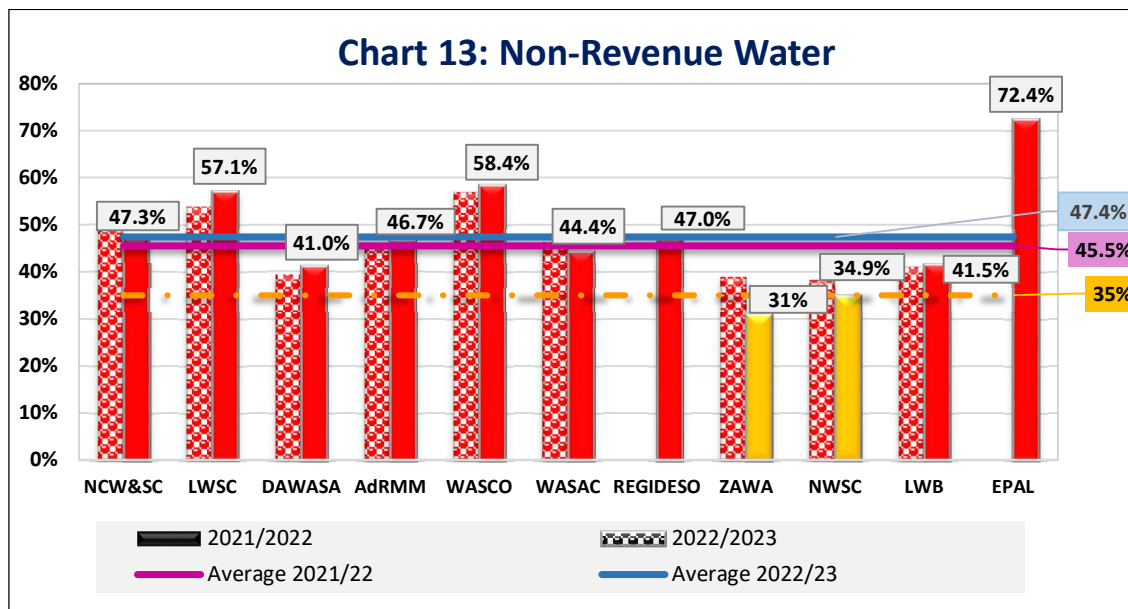
KPI	Good	Acceptable	Poor
Metering Ratio	100	99 – 90	< 90

Chart 12 indicates that seven utilities achieved good performance of 100%. Nevertheless, the average performance in metering ratio declined from 86.9% to 81.0% and remained below the acceptable benchmark. This was attributed to below acceptable performance reported by LWSC, AdRMM, ZAWA and EPAL. ZAWA which doubled the number of connections had the lowest metering ratio indicating that a notable number of customers were connected without meters.

The principle of ensuring every customer is metered at connection is critical to avoid regression in metering ratio and potential increase in Non-Revenue Water.

5.4.3.3. Water Losses

Water loss expressed as Non-Revenue Water (NRW) is water that has been placed in the distribution system but is either lost before reaching the customer or does not translate into revenue at a predetermined price. It measures the efficiency of a Utility in delivering the produced water to customers' take-off points against the revenue generated. It is made up of technical losses (leakages) and commercial losses (illegal connections/water theft, metering errors and unbilled authorised consumption). Water losses imply revenue loss and becomes a key area for Utilities to address urgently.



KPI	Good	Acceptable	Poor
NRW	<30	30 – 35	>35

Chart 13 indicates that average performance in NRW declined from 45.5% to 47.5% and remained above the maximum acceptable benchmark of 35%. Nevertheless, ZAWA and NWSC achieved the acceptable benchmark while NCW&SC and WASAC reported a slight reduction in NRW; the worst performance of 72.4% was recorded by EPAL.

There are different perspectives as to how NRW can be measured. Table 11 shows NRW evaluated based on distribution network and the number of connections.

Table 11: Non-Revenue Water in terms of length of network and connections

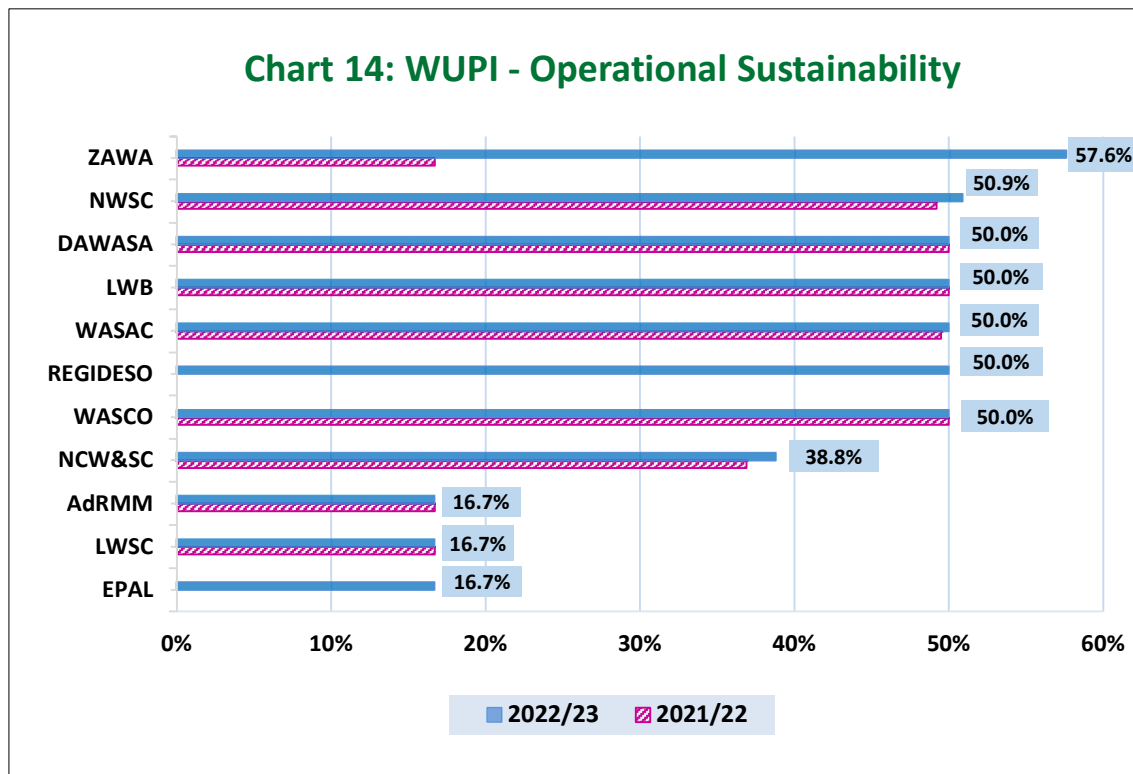
Utility	Length of Network (km)	Water Production (m ³)	Water Connections	Non-Revenue Water		
				%	m ³ /km/day	L/conn/day
NCW&SC	3,929	180,816,151	255,221	47.3%	59.6	918.1
LWSC	1,481	114,967,273	142,079	57.1%	121.5	1,265.9
DAWASA	5,553	129,252,099	409,717	41.0%	26.1	354.4
AdRMM	2,732	89,540,279	312,027	46.7%	41.9	367.2
WASCO	2,561	27,253,334	117,417	58.4%	17.0	371.4
WASAC	16,644	73,328,765	321,115	44.4%	5.4	277.8
REGIDESO	2,660	57,191,258	130,267	47.0%	27.7	563.3
ZAWA	3,842	74,538,647	321,300	31.0%	16.5	197.0
NWSC	22,646	161,559,152	892,099	34.9%	6.8	173.2
LWB	2,470	37,827,842	115,348	41.5%	17.4	372.9
EPAL	10,716	202,209,766	533,288	72.40%	37.4	752.1

LWSC and NCW&SC recorded the very high water losses in percentage, network and per connection. Similarly, EPAL which had the third longest network, the second highest number of water connections and highest water production reported the highest percentage of NRW and relatively high water losses per connections. This calls for utilities to implement a very comprehensive approach for managing water losses for efficiency gains.

NWSC had low water losses in all three dimensions of NRW, despite having the longest network, highest number of connections and water production. ZAWA that achieved the acceptable benchmark of NRW (31%), had the second lowest losses per connections and the third lowest losses in the network. In terms of the porousness of the network, WASAC with the second longest network had the lowest losses of 5.4 m³/km/day. Whereas in losses per connections, the utility had the second lowest losses per connections despite having the fourth highest number of connections.

5.4.3.4. Integrated Performance – Operational Sustainability

The WUPI - Operational Sustainability shown in Chart 14 is based on the aggregation of the three KPIs; Staff per 1,000 Water and Sewer Connections, Non-Revenue Water and Metering Ratio.



As depicted in Chart 14, ZAWA made impressive progress from last position, displacing DAWASA for the top position in operational sustainability owing to good performance in staff efficiency and acceptable performance in NRW. NWSC ranked second with 50.9% while DAWASA, LWB, WASAC, REGIDESO and WASCO came in the third position with the same score of 50%. AdRMM, LWSC and EPAL are the least performers in operational sustainability with a score of 16.7%.

5.5 SUMMARY ANALYSIS

The performance analysis of the Utilities in the ten selected single KPIs is summarized in Table 12 and an Overall WUPI is shown in Chart 15. The Overall WUPI is derived by aggregating the three WUPI of Quality of Services, Economic Efficiency and Operational Sustainability.

Table 12: Summary of Utilities performance

	KPI	NCW&SC	LWSC	DAWASA	AdRMM	WASCO	WASAC	REGIDESO	ZAWA	NWSC	LWB	EPAL
Quality of Services	Water Coverage [10]	81.5%	94.8%	75.0%	42.5%	59.3%	74.8%	67.7%	89.0%	78.0%	90.8%	34.0%
	Sewerage Coverage [5]	49.2%	17.2%	12.3%	-	4.4%	-	6.6%	12.5%	15.4%	3.2%	-
	Water Quality [15]	97.7%	89.6%	100.0%	100%	73.3%	100.0%	82.7%	91.5%	100.0%	99.7%	-
	Hours of Supply [10]	7	17	19	15	18	21	12	14	18	20	5
Economic Efficiency	O&M Cost Coverage [10]	99.5%	89.7%	83.5%	110.7%	36.9%	186.4%	16.8%	74.9%	128.8%	153.9%	105.6%
	Collection Efficiency [15]	89.5%	91.6%	98.2%	77.0%	101.9%	103.1%	282.0%	86.8%	91.1%	92.3%	67.7%
	Staff Cost vs O&M Costs [5]	61.4%	39.4%	36.3%	30.0%	21.0%	46.7%	7.1%	33.2%	42.0%	43.0%	73.6%
Operational Sustainability	Staff/1,000 W&S Connections [5]	7.0	3.8	3.6	3.7	3.7	4.7	4.4	1.8	5.0	4.9	3.2
	Metering Ratio [10]	100.0%	68.0%	100.0%	78.7%	100.0%	100.0%	100.0%	21.3%	100.0%	100.0%	23.5%
	NRW [15]	47.3%	57.1%	41.0%	46.7%	58.4%	44.4%	47.0%	30.9%	34.9%	41.5%	72.4%

From Table 12, all the Utilities maintained best performance in Staff/1,000 W&S Connections with nine of them achieving good performance in this indicator. The worst performance was continued to be in NRW and sewerage service coverage where only two utilities (ZAWA and NWSC), and NCW&SC met the acceptable benchmark respectively. Attaining the acceptable and good benchmarks continued to be a challenge in the majority of KPIs.

From the Overall WUPI in Chart 15 and Table 13, WASAC maintained the first position despite the decline from 66.6% to 59.9%. LWB maintained second position while DAWASA moved from 5th to 3rd position. WASCO and ZAWA made notable improvements while LWSC, NWSC and NCW&SC experienced significant decline in their overall performance.

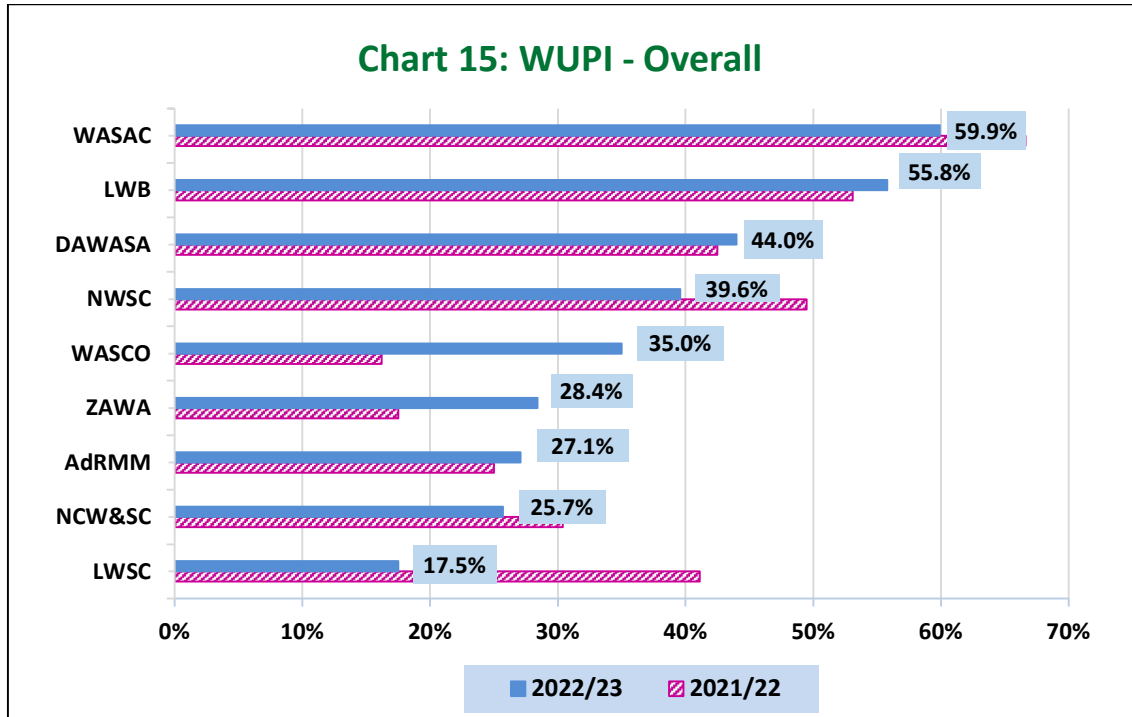


Table 13: Ranking of Utilities

Utility	Ranking 2022/23	Ranking 2021/22
WASAC	1	1
LWB	2	2
DAWASA	3	5
NWSC	4	3
WASCO	5	9
ZAWA	6	8
AdRMM	7	7
NCW&SC	8	6
LWSC	9	4

CHAPTER 6. BEST PERFORMING UTILITIES IN THE REGION

6.1 INTRODUCTION

In countries where there is more than one WSS service provider, regulators rank their performance to establish the best performer against certain KPIs. In most cases, the country best performer is different from the regionally benchmarked utility therefore, this section was introduced to compare the performance of the best performing utility within a country against the performance of similarly ranked utilities within the region. This is in recognition that there may be good practices of best performers within a country that can be learnt and replicated by other Utilities.

6.2 PROFILE OF BEST PERFORMERS

As per Table 14, five utilities were considered for comparing and ranking the best performers. These include WASAC from Rwanda which ranked the best of the regionally benchmarked utilities, Nakuru WSP from Kenya, Southern WSC (SWSC) from Zambia, Iringa WSSA from Tanzania and Lilongwe Water Board (LWB) from Malawi. Lesotho and Zanzibar did not participate as they only have national utilities while Uganda does not yet perform country ranking.

Table 14: Profile of best performers

Utility	Year of establishment	Areas of operation	Population in the service area 2022/23	Number of water connections 2022/23	Annual water production (m ³ /yr) 2022/23
NAKURU WSP Kenya	2003	Nakuru Town, East & West Sub-counties and its environs	575,408	48,112	11,966,635
SOUTHERN WSC, Zambia	2009	Southern Province of Zambia	598,312	70,142	22,861,649
IRINGA WSSA, Tanzania	1998	Iringa Municipality and Ilula and Kilolo towns	282,838	42,983	6,365,079
LILONGWE WATER BOARD (LWB), Malawi	1995	Lilongwe City and surrounding areas	1,181,218	115,348	37,827,842
WASAC, Rwanda	2014	Kigali + all urban centres in the country	8,071,518	321,115	73,328,765

6.3 PERFORMANCE RANKING OF THE BEST PERFORMERS

The ESAWAS benchmarking framework was used to rank the performance of the best performers in the ten KPIs and three components of Quality of Services, Economic Efficiency and Operational Sustainability.

6.3.1 OVERVIEW OF PERFORMANCE AGAINST KPIS

Table 15: Performance of the best utilities in the ten KPIs

Utility	Quality of Services				Economic Efficiency			Operational Sustainability		
	Water Coverage [10]	Sewerage Coverage [5]	Water Quality [15]	Hours of Supply [10]	O&M Coverage [10]	Collection Efficiency [15]	Staff Cost as a % of O&M Cost [5]	Staff/1,000 W&S Connections [5]	NRW [15]	Metering ratio [10]
	%	%	%	Hours/day	%	Ratio	%	Ratio	%	%
Nakuru WSP, Kenya	94.8%	24.5%	100.0%	21	110.4%	97.5%	29.1%	2.59	29.3%	100%
Southern WSC, Zambia	95.0%	18.6%	99.2%	21	89.9%	98.3%	47.8%	4.94	45.1%	98.2%
Iringa WSSA, Tanzania	91.0%	7.0%	95.1%	21	86.3%	97.1%	26.8%	3.06	24.5%	100%
Lilongwe WB, Malawi	90.8%	3.2%	99.7%	20	153.9%	92.3%	43.0%	4.91	41.5%	100%
WASAC, Rwanda	74.8%	N/A	100%	21	186.4%	103.1%	46.7%	4.70	44.4%	100%

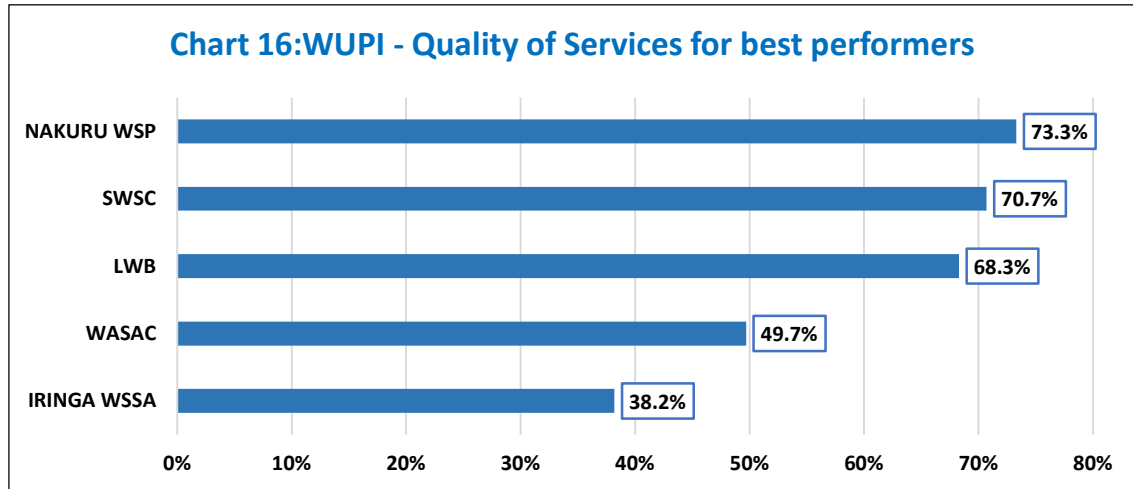
From Table 15,

- Quality of Services:** All the utilities met the acceptable benchmarks in Water Coverage, Water Quality and Hours of Supply. The worst performance was recorded in Sewerage Coverage. The best performer by KPI was Southern WSC in Water Coverage while Nakuru WSP and WASAC tied in Water Quality compliance.
- Economic Efficiency:** Collection Efficiency was the best performed KPI with all utilities meeting the acceptable benchmark while the worst performing KPI was Staff Cost in relation to O&M Cost with only Nakuru-Kenya and Iringa-Tanzania achieving the good benchmarks. WASAC-Rwanda was the best performer in O&M Cost Coverage and Collection Efficiency.
- Operational Sustainability:** All the utilities achieved good performance in Staff per 1,000 W&S Connections and met the acceptable to good performance benchmarks in Metering Ratio. NRW remained the worst performing KPI with only Nakuru WSP-Kenya and Iringa WSA-Tanzania meeting the good benchmark. The best performer by KPI was Nakuru WSP-Kenya in Staff per 1,000 WS Connections and Iringa WSSA-Tanzania in NRW.

6.3.2 PERFORMANCE RANKING USING WUPI

6.3.2.1 WUPI - Quality of Services

The performance of utilities in Quality of Services was measured combining the performance in Water Coverage, Sewerage Coverage, Water Quality and Hours of Supply indicators.



As per Chart 16, Nakuru WSP- Kenya ranked the best performer in Quality of Services with a score of 73.3% following its good performance in Water coverage, Water Quality and Hours of Supply KPIs. Iringa WSSA-Tanzania came last with a score of 38.2%

6.3.2.2 WUPI - Economic Efficiency

O&M Cost Coverage by billing, Collection Efficiency and Staff Cost in relation to O&M Cost indicators are used to determine the performance of utilities in Economic Efficiency component.

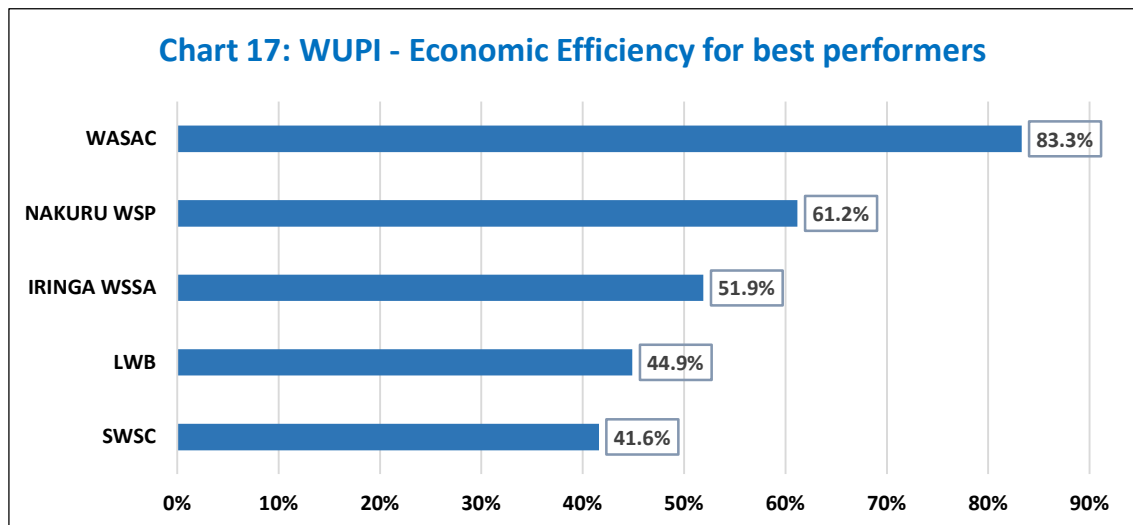
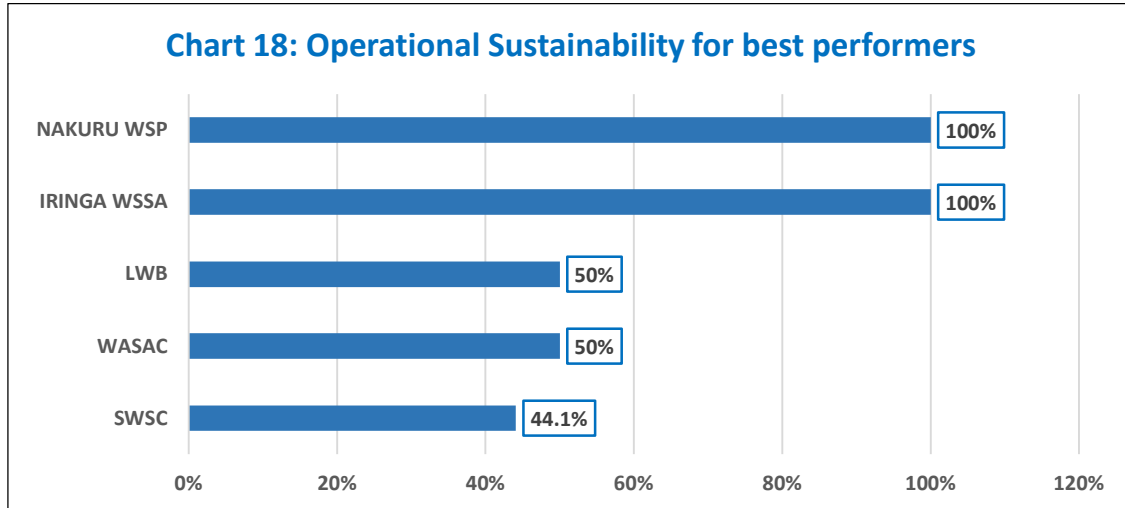


Chart 17 shows that WASAC-Rwanda had the highest score of 83.3% and was the best performer, owing to the good performance in O&M Coverage and Collection Efficiency. while Southern WSC-Zambia was the least performer with a score of 41.6% attributable to low performance in O&M and Staff Cost indicators.

6.3.2.3 WUPI - Operational Sustainability

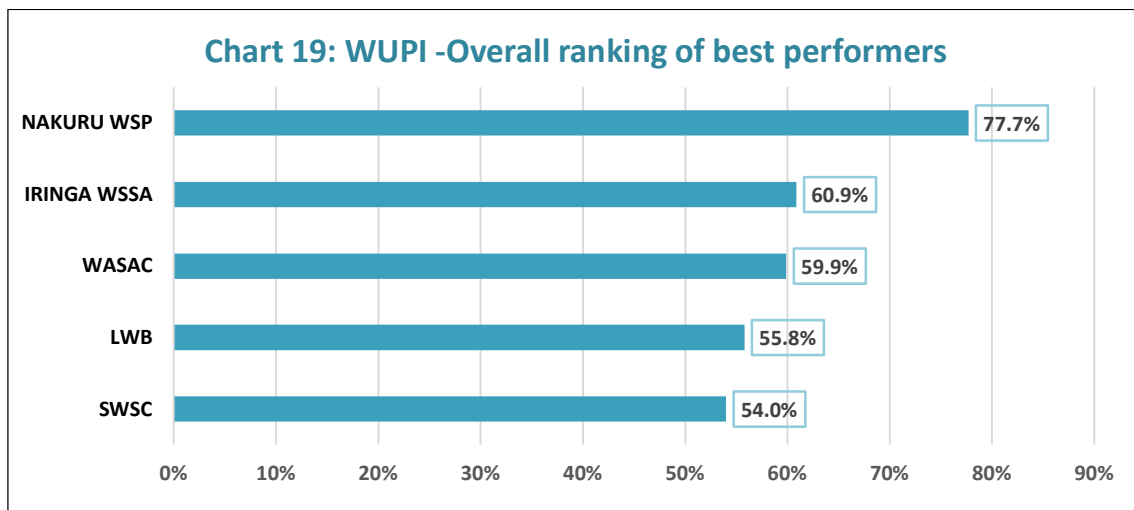
Chart 18 shows the ranking of utilities in operational sustainability based on their performance in Staff Productivity, NRW and Metering Ratio indicators.



Both Nakuru WSP of Kenya and Inringa WSSA of Tanzania emerged as the best performers with a score of 100% owing to good performance in all indicators of Operational Sustainability component. Southern WSC-Zambia occupied the last position with a score of 44.1%.

6.3.2.4 WUPI Overall

The ranking of the best of the best performers was done by combining the three WUPI components and the results are shown in chart 19.



As depicted in Chart 19, **Nakuru WSP of Kenya emerged the overall best of the best performers for 2022/23 with a total score of 77.7%**. Inringa WSSA of Tanzania in second place with a score of 60.9% while Southern WSC of Zambia ranked the least of the best performers with a score 54%.

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

Benchmarking is a strategic tool that can stimulate improvements in the performance of an industry. It helps identify the system strengths and weaknesses and provides opportunity for enhancing operational efficiencies. Thus, the benchmarked Utilities should examine their own operations further, draw the inspiration from others and embrace good practices as they strive to make improvements.

This section summarises the general picture of the performance of benchmarked Utilities. Using the average performance, Table 16 provides an overview of the progress on Key Performance Indicators in the period under review. Overall, the period recorded decline in all three components of KPIs. Utilities managed to meet the acceptable benchmarks in only two KPIs: Collection Efficiency and Staff/1,000 W&S Connections.

Table 16: Progress on average Key Performance Indicators

	KPIs	2021/22	2022/23	Progress	Benchmark
Quality of Service	Water service coverage %	79.0	71.6	↓	75
	Sewerage service coverage %	15.8	15.1	↓	40
	Water quality %	96.7	93.4	↓	95
	Hours of supply	17	15	↓	18
Economic Efficiency	O&M cost coverage by billing %	115	99	↓	100
	Collection efficiency %	94	107	↑	90
	Staff cost in relation to O&M cost %	38.5	39.4	↓	30
Operational Sustainability	Staff/1,000 W&S connections	4.55	4.16	↑	8
	Metering ratio %	86.9	81.0	↓	90
	NRW %	45.5	47.4	↓	35
	↑ Increase ↓ Decline Benchmark met Benchmark not met				

Table 17 presents the conclusions and recommendations for each individual Utility based on an overview of performance whether the utility met the good, acceptable and poor benchmarks for all ten KPIs.

Table 17: Performance of Utility per indicators

Utility	Good performance	Acceptable performance	Poor performance	Conclusions and Recommendations
NCW&SC	-	Water coverage Sewerage coverage Water quality Staff/1000 W&S Connections Metering ratio	Hours of Supply O&M Cost coverage by billing Collection efficiency Staff Cost vs O&M Cost NRW	The Kenyan Utility remained the only utility with acceptable performance of 49.2% in Sewerage Service Coverage. However, the Utility needs to improve its low performance in a number of KPIs, particularly Hours of Supply which has remained among the lowest for many years and is tied to the high NRW. The Utility needs to also improve Staff cost vs O&M Costs.
LWSC	Water coverage Staff/1000 W&S Connections	Collection efficiency	Sewerage coverage Water quality Hours of supply O&M Cost coverage by billing Staff Cost vs O&M Cost Metering ratio NRW	The Zambian Utility experienced a decline in its performance achieving good and acceptable performance in only three KPIs. Concerted efforts are needed in KPIs with deteriorating performance particularly Metering Ratio and NRW for efficiency gains.
DAWASA	Water quality Staff/1000 W&S Connections Metering ratio	Water coverage Hours of Supply Collection efficiency	Sewerage coverage O&M Cost coverage by billing Staff Cost vs O&M Cost NRW	The Tanzanian Utility achieved good and acceptable performance in six PKIs. However, the utility needs to work hard to improve its performance in Sewerage Coverage, O&M Cost Coverage and NRW.
AdRMM	Water quality Staff/1000 W&S Connections	O&M Cost coverage by billing Staff Cost vs O&M Cost	Water coverage Hours of Supply Collection efficiency Metering ratio NRW	The Mozambican Utility maintained its good performance in Water Quality and Staff Efficiency and met acceptable benchmarks in O&M Cost Coverage and Staff Cost. Significant improvements are needed particularly in Water Coverage, Collection Efficiency and NRW.
WASCO	Collection efficiency Staff Cost vs O&M Cost Staff/1000 W&S Connections Metering ratio	Hours of supply	Water coverage Sewerage coverage Water quality O&M Cost coverage by billing NRW	The Lesotho Utility recorded good and acceptable performance in five indicators. However, the utility needs to concert efforts to improve the performance in Water and Sewerage Coverage, Water Quality, O&M Cost Coverage and NRW.
WASAC	Water quality O&M Cost coverage Collection efficiency Staff/1000 W&S Connections Metering ratio	Hours of supply	Water coverage Staff Cost vs O&M Cost NRW	The Rwandese Utility remained the overall best performer following the good performance in five KPIs and acceptable performance in Hours of Supply. However, particular attention is required to improve its performance in Water coverage, Staff Cost and NRW.

Utility	Good performance	Acceptable performance	Poor performance	Conclusions and Recommendations
REGIDESO	Collection efficiency Staff Cost vs O&M Cost Staff/1000 W&S Connections Metering ratio	-	Water coverage Sewerage coverage Water quality Hours of supply O&M Cost coverage by billing NRW	The Burundian Utility recorded good performance four KPIs. Nevertheless, poor performance was observed in six indicators and significant efforts are required to improve Water Coverage, Water Quality, Hours of Supply and O&M Cost coverage by billing. There is urgent need for the Utility to address the accuracy of data and possible very low tariff.
ZAWA	Staff/1000 W&S Connections	Water Coverage Staff Cost vs O&M Cost NRW	Sewerage coverage Water quality Hours of supply O&M Cost coverage by billing Collection efficiency Metering ratio	The Zanzibari Utility met the acceptable benchmark in four indicators including NRW. Particular attention is required for Metering Ratio following the significant jump in connections. Efforts are also needed to improve the O&M Coverage and Collection Efficiency
NWSC	Water quality Metering ratio	Water coverage Hours of supply O&M Cost coverage by billing Collection efficiency Staff/1000 W&S Connections NRW	Sewerage Coverage Staff Cost vs O&M Cost	The Ugandan Utility achieved good and acceptable performance in 8 KPIs. However, improvements are required in Sewerage Coverage and Staff Cost.
LWB	Water coverage O&M Cost coverage Staff/1000 W&S Connections Metering ratio	Water quality Hours of supply Collection efficiency	Sewerage coverage Staff Cost vs O&M Cost NRW	The Malawian Utility made improvement by achieving good benchmark in 4 KPIs and acceptable benchmark in 3 KPIs. However, efforts are needed to improve its performance in Sewerage Coverage, Staff Cost and NRW.
EPAL	Staff/1000 W&S Connections	O&M Cost coverage by billing	Water coverage Hours of supply Collection efficiency Staff Cost vs O&M Cost Metering ratio NRW	The Angolan Utility was new in the regional benchmarking exercise. The analysis shows that the utility achieved acceptable performance in only two indicators. Significant efforts are needed to improve in KPIs with poor performance particularly Water Coverage, Hours of Supply, Metering Ratio and NRW.

Annex 1. COMMON KPIS WITH BENCHMARKS SET BY EACH REGULATOR

	WATER COVERAGE	SEWERAGE COVERAGE*	WATER QUALITY	HOURS OF SUPPLY	NRW	O&M COST COVERAGE	COLLECTION EFFICIENCY	METERING RATIO	STAFF EFFICIENCY
WASREB			Residual Chlorine, Bacteriological						Staff per 1,000 W&S connections
Acceptable Benchmark	80-90%	80-90%	90-95%	16-20	20-25%	100-149%	85-95%	95-99%	5-8
Weight	30	15	30	20	25	25	20	15	20
NWASCO			Residual Chlorine, Bacteriological Physio-Chemical (<i>Turbidity, pH, Metals, Colour</i>)						Staff per 1,000 water connections
Acceptable Benchmark	80-90%	80-90%	95%	18-20	20-25%	100-150%	85-90%	100%	6-8
Weight	5	5	20	15	10	15	20	15	10
EWURA			E-Coli, Turbidity						Staff per 1,000 water connections
Service Level Benchmark	100%	30%	98%	24	20%	150%	95%	100%	5
Weight	5	40	15	5	15	10	15	15	10
AURA IP		N/A	Residual Chlorine, Bacteriological, Physio-Chemical (<i>Turbidity, pH, Conductivity</i>)						Staff per 1,000 water connections
Boundaries	40-80%	-	65-100%	9-24	25-47%	85%-150%	80-90%	80-90%	10-15
Weight	5.5	-	33	5	25.5	13	8	5	5
RURA		N/A	Residual Chlorine, Bacteriological						Staff per 1,000 water connections
Acceptable Benchmark	80-90%	-	90-95%	16-20	20-25%	#	85-90%	95-99%	5-8
Weight	25	-	25	20	25		20	20	20
LEWA			Residual Chlorine, Bacteriological, Turbidity						Staff per 1,000 water connections
Acceptable Benchmark	-		95-99%	18-24	46.5%	100%	90%	100%	-
Weight			15	20	10	5	2	8	
ZURA									
Benchmark	Not yet defined								

*Mozambique and Rwanda have separate entities providing sewerage services.

#The water Utility in Rwanda had until June 2014 been a single Utility providing both electricity and water. Hence, the Utility had been unable to separate O&M costs for water services only given that the costs incurred, for example at headquarters, could not be allocated either to electricity or water, thus the benchmark could not be defined.

Annex 2. DETAILED PROFILES OF UTILITIES

DAR ES SALAAM WATER AND SANITATION AUTHORITY (DAWASA) - TANZANIA																								
Water Utility	<p>The DAWASA Act 2001 established Dar es Salaam Water and Sewerage Authority (DAWASA) responsible for operating and maintaining all water supply and sewerage services in the City of Dar es Salaam and the towns of Kibaha, Bagamoyo and the corridors of its two transmission lines. DAWASA changed its name in 2019 to Dar es salaam Water Supply and Sanitation Authority under the new Water Supply and Sanitation Act no 5 of 2009 which came in to operation on July 1st 2019. DAWASA reports functionally to the Ministry of Water and Irrigation.</p> <p>The total population in the DAWASA operation area is 6,664,180 people. The sources of water are Ruvu and Kizinga Rivers and 20 boreholes located in various areas within the service area. The Utility has a sewerage system with sewer line of 189.27km and 7 sewage treatment plants and 2 faecal sludge treatment plants</p>																							
General Data About Water Utility	<table border="0"> <tr> <td>Abbreviation</td> <td>DAWASA</td> </tr> <tr> <td>Start of Operations</td> <td>2005</td> </tr> <tr> <td>Number of Towns in Operation Area</td> <td>3</td> </tr> <tr> <td>Total Population in Operation/Service Area</td> <td>6,664,180</td> </tr> <tr> <td>Total Water Connections</td> <td>409,717</td> </tr> <tr> <td>Total Waste Water/Sanitation Connections</td> <td>18,487</td> </tr> <tr> <td>Total Production/year</td> <td>129,252,099 m³</td> </tr> <tr> <td>Total Staff</td> <td>1,513</td> </tr> <tr> <td>Annual O&M Costs</td> <td>TZS 161,907,700,000</td> </tr> <tr> <td>Annual Water and Sewerage billing</td> <td>TZS 135,204,900,000</td> </tr> <tr> <td>Annual Water and Sewerage Collections</td> <td>TZS 132,765,800,000</td> </tr> </table>		Abbreviation	DAWASA	Start of Operations	2005	Number of Towns in Operation Area	3	Total Population in Operation/Service Area	6,664,180	Total Water Connections	409,717	Total Waste Water/Sanitation Connections	18,487	Total Production/year	129,252,099 m ³	Total Staff	1,513	Annual O&M Costs	TZS 161,907,700,000	Annual Water and Sewerage billing	TZS 135,204,900,000	Annual Water and Sewerage Collections	TZS 132,765,800,000
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Tariff Structure	<p><i>*Exchange Rate: TZS2,500 to 1US\$ (2022/23)</i></p> <table border="1" style="margin-bottom: 10px;"> <thead> <tr> <th colspan="3">Water</th> </tr> <tr> <th>Tariff Band</th> <th>Domestic Institutional Commercial Industrial</th> <th>Kiosks</th> </tr> </thead> <tbody> <tr> <td>TZS/m³</td> <td>1,663</td> <td>1,106</td> </tr> </tbody> </table> <table border="1" style="margin-bottom: 10px;"> <thead> <tr> <th colspan="2">Sewerage</th> </tr> <tr> <th></th> <th>All Categories</th> </tr> </thead> <tbody> <tr> <td>TZS/m³</td> <td>386</td> </tr> </tbody> </table> <p>Note:</p> <ul style="list-style-type: none"> No approved flat rate tariff, in case of faulty meter, customers are billed according to the assessed average water consumption based on previous meter reading 		Water			Tariff Band	Domestic Institutional Commercial Industrial	Kiosks	TZS/m ³	1,663	1,106	Sewerage			All Categories	TZS/m ³	386							
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ÁGUAS DA REGIÃO METROPOLITANA DE MAPUTO (AdRMM)- MOZAMBIQUE

Water Utility

Maputo Water Supply System, supplies water to the metropolitan area of Maputo and is managed by the Water Regional Commercial Society of Maputo Metropolitan Region (AdRMM), former AdeM under a Lease Contract.

In 2010, after evaluation by the Government of the Delegated Management Framework implementation process, FIPAG (Water Asset Management Fund) acquired the majority shareholder position of AdeM. Functionally, AdeM (now AdRMM) reports to the Ministry of Public Works. In 2021, AdeM was changed to a Regional Commercial Society called AdRMM.

The total population in the AdRMM operation area is 2,910,835 people. The main source of water is the Umbeluzi River. The Utility does not provide sewerage services.

General Data About Water Utility	Abbreviation	AdRMM
	Start of Operations	2010
	Number of Towns in Operation Area	3
	Total Population in Operation/Service Area	2,910,835
	Total Water Connections	312,027
	Total Waste Water/Sanitation Connections	N.A
	Total Production/year	89,540,279 m ³
	Total Staff	1,152
	Annual O&M Costs	MT 2,973,831,746
Annual Water Billing	MT 3,290,627,808	
Annual Water Collections	MT 2,532,701,079	

Tariff Structure

**Exchange Rate: MT66 to 1US\$ (2023)*

DOMESTIC					
Tariff Band	Service Availability rate (Fixed rate)	0 -5 m ³ (Fixed value)	The first 5m ³	5m ³ - 10m ³	Above 10m ³
	MT/Month	MT/Month	MT/Month	MT/m ³	MT/m ³
	60.00	58.40	132.66	39.80	54.29

NON DOMESTIC				
Category	Municipalities	Minimum Consumption (Commercial, Public)	Minimum Consumption (Industrial)	Above Minimum Consumption
	MT/m ³	MT/Month	MT/Month	MT/m ³
MT./m ³	19.87	1,386.97	2,773.94	55.48

Note :

- There is a social tariff up to 5m³ and all domestic tariffs include a fixed charge;
- In case of faulty meter, customers are billed according to the average of previous three meter readings;
- The initial sewerage tax fee will be 15% and will be applied as soon the negotiations are finalised with Municipalities Authority

RWANDA WATER AND SANITATION CORPORATION (WASAC)- RWANDA

Water Utility

WASAC was established in August 2014 with the mandate to produce and distribute Water and provide Sanitation services in all urban areas in Rwanda. The Company was created in replacement of the Energy, Water and Sanitation Authority (EWSA), a public Utility that was providing both Water and Electricity. WASAC reports functionally to the Ministry of Infrastructure but is overseen strategically by a Board of Directors.

WASAC is the water service provider for Kigali and all other towns in Rwanda and was created to operate on commercial basis and inherited all water infrastructures and is mandated to improve the service and coverage in all urban areas. In the current arrangement, WASAC is also mandated to mobilize capital investment and execute major water investment works (through projects & programs) in rural areas before handing over the assets to districts (assets holders) that also delegate the management to private operators (rural).

The total population in the WASAC operation area is 8,071,518 people. The sources of water are mainly surface water from rivers, lakes and springs as well groundwater (only in Kigali). The Utility does not provide sewerage services.

General Data About Water Utility	Abbreviation	WASAC
	Start of Operations	2014
	Number of Towns in Operation Area	14
	Total Population in Operation/Service Area	8,071,518
	Total Water Connections	321,115
	Total Waste Water/Sanitation Connections	Not applicable
	Total Production/year	73,328,765 m ³
	Total Staff	1,508
	Annual O&M Costs	FRW 18,993,496,182
Annual Water and Sewerage billing	FRW 35,401,349,387	
Annual Water and Sewerage Collections	FRW 36,511,534,657	

Tariff Structure	<i>*Exchange Rate: FRW 1,299 to 1US\$ (2022/23)</i>						
	DOMESTIC						
	Tariff Band	Public taps & lifeline block (0-5 m³)	6-20 m³	21-50 m³	51-100 m³	Above 100m³	Kiosks
	FRW/m ³	323	331	413	736	847	323
	NON-DOMESTIC						
	Category	Industrial					
	FRW/m ³	736					
	Note:						
	<ul style="list-style-type: none"> No approved flat rate tariff but can be used in case of faulty meter and customers are billed according to the average of previous three meter readings No sewerage tariff since there is no centralized sewerage system 						

LESOTHO WATER AND SEWERAGE COMPANY (WASCO) - LESOTHO

Water Utility

The Water and Sewerage Company (PTY) Ltd was established through a Water and Sewerage Act No. 13 of 2010, thereby making it fully fledged private company wholly owned by the Government of Lesotho earmarked to deliver water and sewerage services in the urban centres of the country. WASCO reports functionally to the Ministry of Energy, Meteorology and Water Affairs., but is overseen strategically by a Board of Directors.

With effect from 2012 and in order to enhance its operational efficiency and effectiveness, WASCO was placed under regulation undertaken by the Lesotho Electricity and Water Authority (LEWA), as per the LEA Act 2002 as Amended. LEA Amendment Act 2011 extended the Mandate of Lesotho Electricity Authority (LEA) to include the regulation of water and sewerage services, having regulated the electricity sub-sector only since 2004.

The total population in the WASCO operation area is 792,096 people.

General Data About Water Utility

Abbreviation	WASCO
Start of Operations	2010
Number of Towns in Operation Area	10 towns plus 6 designated urban areas
Total Population in Operation/Service Area	792,096
Total Water Connections	117,417
Total Waste Water/Sanitation Connections	8,670
Total Production/year	27,253,334 m ³
Total Staff	464
Annual O&M Costs	LSL 532,359,000
Annual Water and Sewerage billing	LSL 196,689,000
Annual Water and Sewerage Collections	LSL 200,501,230

Tariff Structure

*Exchange Rate: LSL 18.41 to 1US\$ (2023)

DOMESTIC					
Tariff Band	0-5kl	> 5-10kl	> 10-15kl	>15 kl	Standpipe
M./m ³	5.53 (fixed)	9.39	16.52	22.78	7.50 (flat rate)
Standing Charge	0	45.05			

NON-DOMESTIC			
Category	Institutions	Non-Domestic	Churches/Schools
M./m ³	15.03	15.03	14.90
Standing Charge	433.30	299.98	216.66

Note:

- Sewerage charged on 85% of water consumed at LSL9.70
- Water closet customers charged on 60% of water consumed at LSL9.70

NAIROBI CITY WATER AND SEWERAGE COMPANY (NCW&SC)- KENYA

Water Utility

In 2002 the Kenyan government launched an ambitious programme of reforms for the water sector through the enactment of the Water Act 2002. The new legislation separated policy formulation, regulation, water resources management, water services and created clear roles and responsibilities of the newly established key water institutions. This resulted in the establishment of the Water Services Regulatory Board (WASREB) in 2003 to oversee the implementation of policies and strategies relating to provision of water and sanitation services. Also established were regional Water Services Boards (WSBs), in the capacity of asset holders, and over 100 Water Service Providers (WSPs), as their appointed agents for actual service delivery.

Nairobi City Water and Sewerage Company (NCW&SC) was incorporated in December 2003 and appointed by the Athi Water Service Board (AWSB) as its agent, with the mandate of providing water and sewerage services within the jurisdiction of the city of Nairobi. Further the Constitution of Kenya (CoK-2010) devolved water service provision to the 47 county governments. Therefore NCW&SC is now wholly owned by the County Government of Nairobi. The Company is ISO 9001:2008 certified.

Nairobi City has an estimated population of 5,029,777. The sources of water are four namely Thika dam Ruiru dam, Sasumua dam and Kikuyu Springs. The four water sources jointly produce 550,000 m³/day for the city against its demand of 750,000m³/day. The Utility has two waste water treatment plants, Dandora with a treatment capacity of 180,000m³/day and Kariobangi with a treatment capacity of 80,000m³/day.

General Data About Water Utility	Abbreviation	NCW&SC
	Start of Operations	2003
	Number of Towns in Operation Area	1
	Total Population in Operation/Service Area	5,029,777
	Total Water Connections	255,221
	Total Waste Water/Sanitation Connections	189,438
	Total Production/year	180,816,151 m ³
	Total Staff	3,117
	Annual O&M Costs	KSHS 10,630,453,502
	Annual Water and Sewerage billing	KSHS 10,573,663,643
Annual Water and Sewerage Collections	KSHS 9,468,521,391	

Tariff Structure	<i>*Exchange Rate: KSHS 130 to IUS\$ (2022/23)</i>						
	WATER TARIFF						
	Category	Domestic	Institutions	Commercial	Industrial	Water to Kiosks for Resale	Bulk Water to WSPs for Resale
	Consumption Block	KSHS/m ³					
	0-6	34	34	34	34	20	30
	7-20	53	53	53	53		
	>20	64	64	64	64		
		Schools and Colleges					
	0-600	48					
	601-1200	55					
>1200	60						
Note :							
<ul style="list-style-type: none"> Sewerage is charged at 75% of the water billed for all customers with a sewer connection. Resale by manned kiosk vendors and communal water dispensers is Kshs 1 per 20-litres. Resale at ATM water dispenser is Kshs 0.50 per m³ Bulk meter for gated communities is at Kshs 53 per m³ 							

LUSAKA WATER AND SANITATION COMPANY(LWSC) - ZAMBIA

Water Utility

Lusaka Water and Sanitation Company (LWSC) was established in 1989 under the Companies Act to provide water supply and sanitation services to the Greater City of Lusaka. In the 90s, Zambia embarked on water sector reforms that saw the establishment of the WSS regulator, NWASCO and brought LWSC under regulation through the Water Supply and Sanitation Act, No. 28 of 1997.

In 2008, LWSC, as a private limited liability company, became a provincial Utility for Lusaka Province and extended its WSS services to five other towns. LWSC is fully owned by the Local Authorities in Lusaka Province namely Lusaka, Luangwa, Chongwe, Kafue, Chilanga and Chirundu. The Ministry of Water Development, Sanitation and Environmental Protection has principal oversight of all WSS Utilities in Zambia.

The total population in the LWSC operation area is 2,988,247. The main sources of water are the Kafue River situated about 65km from Lusaka City, Chongwe River and Zambezi River and over 100 boreholes situated in various areas. About 60% of the water for Lusaka City is produced from the boreholes. The Utility has a sewerage system with two mechanised treatment plants and about six sewage ponds.

General Data About Water Utility

Abbreviation	LWSC
Start of Operations	1989
Number of Towns in Operation Area	6
Total Population in Operation/Service Area	2,988,247
Total Water Connections	142,079
Total Waste Water/Sanitation Connections	48,220
Total Production/year	114,967,273 m ³
Total Staff	722
Annual O&M Costs	ZMW 527,806,568
Annual Water and Sewerage billing	ZMW 473,212,905
Annual Water and Sewerage Collections	ZMW 433,667,198

Tariff Structure

**Exchange Rate: ZMW25.4 to 1US\$ (2023)*

DOMESTIC						
Tariff Band	0 - 6	6 - 30	30 - 100	100 - 170	+170	Kiosks/ Public Tap
Lusaka - K./m ³	5.65	6.79	7.69	9.04	11.08	5.00
Kafue, Chongwe, Luangwa- K./m ³	3.62	4.30	4.74	5.20	5.88	
Chirundu- K./m ³	3.62	5.43	6.48	8.60	8.60	

NON-DOMESTIC			
Tariff Band	0-30	30-170	+170
Lusaka - K./m ³	10.24	14.14	16.09
Kafue, Chongwe, Luangwa- K./m ³	7.73	11.49	13.12
*Chirundu- K./m ³	7.88	9.33	11.40

Note:

- Flat rates for non-metered customers vary per customer category (i.e High, Medium and Low).
- Standing/Fixed monthly meter charge is K8 for domestic and K25 for non-domestic.
- The sewerage tariff is 30% and 45% of water for domestic and non-domestic respectively
- Sanitation surcharge is 2.5% of water bill levied on all customers (except kiosks and stand pipes) specifically for sanitation service extension and improvements.

ZANZIBAR WATER AUTHORITY (ZAWA) - ZANZIBAR

Water Utility

The Zanzibar Water Authority (ZAWA) was established under Act. No. 4 of 2006, and is a semi-autonomous entity tasked to offer water supply services and water resources management in Zanzibar. ZAWA has the responsibility of providing clean, reliable and good quality water supplies through the operation and maintenance of water infrastructure, and development of new waterworks in the urban and rural areas of Unguja and Pemba islands. It is also responsible for the management and regulation of water resources and effluent discharges in Zanzibar

In 2013, Zanzibar Utilities Regulatory Authority (ZURA) was established under the ZURA Act No.7/2013 as a multi sectoral regulatory authority. ZURA began operating in 2015 and brought ZAWA under regulation.

The total population in the ZAWA operation area is 1,889,773.

General Data About Water Utility

Abbreviation	ZAWA
Start of Operations	2006
Number of Towns in Operation Area	6
Total Population in Operation/Service Area	1,889,773
Total Water Connections	321,300
Total Waste Water/Sanitation Connections	3,022
Total Production/year	74,538,647 m ³
Total Staff	574
Annual O&M Costs	TSH 12,863,719,239
Annual Water and Sewerage billing	TSH 9,632,513,150
Annual Water and Sewerage Collections	TSH 8,356,972,139

Tariff Structure

**Exchange Rate: TSH 2,591 to 1US\$ (2022/23)*

DOMESTIC		
Tariff Band	0-8	+8
TSH/m ³	667	1,540

NON DOMESTIC		
Tariff Band	0-15	15-1000
Institutional TSH/m ³	924	2,259
Commercial TSH/m ³	0-15	15-100
	821	1,437

Note:

- Flat rate is TSH4,000 per month

NATIONAL WATER AND SEWERAGE CORPORATION (NWSC) - UGANDA

Water Utility

The National Water and Sewerage Corporation (NWSC) is a public Utility company 100% owned by the Government of Uganda. The Corporation was established in 1972 under Decree No: 34. At its inception in 1972, the corporation operated in three (3) major towns of Kampala, Jinja and Entebbe. These laws were revised in 1995 by the NWSC Statute and later on, the statute was incorporated in the Laws of Uganda as CAP 317 (Laws of Uganda 2000). The primary aim of this law was to revise the objectives, powers and structure of NWSC to enable the corporation operate and provide water & sewerage services in areas entrusted to it on a sound commercial and viable basis.

The Water Utility Regulation Department, under the Directorate of Water Development in the Ministry of Water and Environment, is responsible for regulation of provision of water supply and sanitation services.

The total population in the NWSC operation area is 23,365,821. NWSC has over 56 water treatment facilities and operates 3 conventional sewerage treatment plants and 28 waste stabilisation ponds with a total sewer network length of 20,489.73 km.

General Data About Water Utility		NWSC
Abbreviation		NWSC
Start of Operations		1972
Number of Towns in Operation Area		218
Total Population in Operation/ Service Area		23,365,821
Total Water Connections		892,099
Total Waste Water/ Sanitation Connections		28,703
Total Production/ year		161,559,152 m ³
Total Staff		4,600
Annual O&M Costs		UGX 419,030,972,000
Annual Water and Sewerage billing		UGX 539,865,692,810
Annual Water and Sewerage Collections		UGX 491,858,095,307

Tariff Structure

**Exchange Rate: UGX 3,801 to 1US\$ (2022/23)*

DOMESTIC		
Tariff Band	/m ³	Price per 20 ltr Jerrycan
Domestic	1,553	31
Public Standpipe	2,490	50

NON-DOMESTIC		
Tariff Band	/m ³	Price per 20 ltr Jerrycan
Institution/Government	3,065	61
Commercial <500m ³ /month	3,760	75
Commercial >500-1,500m ³ /month	3,760	75
Commercial >1,500m ³ /month	3,005	60

LILONGWE WATER BOARD (LWB) - MALAWI

Water Utility

The Lilongwe Water Board (LWB) is a Statutory Corporation established in 1947 and reconstituted by the Act of Parliament ‘Water Works Act’ No. 17 of 1995. As Utility service provider, LWB is responsible for the provision of water supply services to the City of Lilongwe and surrounding areas to all categories of customers (domestic, institutional, industrial and commercial).

The main source of water for the Board is Lilongwe River, over which two dams have been constructed; the Kamuzu Dam I and Kamuzu Dam II. Kamuzu Dam I has a storage capacity of 4.5mil m³ while Kamuzu Dam II has storage of 19.8mil m³. LWB operates two main water treatment plants and is not mandated to provide sewerage services, which mandate lies with the Lilongwe Local Authority.

The total population in the LWB area of jurisdiction is 1,181,218.

General Data About Water Utility	Abbreviation	LWB
	Start of Operations	1947
	Number of Towns in Operation Area	1
	Total Population in Operation/Service Area	1,181,218
	Total Water Connections	115,348
	Total Waste Water/Sanitation Connections	7,817
	Total Production/year	37,827,842 m ³
	Total Staff	605
	Annual O&M Costs	MK 18,995,846,000
Annual Water and Sewerage billing	MK 29,226,503,255	
Annual Water and Sewerage Collections	MK 26,978,405,056	

Tariff Structure

**Exchange Rate: MK 1,030 to 1US\$ (2022/23)*

DOMESTIC			
Tariff Band	0-5	6-10	>10
MK/m ³	1,727*	496	690

NON DOMESTIC			
Tariff Band	0-5	6-40	>40
Commercial/Industrial MK/m ³	8,415*	1,849	2,011
Tariff Band	0-10	11-40	>40
Institutional MK/m ³	15,114*	1,690	1,810

Note:

- *Fixed amount for first bracket
- Kiosks have flat rates of K215 (Community built) and K239 (LWB), respectively.

REGIE DE PRODUCTION ET DE DISTRIBUTION D'EAU ET D'ELECTRICITE (REGIDESO) - BURUNDI

Water Utility

REGIDESO was established in 1962 after the independence of Burundi, to take care of drinking water supply and electricity. The period from 1992 to 2004 was marked by the socio-political crisis that caused the destruction of a significant part of REGIDESO's facilities. The company has had great difficulty rebuilding its infrastructure and coping with maintenance works especially after donors withdrew funding amid limited self-financing capacity. However, the human resources of this company have demonstrated their abilities in the restoration of water and electricity services in difficult times. The period from 2005 to 2011 corresponded to a period of reconstruction and development of infrastructure. It was during this period that REGIDESO began to rehabilitate damaged or dilapidated infrastructure and extended the water and electricity supply networks to the new districts, the city of Bujumbura and the interior of the country.

The total population in the REGIDESO operation area is estimated at 1,553,268 people. The main source of water is the Lake Tanganyika, which is near Bujumbura City from which about 90% of water supplied to the city is produced.

General Data About Water Utility

Abbreviation	REGIDESO
Start of Operations	1962
Number of Towns in Operation Area	20
Total Population in Operation/Service Area	1,553,268
Total Water Connections	130,267
Total Waste Water/Sanitation Connections	1,925
Total Production/year	57,191,258 m ³
Total Staff	580
Annual O&M Costs	BIF 139,414,772,880
Annual Water and Sewerage billing	BIF 23,412,987,156
Annual Water and Sewerage Collections	BIF 66,020,228,074

Tariff Structure

* Exchange Rate: 2,872 BIF to 1US\$ (2022/23)

Domestic			
Bands	Tariff	Fixed charges	Period
0-20 m ³	315	0	2 months
21-40 m ³	613	0	2 months
> 41 m ³	802	7274	2 months

Commercial and Industries			
	Tariff	Fixed charges	Period
Band	609	26,581	2 months

Standpipes			
	Tariff	Fixed charges	Period
Band	224	-	1 month

Administration			
	Tariff	Fixed charges	Period
Band	613	-	2 months

EMPRESA PUBLICA DE AGUAS DE LUANDA (EPAL) - ANGOLA

Water Utility Empresa Pública de Águas de Luanda (EPAL) is a statutory public water company created in 1995 by the Decree No. 72-A/01 of 5 October 1995. EPAL provides water supply services in all the municipalities of Luanda Province and the surrounding areas.

The main source of water for EPAL are Bengo River and Kwanza River and this is treated in 8 Water Treatment Plants and twenty-eight distribution centres.

The total population in the LWB area of jurisdiction is 9,079,811.

General Data About Water Utility	Abbreviation	EPAL
	Start of Operations	1995
	Number of Towns in Operation Area	9
	Total Population in Operation/Service Area	9,079,811
	Total Water Connections	533,288
	Total Waste Water/Sanitation Connections	0
	Total Production/year	202,209,766 m ³
	Total Staff	1,686
	Annual O&M Costs	KZ 15,207,964,011
	Annual Water and Sewerage billing	KZ 16,060,988,391
Annual Water and Sewerage Collections	KZ 10,870,000,000	

Tariff Structure **Exchange Rate: KZ 852 to 1US\$ (2022/23)*

DOMESTIC			
Tariff Band	0-10	10-15	>15
Kz/m ³ variable tariff	59	94	137
Kz/m ³ fixed monthly fee	0	0	332

NON DOMESTIC		
Tariff per consumption	Variable tariff	Fixed monthly fee
Trade and services Kz/m ³	137	3,900
Industry Kz/m ³	124	11,700
Fountain Kz/m ³	42	0
Giraffe Kz/m ³	137	0

Annex 3. WUPI

The Water Utility Performance Index (WUPI) was developed following the guidelines suggested by the OECD-JRC (2008). In summary, the OECD-JRC (2008) recommends to build the composite indicators following 10 steps: 1) development of a theoretical framework; 2) selection of the basic indicators; 3) imputation of missing data; 4) multivariate analysis; 5) normalisation; 6) weighting and aggregation; 7) robustness and sensitivity; 8) back the details (indicators); 9) association with other variables; and 10) dissemination.

The Water Utility Performance Index (WUPI) is a composite indicator developed by CRA in 2012. The WUPI used by CRA (now AURA IP) was harmonized for regional comparison. The WUPI allows measurement of the performance of the Utilities in an integrated way by aggregating three main performance components: quality of service, economic efficiency and operational sustainability. 10 KPIs are used to build up the WUPI and are clustered in the three components.

The WUPI uses the max-min technique for the normalisation of the KPIs. The aim of the KPI normalization is to convert the set of KPIs selected for the construction of the WUPI (which are expressed in different units of measurement), into a homogeneous set of variables measured in the same unit. The KPIs are then measured on a scale that ranges from 0 (the worst possible performance) to 1 (the best possible performance). For ESAWAS, the minimum and maximum threshold values for each indicator to perform the indicator normalisation were pre-established (see Annex 1).

The final step of the construction of the WUPI is the aggregation of all of the normalised indicators into the three WUPI components and the overall WUPI. The weighted sum of the indicators, which assume total compensation among the indicators is used to aggregate the indicators. This linear aggregation of the indicators is calculated using the following formulas:

$$WUPI_{quality_service, i} = \frac{\sum_{k=1}^{k=4} w_k^* \cdot I_{k, i}}{\sum_{k=1}^{k=4} w_k^*}$$

$$WUPI_{economic_efficiency, i} = \frac{\sum_{k=5}^{k=7} w_k^* \cdot I_{k, i}}{\sum_{k=5}^{k=7} w_k^*}$$

$$WUPI_{operatinoal_sustainabilty, i} = \frac{\sum_{k=8}^{k=10} w_k^* \cdot I_{k, i}}{\sum_{k=8}^{k=10} w_k^*}$$

$$WUPI_{overall, i} = \sum_{k=1}^{k=10} w_k^* \cdot I_{k, i}$$

Where i refers to the specific water Utility under analysis, w_k^* is the relative importance of the KPIK, and $I_{k,i}$ is the normalised value of the KPIK for water Utility i .