

# IMPACT

A Performance  
Report of Kenya's  
Water Services  
Sector – 2017/18



KENYA  
VISION 2030





# IMPACT

A PERFORMANCE REPORT OF KENYA'S WATER SERVICES SECTOR – 2017/18



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# About Us



**VISION**



A proactive and dynamic water services regulator



**MISSION**



To provide a regulatory environment that facilitates efficiency, effectiveness and equity in the provision of water services in line with the human right to water and sanitation



**MOTTO**



Water services for all

# Foreword

## Time for Social Justice, Human Dignity



The journey to Vision 2030 continues with the water services sector realigning itself to the national vision and the global agenda. These realignments are supported at the national level by the development of the National Water Policy and the National Water Services Strategy (2019 – 2030). Following the operationalization of the Water Act 2016 in April 2017, the sector has drafted the subsidiary legislation to drive the national agenda of meeting the provisions of Article 43 (d) and Article 10 of the CoK of facilitating access to services and ensuring that there is no discrimination in the provision of these services. This should realise the long-term vision of availability of clean and safe water to the broader community and ensure public health.

The documents mentioned above outline strategies and actions required to meet Vision 2030 targets. They are important policy instruments in guiding various actors on their roles in helping the sector deliver on the country's economic development. Policy goals and targets can only be realised if all stakeholders make deliberate steps to deliver on their mandate. In order to realise targets set out, each sector institution has to pursue their roles as laid out in the Water Act 2016 and the subsidiary legislation. Equally, the two levels of government have their roles clearly cut out in law. This appreciates that, if water is to be governed effectively and sustainably, the regulation of resources and services has to be done at national level so that uniform standards are set, monitored and enforced throughout the country.

The United Nations Sustainable Development Goals (SDGs) are premised on inclusivity (not leaving any one behind). Article 56 (a) of the CoK obliges the State to put in place affirmative action programmes designed to ensure that minorities and marginalized groups are represented, and effectively participate, in governance systems, and that they have reasonable access to water, health

services and infrastructure. On our part as the water services regulator, we will continue to push and support utilities to ensure that inequalities in the provision of water services are progressively addressed.

The National Water Master Plan - 2030 provides an indication of the resources required to realise the goals set. It is imperative that the sector works to bridge the gap in resource needs through non-traditional initiatives and increased effectiveness in funds utilization. Wasreb will continue tracking investments made in the sector to maximise on impact and ensure value for money.

In this edition of **Impact 11**, we review the performance of the water services sector for the financial year 2017/18. The report indicates improvement in water coverage, water quality, metering, and Non-Revenue Water management. There is, however, a reduction in reliability, which, obviously, impacts on revenue collection. There is also poor performance in cost coverage and personnel costs. Further, the best utility declined in performance by 20 points compared to the last period.

The ongoing licensing process by Wasreb under the new framework clearly outlines the targets licensees should meet in the licence period. These commitments will be monitored closely to ensure that set targets are met. It is also expected that the tools rolled out by the Regulator will help improve sector performance.

To ensure uniform standards across the sector, we shall also be rolling out guidelines for the management of rural water services and underserved areas. These guidelines, together with the water service regulations,

are expected to streamline operations of small scale rural/community Water Service Providers (WSPs). This new front will enable the Regulator report on water service coverage nationally considering that current commercialised utilities cover a surface area of 48% of the national population. It will be noted that none of the rural systems submits their performance data to the Regulator. This lack of data impedes tracking of the progressive realization of the right to water.

Our assessment shows that out of 88 utilities, 40 recorded improvement in performance as compared to 33 in the last period. A total of 48 utilities either recorded stagnation or decline. In order to address the inequality in water access in urban areas, Wasreb piloted a new indicator that looks at utility performance in Low Income Areas (LIAs). The aim of this is to address inequalities and drive utilities to focus more on underserved areas.

I wish to congratulate utilities that continue to do well and hope that the momentum that has been realised will be sustained. I call on all stakeholders to realise that good governance and sustainable development are key national values. It is therefore important for all actors in the water sector to embrace these principles as a way of helping the sector realise equity, inclusiveness, non-discrimination, human dignity, and social justice.

**Eng Robert Gakubia**  
CEO, Wasreb







# CHAPTER 1

## BACKGROUND



# Providing Desired Environment for Growth

**A**ccess to safe water and improved sanitation services are key pillars for Kenya's development. The pillars are in tandem with the United Nations' Sustainable Development Goal (SDG) No. 6 and Kenya's Vision 2030. They define the policy framework within which water services have to be realised in the country.

The key dimensions of service provision namely, planning, development, and implementation are shared between National and County governments. These levels of government are required to put in place deliberate measures to spur sector development. Key among these measures is enhancing resource mobilization to bridge the huge financing gap, maximizing on the impact of existing investments, and improving governance at all levels.

The issues outlined below comprise key building blocks in this endeavour.

## 1.1 Policy

The National Water Policy is intended to guide National and County governments in matters related to water. It addresses Water Resources Development and Management issues while balancing water use and water development across the country. The Policy provides comprehensive policy statements and actions to deal with pertinent issues in the water sector. It also proposes a coordination framework for various sub-sectors involved in water resources development and management, including planning and implementation. The Policy also forms the basis for County governments to prepare policies and strategies that can help them effectively discharge their mandate. Since water services are a shared function, County governments have to discharge their mandate in collaboration with the National government.

## 1.2 Legislation

A key pillar of the Bill of Rights in the Constitution is the right to clean and safe water in adequate quantities and to reasonable standards of sanitation (Article 43). Art. 21 (2) obliges the State to take legislative, policy and other measures, including the setting of standards, to achieve the progressive realisation of the rights guaranteed under Article 43.

Further, the Constitution under Article 191, lays down the importance of national standards in this regard. The law assigns the National government functions like consumer protection, capacity building, technical assistance to Counties, national public works, and protection of the environment and natural resources. This is with a view to establishing a durable sustainable system of development including water protection, securing sufficient residual water, hydraulic engineering, and the safety of dams. On the other hand, County functions include implementation of specific National government policies including County public works and water and sanitation services.

The Water Act 2016 recognizes the shared mandate of the two levels of government with respect to water related functions and is meant to align water governance to the devolved structure. Under section 42 of the Act, the Cabinet Secretary is required to make regulations that give effect to the Act. The regulations should deliver legislation that is outcomes-based and combine the requirements of the Constitution, the Water Act 2016, the National Water Master Plan 2030, the National Water Services Strategies, as well as the existing and proposed water sector policy. Water Services Regulations 2019 have now been developed and are awaiting consent by Parliament.

## 1.3 Licensing

Section 74 of the Water Act 2016 requires any person(s) providing or intending to provide water services to apply to the Regulator for issuance of a Licence. The Licence is proof that the Licensee is operating under national regulatory standards and as such, is under legal obligation to adhere to sector national standards, rules, regulations and guidelines. The Act further provides that Wasreb shall regulate all Water Service Providers (WSPs) to ensure consumer protection and commercial viability.

The Licensee's area of jurisdiction covers the geographical area within which the Licensee resides and where the Licensee provides water services as directed by the County government.

The purpose of licensing is to ensure consumer protection in respect to the following:

- The quality of service levels in the delivery of water and sewerage services. Water quality and effluent standards should guarantee the health and safety of consumers
- Protection of low-income household through pro-poor tariffs
- Non-discrimination of infrastructure development by extension of services to the unserved and underserved
- Economic interests of the public through affordable and sustainable tariffs that pay for the service
- Information provided by the water service provider to enable consumers gain full benefit of the services, demand accountability and participate in decisions that affect them.


The Licence issued to WSP bestows the following obligations on County governments as owners of utilities:

- Transforming water services in the County through correct vision
- Conforming to relevant laws and standards in the management of the utility
- Concordance with other players in the sector for progressive realisation of the right to water
- Providing / facilitating provision of resources
- Demanding accountability and results

Wasreb has already received applications from major utilities in the country and is progressing the licensing process.

## 1.4 Collaboration

Since the State and every state organ is obliged to fulfill the right to water (Article 21), both National and County governments have a shared mandate to ensure universal access to water



services. In line with this, a collaboration framework has been developed to ensure smooth working relations between the two levels of government. The goal of the water sector inter-governmental consultation and co-operation framework is to steer the attainment of a robust and sustainable water sector through the coordination of the attainment of policy goals and standards. The liaison framework provides a practical platform for dialogue and engagement of critical stakeholders in the sector. This is necessitated by the fact that consumers of services rendered by the two levels of government are the same citizens of Kenya although located in different parts of the country.

## 1.5 Service to Low Income Areas

Low-income areas (LIAs) are often unplanned settlements, where a majority of the population is poor/lives below the poverty line and where infrastructure is missing. This makes living conditions unbearable, especially when the evacuation of human waste and other effluent is non-existent or insufficient.

Approximately 40% of the urban population in Kenya lives in Low Income Areas (LIAs). Considering the rapid growth rate, providing services to LIAs remains the greatest challenge of Kenya's water sector for the decades to come.

Given the inadequacy of water services regulated by utilities, informal service providers operate a thriving business in many LIAs. Such services in general are unregulated and illegal, particularly where they operate in the licensed service area of WSPs.

Article 56 (a) of the Constitution obliges the State to put in place affirmative action programmes designed to ensure that minorities and marginalized groups participate and are represented in governance systems and also that they have reasonable access to water, health services and infrastructure.

Appreciating the need to attain minimum standards outlined in the Bill of Rights, water and sanitation have to be provided under regulation for the safety of consumers. In addition, the crucial nature of these services makes it imperative for the Regulator to ensure that the services are provided in a sustainable manner to ensure the survival of people and the development of society.

Pro-poor interventions need to be embedded within the water sector so as to:

- Implement the constitutional right to water and sanitation by increasing service coverage in LIAs
- Replace informal services which discriminate the underserved
- Achieve equitable access while ensuring quality and adequate service levels
- Improve long-term commercial viability of utilities by increasing revenues
- Collect accurate data on LIAs (underserved) to make informed decisions
- Eliminate discrimination and exploitation of the poor in accessing water services

In this context, Wasreb has developed a guideline to give a broader picture of how WSPs can initiate pro-poor interventions to meet their objective of universal coverage.



## CHAPTER 2

### SECTOR DEVELOPMENT

## Universal Access Must be by Design

Kenya's development blue print, Vision 2030, sets a national target to ensure availability and access to improved water and sanitation to all by 2030. The National Water Master Plan 2030 estimates that in order to attain these national targets an annual investment of Kshs 100 billion is required. The strategic actions proposed to realise these targets are: improving self-financing and resilience of the sector, enhancing fund mobilization and securing a high fund effectiveness.

**Table 2.1: Progress made with Respect to Vision 2030 Goals**

Indicator	Status 2017/18	Goals (NWSS 2015)	Goals 2030 (Vision 2030)	Remarks
Water Coverage	57%	80%	100%	This is for areas covered by commercialised utilities
<b>Sewered Sanitation Coverage</b>	16%	40%	100%	Includes sewered and Non-Sewered sanitation
Non- Revenue Water	41%	<30%	<25%	The indicator has not recorded significant improvement despite the commercialization of services
<b>O+M Cost Coverage</b>	99%	100%	150%	150% is a proxy measure for full cost coverage

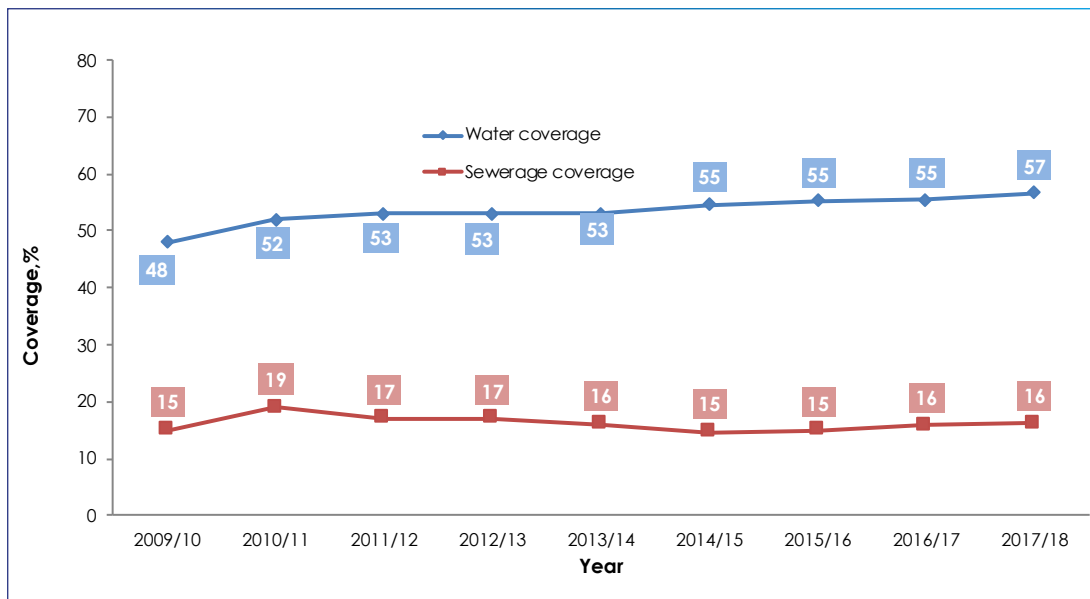
It can be seen that nearly 10 years to the timeframe, water coverage targets are just mid-way while those on sanitation are way below. The sector must adopt a “business unusual” strategy in the whole service provision chain.

### 2.1 Water Coverage

Access to water services in areas under regulation currently stands at 57% against a target of universal access by 2030. Although the target has registered an improvement of two percentage points when compared to the previous year, this development is still inadequate considering that the required growth is at least four percentage points annually in order to reach the 2030 target.



Figure 2.1: Trend in Water and Sewerage Coverage



In pursuit of Vision 2030 targets, the sector could benefit from the following interventions:

- Establishing a close working relationship between National and County governments on fund mobilization
- Implementing an information system to monitor the use and effectiveness of funds
- Linking utility performance to funding of infrastructure development – not to waste funds
- Ring-fencing income and securing of funds for investment
- Using government funds for investments and not for recurrent expenses
- Enhancing professionalization of investment planning and fund mobilization

## 2.2 Sewered Sanitation Coverage

The Joint Monitoring Programme (JMP) responsible for tracking progress with respect to water supply, sanitation and hygiene has introduced service ladders to benchmark and compare progress across Countries. The highest ladder in sanitation is safely managed service, meaning that people should use improved sanitation facilities which are designed to hygienically



separate excreta from human contact and which are not shared with other households. This requirement has not only raised the bar beyond simple measurement of access, but has also included management of faecal waste. This requirement implies that despite the stagnation in access to the service, what is measured currently as access falls short when the SDG 6 yard-stick is applied.

Sewered sanitation coverage in the current period remained unchanged at 16%. Therefore, to achieve the Vision 2030 target of safely managed sanitation services, service providers and policy makers have to focus on inclusive urban sanitation that combines both sewered and non-sewered sanitation options. The Regulator is in the process of developing a regulation strategy and framework for non-sewered sanitation. The framework takes cognizance of the fact that a huge proportion of the population depends on non-sewered sanitation. Therefore a pragmatic approach is needed to regulate service delivery from an inclusive perspective that acknowledges sewered and non-sewered technology modes and the importance of regulatory touch points along the entire value chain of non-sewered sanitation.

The national priority for the Kenya government with respect to sanitation are:

- To eradicate open defecation by year 2030
- To improve access to sewerage in urban areas to 40% by year 2022 and to 80% by year 2030
- To promote non-sewer sanitation in urban areas with focus on faecal-sludge management and full implementation of the sanitation value chain
- To enhance the Monitoring and Evaluation and reporting for SDG 6.2.

Pursuant to the above, the Government through the Ministry of Water and Sanitation is implementing sanitation projects under the following programmes:

- Kenya Towns Sustainable Water Supply and Sanitation Programme (KTSWSSP)
- Water and Sanitation Development Project
- The Lake Victoria Water and Sanitation (LVWATSAN) Project - Kisumu water supply programme

## 2.3 Non-Revenue Water Management

Water is a limited resource. Therefore, if the business-as-usual approach is maintained in the way water resources are managed, Kenyans will face a 30% gap between available freshwater supply and demand by the year 2030.

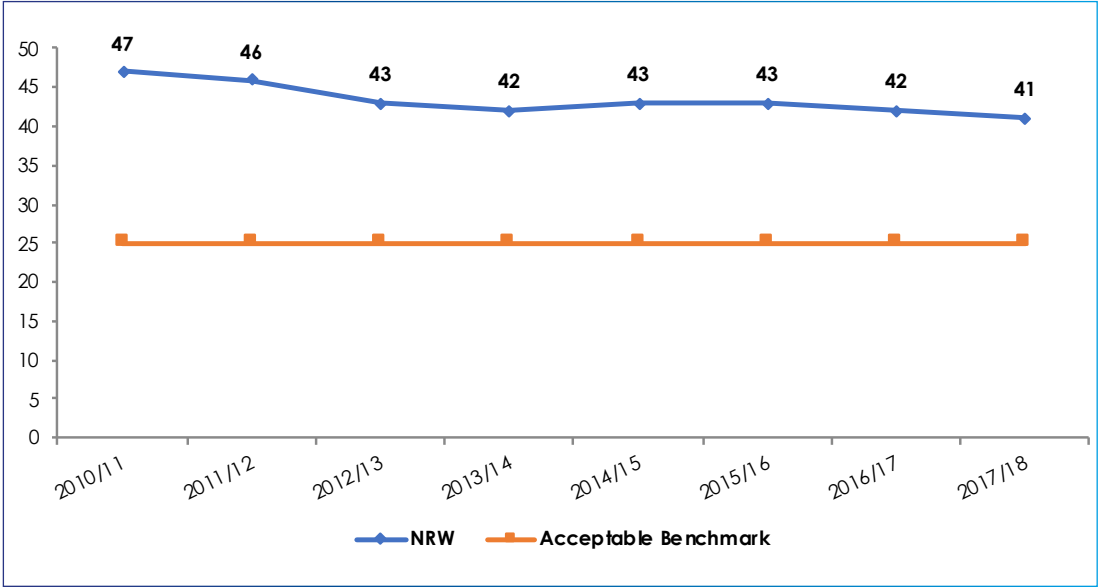
Despite efforts by utilities to contain losses, levels of Non-Revenue Water (NRW) have remained relatively stagnant between 41% and 47% for the last 10 years (Fig 2.2). In his latest report for the financial year 2016-2017, the Auditor General warns that high levels of NRW pose a big





threat to the financial sustainability of the sector. Such losses are also a significant risk to the nation's water security. Given current levels of NRW, the sector would need to increase water production to two and a half times the current level to meet existing demand. To invest in water production and the creation of new assets without solving the issues at the heart of NRW could jeopardize water access for future generations.

**Figure 2.2: NRW Trend**



Reducing NRW to 25%, in line with Wasreb's recommendation, can help close the supply and demand gap without the need to build costly infrastructure or exploit new water sources (which are dwindling). Additionally, reducing water losses increases revenue for utilities while also reducing operating costs linked to producing and pumping water, thus unlocking savings that can be used to expand access and improve service delivery.

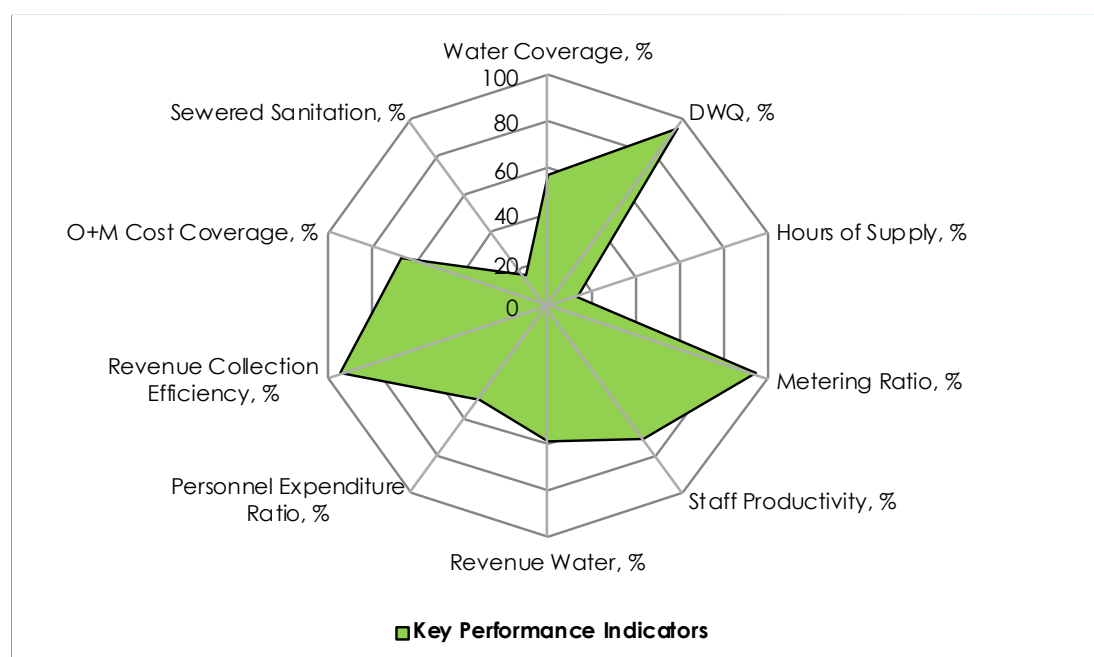
## 2.4 Performance Assessment and Ranking of Utilities

### 2.4.1 Overall Performance

Assessing the performance of utilities is key in ensuring that water services are provided in an efficient and sustainable manner. Utilities continue to be assessed and ranked on the basis of nine Key Performance Indicators (KPIs). These are, Water Coverage, Drinking Water Quality, Hours of Supply, Non-Revenue Water reduction, and Metering Ratio. The others are Staff Productivity, Revenue Collection Efficiency, O+M Cost Coverage and Personnel Expenditure as a % of O+M costs.

The current status of the nine KPIs is illustrated below:

**Figure 2.3: Performance of Urban Water Services**



**Table 2.2: Performance Trend**

Key Performance Indicators	2016/17	2017/18	Trend
Water Coverage, %	55	57	↑
Drinking Water Quality, %	94	95	↑
Hours of Supply, hrs/day	14	13	↓
Non- Revenue Water, %	42	41	↑
Metering Ratio, %	93	95	↑
Staff Productivity, Staff per 1000 Connections	7	7	→
Personnel expenditure as % of O+M Costs, %	46	50	↓
Revenue Collection Efficiency, %	100	94	↓
O+M Cost Coverage, %	102	99	↓
Sewered Sanitation Coverage, %	16	16	→
Sanitation Coverage, %	-	80	N/A
<b>Sector Benchmarks:</b> ■ good ■ acceptable ■ not acceptable ■ benchmark varies			

## 2.4.2 Utility Ranking

Based on the performance assessment outlined, Nyeri and Ruiru-Juja tied in the first position (Table 2.3) while the lowest ranked utility was Samburu. Compared to the last reporting period, the highest score dropped by 20 points from 183 (2016/17) to 163 (2017/18). The fact that only 24% of utilities attained a score of 50% should be a major concern to the sector considering that the law requires that all utilities holding a licence should be commercially viable.

**Table 2.3 Top and Bottom Ten**

TOP TEN UTILITIES 2017/18			BOTTOM TEN UTILITIES 2017/18		
Rank	Utility	Score (Max 200)	Rank	Utility	Score (Max 200)
1	Nyeri	163	77	Sibo	29
1	Ruiru-Juja	163	78	Mombasa	28
3	Murang'a	154	79	Eldama Ravine	24
4	Rukanga	145	80	Mbooni	18
5	Nanyuki	127	81	Nol Turesh Loitokitok	17
5	Embu	127	82	Garissa	16
5	Nakuru	127	82	Kwale	16
8	Ngandori Nginda	119	84	Homabay	15
9	Nyahururu	118	85	Kapenguria	12
9	Kakamega	118	86	Samburu	5

The Regulator recognizes that utilities operate under different conditions, a situation that has an effect on certain aspects of their performance. Consequently, despite some utilities putting in commendable effort, this may still not propel them to top position.

Similarly, some utilities enjoy relatively better operating conditions yet they fail to exploit this. A comparison of utility position at present against itself in the immediate past is therefore used to gauge improvement. To be considered as having improved, a utility must have attained a score of at least 50% over the two-year period.

An efficient utility is a key driver to the progressive realization of the right to water. The Regulator appreciates that sustained performance improvement is crucial for building consumer confidence in service provision. The licences issued to the WSPs have been tailored to drive this goal.

**Table 2.4: Improvers and Losers**

TOP IMPROVERS				BOTTOM LOSERS			
WSP	Score 2016/17	Score 2017/18	Variance	WSP	Score 2016/17	Score 2017/18	Variance
Murang'a	89	154	65	Thika	137	114	-23
Rukanga	102	145	43	Othaya Mukurweni	105	82	-24
Nyahururu	81	118	38	Meru	137	112	-26
Kisumu	88	116	29	Tetu Aberdare	91	65	-26
Tachasis	95	114	20	Kilifi Mariakani	60	33	-27
Kiambere Mwingi	66	85	19	Busia	75	45	-30
Isiolo	92	109	17	Nol Turesh Loitokitok	49	17	-31
Kibwezi Makindu	58	74	16	Malindi	118	79	-39
Naivasha	70	83	13	Kiambu	100	59	-41
Murugi Mugumango	87	99	11	Samburu	46	5	-41

## 2.5 Regional Benchmarking

Benchmarking is a key regulatory tool for assessing and improving the performance of utilities. However, this is made difficult in countries where there is only one utility or where there is a dominant utility that may not have a peer, thus making reasonable comparison of performance difficult.

In recognition of these challenges, the Eastern and Southern African Water and Sanitation (ESAWAS) Regulators Association developed a regional benchmarking framework to avail a platform by which large utilities can be compared to similar sized utilities within the region.

Utilities considered for this purpose are: Nairobi City Water and Sewerage Company (NCWSC) of Kenya; Dar es Salaam Water and Sewerage Corporation (DAWASCO) of Tanzania; Lusaka Water and Sewerage Company (LWSC) of Zambia; Águas da Região de Maputo (AdeM) of Mozambique; Water and Sanitation Corporation Ltd (WASAC) of Rwanda; Water and Sewerage Company (WASCO) of Lesotho, National Water and Sewerage Corporation (NWSC) of Uganda and Zanzibar Water Authority (ZAWA) of Zanzibar. The utilities are assessed and benchmarked on an annual basis.

**Table 2.5: Summary of Utility Performance by ESAWAS**

Indicator	Water coverage, %	Sewerage coverage, %	Water Quality, %	Hours of Supply, Hours/day	O+M Cost coverage, %	Collection Efficiency, %	Staff Cost vs O+M Costs, %	Staff/1,000 W&S Connections, %	NRW, %	Metering Ratio, %
Utility										
NCWSC	80	50	93	6	97	96	61	5.81	38	100
LWSC	85	13	98	18	134	91	65	6.86	46	64
DAWASCO	68	3	75	19	103	69	25	3.77	46	94
AdeM	60	N/A	100	10	107	93	30	3.16	42	81
WASCO	59	5	95	18	90	114	45	5.85	40	100
WASAC	85	N/A	99	22	136	102	29	3.08	43	100
REGIDESO	83	N/A	40	12	N/A	60	N/A	6.48	49	100
ZAWA	90	10	69	10	80	40	41	6.08	51	11
NWSC	78	6	99	18	138	93	39	5.74	34	100
<b>KPIs and Performance boundaries</b>										
Good	>90	>70	>95	>20	>150	>95	<30	<5.0	< 30	>95
Acceptable	90-75	70-40	95-90	20-16	150 – 100	95 – 85	30-35	5.0 – 8.0	30 – 35	95 – 85
Poor	< 75	< 40	< 90	< 16	< 100	< 85	>35	>8.0	>35	< 85



## CHAPTER 3

### DETAILED PERFORMANCE REVIEW



# Desired: More Connections to Meet MDG Targets

## 3.1 Introduction

Consumer protection is at the center of the Regulator's mandate and utilities have to be continuously nurtured to improve efficiency. Considering that water service provision is a monopoly, regulators use comparative performance assessment and ranking to spur competition between utilities. **Impact** uses the approach of scoring, ranking and reporting on utility performance over a given period.

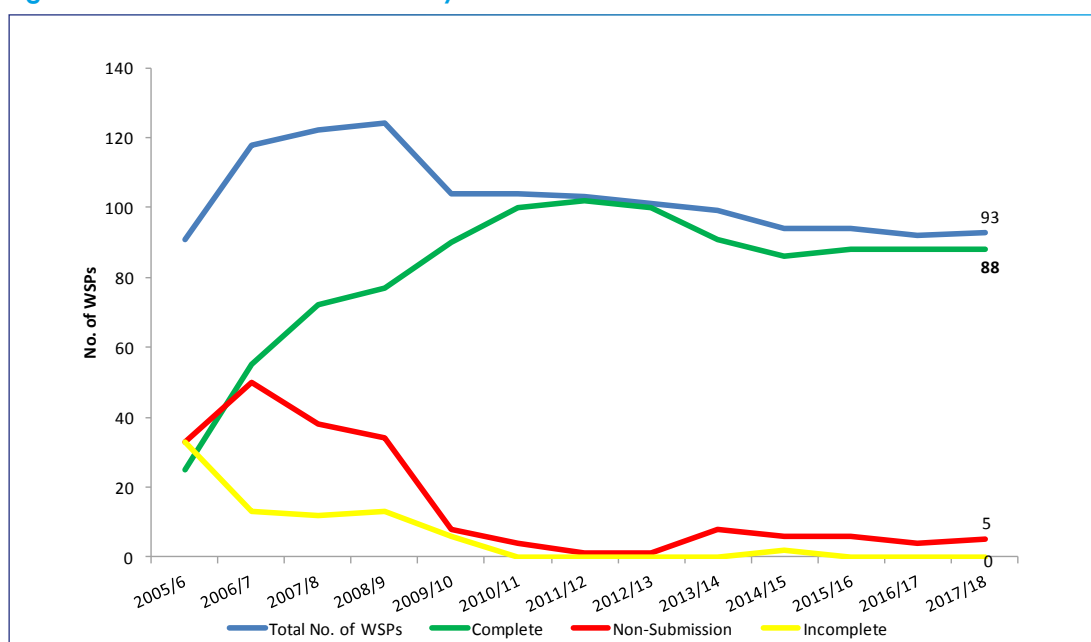
The performance of the utilities is analyzed using a number of indicators. However for the purpose of ranking, nine Key Performance Indicators (KPIs) have been selected based on sector goals as outlined in the NWSS. These indicators are Water Coverage, Drinking Water Quality, Hours of Supply, O+M Cost Coverage, Personnel Expenditure as a % of O+M Costs, Revenue Collection Efficiency, Non-Revenue Water, Staff Productivity and Metering Ratio.

## 3.2 Data Collection

Data reported in **Impact** is collected through the Water Regulation Information System (WARIS). This is further corroborated with data from other sources that include inspections, tariff applications and quarterly monitoring and evaluation reports from the utilities.

For the periods under review, 86 public and two private utilities submitted data for analysis. Compliance with data submission was at 95%. Despite reporting previously, Olkalou, Wajir, Kikanamku, Engineer and Marsabit WSPs did not submit data in the current period. The case of Olkalou and Wajir is particularly worrying considering that Olkalou recently received funding from the African Development Bank while Wajir is earmarked for support from the World Bank funded Water Sector Development Project (WSDP).

Figure 3.1: Trend in Data Submission by Utilities



The representation of data from the various utilities assessed is presented in the table below:

**Table 3.1: General Data on Utilities 2017/18**

INDICATORS	Total Population in Service Area	Total Population Served	Total no. of connections (active+inactive)	Total No. Active Connections	No. of towns served	Turnover (KSh million)	Total Water Produced in m <sup>3</sup> (000)	Domestic + Kiosk billed volume in m <sup>3</sup> (000)	Total billed volume in m <sup>3</sup> (000)	Non-Revenue Water (%)	Production per capita (l/c/d)	Consumption per capita (l/c/d)	No. of Total Staff	Validity of Tariff as at June 2018
<b>Very Large (≥35,000 conns.)</b>														
Nairobi	4,332,858	3,454,001	584,996	552,707	1	8,478	172,881	56,147	106,858	38	137	45	3,554	Valid
Eldoret	450,597	335,586	116,666	87,701	1	700	13,529	6,678	7,872	42	110	55	327	Valid
Mombasa	1,159,805	544,797	85,101	45,122	1	674	11,206	4,183	5,822	48	56	21	382	Valid
Kisumu	449,012	342,203	74,972	54,989	1	706	9,475	3,183	6,007	37	76	25	331	Valid
Nakuru	510,791	458,965	57,694	51,396	1	872	12,655	5,581	8,089	36	76	33	219	Valid
Thika	231,437	223,950	51,588	45,803	1	703	13,623	5,569	10,478	23	167	68	259	Valid
Nzoia	479,090	401,606	48,838	44,516	6	370	7,066	1,976	4,191	41	48	13	254	Valid
Nyeri	160,561	148,126	45,997	38,648	1	470	6,532	3,952	5,609	14	121	73	231	Expired RTA
Murang'a South	530,808	226,267	40,975	32,358	1	138	5,774	2,129	12,401	58	70	26	131	Expired RTA
Kakamega	397,785	346,078	38,424	31,518	1	215	5,573	2,703	3,239	42	44	21	185	Expired RTA
Gatundu	280,234	174,739	36,064		1	132	7,731	4,666	4,908	37	121	73	160	Expired RTA
<b>Large 10,000-34,999 conns.)</b>														
Embu	191,388	173,176	31,786	31,786	1	350	6,615	3,308	4,233	36	105	52	125	Expired RTA
Kirinyaga	464,709	161,204	31,599	20,563	1	153	5,940	2,049	2,399	60	101	35	174	Valid
Othaya Mukurweni	182,576	140,679	29,858	18,408	1	127	6,261	1,992	2,547	59	122	39	109	Expired RTA
Kilifi Mariakani	901,914	408,622	29,677	20,298	3	479	8,907	3,361	4,580	49	60	23	209	Valid
Malindi	378,348	261,114	29,071	21,197	1	418	6,761	3,550	4,584	32	71	37	200	Valid
Ruiru-Juja	203,819	197,704	26,428	26,220	2	367	6,704	4,266	4,434	34	93	59	109	Valid
Mathira	146,056	56,421	25,532	13,362	1	106	3,246	1,593	2,293	29	158	77	59	Expired RTA
Kericho	188,577	100,956	24,923	18,496	1	182	3,659	1,402	1,779	51	99	38	133	Valid
Nakuru Rural	510,771	298,913	23,457	13,212	3	237	7,919	1,609	3,355	58	73	15	148	Valid
Gusii	782,567	305,919	21,658	16,392	7	96	2,460	858	1,061	57	22	8	115	Valid
Tavevo	368,299	66,230	20,809	13,170	3	237	5,633	1,933	2,392	58	233	80	138	Valid
Kahuli	173,373	83,046	20,489	10,545	1	64	3,254	773	1,104	66	107	26	72	Valid
Nanyuki	98,328	92,880	19,716	18,090	1	267	4,016	1,428	2,611	35	118	42	129	Expired RTA
Nyahururu	106,597	80,702	19,604	18,787	2	216	3,015	700	1,892	37	102	24	103	Expired RTA
Murang'a	87,023	78,365	19,476	17,220	1	193	2,420	1,074	1,798	26	85	38	94	Valid
Kwale	327,215	164,466	17,721	12,227	1	119	4,439	1,399	1,485	66	72	23	131	Valid
Imetha	159,548	112,873	16,417	6,405	1	45	1,564	632	790	49	38	15	107	Expired ETA
Garissa	170,504	117,300	16,354	11,797	1	207	6,696	3,045	3,683	45	156	71	140	Expired RTA
Bomet	126,735	71,056	16,008	8,815	1	109	3,962	718	1,719	57	153	28	152	Valid
Tetu Aberdare	83,314	35,842	15,462	10,108	1	60	1,434	723	888	38	110	55	79	Expired RTA
Ngaratiri Nginda	101,161	83,242	15,133	12,109	1	52	3,650	2,013	2,924	n.c.d.	120	66	63	Expired ETA
Meru	148,292	96,070	14,935	13,500	1	191	2,768	2,341	2,341	15	79	67	90	Expired RTA
Sibo	454,206	198,807	14,083	8,653	5	51	3,325	758	993	70	46	10	77	Expired RTA
Mavoko	198,843	135,504	13,847	11,909	2	127	766	330	499	35	15	7	84	Expired RTA
Nitthi	87,200	67,699	13,847	10,554	1	62	1,599	729	911	43	50	23	53	Expired RTA
Kitui	786,914	243,943	13,116	6,121	1	88	2,723	678	968	64	31	8	103	Expired RTA
Homabay	192,107	60,368	12,747	9,491	1	55	1,501	421	501	67	68	19	96	Valid
Machakos	227,968	118,045	11,921	9,429	1	107	991	228	639	36	23	5	71	Expired RTA
Oloolaiser	341,602	182,872	11,495	7,889	3	135	2,168	1,480	1,519	30	32	22	120	Expired RTA
Gatamathi	144,367	57,203	11,366	7,783	1	51	2,840	697	961	66	136	33	58	Expired ETA
Kikuyu	318,557	202,582	11,277	6,654	1	98	1,658	435	1,011	39	22	6	64	Expired RTA
Ngagaka	77,027	74,440	11,122	7,443	1	33	1,379	511	622	55	51	19	33	Expired ETA
Isiolo	66,120	47,284	10,709	9,334	1	79	1,318	755	920	30	76	44	68	Expired RTA
Kiambu	109,377	38,575	10,433	8,299	1	123	2,366	1,090	1,613	32	168	77	64	Expired RTA
<b>Medium (5,000-9,999 conns.)</b>														
Limuru	260,276	138,914	9,908	9,612	1	92	1,446	882	1,082	25	29	17	59	Expired RTA
Busia	301,028	96,073	9,809	5,488	1	39	823	261	384	53	23	7	61	Expired RTA
Kyeni	85,928	28,395	9,617	5,684	1	21	1,040	429	494	53	100	41	32	Expired RTA
Tililbei	196,098	143,290	9,362	4,827	1	32	1,162	306	594	49	22	6	54	Expired ETA
Karuri	159,053	84,517	9,052	7,293	1	79	1,476	858	1,048	29	48	28	43	Expired RTA
Amatsi	257,924	40,284	8,998	4,710	2	33	1,767	623	1,124	36	120	42	57	Expired ETA
Gatanga	135,863	36,496	8,981	7,953	1	38	1,906	538	993	48	143	40	63	Expired ETA
Turu	339,381	92,325	8,473	2,971	1	18	1,717	307	373	78	51	9	59	Expired ETA
Lodwar	71,970	40,504	8,251	8,126	2	75	3,706	365	2,275	39	251	25	79	Expired RTA
Githunguri	213,401	21,733	7,827	3,883	1	45	1,142	348	487	57	144	44	37	Expired RTA
Kibwezi Makindu	310,190	99,392	7,446	5,083	1	49	1,140	621	809	29	31	17	44	Valid
Nol Turesh Laitokitok	244,036	42,316	7,176	3,724	1	88	4,563	1,138	1,198	74	295	74	82	Expired ETA
Migori	195,385	45,764	6,028	4,466	3	12	447	134	254	43	27	8	58	Expired ETA
Embe	49,755	30,047	6,027	3,189	1	30	965	383	489	49	88	35	20	Expired RTA
Naivasha	170,220	135,908	5,802	5,530	1	120	1,074	415	668	38	22	8	85	Valid
Norok	88,094	39,413	5,563	4,170	1	78	942	427	721	n.c.d.	65	30	66	Expired RTA
<b>Small (&lt;5,000 conns.)</b>														
Nyandarua	71,148	15,698	4,943	3,272	1	28	617	278	315	49	108	49	43	Expired RTA
Kiambere Mwingi	452,631	77,356	4,872	3,134	2	58	668	354	461	31	24	13	49	Expired RTA
Eldama Ravine	77,244	37,849	4,750	2,260	1	13	824	117	249	70	60	8	29	Expired RTA
Murugi Mugumango	35,959	22,017	4,566	4,456	1	14	2,455	1,244	1,771	28	305	155	27	Expired ETA
Kapsabet Nandi	67,301	47,276	4,475	4,003	1	39	1,081	334	573	47	63	19	36	Expired ETA
Lamu	27,000	22,950	4,422	2,739	1	43	633	393	393	38	76	47	36	Valid
Kirandich	n.d.	22,000	3,864	2,907	1	21	790	n.d.	389	51	98	n.d.	25	No RTA
Olkejuado	57,943	11,463	3,185	2,907	1	21	317	159	252	20	76	38	32	Expired ETA
Ifen Tambach	57,113	21,980	3,133	3,020	1	18	807	291	549	32	101	36	56	Expired RTA
Muthambi 4K	24,541	22,302	2,757	2,757	1	7	1,046	508	668	36	128	62	12	Expired ETA
Kapenguria	86,366	9,545	2,748	1,637	1	9	330	88	142	57	95	25	42	Expired RTA
Samburu	43,402	15,164	2,538	2,179	1	15	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	108	Expired ETA
Rukanga	7,996	7,090	1,990	1,637	1	8	172	114	132	23	66	44	15	Valid
Namanga	22,058	13,231	1,866	1,849	1	9	266	150	158	41	55	31	12	Expired ETA
Wote	77,987	19,572	1,826	1,676	1	26	264	97	196	n.c.d.	37	14	31	Expired ETA
Ndaragwa	16,219	12,887	1,691	925	1	3	71	65	70	n.c.d.	15	14	20	Expired ETA
Naromoru	6,958	6,471	1,625											

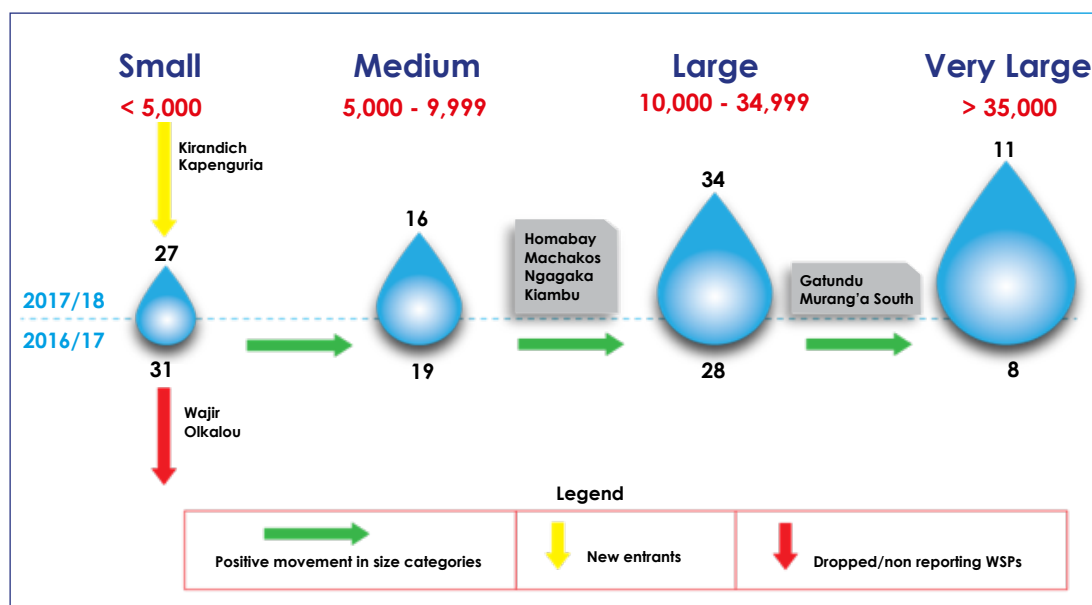
The 88 utilities covered by this report serve a population of 12.93 million people out of 22.85 million within the licensed service area. At an average household size of four, this translates to 3.2 million households served with water. The 88 utilities employ 11,278 staff and have a turnover of more than Kshs 19.695 billion, down from 20.576 billion in 2016/17. The total annual water production decreased from 435 to 428 million cubic meters. NRW slightly improved from 42% to 41% while per capita consumption declined from 37 to 34 litres per person per day.

### 3.3 Categorisation of Utilities

Utilities are categorised based on two aspects namely size and ownership structure. Size is determined by the total number of connections for both water and sewer while ownership is given by the owner of the asset in this case either public or private. This categorization seeks to ensure fair comparison in performance.

The number of connections is significant as it dictates the potential business size of the company. However, this potentiality in certain instances is negated by the unacceptably high levels of dormant connections. Some of the utilities where more than half of the connections are dormant include Mombasa (56%); Mathira (53%), Imetha (61%); Kitui (53%), Tuuru (65%), Githunguri (50%), and Eldama Ravine (52%). Considering that business size has a direct correlation to commercial viability, the above utilities are not fully exploiting their operating conditions to ensure viability. Using the total number of registered connections for both water and sewer, utilities have been categorised as Very Large, Large, Medium and Small as per the thresholds indicated.

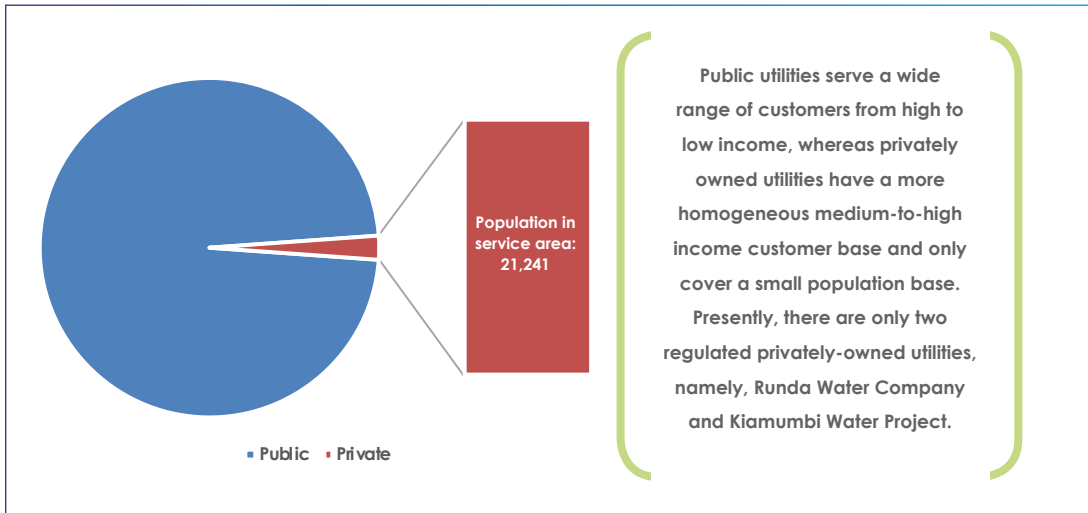
Figure 3.2: Movement in Size Category



The second categorization is by the operating environment and appreciates that public and privately-owned utilities face different constraints and require different incentives with respect to regulation. Public utilities serve a wide range of customers from high to low-income, whereas privately owned utilities have a more homogeneous medium- to high-income customer base and only cover a small population base. Presently, there are only two privately-owned utilities that are regulated. These are Runda Water Company and Kiamumbi Water Project.



Figure 3.3: Categorization by Ownership



### 3.4 Market Share and Movement in Utility Category

Compared to the previous year, the percentage of utilities in the Very Large and Large categories increased from 9% to 10% and from 31% to 36% respectively. However, for the Medium category the proportion remained unchanged at 23% while there was a decline from 36% to 31% in the small category. This is a positive development in that WSPs are growing to eventually take advantage of the economies of scale.

Figure 3.4: Market share by Utility Size

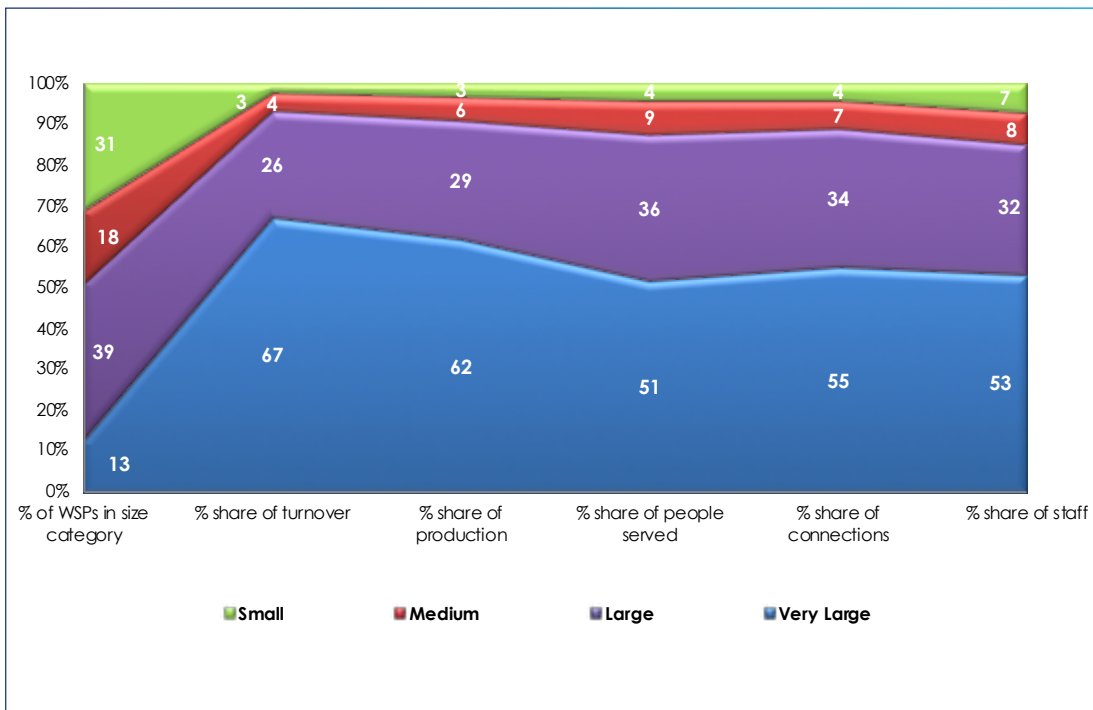
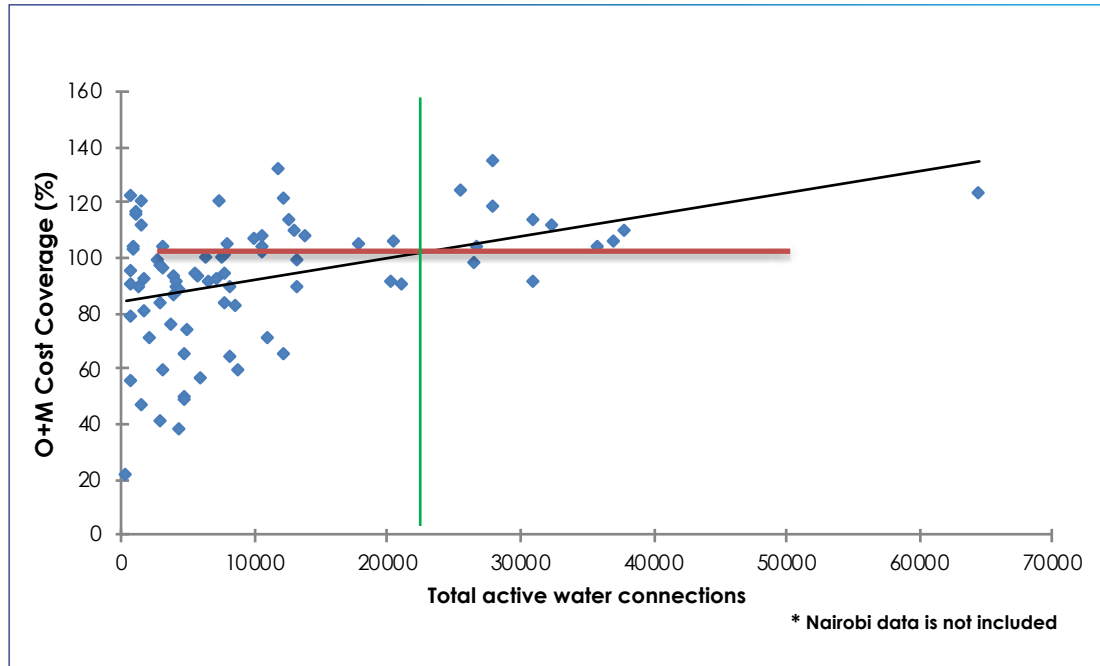


Figure 3.4 indicates that the number of utilities in the category of Very Large and Large represent 52% of all regulated utilities in the sector. This is an increase of six percentage points when compared to the previous year. They account for the largest share of business (93% of the total turnover, 91% of the total water produced and 87% of the people served). The Very Large and Large category of utilities exhibit a higher proportion in terms of O+ M cost coverage (Figure 3.5).

**Figure 3.5: Relation of Active Connections to O+M Cost Coverage**



The licence issued by Wasreb under the Water Act 2016 requires that utilities are licensed on the basis of commercial viability. Large utilities perform better on the overall and are likely to require fewer subsidies to meet their operational costs. In turn, they are likely to put less pressure for support from County governments, who own them. From Figure 3.4, the breakeven point using 100% cost coverage corresponds to about 22,000 connections. Considering the sector average of 25% for dormant connections, a utility would require at least 20,000 registered connections to be considered commercially viable. Counties are encouraged to closely monitor their agents to ensure that they comply with the agreed roadmap in the licence. Where Counties consider clustering of WSPs as being necessary for commercial viability, Wasreb has developed the clustering guidelines to steer the process.

### 3.5 Performance Analysis and Ranking

The ranking of utilities is based on what a utility scores based on the analysis of the nine KPIs. The scoring limits and the benchmarks of the KPIs are presented in Table 3.2.

**Table 3.2: Performance Indicators, Sector Benchmarks and Scoring Regime**

KPI CLUSTER	Indicators		Sector Benchmarks			Scoring Regime		
			Good	Acceptable	Not Acceptable	Performance	Score	
Quality of Service	1	Water Coverage, %	>90%	80-90%	<80%	≥90%	30	
						≤50%	0	
	2	Drinking Water Quality, %	>95%	90-95%	<90%	≥95%	30	
Quality of Service	3	Hours of Supply, No.	Population >100,000	21-24	16-20	<16	≥20	20
							≤10	0
		Population <100,000	17-24	12-16	<12	≥16	20	
						≤6	0	
Economic Efficiency	4	Personnel Expenditure as Percentage of O+M Costs, %	Large and Very Large Companies	<20%	20-30%	>30%	≤25	15
							≥35	0
			Medium Companies	<30%	30-40%	>40%	≤30	15
						≥40	0	
		Small Companies	<40%	40-45%	>45%	≤40	15	
						≥45	0	
Economic Efficiency	5	O+M Cost Coverage, %	≥150%	100-149%	≤99%	≥150%	25	
						≤90%	0	
Economic Efficiency	6	Revenue Collection Efficiency, %	>95%	95-85%	<85%	≥95	20	
						≤85	0	
Operational Sustainability	7	Non-Revenue Water, %		<20%	20-25%	>25%	≤20%	25
							≥40%	0
	8	Staff Productivity (Staff per 1000 Connections), No.	Large & Very Large Companies	<5	5-8	>8	≤5	20
							≥8	0
			Medium & Small (less than 3 towns)	<7	7-11	>11	≤7	20
						≥11	0	
	Medium & Small (3 or more towns)	<9	9-14	>14	≤9	20		
					≥14	0		
Operational Sustainability	9	Metering Ratio, %		100%	95-99%	<95%	100%	15
							≤80%	0
<b>Total Maximum Score</b>							<b>200</b>	

### 3.5.1 Overall Ranking

The national aggregated performance as per the cluster of indicators above in decreasing order is shown in Figure 3.6.

Figure 3.6: KPI Performance by Cluster

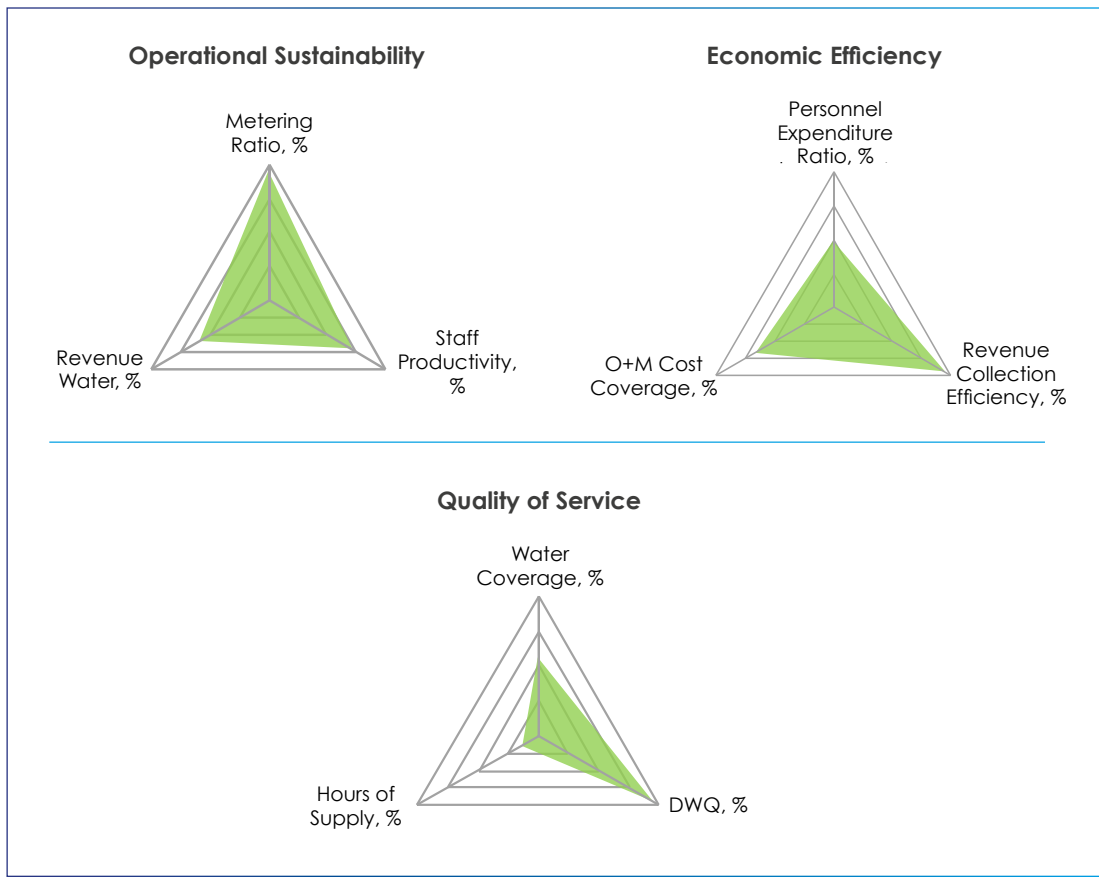


Table 3.3 presents the individual ranking of the 86 publicly-owned utilities based on the scoring regime outlined earlier. The ranking of the two privately-owned utilities is presented in Table 3.4.



**Table 3.3: Overall Ranking and Ranking by Category for Publicly-Owned Utilities**

Indicator	DWQ (%)	Non-Revenue Water (%)	Water Coverage (%)	Hours of Supply (hrs./d)	Staff Productivity (no. staff/k cont.)	Personnel expenditures as % of total O+M costs	Revenue Collection Efficiency (%)	O+M Cost Coverage (%)	Metering Rate (%)	Total score	Ranking by category	Overall Ranking
<b>Very Large Utilities</b>												
Nyeri	93	14	92	24	6	42	99	135	100	163	1	1
Nakuru	93	36	90	17	4	36	94	104	99	127	2	7
Kakamega	93	42	87	21	6	54	115	98	96	118	3	10
Kisumu	93	37	76	24	6	36	93	106	100	116	4	11
Thika	90	23	97	21	6	40	89	113	91	114	5	13
Eldoret	92	42	74	15	4	43	107	124	100	108	6	18
Nairobi	93	38	80	6	6	61	96	97	100	94	7	24
Murang'a South	93	58	43	20	4	51	90	111	96	91	8	27
Gatundu	59	37	62	21	6	58	88	104	96	72	9	39
Nzoia	81	41	84	n.c.d.	6	37	85	109	99	63	10	43
Mombasa	70	48	47	5	8	41	92	91	99	28	11	78
<b>Large Utilities</b>												
Ruiru-Juja	93	34	97	22	4	20	97	124	100	163	1	1
Murang'a	93	26	90	24	5	56	100	121	100	154	2	3
Nanyuki	93	35	94	23	7	58	106	114	100	127	3	5
Embu	93	36	90	24	4	40	87	119	100	127	4	6
Ngandari Nginda	93	n.c.d.	82	24	5	54	102	n.c.d.	100	119	5	8
Nyahururu	93	37	76	22	5	45	100	108	94	118	6	9
Ngogaka	79	55	97	22	4	54	102	120	97	116	7	12
Meru	92	15	65	21	7	51	83	132	100	112	8	15
Niithi	93	43	98	24	5	43	70	104	97	110	9	16
Isiolo	93	30	72	15	7	54	94	100	100	109	10	17
Kericho	93	51	54	23	7	66	100	110	100	92	11	25
Othaya Mukurweni	82	59	77	23	6	51	92	105	89	82	12	33
Mathira	72	29	39	20	4	44	95	102	83	81	13	34
Malindi	81	32	69	22	9	38	100	91	100	79	14	35
Kitui	93	64	31	12	17	23	103	56	100	75	15	36
Mavoko	62	35	68	4	7	55	103	101	100	66	16	41
Tetu Aberdare	80	38	43	22	8	57	97	106	100	65	17	42
Gusii	93	57	39	n.c.d.	7	58	94	71	99	60	18	45
Kikuyu	70	39	64	10	10	27	98	91	100	59	19	46
Kiambu	78	32	35	16	8	39	90	93	100	59	20	47
Imetha	93	49	71	18	17	57	86	100	80	58	21	49
Kirinyaga	93	60	35	16	8	55	87	106	99	57	22	50
Oloolaiser	77	30	54	13	15	41	96	83	100	57	23	51
Machakos	93	36	52	12	8	40	85	89	100	50	24	55
Kahuti	73	66	48	21	7	47	88	108	91	49	25	57
Bomet	93	57	56	12	17	32	73	59	87	48	26	59
Tavevo	90	58	18	14	10	27	82	90	99	46	27	63
Gatamathi	83	66	40	23	7	57	94	94	57	43	28	66
Nakuru Rural	93	58	59	12	11	40	89	99	33	42	29	67
Kilifi Mariakani	84	49	45	9	10	31	91	91	100	33	30	75
Sibo	93	70	44	n.c.d.	9	29	74	82	69	29	31	77
Garissa	38	45	69	n.c.d.	12	34	57	n.c.d.	64	16	32	82
Kwale	60	66	50	9	11	43	93	65	76	16	33	83
Homabay	69	67	31	12	10	32	50	64	58	15	34	84
<b>Medium Utilities</b>												
Karuri	91	29	53	12	6	28	101	92	100	106	1	19
Embe	93	49	60	17	6	53	91	104	100	102	2	21
Limuru	93	25	53	n.c.d.	6	40	102	89	81	83	3	31
Naivasha	93	38	80	n.c.d.	15	45	97	94	100	83	4	32
Kibwezi Makindu	82	29	32	14	9	44	98	74	96	74	5	38
Githunguri	89	57	10	14	10	32	89	76	100	58	6	48
Tillibe	63	49	73	19	11	36	90	50	81	53	7	54
Migori	36	43	23	9	13	29	95	38	86	49	8	58
Kyeni	n.d.	53	33	18	6	43	59	94	86	46	9	61
Lodwar	54	39	56	19	10	56	82	n.c.d.	98	46	10	62
Busia	93	53	32	12	11	44	86	65	92	45	11	64
Narok	65	n.c.d.	45	16	16	42	93	91	88	43	12	65
Gatanga	n.d.	48	27	16	8	55	85	104	61	41	13	68
Tuuru	46	78	27	n.c.d.	20	59	111	84	99	34	14	72
Amatsi	60	36	16	13	12	25	72	48	69	33	15	74
Nal Turesh Loitokitok	39	74	17	n.c.d.	22	75	90	n.c.d.	89	17	16	81
<b>Small Utilities</b>												
Rukanga	93	23	89	23	6	64	99	121	100	145	1	4
Tachasis	93	29	66	24	8	41	87	103	98	114	2	14
Muthambi 4K	n.d.	36	91	23	4	34	54	n.c.d.	100	105	3	20
Murugi Mugumango	23	28	61	24	6	64	100	89	100	99	4	22
Naromoru	n.d.	29	93	22	13	49	90	112	100	98	5	23
Lamu	93	38	85	10	13	34	0	99	100	92	6	26
Nyasare	93	43	26	18	14	37	87	122	99	88	7	28
Kiambere Mwingi	93	31	17	14	16	32	111	60	83	85	8	29
Namanga	38	41	60	16	6	33	118	92	51	83	9	30
Kathita Kiirua	38	32	82	24	26	48	100	n.c.d.	77	74	10	37
Kathiani	72	31	42	10	33	24	111	55	100	69	11	40
Ndaragwa	57	n.c.d.	79	n.c.d.	22	27	94	104	0	62	12	44
Matungulu Kangundo	27	38	3	17	15	39	70	95	100	55	13	52
Kapsabet Nandi	29	47	70	n.c.d.	9	29	87	86	93	54	14	53
Nyandarua	32	49	22	17	13	35	58	96	96	50	15	56
Kirandich	n.d.	51	n.d.	n.d.	9	25	96	41	67	47	16	60
Wote	89	n.c.d.	25	8	18	49	111	81	100	39	17	69
Yatta	57	34	11	6	25	39	n.c.d.	90	100	38	18	70
Olkejuado	n.d.	20	20	12	42	47	78	79	76	37	19	71
Mwala	93	n.c.d.	8	12	40	47	67	91	68	33	20	73
Iten Tambach	74	32	38	16	19	54	74	97	78	33	21	76
Eldama Ravine	65	70	49	8	13	64	99	71	30	24	22	79
Mbooni	46	n.c.d.	n.c.d.	5	n.c.d.	16	30	22	83	18	23	80
Kapenguria	92	57	11	n.c.d.	26	46	54	47	48	12	24	85
Samburu	n.d.	n.d.	35	8	50	n.d.	65	n.d.	n.d.	5	25	86

n.d. = no data; green marking = top 10 performer; red marking = bottom 10 performer

## Top and Worst Performers

Nyeri tied with Ruiru-Juja in the top position with 163 points. This was a decline of 20 points for Nyeri WSP when compared to the previous period.

The worst performers in the bottom three positions for the current period are Samburu, Kapenguria, and Homabay with scores of five (5), 12 and 15 respectively out of a possible score of 200 points. The worst performers in the Very Large, Large, and Medium categories are Mombasa (eighth year in a row), Homabay, and Nol-Turesh Loitokitok respectively. Considering the size of the WSPs and population covered, the performance of the WSPs is unacceptable. Immediate restructuring of the WSPs is recommended since their contribution to the realisation of the right to water as County agents is negative.

The Regulator will consistently enforce the requirements of commercial viability to ensure that efficiency is entrenched in utility operations and customers are able to reap the benefits accruing from this.

## Privately Owned

In the privately-owned category, Kiamumbi despite losing 4 percentage points dethroned Runda from the top position after the latter lost 30 points.

**Table 3.4: Overall Ranking for Privately Owned Utilities**

Indicator \ Utilities	DWQ (%)	Non-Revenue Water (%)	Water Coverage (%)	Hrs. of Supply (hrs./d)	Staff Productivity (no. staff/K conns.	Personnel expenditures as % of total O+M costs	Revenue Collection Efficiency (%)	O+M Cost Coverage (%)	Metering Ratio (%)	Total score	Ranking by category	Overall Ranking
Kiamumbi	77	22	100	24	9	n/a	106	117	100	128	1	1
Runda	93	36	85	16	19	42	88	115	100	111	2	2

## 3.5.2 Performance against Sector Benchmarks

Wasreb uses sector benchmarks classified as 'good', 'acceptable' and 'not acceptable'. Utility performance can also be classified on the basis of a cluster of indicators namely; quality of service, economic efficiency and operational sustainability to define performance in relation to the KPIs. Table 3.5 provides the performance of utilities in relation to sector benchmarks and the number of utilities within each performance range.

**Table 3.5: Assessment of KPIs against Sector Benchmarks**

Sector Benchmark									
	Quality of Service			Economic Efficiency			Operational Sustainability		
	Water Coverage	Drinking Water Quality	Hrs. of Supply	O+M Cost Coverage	Collection Efficiency	Personnel Expenditures	Staff Productivity	Non Revenue Water	Metering Ratio
Good	9	4	34	1	47	19	18	1	42
Acceptable	10	33	16	33	22	17	32	1	8
Not Acceptable	68	46	16	48	13	47	38	71	37
n.d.	0	4	3	2	4	3	0	0	0
n.c.d.	1	1	19	4	2	2	0	15	1
TOTAL	88	88	88	88	88	88	88	88	88
% of utilities within sector benchmark	22%	42%	57%	39%	78%	41%	57%	2%	57%

In terms of overall performance, Collection Efficiency is the KPI where most utilities (78%) are within the 'acceptable range' and 'good range' of sector performance while NRW, at a meagre 2%, is the least performed. Overall, four KPIs namely Service Hours, Collection Efficiency, Staff Productivity and Metering Ratio have at least 50% of the WSPs meeting the 'acceptable range' of sector performance. This performance supports one of the goals of the Regulator in the last strategic plan that sought to ensure 'at least 50% of the WSPs meet at least 50% of sector benchmarks by the year 2017'. On the basis of cluster of indicators, the highest performance is recorded in 'Economic Efficiency' at 53%, followed by 'Quality of Service' at 40% and 'Operational Sustainability' at 39%. The licence issued to WSPs clearly outlines the performance targets for these indicators for the period of the licence.

### 3.5.3 Performance Over Time

Utilities operate under different conditions with respect to infrastructure. This situation may in the short term impact on their performance. Being cognizant of these realities, the Regulator employs performance improvement over time to recognise utilities whose performance has improved despite not attaining the top positions in the short or medium term, due to factors beyond their control. Tables 3.6 and 3.7 show the performance over time of urban publicly and privately-owned utilities respectively.

**Table 3.6: Performance Over Time of Publicly-owned Utilities**

Rank	WSP	Score 2016/17	Score 2017/18	Rank	WSP	Score 2016/17	Score 2017/18
1	Nyeri	183	163	44	Ndaragwa	63	62
1	Ruiru-Juja	168	163	45	Gusii	56	60
3	Murang'a	89	154	46	Kikuyu	46	59
4	Rukanga	102	145	46	Kiambu	100	59
5	Nanyuki	129	127	48	Githunguri	68	58
5	Embu	118	127	48	Imetha	28	58
5	Nakuru	132	127	50	Kirinyaga	68	57
8	Ngandori Nginda	120	119	50	Oloolaiser	58	57
9	Nyahururu	81	118	52	Matungulu Kangundo	47	55
10	Kakamega	116	118	53	Kapsabet Nandi	55	54
11	Kisumu	88	116	54	Tililbei	20	53
11	Ngagaka	132	116	55	Machakos	27	50
13	Thika	137	114	55	Nyandarua	44	50
13	Tachasis	95	114	57	Kahuti	60	49
15	Meru	137	112	57	Migori	22	49
16	Nithi	109	110	59	Bomet	14	48
17	Isiolo	92	109	60	Kirandich	n/a	47
18	Eldoret	108	108	61	Kyeni	66	46
19	Karuri	114	106	61	Lodwar	25	46
20	Muthambi 4K	100	105	61	Tavevo	66	46
21	Embe	105	102	64	Busia	75	45
22	Murugi Mugumango	87	99	65	Narok	34	43
23	Naromoru	95	98	65	Gatamathi	41	43
24	Nairobi	101	94	67	Nakuru Rural	34	42
25	Kericho	45	92	68	Gatanga	42	41
25	Lamu	99	92	69	Wote	54	39
27	Murang'a South	92	91	70	Yatta	54	38
28	Nyasare	30	88	71	Olkejuado	0	37
29	Kiambere Mwingi	66	85	72	Tuuru	39	34
30	Namanga	82	83	73	Mwala	35	33
30	Limuru	75	83	73	Amatsi	43	33
30	Naivasha	70	83	73	Kilifi Mariakani	60	33
33	Othaya Mukurweni	105	82	73	Iten Tambach	43	33
34	Mathira	75	81	77	Sibo	30	29
35	Malindi	118	79	78	Mombasa	27	28
36	Kitui	15	75	79	Eldama Ravine	0	24
37	Kathita Kiirua	85	74	80	Mbooni	30	18
37	Kibwezi Makindu	58	74	81	Nol Turesh Loitokitok	49	17
39	Gatundu	86	72	82	Garissa	7	16
40	Kathiani	58	69	82	Kwale	18	16
41	Mavoko	73	66	84	Homabay	30	15
42	Tetu Aberdare	91	65	85	Kapenguria	n/a	12
43	Nzoia	80	63	86	Samburu	46	5



To be recognized as having improved, a utility must have shown growth over two reporting periods and the score must be at least 50 points. On this basis, Murang'a, Rukanga and Nyahururu are the top three improvers while Kiambu, Malindi and Nol-Turesh Loitokitok are the greatest losers. Compared to the previous period, the number of WSPs in the Large and Very Large categories remained unchanged at seven. This high proportion of Large and Very Large WSPs (7 out of 10) in the loser's category is of great concern since their decline impacts on services to a high number of consumers.

**Table 3.7: Performance Over Time of Privately-owned Utilities**

Rank	WSP	Score 2016/17	Score 2017/18
1	Kiamumbi	132	128
2	Runda	141	111

In the Private category, both Kiamumbi and Runda declined in performance.

Table 3.8 indicates that the overall performance for utilities in the current period when compared to the previous reporting period. Whereas in 2016/17, 33% of the utilities improved their performance, the improvers in the current period were 42%.

**Table 3.8: Number and Percentage of Utilities Recording Improvement**

Year	No. Utilities	No. of Improvers	% of improvers
2017/18	88	40	45
2016/17	88	33	38

### 3.5.4 Performance of Utilities by Indicators

#### a) Water Coverage

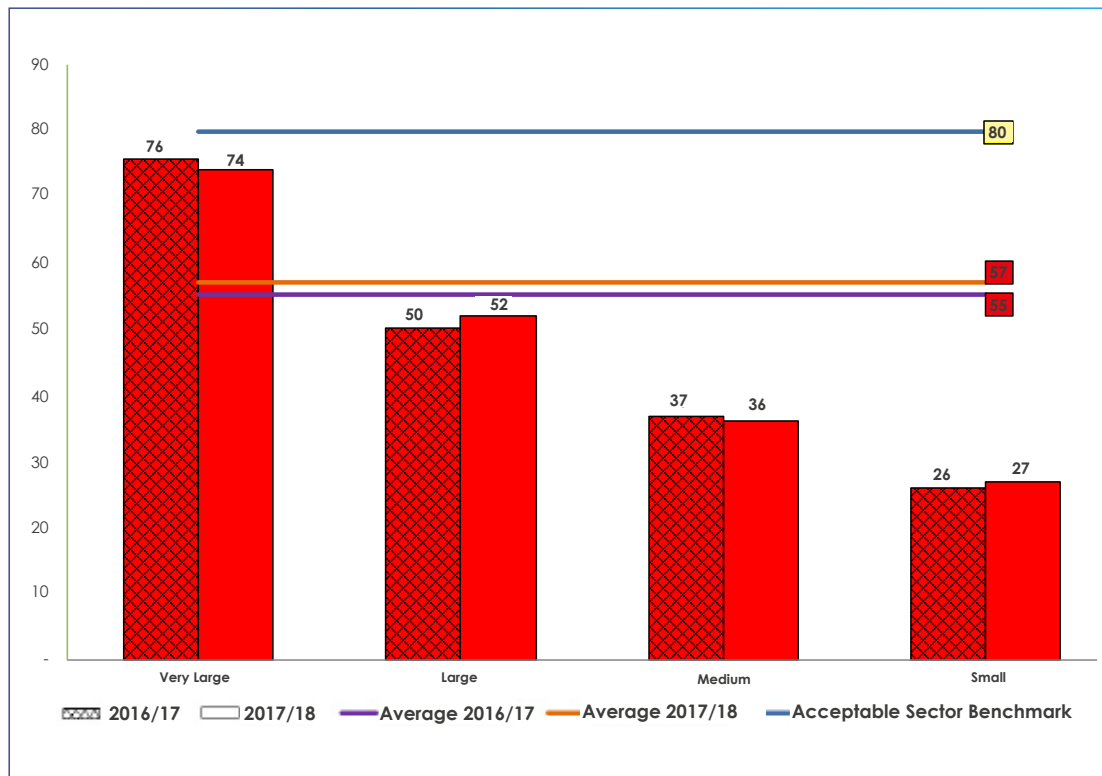
Water Coverage refers to the number of people served with drinking expressed as a percentage of the total population within the service area of a utility. It is critical in tracking the progressive realization of the right to water with regard to the accessibility component in the normative content of the right to water.

In the review period, the population in the service area of the 88 utilities was 22.85 million. At an average of four (4) members per household, this represents 5.71 million households. Out of these, the utilities were able to serve 12.93 million, representing 3.23 million households.

The average Water Coverage in the year under review was 57% as compared to 55% in the previous reporting period (Fig 3.7). This change translates to an additional 853,976 people, representing 213,494 households. The average for Very Large utilities was 76%, just four (4) percentage points short of the sector benchmark of 80%. The Small utilities trailed at an average of 26%.

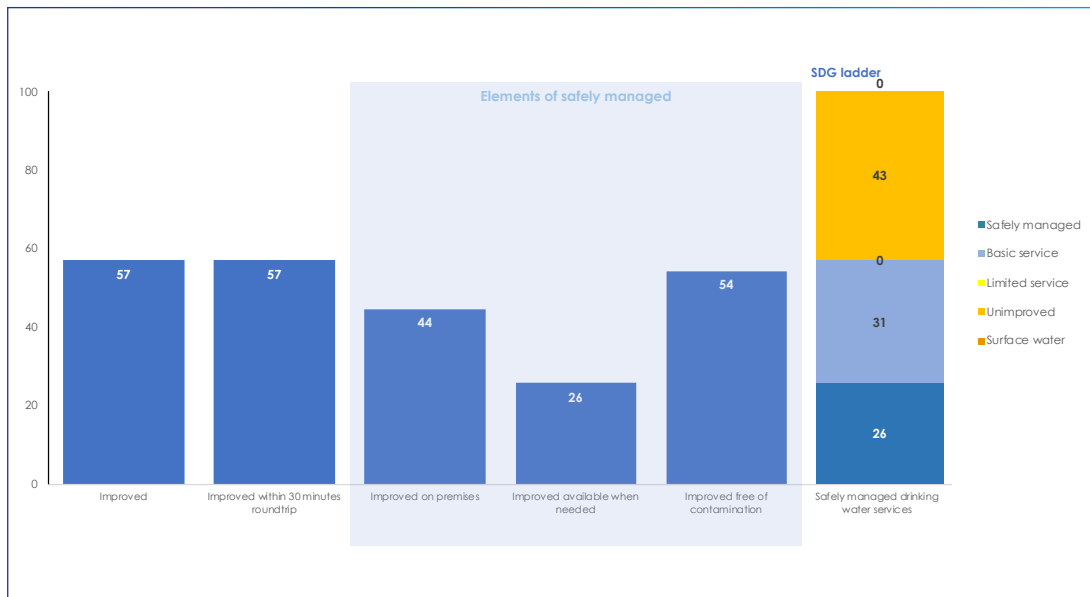
The number of new connections increased by only 91,594. To meet the target of universal access under the Vision 2030, an average growth rate of 200,000 connections is required. This growth in connections was however not matched by corresponding increase in consumption volumes implying a lower per capita consumption and hence a decline in quality of service. The National Water Master Plan 2030 places the cost of achieving universal access at about KShs.100 billion every year, yet only about KShs.40 billion is currently available. To close this financing gap, the strategic actions proposed are of increased budgetary allocations complimented with self-financing, access to blended financing and efficiency of the investments.

**Figure 3.7: Water Coverage by WSP Category in %**



SDG 6.1 defines different service levels to enable tracking of progress towards goal number six. Figure 3.8 presents the proportion of the total population that is within the five different service levels namely surface water, unimproved, limited, basic and safely managed.

**Figure 3.8: Proportion of Population Using Safely Managed Drinking Water Services**



The target under 6.1a is 'By 2030 achieve universal and equitable access to safe and affordable drinking water for all' with the indicator being the proportion of population using safely managed drinking water services. In the current period, 25.65% of the population in the service areas of the WSPs has access to safely managed services. This figure is three percentage points higher than the figure of 22.625% reported in 2016/17.

The improvement above is attributed to a slight increase in population using services located within premises from 74% (2016/17) to 78% (2017/18) and improvement in quality from 94% to 95%. Although this push to safely managed services is commendable, the rule in service provision follows the framework of 'access, comply and sustain.' Utilities should therefore balance between improving service quality and growing access.

## **b) Sewered Sanitation Coverage**

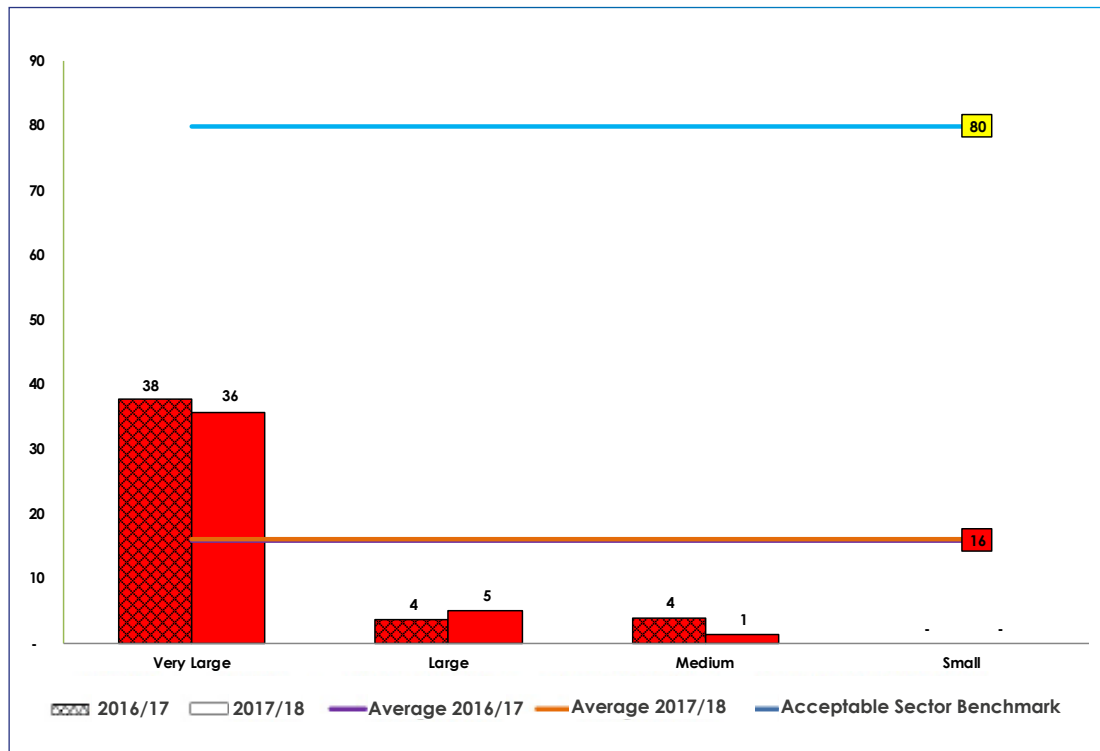
Sewered Sanitation Coverage refers to the number of people served with flush or pour-flush to piped sewer systems, as a percentage of the total population within the service area of the utility. It measures the performance of utilities with sewerage systems in delivering sanitation services to consumers.

Sewered Sanitation Coverage in the current period remained unchanged at 16% (Fig 3.9). The number of sewer connections increased by 5% which was equal to the increase in the population in the service area covered by the utilities. Sewer coverage for the Very Large category declined to 35% from 38% in the previous period implying a further shift from the 2030 MDG target of 80%. The number of sewer connections in absolute terms increased by 19,452 compared to 43,658 in the previous reporting period.

It will, however, be noted that sewerage services are only available in 32 urban centres spread across 26 Counties. This means that 21 Counties do have urban centres that solely rely on onsite solutions for the management of waste water.

Going forward, one of the strategic goals for this indicator is to combine the application of both seweraged and non seweraged solutions in urban areas with focus on faecal sludge management and full implementation of the sanitation value chain.

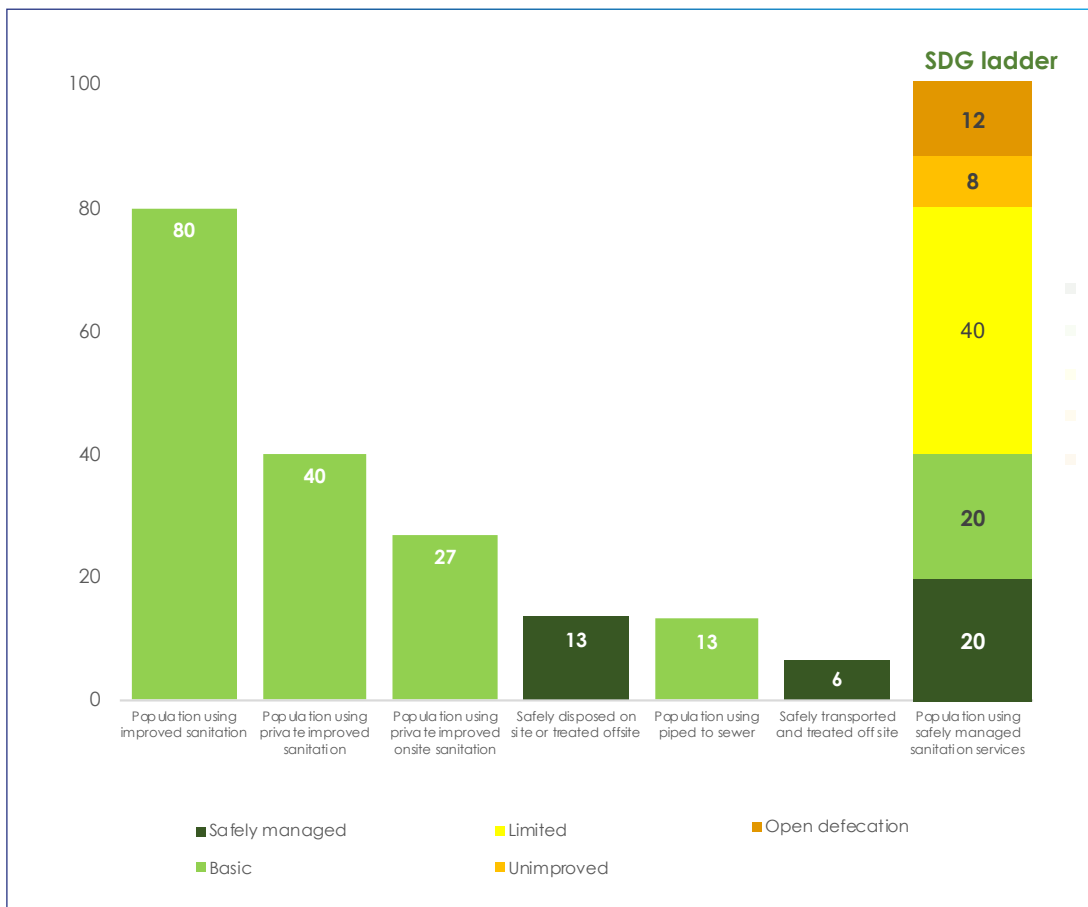
**Fig 3.9 Seweraged Sanitation Coverage**



The Regulator, on its part, is developing a strategy and framework for inclusive urban sanitation service provision incorporating non-sewered sanitation services. The absence of a regulatory framework to address the full value chain of non-sewered sanitation (containment, emptying, transport, treatment, and disposal/reuse) has been a major challenge to improving non-sewered sanitation service delivery. This initiative will also help in ensuring that waste water is adequately managed in line with the requirements of SDG 6.3.1.

In line with the aspirations above, the Regulator has in the current period included sanitation in the data collected. Figure 3.10 presents the SDG ladder with respect to sanitation.

Figure 3.10: Sanitation Ladder



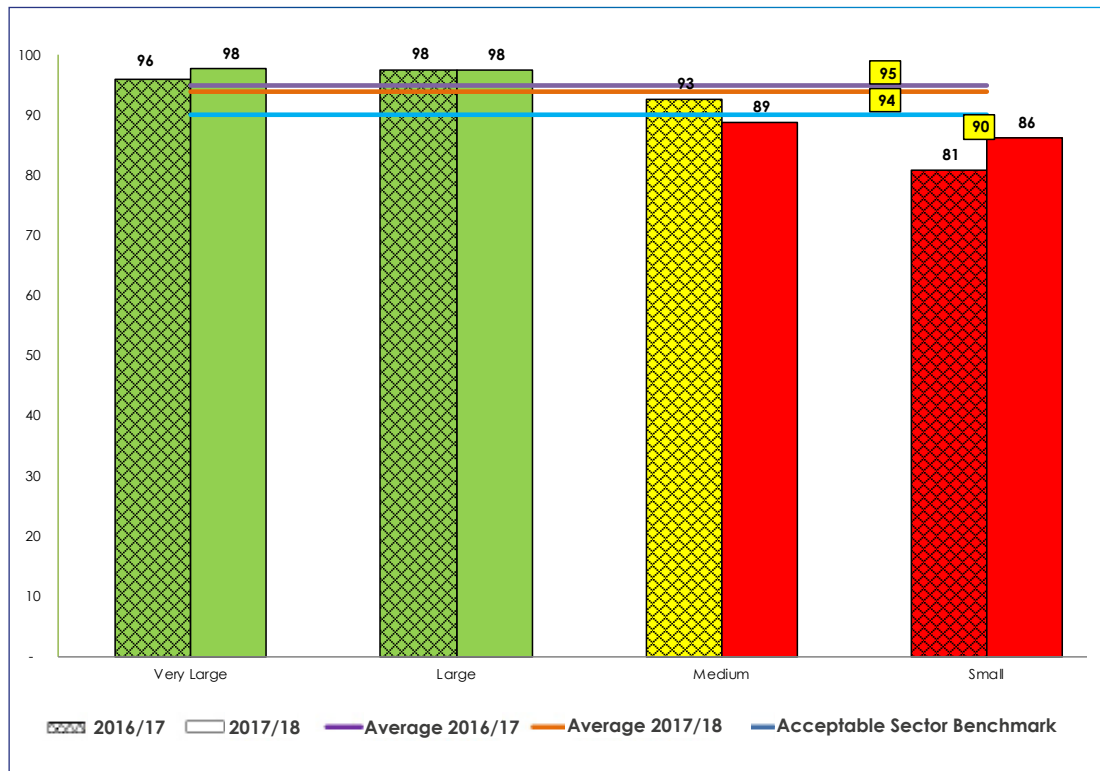
### c) Drinking Water Quality

Drinking Water Quality (DWQ) measures the potability of the water supplied by a utility. It is a critical performance indicator since it has a direct impact on the health of consumers. This is a weighted composite indicator measuring compliance with residual chlorine standards (40%) and bacteriological standards (60%). The two sub-indicators are also composed of two components each, namely:

- i. The number of tests conducted as a percentage of the number of tests planned in accordance with the Guidelines on Water Quality and Effluent Monitoring (GWQEM) weighted at 67%.
- ii. The number of samples within the required norm as a percentage of total number of samples taken weighted at 33%.

Performance in this indicator improved from 94% in 2016/17 to 95% in 2017/18. The national average in the current period is now within the acceptable range of sector performance.

Figure 3.11: Drinking Water Quality in %



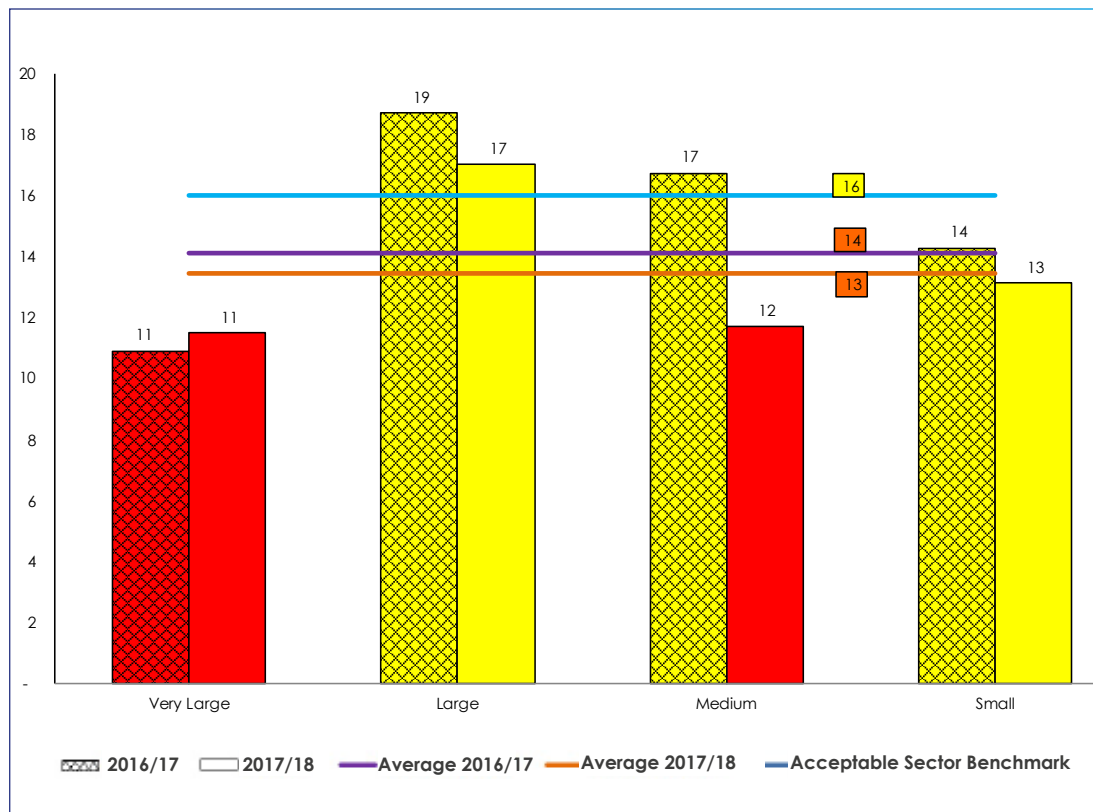
Improved performance in this indicator is attributed to an improved performance in respect to residual chlorine, a situation that is attributed to an improvement in compliance levels from 93% to 99%. On the other hand, bacteriological standards remained unchanged for both compliance with a number of samples taken as well as compliance of these samples to set standards. The subsidiary legislation being developed includes a requirement for utilities to elaborate a water quality sampling programme which must clearly specify the points at which potable water provided to customers will be sampled, the frequency of sampling and for which substances and determinants the water will be tested. A further requirement for the utilities to put in place water safety plans has been included in the licence. Wasreb has already validated the water safety planning guidelines to the utilities ahead of implementation.

A breakdown of utility performance in the two components of the DWQ sub-indicators is provided in Annex 4.

#### d) Hours of 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 of a utility and thus the availability of water to the customer. It is an important indicator on 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.

Figure 3.12: Hours of Supply

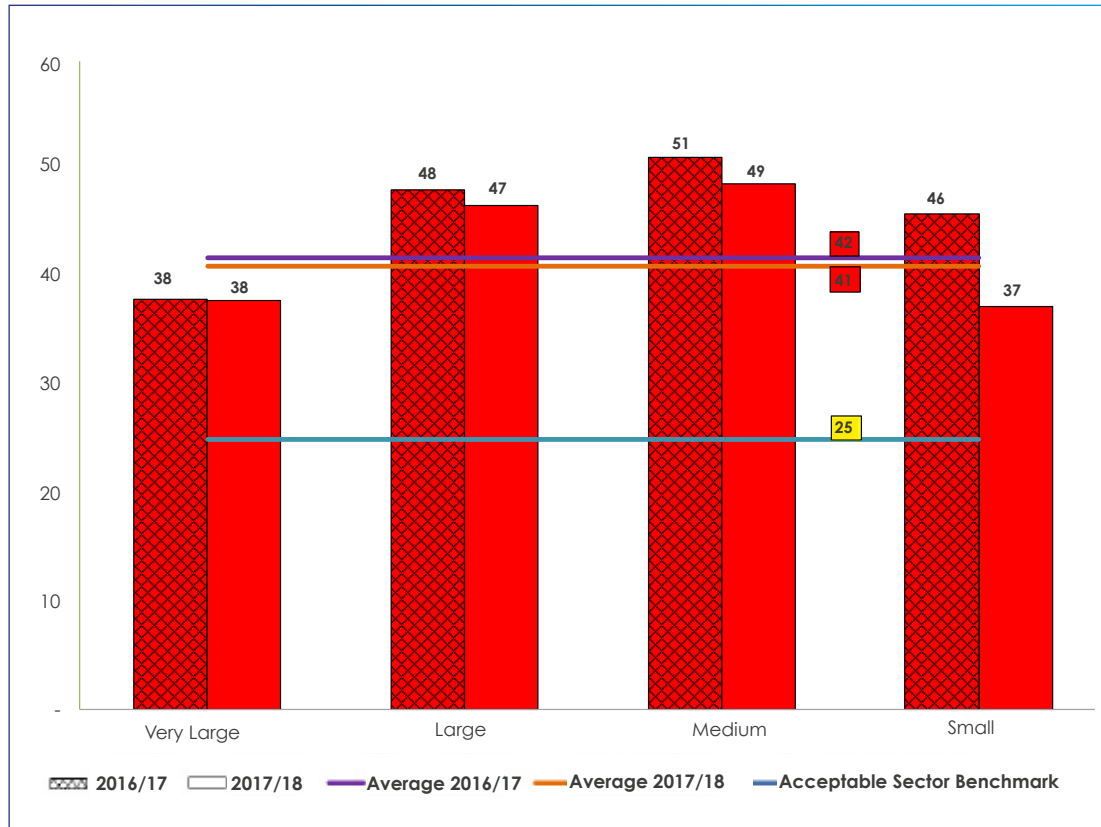


In 2017/18, average daily service hours dropped from 14 to 13. This drop can be attributed to the two percent drop in water production from 435 million cubic meters in 2016/17 to 428 cubic meters in 2017/18 which in turn resulted in a decline in billed volumes by a similar margin. The decline in volumes produced and billed had an overall effect on the per capita consumption which reduced from 37 litres per capita per day to 34 litres per capita per day. The decline in service hours negates the drive towards safely managed water services taking into account the dimension of the SDG that the service must be available when needed. From Fig 3.8, only 3.3 million people have access to an improved service that is available when needed and which meets quality standards.

### e) Non-Revenue Water

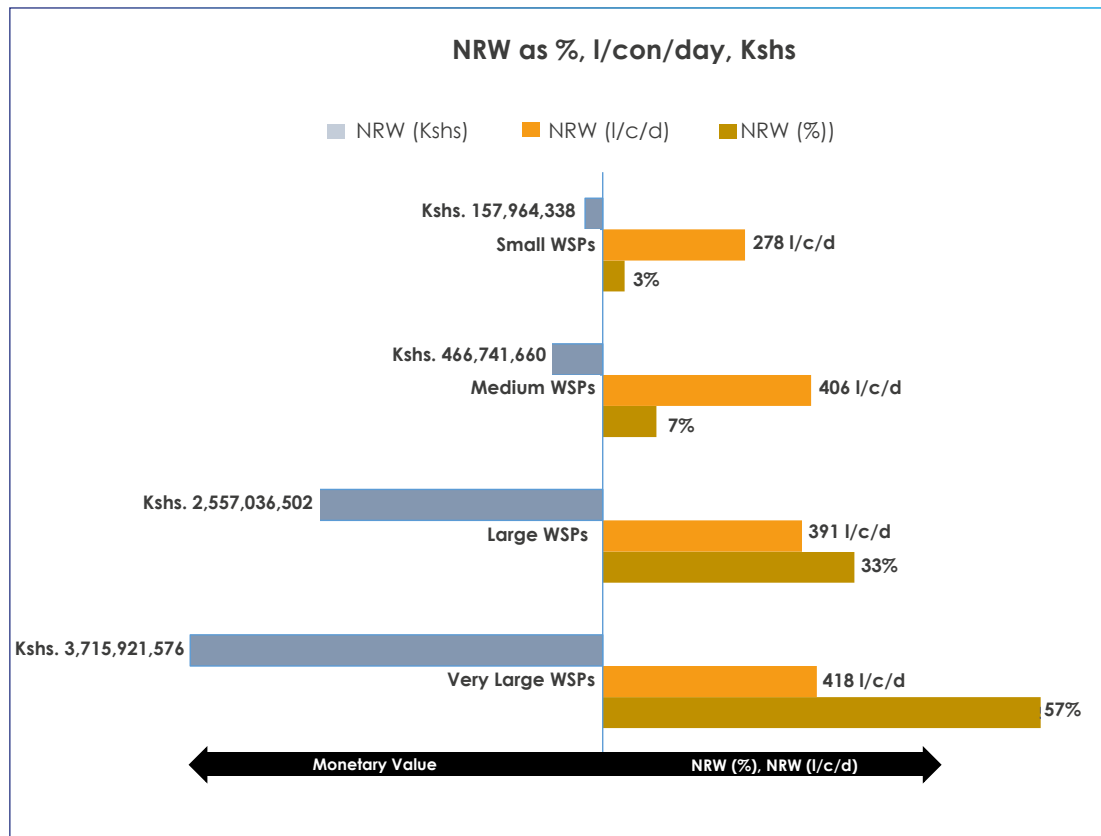
Non-Revenue Water is the difference between the amount of water put into the distribution system and the amount of water billed as authorized consumption. It comprises both commercial (apparent) losses and physical (real) losses. It is an operational indicator contributing to the sustainability question of the utilities and therefore is a significant measure that facilitates evaluation of the efficiency of operations by the utilities.

Figure 3.13: Non-Revenue Water in %



In the current period, NRW improved marginally from 42% to 41% when compared to 2016/17.

Figure 3.14: Breakdown of NRW





In financial terms, at the current average of NRW at 41% and the sector turnover of Kshs 19.70 billion, against a sector benchmark of 20%, then conservatively, the sector is losing about seven billion shillings. On the other hand, in terms of volume, the amount lost annually after allowing for the 20% acceptable level of losses is 90 million cubic metres. This is adequate to serve Nairobi City County with a daily demand of 750,000m<sup>3</sup>/d for four months. Therefore, concerted effort from all stakeholders is required to reduce the high levels of NRW.

Over time, Wasreb has established that the management of NRW is a governance issue. Therefore, utility governance needs to be strengthened to comply with Wasreb governance guidelines. Good governance allows for the appointment of competent utility managers who have the capacity to adopt innovations, manage NRW and be accountable to stakeholders.

Specific innovations such as performance-based contracts (PBC) for NRW management—a form of sub-contracting in which the remuneration of the contractor is linked to the achievement of outcomes rather than inputs—are a way for utilities to access the capacity and equipment that they lack. With payments based on results, the incentives to perform are high and the risk of non-performance by the contractor is reduced.

Wasreb, together with the Kenya 2030 Water Resource Group (WRG), is working towards aligning key partners around a shared culture of paying for performance. It is hoped that the new culture will help address high NRW levels which are threatening the survival of future urban centers in Kenya.

Strategic partnerships with the private sector, in particular PBCs, can be explored to manage NRW by strengthening governance, injecting capital into struggling utilities, expanding access, and improving services.

**Ongoing initiatives to deal with NRW**

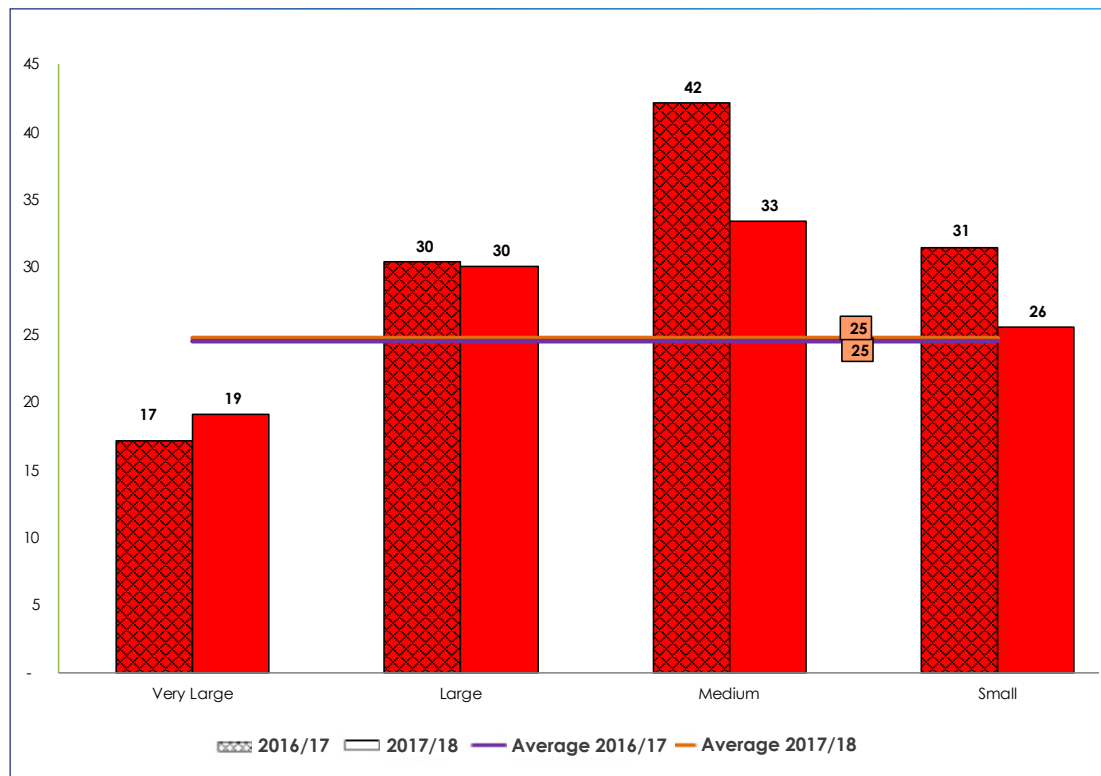
- 1 Survey on of the uptake of the NRW management standards
- 2 Revision of the NRW management standards
- 3 Sharing of best practises among the utilities
- 4 Instutionalization of the NRW function in the license
- 5 Collaboration with the Counties
- 6 Piloting on Performance based contracts

**f) Dormant Connections**

This indicator is computed as the number of connections equivalent to accounts that have been disconnected or have not received water for more than three months, expressed as a percentage of the total water connections. It is an indicator of a utility's management capacity to deliver quality services to its customers. Where the percentage of dormant connections is high, the utility is either not able to provide services to all its registered customers or it provides services of inferior quality.

A high level of dormant connections could be due to integrity issues in the utility where disconnected customers collude with Utility staff to get new account numbers with a view to evading the payment of outstanding bills.

**Figure 3.15: Dormant Connections**



Performance in the current year for all categories of utilities remained unchanged at 25% with Very Large Utilities recording a low of 19%. Despite this stagnation, the decline in performance by two percentage points for the Very Large utilities is worrying considering these utilities control 55% of the connections.

The greatest contributors to the poor performance on this indicator for the Very Large, Large, Medium and Small categories are Mombasa (47%), Imetha(65%), Tuuru( 65%) and Olekejuado(76%) respectively.

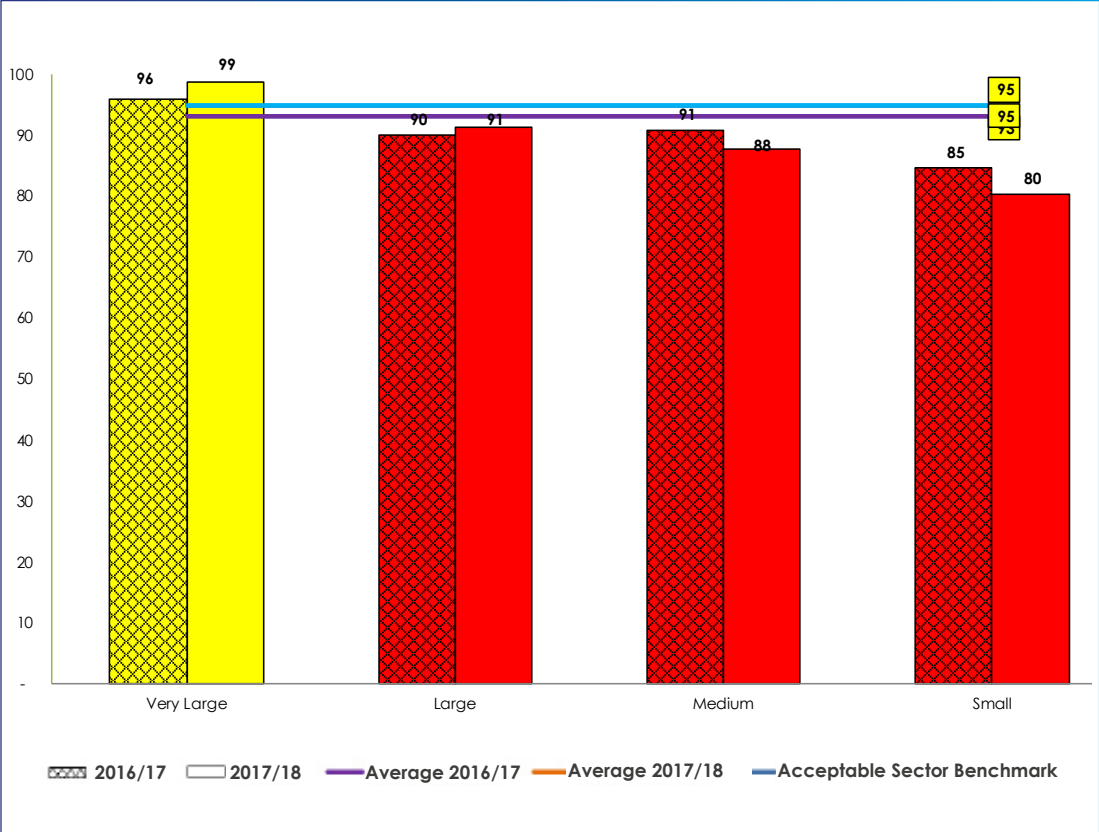
Going forward, utilities are now required to conduct a customer identification survey to clean up their customer database and to ensure this database is continually updated as a licence condition.

### **g) Metering Ratio**

Metering ratio is the number of connections with functional meters expressed as a percentage of the total number of active water connections. It is an empirical way for a utility to ensure that consumers only pay for what they consume. It is expected that the functionality of these meters is occasionally ascertained by the utility by sampling them for calibration, or replacing the aged ones through adoption of a metering policy.

In 2017/18, metering ratio increased by two percentage points from 93% to 95% thus reaching the acceptable sector benchmark. Utilities should ensure that the growth in consumer meters is accompanied by improvement both in numbers and functionality of the bulk meters. In this way, system input can accurately be determined and hence NRW can be dealt with strategically.

**Figure 3.16: Metering Ratio**

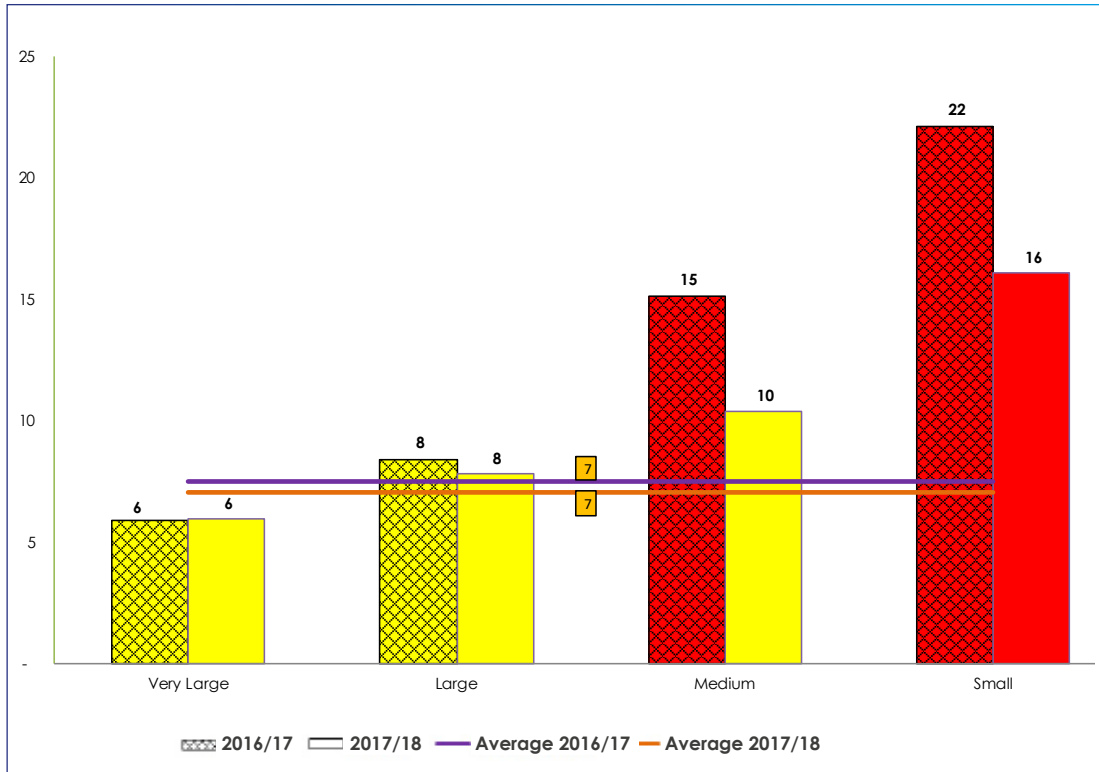


**h) Staff Productivity (Staff per 1,000 Connections)**

Staff Productivity refers to the number of staff in employment for every 1,000 connections (total registered water and, where applicable, sewer connections). It measures the efficiency in staff utilization. Staff productivity is affected by factors such as size of a utility, the nature of human settlement (distances between connections and number of towns served), skills mix, and the extent of outsourcing for services and whether a utility provides water alone or water and sewerage services together, among others.

In assessing staff productivity, the expectation is that big utilities should benefit from economies of scale. Therefore, there are different sector benchmarks depending on the category of the utility. For the year under review, although the average performance was maintained, notable improvement was recorded in the Medium and Small categories of utilities.

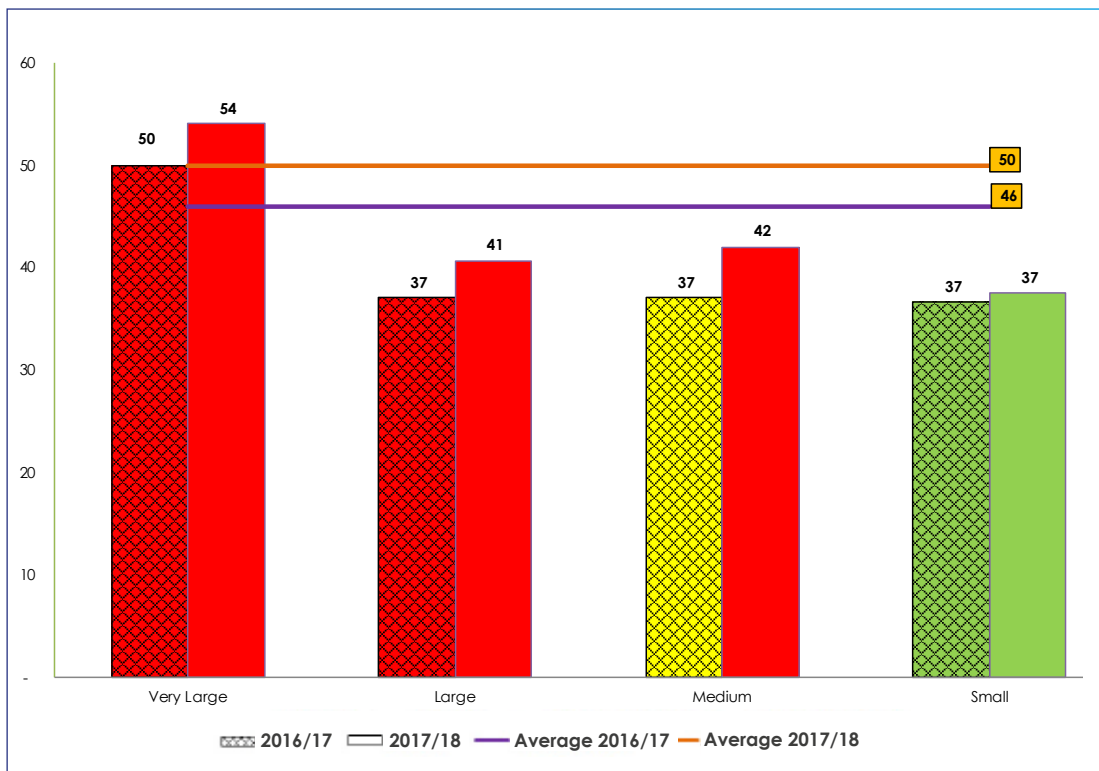
Figure 3.17: Staff Productivity



### i) Personnel Expenditure as a Percentage of O+M Costs

Personnel expenditure as a percentage of O+M Costs measures whether personnel related expenses are proportionate to overall O+M costs as defined by the respective sector benchmarks.

Figure 3.18: Personnel Expenditure as a Percentage of O+M



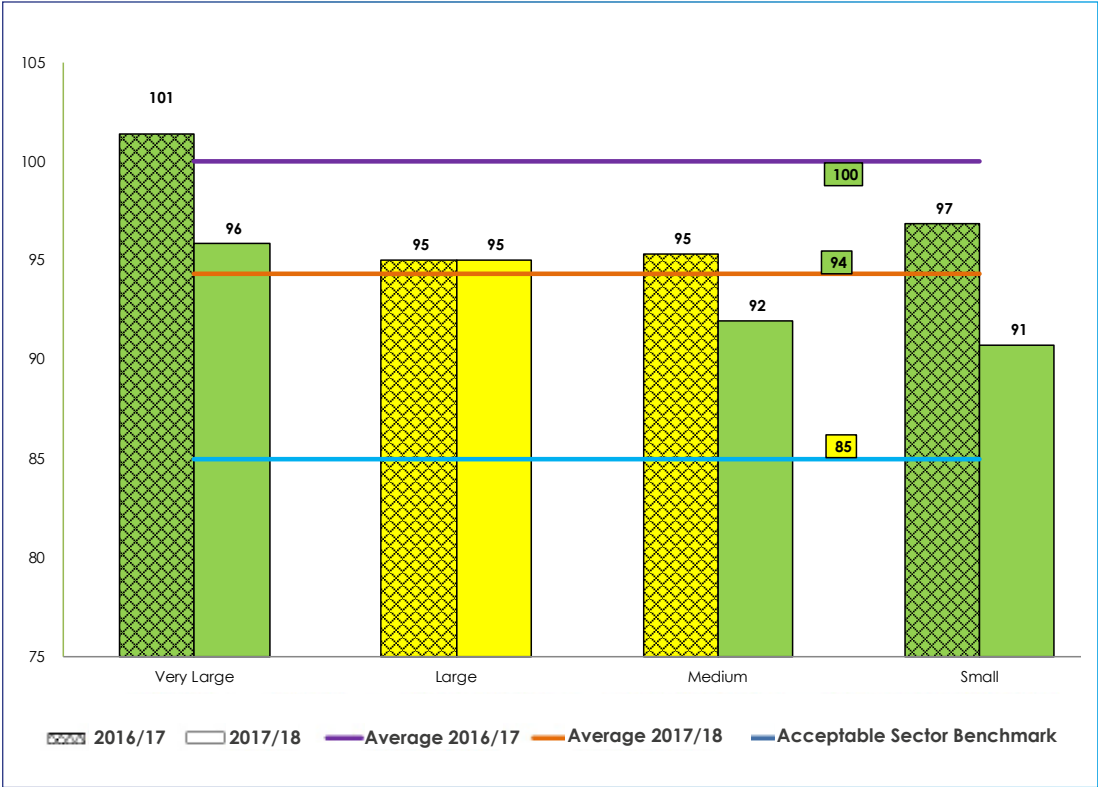
This indicator significantly declined from 46% in 2016/17 to 50% in 2017/18 with an increase being noted in all size categories. The fact that in the current year this ratio crossed the 50% mark is highly untenable as this will in the long run compromise the quality of services. It is also of great concern that all utilities, except those in Small category, deteriorated. Wasreb has developed Model Human Resource Guidelines with the intention of providing guidance to utilities on proper management of the human capital. The Guidelines will also be useful in negotiations during Collective Bargaining Agreements (CBAs).

It will be noted that certain utilities despite showing good overall performance fall short on this indicator demonstrating that utilities look at indicators in isolation. The Regulator shall not relent on its mandate to pursue utilities that have consistently failed in meeting sector standards and hence compromising on quality of services rendered. The new licences issued to WSPs have robust conditions on compliance with the regulatory framework.

**j) Revenue Collection Efficiency**

Revenue Collection Efficiency refers to the amount of money collected by a utility expressed as a percentage of the total amount billed over the same period. It is used to measure the effectiveness of the revenue management system in a utility. Revenue collected, as opposed to amounts billed, is what impacts on a utility's direct ability to fund its operations.

**Figure 3.19: Revenue Collection Efficiency**



In the current period, performance in this indicator declined from 100% to 94%. Considering that the sector benchmark for this indicator is 85%, a performance of 94% is still impressive. The decline is indicative that utilities have collected most of their outstanding debts. The development and dissemination of minimum requirements for billing systems will address this challenge and ensure that arrears are clearly separated from current collections.

### k) Operation and Maintenance Cost Coverage

Operation and Maintenance (O+M) Cost Coverage is the extent to which a utility is able to meet its O+M costs from internally generated funds. O+M Cost Coverage is critical to the performance of a utility as it is the first step towards full cost coverage. It ensures long term financial sustainability.

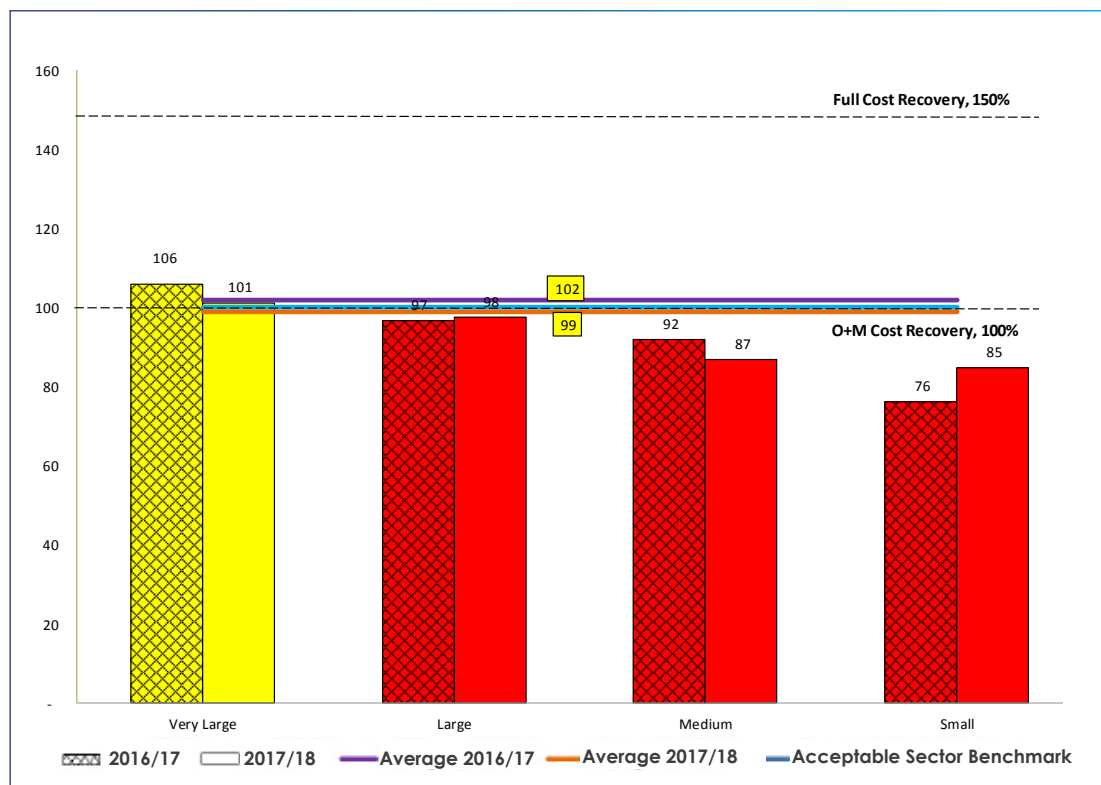
For a utility to be sustainable, the following levels of cost-coverage have been defined (Table 3.9):

**Table 3.9: Levels of Cost Coverage and Cost component**

% O+M Cost Coverage	Cost Components
100%	O+M Cost
101-149%	O+M Cost + Debt Service + Minor Investments
≥150%	Full Cost Recovery

At over 150% O+M Cost Coverage, a utility is considered to have attained full cost recovery i.e. able to meet O+M costs, service debt and renew its assets.

**Figure 3.20: O+M Cost Coverage**



In the reporting period, the average cost coverage declined from 102% in 2016/17 to 99% in 2017/18. This development is contrary to the sector aspirations of ensuring sustainability.

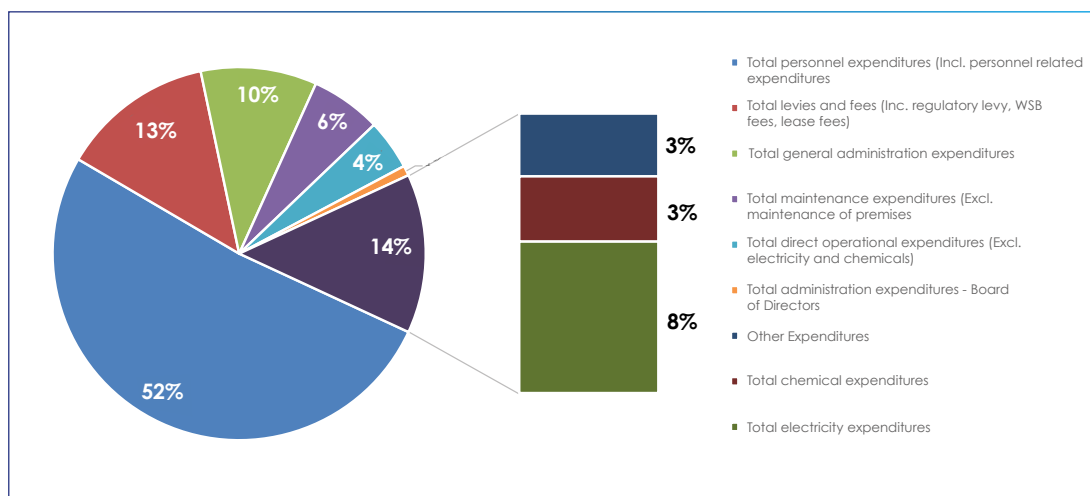
In the current period, only Very Large utilities are fully covering their O+M costs. However, this scenario is threatened as a decline of five percentage points was noted in the current period.

The drop in this indicator is as a result of revenues decreasing at a higher proportion (4%) compared to O+M costs (1%), a situation that can be attributed to a decrease in production. A cost recovery below 110% compromises the quality of services provided.

## I) O+M Cost Breakdown

Cost distribution in a utility is a major factor in ensuring its financial sustainability. Wasreb has set benchmarks for some of these cost components e.g. personnel, BoD and maintenance expenses, among others. The breakdown of O+M costs into personnel, electricity, chemicals, levies, fees and other operational expenditure, provides crucial information on the main cost drivers in the operation of utilities. These cost components differ depending on the degree to which they are under the control of the utility. Figure 3.17 shows the aggregated O+M cost breakdown for all utilities.

Figure 3.21: Aggregated O+M Cost Breakdown for all Utilities



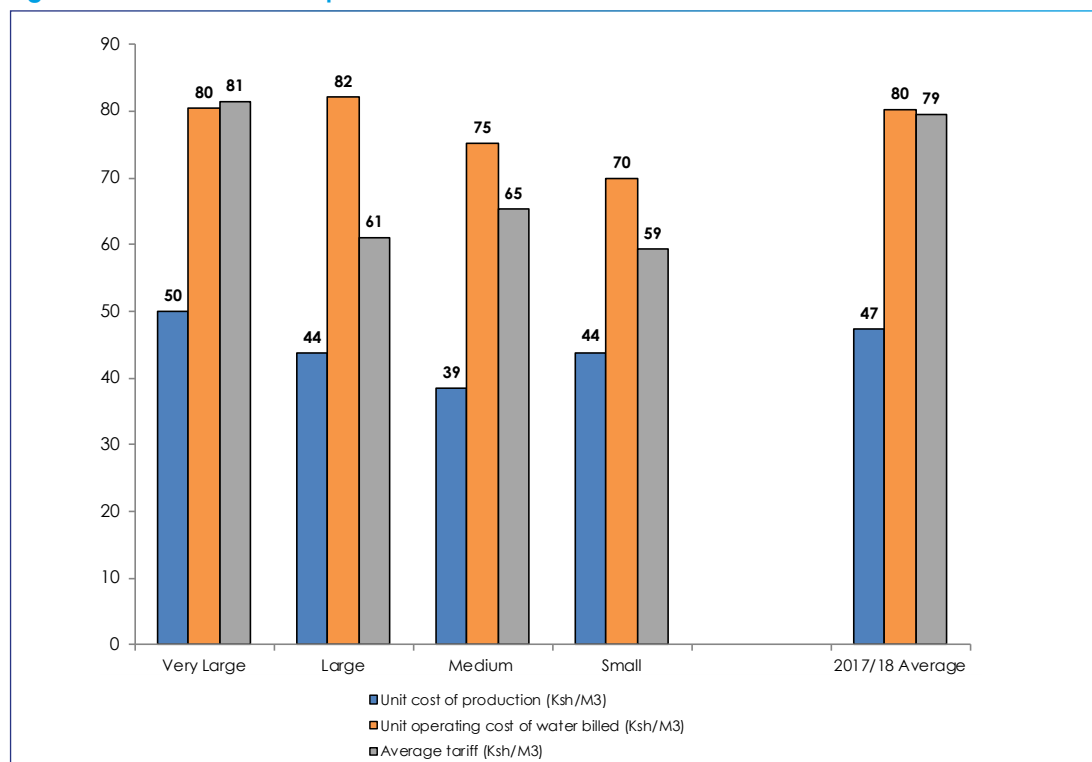
As illustrated, the main cost drivers for O+M is personnel expenditure which stands at 52%, an increase of seven percentage points in the previous period. There was a one percentage point increase in electricity costs while chemical costs remained unchanged at 3%. The amount of levies and fees payable declined from 14% to 13%. It should be noted that most utilities are defaulting on the payments of these levies and fees. It is now a licence condition for utilities to put in place a payment plan for the outstanding amounts.

### m) Comparison of Unit Cost of Production, Unit Cost of Water Billed and Average Tariff

The assessment of the unit cost of production against the unit cost of water billed, measures the operational efficiency of the utility. On the other hand, a comparison of the unit cost of water billed against the average tariff is central in shaping the financial sustainability of the utility. Assuming that utilities were operating within the NRW sector benchmark of 25% as opposed to the current 41%, the unit cost of water billed would be expected to be Kshs 67 per cubic meter as opposed to the current Kshs 80 per cubic meter, as seen in Fig 3.22. This means that the difference of Kshs 13 per cubic meter goes towards paying for inefficiencies of the utilities, instead of the development of infrastructure. At the current average tariff of Kshs 79 per cubic meter, consumers are paying Kshs 12 per cubic meter for inefficiencies and the balance of Kshs 1 per cubic meter is covered by subsidies or deterioration of service levels. A tariff that is less than the unit cost of water billed starves the utility of funds to put into asset renewal.

When compared to the previous reporting period, there was a slight decrease in both the unit cost of production and unit cost of water billed while the average tariff increased slightly. This development, although not adequate, pushes the sector to better sustainability. It is estimated that a utility requires to recoup at least 110% of its O+M costs to guarantee the current quality of service. Although the average tariff increased, self-financing of the sector, measured in terms of O+M cost coverage decreased, which is contrary to sector aspirations.

Figure 3.22: Tariff-Cost Comparison



### n) Water Services in Low Income Areas

The Constitution, under Article 10, requires duty bearers to ensure equity, social justice, non-discrimination and protection of the marginalized in the provision of services.

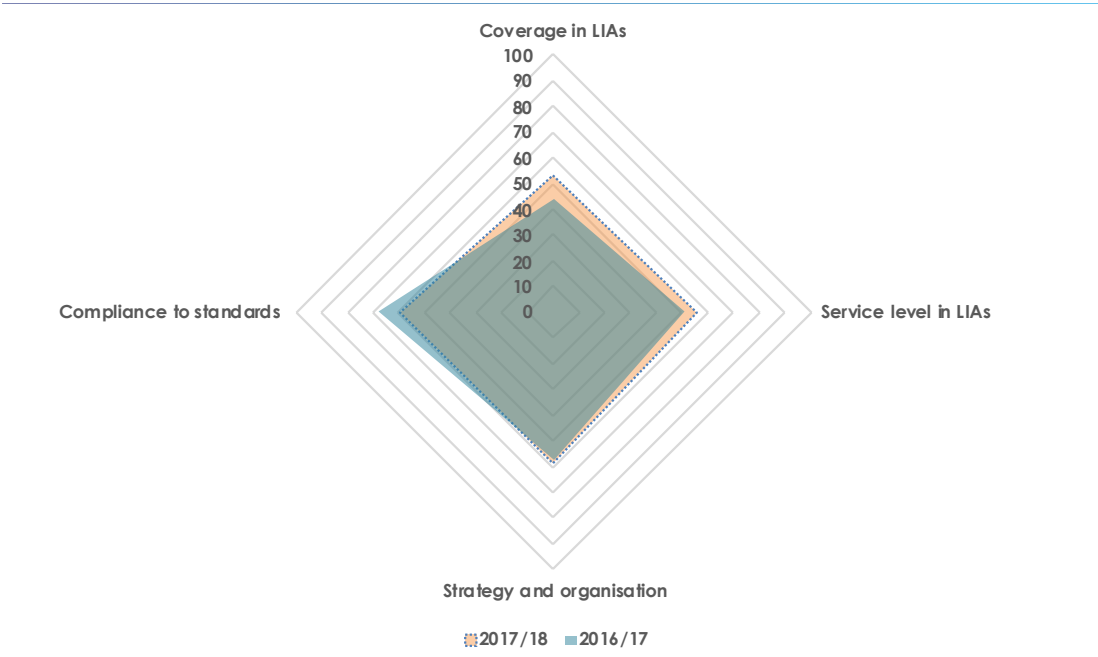


Pursuant to these provisions, Wasreb has developed a tool for assessment of utility performance in LIAs. The tool not only monitors the level of pro-poor service but also gives guidance on improving services in these areas. The tool consists of four sub-indicators namely:

- Service coverage in LIAs
- Service levels in LIAs
- Strategy and organisation with respect to service provision in LIAs
- Compliance to standards for water kiosks

For the reporting period 2017/18, a total of 36 utilities submitted data on the pro-poor indicator compared to 28 utilities in the previous period which is a clear indication that utilities are starting to address service inequalities. With support of the Water and Sanitation for the Urban Poor (WSUP), Wasreb recently completed an exercise of more accurately determining the population in the low-income areas of a utility. The ongoing redesigning of WARIS will compel all utilities to register LIAs and provide separate disaggregated data on LIAs. This is expected to greatly improve the realization of the aspirations of article 10 of the Constitution. Figure 3.23 presents the aggregated performance in Pro-poor parameters for the 36 utilities.

**Figure 3.23: Performance in Pro-poor Parameters**

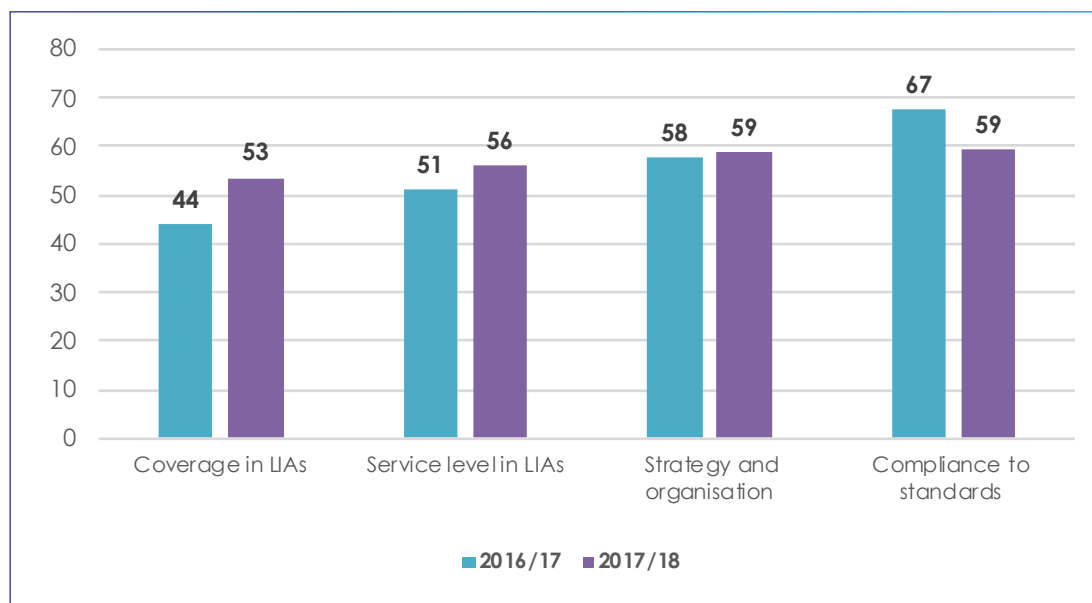


The axes in the diamond represent performance in percentages for each dimension in the assessment with large areas representing a favourable situation in regards to the associated indicator. Therefore, a diamond that fully covers the graph (100% on all axes) would indicate that the utility is doing very well with regard to pro-poor services.

In the current period, the best performing utility was Nyeri with a combined score of 91% while Kahuti with a score of 21% was the least performing. On the basis of aggregated performance of the utilities at sub-indicator level, Strategy, Organization and Compliance to Standards for water kiosks were the best-performed sub-indicators at 59%, followed by Service Levels in the LIA at 56% while coverage was lowest at 53%. On the other hand, service level in LIAs had the least score at 44%. Utilities are encouraged to improve coverage levels in LIAs.

Figure 3.24 illustrates the comparison for the four dimensions assessed over the two years.

**Figure 3.24: Pro-Poor Baseline Comparison**



Details of individual performances in the sub-indicators is provided in Annex 6.

### 3.5.5 Governance Assessment

Good governance of the water sector remains a priority at National and County levels in the quest to ensure the progressive realisation of the right to water and sanitation.

Wasreb has developed the governance assessment tool to help shareholders, boards of directors, management teams and staff of WSPs to focus on areas of improvement. The year 2017/2018 was a challenging year because of the Kenyan election cycle. Politics affected the internal dynamics of many WSPs with abrupt changes in leadership and management. New County officials came into office creating gaps in strategic leadership and oversight.

The Water Act 2016 had just started being implemented and the sector was struggling to understand its provisions especially the place of national standards, shared monitoring and improving enforcement outcomes in WSBs and WSPs.

The governance indicator tool has the following six sub-indicators:

#### (a) Utility Oversight and Supervision

The challenge in the sector remains:

- Maintaining the appointment of Board of Directors as open and competitive so as to have the right calibre of professionals meritoriously appointed to offer oversight and strategic vision
- Improving on the role of the general meeting as a useful governance tool to foster improved performance by the Board of Directors

- Exploiting the dual role of County governments to improve performance by sheltering from short term political interests without tempering with the vision to create well governed efficient and effective autonomous service providers
- A Water Service Provider in Kenya surviving an election cycle and continuing to provide quality services.

### **(b) Information and Control Systems**

This parameter looks at transparency in operational functions and compliance to set organisational systems. The main item is whether the utility prepares a budget based on an approved tariff and conditions and whether the annual stakeholder forum is effectively held and which issues are laid before the citizenry in the forum. From the analysis, this is a weak area in utilities and needs improvement.

### **(c) Financial Management**

This parameter monitors whether a utility efficiently complies to financial rules and regulations. From the analysis, this remains a weak area for many WSPs. The use of the internal audit system needs to be strengthened by Management and Board of Directors. Similarly, the fact that a utility does not apply for a tariff adjustment due to local County factors has ensured that this area remains a challenge in the vision to create commercially viable water service provision.

### **(d) Service Standards**

This parameter mainly focuses on customer service and complaints resolution. It is affected greatly by the quality of the infrastructure provided, the competence of the personnel in understanding their mandate and the culture of a utility. The role of County governments as function holders and shareholders in setting an ethical tone in service delivery will foster adherence to service standards.

### **(e) Human Resources**

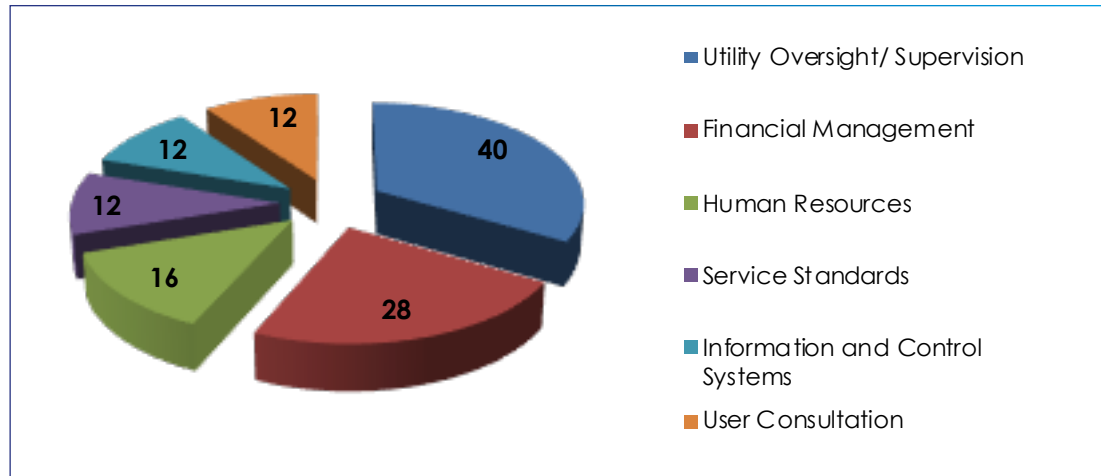
The technical competence criteria for WSPs is set in LN 137 of 2012 and utilities are required to have a Human Resource Policy that fosters efficiency, fairness and equity. This is an ongoing challenge in most utilities especially in the area of driving a performance-based employment culture.

### **(f) User Consultation**

This parameter measures the participation of the local community in decision-making processes. This is crucial for harnessing support on investment decisions, catchment protection, infrastructure protection, prevention of illegal connections and prompt payment of water bills. It also enables the utility to project its role in the community as an important player committed to improving the wellbeing of the community. Unfortunately, this parameter has also fallen victim to the election cycle.

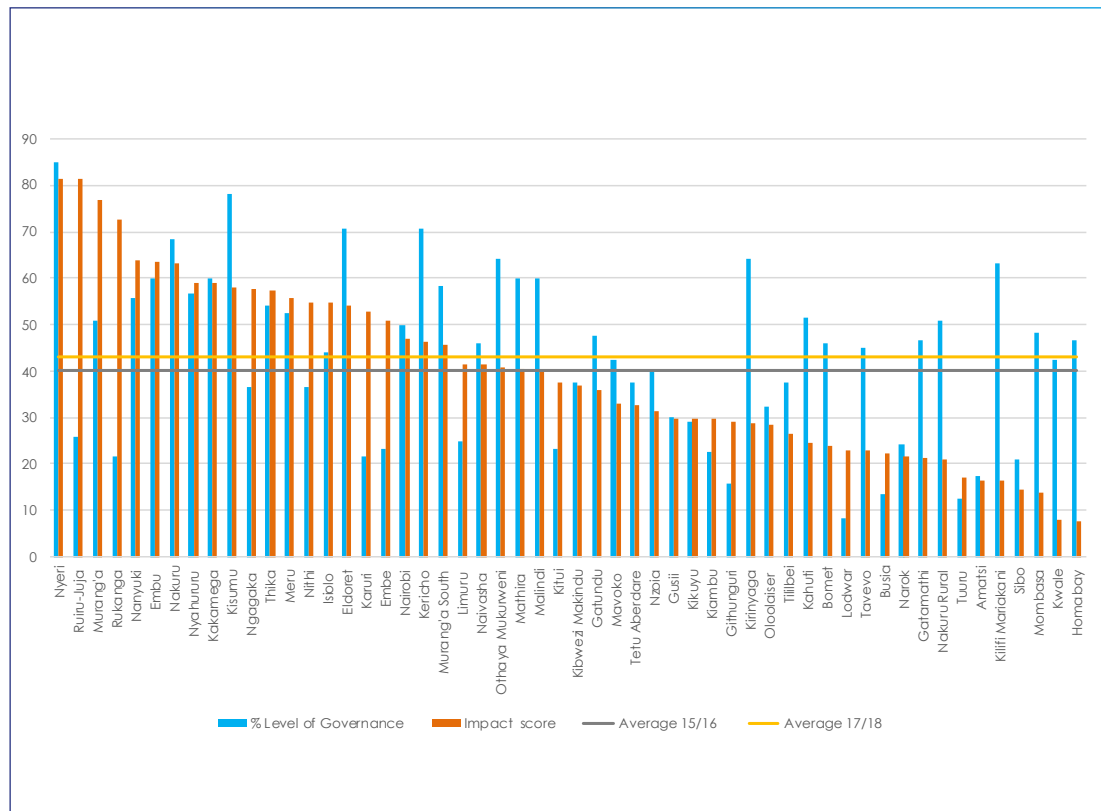
The six sub-indicators have been allocated different weights with Utility Oversight and Financial Management allocated the highest weights (Fig. 3.25).

**Figure: 3.25: Weights of Water Governance Sub-Indicators**

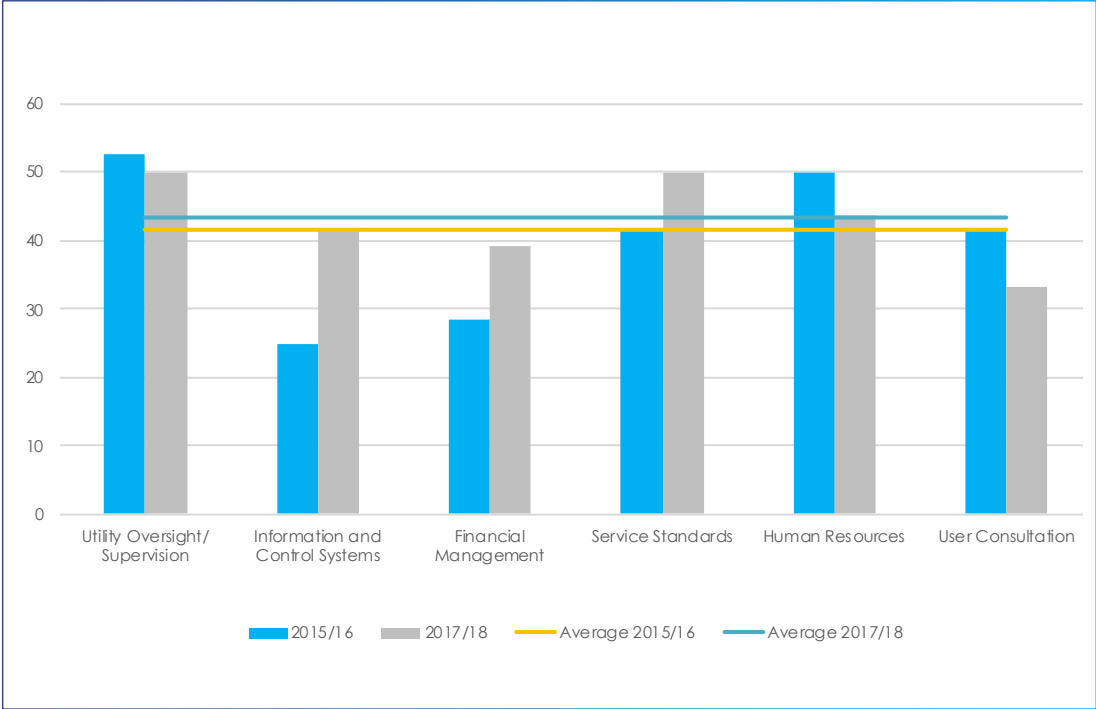


The assessment of governance for period 2017/2018 targeted all utility categories save for the small ones. However, out of the 61 utilities in these three size categories, 53 reported. In the small category, the utility that reported was Rukanga. The utilities were required to carry out a self-assessment using the tool and forward their results to Wasreb for further verification. The results of the assessment compared to the technical performance is provided in Fig 3.26.

**Figure 3.26: Governance Score Vs KPIs Score (%)**



**Figure 3.27: Baseline Comparison of Water Governance Sub-Indicators**



### 3.5.6 Creditworthiness Analysis

This section provides a snapshot of indicative creditworthiness of selected utilities based on their operational and financial performance for the period 2017/18. For ease of reference, the well-known rating symbols (AAA, BB, etc.) have been used for the creditworthiness index. The Social- Economic and Governance indicators have not been used in this assessment. The analysis presented in this report is based on the financial and operational data for the 2017/2018 financial year as reported in WARIS and the unaudited financial statements for 2017/18.

The index is calculated from 23 weighted indicators outlined in Annex 7.

**Table 3.10: Scoring Parameters**

Score	Indicative Credit Worthiness Level	Description
> 85	Creditworthy probably AAA category	Denotes the lowest expectation of default risk. Assigned only in cases of exceptionally strong capacity for payment of financial commitments. Highly unlikely to be adversely affected by foreseeable events.
71 to 85	Creditworthy probably AA category	Denotes expectations of very low default risk. Very strong capacity for payment of financial commitments. Not significantly vulnerable to foreseeable events.
61 to 70	Low-Creditworthy, probably in A category	Denotes expectations of low default risk. Capacity for payment of financial commitments is considered strong. Capacity may, nevertheless, be more vulnerable to adverse business or economic conditions than is the case for higher ratings. In a credit rating, this definition is equivalent to an A rating.
51 to 60	Low-Creditworthy, probably in BBB category	Indicates that expectations of default risk are currently low. Capacity for payment of financial commitments is considered adequate but adverse business or economic conditions are more likely to impair this capacity. In a credit rating, this definition is equivalent to an BBB rating.
41 to 50	Low-Creditworthy, probably in BB category	Indicates an elevated vulnerability to default risk, particularly in the event of adverse changes in business or economic conditions over time; however, business or financial flexibility exists which supports the servicing of financial commitments. In a credit rating, this definition is equivalent to BB rating.
31 to 40	Lower-Creditworthy, probably in B category	Indicates that material default risk is present, but a limited margin of safety remains. Financial commitments are currently being met; however, capacity for continued payment is vulnerable to deterioration in the business and economic environment. In a credit rating, this definition is equivalent to B rating.
≤ 30	No Rating awarded	Indicative of substantial to exceptionally high risk of default.

Forty one (41) utilities were rated in the current period out of which 25 scored BB and above, an improvement from last year where only 23 scored BB and above. Four Utilities namely, Sibbo, Kilifi Mariakani, Tavevo and Kwale scored less than 30 points and hence were not rated. In terms of creditworthiness, this indicates a high risk of default. The summary analysis is presented in Table 3.11.

**Table 3.11- Summary of Utility Performance**

Score	>85	71 to 85	61 to 70	51 to 60	41 to 50	31 to 40	≤ 30
Number of utilities	0	1	3	8	13	12	4
Rating	AAA	AA	A	BBB	BB	B	No Rating

The performance of each the 41 utilities assessed including performance in the previous period is presented in Table 3.12.

**Table 3.12: Creditworthiness Index**

Utility	2016/2017		2017/2018		Change in Score
	Total Score	Rating	Total Score	Rating	
Murang'a	61	A	72	AA	11
Embu	61	BBB	68	A	7
Ruiru Juja	72	AA	67	A	-6
Mathira	40	B	64	A	24
Nzoia	48	BB	59	BBB	11
Nyeri	53	BBB	57	BBB	4
Kisumu	60	BBB	56	BBB	-4
Nanyuki	55	BBB	53	BBB	-3
Kikuyu	53	BBB	52	BBB	-2
Thika	67	A	51	BBB	-15
Naivasha	42	BB	51	BBB	9
Meru Water	54	BBB	51	BBB	-2
Nyahururu	45	BB	51	BB	6
Kirinyaga	50	BB	51	BB	1
Gatundu	50	BB	50	BB	0
Eldoret	47	BB	49	BB	2
Nakuru	51	BB	51	BB	0
Narok	40	B	48	BB	8
Nakuru Rural	32	B	47	BB	15
Lodwar	54	BBB	46	BB	-8
Kakamega	36	B	45	BB	9
Mavoko	56	BBB	44	BB	-12
Limuru	46	BB	44	BB	-2
Othaya Mukurweni	50	BB	44	BB	-6
Murang'a South	35	B	43	BB	8
Garissa	37	B	41	B	4
Machakos	37	B	40	B	3
Kibwezi Makindu	38	B	39	B	1
Isiolo	45	BB	39	B	-6
Mombasa	46	BB	39	B	-8
Nairobi City	61	A	38	B	-24
Kericho	32	B	37	B	5
Gusii	41	B	36	B	-4
Kitui	31	NO RATING	35	B	5
Oloolaiser	36	B	34	B	-1
Kiambu	43	BB	32	B	-12
Malindi	32	B	31	B	-1
Sibo	NO RATING	NO RATING	29	NO RATING	N/A
Kilifi Mariakani	37	B	29	NO RATING	-9
Tavevo	29	NO RATING	28	NO RATING	-1
Kwale	22	NO RATING	24	NO RATING	2

The analysis was also carried out in terms of the most improved/ declined in the reporting period. Muranga improved to AA while Kilifi-Mariakani declined to 'no rating.' The results are presented in the tables below:

**Table 3.13: Improvers**

TOP IMPROVERS					
Utility	2017/2018		2016/17		Change in Score
	Total Score	Rating	Total Score	Rating	
Mathira	64	A	40	B	24
Nakuru Rural	47	BB	32	B	15
Nzoia	59	BBB	48	BB	11
Murang'a	72	AA	61	A	11
Kakamega	45	BB	36	B	9

**Table 3.14: Bottom Losers**

BOTTOM LOSERS					
Utility	2017/2018		2016/17		Change in Score
	Total Score	Rating	Total Score	Rating	
Nairobi	38	B	61	A	-24
Thika	51	BBB	67	A	-15
Mavoko	44	BB	56	BBB	-12
Kiambu	32	B	43	BB	-12
Kilifi Mariakani	29	NO RATING	37	B	-9





## CHAPTER 4

### PERFORMANCE OF WATER SERVICES BOARDS



# Need to Secure High Fund Effectiveness

Insufficient investments, efficiency in the use of funds and the lack of bottom-up investment and financial planning have been some of the challenges that have hampered progress towards attainment of national targets for water and sanitation. Looking forward, this scenario will be complicated more by the tremendous demographic shift underway with the urban population expected to increase fourfold in the coming 30 years. While there are benefits of rapid urbanization as the engine for economic growth, this can only be realized when the necessary infrastructure is put in place, especially for water and sanitation. There is need for a comprehensive sector investment plan backed by adequate and predictable financing in order to achieve the progressive realisation of the right to water and sanitation.

## 4.1 Closing the Financing Gap

The urban water and sanitation sub-sector will require mobilizing on average Kshs 100 billion annually to attain the Vision 2030 goal of universal access. The following actions are crucial in this intervention:

- Improving self-financing and resilience of the sector
- Enhancing fund mobilization
- Securing a high fund effectiveness

These interventions require close collaboration between both levels of government. On the other hand, the Regulator shall take the following measures:

- Set minimum standards on availability, quality and safety, affordability, acceptability, accessibility and sustainability to be met by all utilities.
- Enforce the ring-fencing and growth of utility income progressively to cover 150% O+M costs in order to accommodate infrastructure rehabilitation and development
- Advise all County governments to support utilities which have not reached an O+M coverage of 150% by way of subsidy on a reducing balance, application of a tariff adjustment and collaboration with relevant financing sources supporting such utilities. County governments will ensure that all income above 100% O+M costs is ring-fenced by utilities.
- Ensure utilities pay back loans advanced for asset development
- Ensure that the costs of lending are acceptable and a sustainable flow of funds is secured
- Explore potential of PPP within the sub-sector
- Licences under the Water Act 2016 clearly provide for a long-term investment program (10 years and above) backed by a predictable and sustainable financing plan.

### Complementing Traditional Financing: The Kenya Pooled Water Fund

The Kenya Pooled Water Fund ("KPWF") is an initiative of the Kenya Government and the Government of Netherlands meant to provide alternative financing for for WSPs.

KPWF will provide credit-worthy water utilities with access to capital market financing by tapping local institutional investors through the issuance of bonds . A key benefit of KPWF bond financing is that long term financing lowers the cost of debt, allowing for lower tariffs hence more capacity to service the debt.

KPWF will solicit projects from WSPs with a value of between Kshs 150 Million and one billion, without discouraging smaller or larger projects.

This will help achieve the goals stated in the Kenyan Constitution, Vision 2030, and SDG goal 6 of universal coverage of water and sanitation coverage.

It is expected that these measures coupled with the interventions at both National and County levels, including synchronization of investment planning, will translate to better delivery of projects and increase their impact.

## 4.2 Performance Analysis of WSBs

This section presents the performance of the WSBs with respect to financial indicators. The financial indicators considered are:

- Operating costs of WSBs as percentage of turn-over in WSB area
- Personnel expenditures as a % of total operating costs
- Board of Directors (BoD) Expenditures as a Percentage of Operating Costs

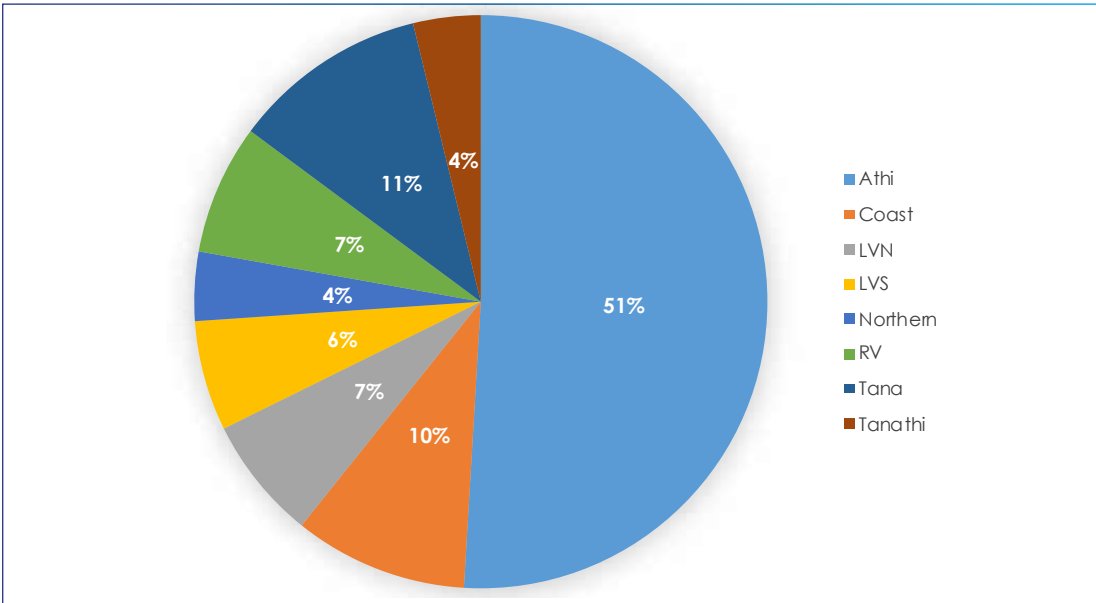
**Table 4.1: Water Services Boards Turnover**

WSB	Turnover 2016/17 (Bi)	Turnover 2017/18 (Bi)	% Change	% of total turnover
Athi	11,195	10,236	-9	51
Coast	1,909	1,970	3	10
LVN	1,432	1,397	-2	7
LVS	1,165	1,249	7	6
Northern	537	783	31	4
RV	1,363	1,475	8	7
Tana	2,153	2,219	3	11
Tanathi	938	765	-18	4
<b>Total</b>	<b>20,692</b>	<b>20,093</b>	<b>-3</b>	<b>100</b>

### 4.2.1 Water Services Boards Turnover

All WSBs, except Athi, LVN and Tanathi improved their turnover with Northern recording the highest at 46%. Despite the decline, Athi continued to lead with the highest share at 51%. Northern and Tanathi trailed at a low of 4% (Fig 4.1).

**Figure 4.1 Share of Turnover Among WSBs**



## 4.2.2 Financial Indicators

Table 4.2 shows the sector benchmarks adopted for financial indicators.

**Table 4.2: WSB performance Indicators and Sector Benchmarks**

INDICATOR		Sector Benchmarks			
		Good	Acceptable	Not acceptable	
Financial Indicators	Personnel expenditures as a % of total operating costs	<20%	70-20%	>70%	
	BoD expenditures as a % of total operating costs	<2%	5-2%	>5%	
	Operating costs of WSB as percentage of turn-over in WSB area	Turnover > 1.5 Ksh billion	<3.5%	10-3.5%	>10%
		Turnover ≥ 0.75 < 1.5 Ksh billion	<10%	20-10%	>20%
		Turnover < 0.75 Ksh billion	<15%	25-15%	>25%

### a) Operating Costs of WSBs as Percentage of Turnover in WSB Area

Operating costs as a percentage of the turnover in the WSB area measures the efficiency of a WSB in executing its functions. The operating costs of a WSB should be proportional to its turnover. Therefore, different benchmarks apply to each WSB, depending on the turnover. WSBs' expenditure as a percentage of their turnover is shown in Table 4.3.

**Table 4.3: Operating Costs of WSBs as Percentage of Turnover in WSB Area**

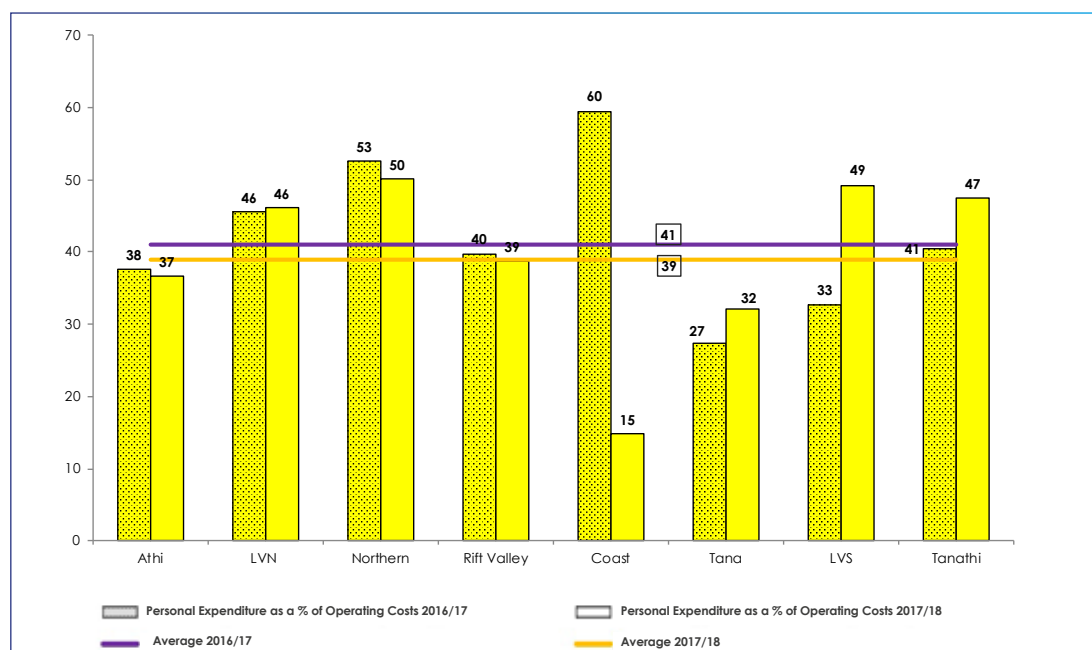
WSB	Operating Cost in 2016/17 in KSh million	Turnover 2016/17 in KSh million	Operating Cost as a % of Turnover 2016/17	Operating Cost in 2017/18 in KSh million	Turnover 2017/18 in KSh million	Operating Cost as a % of Turnover 2017/18
Athi	537	11,195	5	575	10,236	6
LVN	220	1,432	15	227	1,397	16
Northern	115	537	21	120	783	15
Rift Valley	150	1,363	11	135	1,475	9
Coast	236	1,909	12	156	1,970	8
Tana	177	2,153	8	162	2,219	7
LVS	322	1,165	28	220	1,249	18
Tanathi	177	938	19	154	765	20

Unlike in the previous period, all the WSBs were within the acceptable sector benchmark but there was a general decline reported for all the WSBs except for Athi, LVN and Tanathi. In absolute terms, the operating cost as a percentage of turnover of all the WSBs except Athi, LVN and Northern, decreased when compared to the previous period.

## b) Personnel Cost as a Percentage of Operating Costs

Personnel Cost as Percentage of Operating Costs measures whether staff costs are proportionate to the overall operating costs, as defined by the sector benchmark.

Figure 4.2: Personnel Expenditures as a Percentage of Operating Costs



A comparison of WSBs' personnel expenditure with their operating costs is presented in Table 4.4.

Table 4.4: Personnel Expenditure of WSBs vs Operating Expenditure

WSB	Personel Expenditure in 2016/17 in KSh million	Operating Cost in 2016/17 in KSh million	Personel Expenditure as a % of Operating Costs 2016/17	Personel Expenditure in 2017/18 in KSh million	Operating Cost in 2017/18 in KSh million	Personel Expenditure as a % of Operating Costs 2017/18
Athi	202	537	38	210	575	37
LVN	100	220	46	105	227	46
Northern	61	115	53	60	120	50
Rift Valley	60	150	40	52	135	39
Coast	141	236	60	23	156	15
Tana	48	177	27	52	162	32
LVS	105	322	33	108	220	49
Tanathi	72	177	41	73	154	47

All WSBs were within the acceptable range for this indicator. However, Tana, LVS and Tanathi recorded a decline. In absolute terms, except for Northern, Rift Valley, and Coast WSBs, all the other WSBs recorded an increase in the amount spent on personnel.

## c) Board of Directors (BoD) Expenditure as a Percentage of Operating Costs

Board of Directors (BoD) Expenditure as a Percentage of Operating Costs measures the extent to which BoD costs are within the set benchmark. Wasreb's Corporate Governance Guideline sets these costs at 5% of the total operating costs for WSBs. It is expected that for WSBs with high turnovers such as Athi and Coast WSBs, the percentage should even be lower than 2%. This is because BoD expenditure and hence BoD mandate should not vary with the size of the WSB.

A comparison of WSB's BoD Expenditure with their operating cost is shown in Table 4.5.

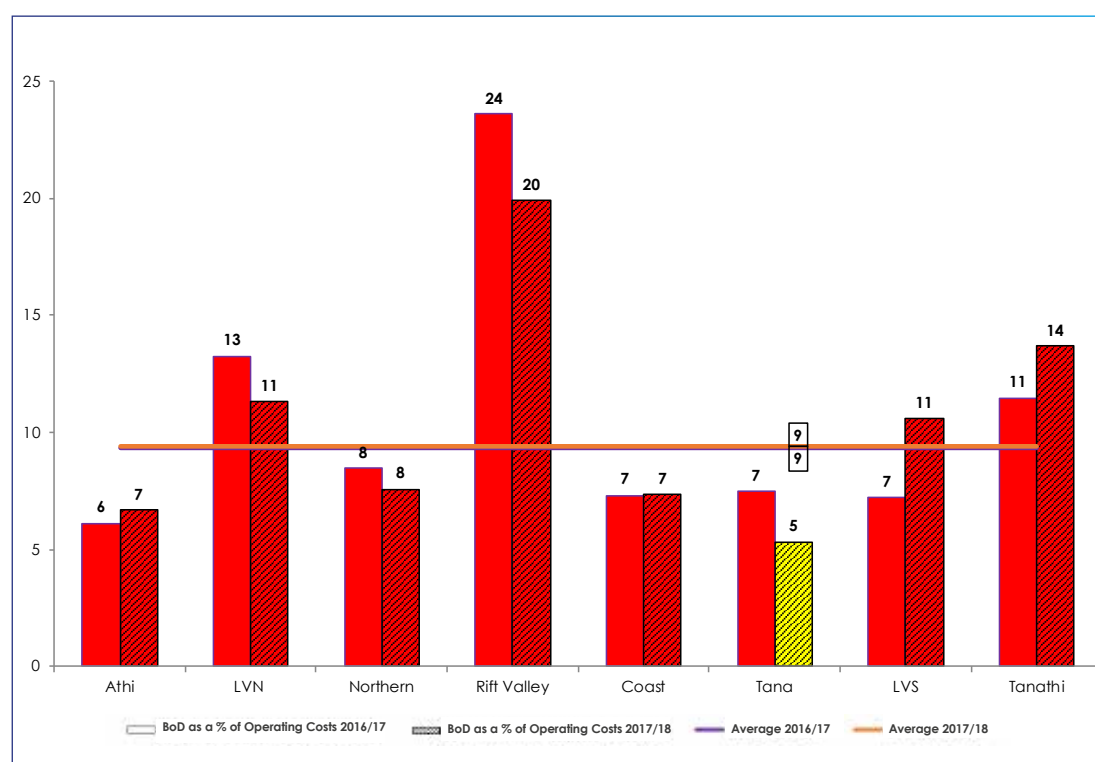
**Table 4.5: BoD Expenditure of WSBs vs Operating Expenditure**

WSB	BoD Expenditure in 2016/17 in KSh million	Operating Cost in 2016/17 in KSh million	BoD as a % of Operating Costs 2016/17	BoD Expenditure in 2017/18 in KSh million	Operating Cost in 2017/18 in KSh million	BoD as a % of Operating Costs 2017/18
Athi	33	537	6	39	575	7
LVN	29	220	13	26	227	11
Northern	10	115	8	9	120	8
Rift Valley	35	150	24	27	135	20
Coast	17	236	7	12	156	7
Tana	13	177	7	9	162	5
LVS	23	322	7	23	220	11
Tanathi	20	177	11	21	154	14

In terms of actual expenditure, all WSBs decreased their expenditure on their BoDs except Athi and Tanathi, with Tana moving to the acceptable range of sector performance.

The huge variations between WSBs are highly unacceptable, considering that BoD remuneration is uniform across all WSBs, as defined by the State Corporations Advisory Committee Guidelines. Variation between different WSBs can only be attributed to the varying activities of Boards and non-adherence to defined levels of expenditure. It points to poor corporate governance. To contain these costs, WSBs need to adhere to the schedules of planned Board meetings and approved ceilings of BoD expenditure.

**Figure 4.3: Board of Directors (BoD) Expenditures as a Percentage of Operating Costs**





## CHAPTER 5

### PROVISION OF WATER SERVICES IN COUNTIES



## Counties Urged to Invest in Water Services

**W**ater and sanitation service provision has been devolved to County governments by the Constitution but it continues to face challenges six years after devolution. The Water Act 2016 now provides better clarity on the roles of various players in the sector. It is hoped that this will now facilitate more focus and accountability on the part of all actors.

One of the objectives of devolving water service provision was to enhance consumer protection by ensuring a robust governance framework. This requires utilities to be headed at strategic level by individuals representing critical stakeholder institutions. The right to water will only be realized when Counties play their rightful role of overseeing the same at the grass roots. Counties are continually expected to spearhead the formulation of development plans, comprising both investment and financial indicators, whose effective implementation is expected to fast track the realization of this right. They are also expected by default to constitute service delivery entities in compliance with the prevailing standards of regulation, and to create an enabling environment for their performance. These entities are distinct water utilities whose performance would lend legitimacy to the Counties with respect to water service provision. Therefore, Counties are expected to carry on their oversight role effectively.

In exercising their constitutional mandate of service provision, County governments are obligated to continuously consider the technical and financial capabilities of their distinct water utilities. Institutionalisation of systems is the surest way of having their mandate discharged effectively.

### 5.1 Situation of Water Services in Counties

The current population in the service area of regulated utilities is 22.9 million people out of the total projected population of 51.8 million Kenyans. This translates to 44.21% of the population, which is a decline from 46.2% in the previous reporting period. This means that the national





growth rate increased at a higher rate when compared to the population in the service areas of the utilities. The Regulator has largely been dealing only with urban utilities that are considered commercially viable. However, Counties have an obligation under the Water Act 2016 section 94(2) to put in place 'measures for provision of water services to rural areas which are considered not commercially viable'. This way, the government will be able to progress the right to water as envisaged in the constitution. County governments should also ensure that gradually, all urban consumers and urbanizing areas receive formalized services in line with the commercial criteria set by the Regulator. The Regulator in exercising its functions under the Water Act 2016 Section 72 (1) (p), hopes to assist Counties fulfil their obligation under section 94(2) by recommending a diversity of management models to be adopted in providing water services to marginalized areas.

## 5.2 Provision of Subsidies for O+M Costs

It is well acknowledged that it is no longer sustainable for service provision entities to perpetually rely on subsidies to meet their basic O+M costs. It is therefore imperative for the water services sector to have utilities that are commercially viable such that, they are able to cover their O+M costs in the short term and as the minimum expectations from them by Counties and citizens. An encouraging number of utilities have attained this objective and are also able to set aside resources for meeting short-term investments and servicing their debts as well. However, there are utilities that continue to rely on state subsidies to meet their O+M costs which is not tenable as evidenced by the continuous failure by some County governments to meet their subsidy obligations to their utilities. It is incumbent upon respective County governments to ensure that their utilities operate within the framework of clear performance targets such that only deserving cases receive targeted subsidies after justifying tariffs. In addition, concerned County governments should also meet their subsidy obligations where expressly agreed upon through justified tariff approvals.

Wasreb has a distinct mandate to protect consumers from unfair exploitation. To this end, subsidies are recommended explicitly through tariff justification. Full disclosures must therefore be made by the utilities in order for the Regulator to make the right decision on State subsidies where so deserved.

Counties being responsible for service planning within their areas are expected to work with the utilities in resource allocation either generated internally or allocated from County revenues. This includes providing the agreed amounts where assessment has been done and subsidy recommended.

## 5.3 Data Analysis

Data utilized in County analysis is derived from submissions by regulated utilities only (both public and private) in respective Counties. It is worth noting that these formal utilities are not uniformly distributed across the various Counties. Even then, they depict a diversity of characteristics including their numbers, sizes, and capacity among others. The data on these Counties is captured in Table 5.1.

Table 5.1: General data on Counties

ID	County	Population in the County	Utilities in the County	Percentage of County population within service areas of Utilities (%)	Percentage of County population within service areas of Utilities (%)	INDICATORS														Score
						Water Coverage (%)	Drinking Water Quality (%)	Hrs of supply (hrs./d)	Personnel Exp. As % of O+M	O+M cost coverage (%)	Revenue Collection Efficiency (%)	NRW (%)	Staff per 1000 (no. staff per 1000 conns.)	Metering Ratio (%)	Sewerage Coverage (%)	Unit cost of water produced (Kshs/m <sup>3</sup> )	Unit operating cost of water billed (Kshs/m <sup>3</sup> )	Average Tariff (Kshs/m <sup>3</sup> )		
001	Mombasa	1,159,805	Mombasa	100	100	47	70	5	41	91	Mombasa: 91	92	48	8	99	9	69	127	109	28
002	Kwale	840,119	Kwale	38	39	50	60	9	43	65	Kwale: 65	93	66	11	76	0	44	123	73	16
003	Kilifi	1,498,647	Kilifi Maliakani Malindi	79	85	57	83	16	35	91	Kilifi: 91 Maliakani: 91 Malindi: 91	96	40	10	100	0	66	108	94	57
004	Tana River	335,392	Hola	51	51	n.d.	n.d.	n.d.	n.d.	n.d.	Hola: n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
005	Lamu	129,599	Lamu	19	21	85	93	10	34	99	Lamu: 99	0	38	13	161	0	68	110	0	92
006	Taita-Taveta	338,251	Tavevo	22	23	18	90	14	27	90	Tavevo: 90	82	58	10	99	0	48	111	90	46
007	Garissa	896,019	Garissa	18	19	69	38	n.c.d.	34	n.c.d.	Garissa: n.c.d.	57	45	12	64	6	34	53	55	16
008	Wajir	951,934	Wajir	2	2	n.d.	n.d.	n.d.	n.d.	n.d.	Wajir: n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
009	Mandera	1,512,540	Mandera	6	6	n.d.	n.d.	n.d.	n.d.	n.d.	Mandera: n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
010	Marsabit	383,771	Marsabit	14	14	n.d.	n.d.	n.d.	n.d.	n.d.	Marsabit: n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
011	Isiolo	165,481	Isiolo	39	40	72	93	15	54	100	Isiolo: 100	94	30	7	100	12	61	86	81	109
012	Meru	1,765,191	Imetha Meru Tuuu Kathila Kirua	38	39	63	84	20	53	117	Imetha: 100 Meru: 132 Tuuu: 84 Kathila Kirua: n.c.d.	88	33	12	93	5	44	58	57	86
013	Tharaka-Nithi	490,973	Nithi Murugi Mugumango Mulhambi 4K	30	30	88	73	24	47	99	Nithi: 104 Murugi Mugumango: 89 Mulhambi 4K : n.c.d.	75	38	5	98	0	30	43	32	106
014	Embu	610,995	Embu Ngandoni Nginda Ngagoka Kyeni Embe	81	83	80	92	23	46	115	Embu: 119 Ngandoni Nginda: n.c.d. Ngagoka : 120 Kyeni : 94 Embe: 104	90	42	5	98	9	37	52	50	113
015	Kilui	1,258,907	Kilui Kiambere Mwingi	97	98	26	93	13	26	57	Kilui: 56 Kiambere Mwingi : 60	106	53	16	94	0	93	178	95	79
016	Machakos	1,300,298	Mavoko Machakos Mwala Yatta Matungulu Kangundo Kathiani	75	76	54	74	8	47	94	Mavoko : 101 Machakos : 89 Mwala : 91 Yatta: 90 Matungulu Kangundo: 95 Kathiani: 55	107	35	10	99	19	189	218	195	58
017	Makueni	1,165,849	Kibwezi Makindu Wale Mbooni	38	39	30	82	12	44	73	Kibwezi Makindu : 74 Wale: 81 Mbooni: 22	98	29	11	96	0	75	103	71	63
018	Nyandarua	824,982	Nyandarua Ndaragwa	21	11	35	37	17	33	98	Nyandarua: 96 Ndaragwa: 104	66	49	15	75	0	47	82	65	52
019	Nyeri	751,083	Nyeri Othaya Mukurweni Mathira Tetu Aberdare Naromoru	75	77	74	86	23	46	119	Nyeri: 135 Othaya Mukurweni : 105 Mathira: 102 Tetu Aberdare : 106 Naromoru: 112	96	30	6	95	13	47	56	62	118
020	Kirinyaga	612,828	Kirinyaga Rukanga	76	77	39	93	17	56	107	Kirinyaga: 106 Rukanga: 121	88	57	9	99	0	27	59	56	64
021	Murang'a	1,213,665	Murang'a South Kahuli Murang'a Galamathi Galanga	86	88	52	89	21	53	111	Murang'a South : 111 Kahuli: 108 Murang'a: 121 Galamathi: 94 Galanga: 104	92	52	6	88	5	34	59	61	89
022	Kiambu	2,090,134	Thika Gatundu Ruru-Juja Kikuyu Kiambu Limuru Karuri Githunguri Kiamumbi	83	85	77	83	20	38	107	Thika: 113 Gatundu: 104 Ruru-Juja: 124 Kikuyu: 91 Kiambu: 93 Limuru: 89 Karuri: 92 Githunguri: 76 Kiamumbi: 117	93	31	6	95	16	45	63	61	105
023	Turkana	1,113,280	Lodwar	6	6	56	54	19	56	n.c.d.	Lodwar: n.c.d.	82	39	10	98	0	17	27	33	46
024	West Pokot	695,731	Kapenguria	13	12	11	92	n.c.d.	46	47	Kapenguria: 47	54	57	26	48	0	59	138	62	12
025	Samburu	275,678	Samburu	15	16	35	n.d.	8	0	0	Samburu: No Data	65	n.d.	50	0	0	0	0	0	20
026	Trans-Nzoia	1,235,470	Nzoia	21	22	84	81	n.c.d.	37	109	Nzoia: 109	85	41	6	99	34	49	81	78	63
027	Uasin Gishu	1,243,166	Eldoret	35	36	74	92	15	43	124	Eldoret: 124	107	42	4	100	32	50	72	83	108
028	Elgeyo Marakwet	487,675	Iten Tambach	11	12	38	74	16	54	97	Iten Tambach: 97	74	32	19	78	0	23	34	31	33
029	Nandi	1,002,140	Kapsabet Nandi Tachasis	10	10	69	41	24	32	89	Kapsabet Nandi: 86 Tachasis : 103	87	44	9	94	0	40	67	54	64
030	Baringo	718,134	Eldama Ravine Kirandich	10	5	62	65	8	42	54	Eldama Ravine: 71 Kirandich: 41	97	59	10	51	0	46	106	51	50
031	Laikipia	585,296	Nanyuki Nyahururu	30	35	85	93	22	52	110	Nanyuki: 114 Nyahururu: 108	103	36	6	97	36	67	97	99	123
032	Nakuru	2,239,891	Nakuru Rural Naivasha	51	53	83	93	16	37	102	Nakuru: 104 Nakuru Rural: 99 Naivasha: 94	93	40	6	87	23	65	103	101	107
033	Narok	1,177,313	Narok	7	7	45	65	16	42	91	Narok: 91	93	n.c.d.	16	88	0	92	118	104	43
034	Kajiado	1,068,396	Oloolais Nol Turesh Laitoklak Oikejwado Namanga	60	62	43	61	14	49	85	Oloolais: 83 Nol Turesh Laitoklak: n.c.d. Oikejwado: 79 Namanga: 92	97	42	17	90	0	57	85	75	49
035	Keicho	953,775	Keicho Tililbei	39	40	58	87	22	60	98	Keicho: 110 Tililbei: 50	98	51	8	96	13	50	96	81	84
036	Bomet	953,024	Bomet	13	13	56	93	12	32	59	Bomet: 59	73	57	17	87	0	48	107	55	48
037	Kakamega	2,048,266	Kakamega	19	19	87	93	21	54	98	Kakamega: 98	115	42	6	96	16	44	65	74	118
038	Vihiga	767,362	Amatsi	33	34	16	60	13	25	48	Amatsi: 48	72	36	12	69	0	38	60	29	33
039	Bungoma	2,094,911	Nzoia	9	10	84	81	n.c.d.	37	109	Nzoia: 109	85	41	6	99	34	49	81	78	63
040	Busia	990,137	Busia	12	30	32	93	12	44	65	Busia: 65	86	53	11	92	2	73	157	98	45
041	Siaya	1,096,237	Sibo	40	41	44	93	n.c.d.	29	82	Sibo: 82	74	70	9	69	0	19	63	47	29
042	Kisumu	1,261,010	Kisumu	35	36	76	93	24	36	106	Kisumu: 106	93	37	6	100	49	74	111	115	116
043	Homabay	1,258,023	Homabay	15	15	31	69	12	32	64	Homabay: 64	50	67	10	58	4	57	172	92	15
044	Migori	1,238,596	Migori Nyasare	24	24	24	44	10	30	49	Migori: 38 Nyasare: 122	94	43	13	88	0	68	112	39	54
045	Kisii	1,511,392	Gusii	50	52	39	93	n.c.d.	58	71	Gusii: 71	94	57	7	99	13	57	127	85	60
046	Nyamira	758,375	Gusii	25	26	39	93	n.c.d.	58	71	Gusii: 71	94	57	7	99	13	57	127	85	60
047	Nairobi	4,345,804	Nairobi Runda	100	102	78	93	6	61	97	Nairobi: 97 Runda: 115	96	38	6	100	50	53	82	74	93

n.d. no data n.c.d. non-credible data

The water services situation in Counties continued to be assessed in line with goals set out in the National Water Services Strategy (NWSS). For utilities' performance, the overall goal of the Strategy was looked at in terms of three clusters of indicators outlined below:

- **Quality of Service** - Increasing access to sustainable water and sewerage services
- **Operational Sustainability** - Reducing NRW
- **Economic Efficiency** - Recovering O+M costs

The distribution of the number of utilities in Counties is outlined in Table 5.2.

**Table 5.2: Distribution of Number of Water Utilities by Counties**

Number of Utilities	1	2	3	4	5	6	9	94
Number of Counties	27	10	3	2	3	1	1	47

This analysis includes four utilities in four Counties that did not submit data. One utility submitted data that was not credible for analysis.

From Table 5.2 above, it is evident that twenty-seven (27) Counties each have a regulated utility, down from 28 in the previous reporting period. Four Counties are served by two cross-County utilities. These are Nzoia (serving Bungoma and Trans Nzoia) and Gusii (serving Kisii and Nyamira). The remaining Counties have multiple utilities with Kiambu having the most regulated utilities at nine (eight public and one private). This is followed by Machakos at six. All Counties have at least a regulated utility, notwithstanding the varied levels of compliance.

Four Counties did not submit data in this analysis. Mandera and Tana River Counties did not submit data for the fourth year in a row, Marsabit County for the second year in a row and Wajir County was non-compliant in the current reporting period.

Although Counties do not provide services directly to the customers, they are directly responsible for the performance of their utilities through their constitutional oversight role. The Counties mentioned above are urged to prevail upon their respective utilities as a matter of priority to ensure they oblige. Under the Water Act 2016 section 72(1)(h), the Regulator is obligated to monitor progress in the implementation of NWSS. To this end, utilities must therefore submit their performance data to facilitate this monitoring. It is therefore important to present the situation of water services in Counties in this context so as to enable tracking of the commitments under the NWSS.

The performance of Counties has been evaluated on the basis and strength of the ratio between active connections of a utility and the aggregated active connections for all utilities in a County as outlined below;

Indicator	Indicator Elements	Computation
County Indicator Performance	County utilities achievement on every key performance indicator considered	Sum (Utility indicator performance X utility total active connections)/ Sum of utilities total active connections

### 5.3.1 Access to Water Services

In this reporting period, the proportion of County population within the service areas of regulated utilities varied from a low of 2% in Wajir to 100% in both Mombasa and Nairobi followed by Kitui at 98%. These are the same proportions like in the previous period.

Water coverage levels remained largely at unacceptable levels (less than 80%) across the Counties. Despite that, there was an improvement from previous period's four to the current eight Counties where acceptable levels were achieved. Tharaka-Nithi led at 88% followed by Kakamega at 87% then both Laikipia and Lamu at 85%. Only Laikipia was consistent in maintaining the coverage at the acceptable levels after improving by 5% from the previous period's performance.

The lowest water coverage was recorded in West Pokot County at 11%, followed by Vihiga and Taita Taveta Counties at 16% and 18% respectively.

It is noted here that the Counties may have invested in many water projects but unfortunately their impact may not have found their way into this analysis yet considering most of them may have been done outside the regulated utilities framework. County Governments are therefore urged to exploit the following interventions to improve on the long impending universal access:

- Put in place integrated investment and financing plans for their areas while considering needs of their utilities as a matter of priority
- Implement water projects through utilities for sustainability and also tracking the impacts of those projects in view of value for money
- Pursue progressive attainment of policy goals where planning takes centre stage for the investments to realize better impact
- Ensure pro-poor orientation by the utilities hence targeted investments for greater impact

### 5.3.2 Sanitation Coverage

Sewered sanitation coverage arising from sewerage systems that are conventionally water borne has remained low over time. It is for this reason that the sector is shifting attention to both sewered and non- sewered sanitation to fast track access.

Statistics indicate that about six million Kenyans have no access to latrines while 21 million Kenyans use shared latrines. Further, only 32 of the 215 urban centres in Kenya have some form of modern sewer systems spread across 26 Counties. This means 21 Counties do have urban centres that rely solely on onsite solutions



for wastewater management. Those with sewer systems suffer inadequate collection, treatment and disposal.

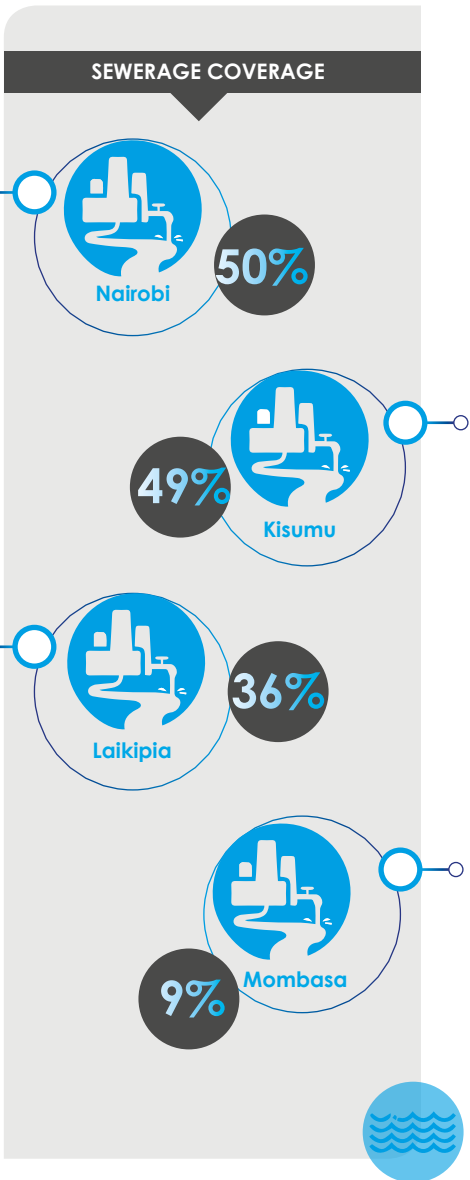
Going forward, this situation presents a big risk to public health and the environment considering the rapid rate of urbanization with the accompanying challenge of growth in informal settlements. The situation is expected to become even more dire considering there shall be more urban areas in the country now that the Cities and Urban Areas Act has been amended to vary the criteria of defining urban areas.

During this reporting period, Nandi and Taita Taveta Counties had operations of their sewer systems handled directly by County governments while Bomet and Kitui County utilities did not report on this for their new sewage systems, just like in the previous period. The Counties of Nandi and Taita Taveta are strongly advised to hand over operations of the waste water systems to their agents.

Consistently, Nairobi County continued to lead in sewerage coverage but maintained at 50% and was closely followed by Kisumu at 49% having improved by one percentage point from the previous period. Laikipia came in third at 36%, being a drop from 37% achieved in the previous period. Mombasa, being one of the current two city Counties, significantly improved to 9% from 4% in the previous period. This was understood to be on account of sewer reconnections in the Changamwe area after the construction of roads was completed and also other informal settlements through pro-poor focussed sewer projects.

During this period, Busia County had the least coverage at 2% among those that have sewerage systems. It was followed by Homa Bay at 4% (improved from 2%) then Meru and Murang'a at 5% each.

To improve the quality of life for their residents, Counties are urged to upscale their efforts in mobilizing adequate resources to ensure their urban areas not only have sewerage systems, but also acceptable and improved sanitation management systems.



### 5.3.3 Reduction of Non-Revenue Water

High levels of NRW continue to suppress and undermine the right to water. NRW is attributed to various factors relating to governance, technical, and resources among others. In their

oversight role, Counties should assist in the implementation of Wasreb's NRW Management Standards, whose objective is to assist sector players address this challenge.

During this reporting period, fourteen (14) Counties, up from twelve (12) in the previous period, recorded NRW levels of more than 50% meaning they lost more than half of the water they produced (Table 5.3).

**Table 5.3: Counties where Water Loss Exceeds 50% of Production**

S/N	County	NRW(%)	S/N	County	NRW(%)
1	Kwale	66	8	Kericho	51
2	Taita/Taveta	58	9	Bomet	57
3	Kitui	53	10	Busia	53
4	Kirinyaga	57	11	Siaya	70
5	Muranga	52	12	Homabay	67
6	West Pokot	57	13	Kisii	57
7	Baringo	59	14	Nyamira	57

From a business perspective, NRW is the biggest threat to commercialization. Besides, none of the Counties achieved the acceptable benchmark of less than 25%. The lowest NRW in this period was achieved in Makueni County at 29% and was closely followed by Kiambu at 31%.

If the current trend on NRW is to be contained, concerted effort is required at all levels including policy, regulation, operation and consumption. Specifically, Counties need to adopt business 'unusual' strategies in a bid to focus their attention to this challenge. The Regulator will be working in close collaboration with Counties on the implementation of NRW management standards.

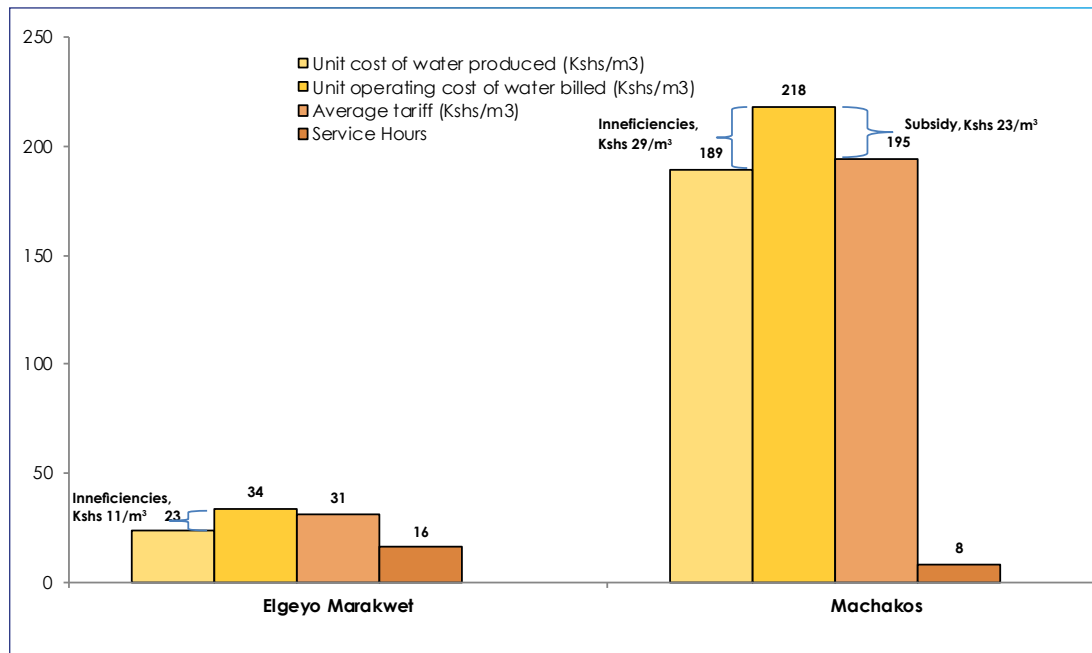
### 5.3.4 Recovery of O+M costs

The Water Act 2016 dictates that WSPs should be established by Counties based on their commercial viability. Commercial viability standards have been developed by the Regulator and are being used in the licensing of WSPs under the new legal framework. One requirement in the criteria is the ability of a utility to recover costs with an O+M cost coverage level at 130%.

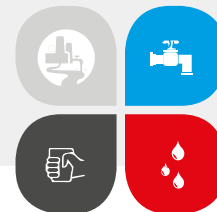
A significant number of Counties have utilities implementing non-cost reflective tariffs. The Counties have a primary obligation to ensure that justified tariffs are adopted and implemented.

Elgeyo Marakwet and Machakos Counties depict significant differences in cost of operations. Unit production cost of water in Elgeyo Marakwet is Kshs 23 while that of Machakos is Kshs 189 which is 8 times. In addition, the unit operating cost of water billed for the two Counties is Kshs 34 and Kshs 218 respectively. By the same token, the average tariff for Machakos is significantly more than six times that of Elgeyo Marakwet- Figure 5.1.

**Figure 5.1: Disparities in Operating Environments**



Elgeyo Marakwet and Machakos Counties depict significant differences in cost of operations. Unit production cost of water in Elgeyo Marakwet is Kshs 23 while that of Machakos is Kshs 189 which is 8 times. In addition, the unit operating costs of water billed for the two Counties is Kshs 34 and Kshs 218 respectively.



The cost of inefficiencies in Elgeyo Marakwet is about half that of Machakos. However, both Counties require subsidies of Kshs 3 and Kshs 23 respectively in order to meet the cost of providing the service. In the absence of guaranteed targeted subsidies, the sustainability of the utilities in several Counties can be compromised leading to a decline in service quality.

### 5.3.5 Personnel Expenditure as Percentage of O+M Costs

Counties should be concerned with personnel expenditure as a significant performance indicator. The indicator is assessed in the range of below 20% for 'good' and 45% for 'non-acceptable.' Nairobi leads the pack of the worst performing Counties in this indicator at 61%, followed by Kericho at 60%, while Vihiga has the lowest proportion at 25% followed closely by Kitui and Tavevo at 26% and 27% respectively.

The objective of this indicator is to encourage prudent utilization of resources with a greater component of the budget being directed to service provision rather than to personnel emoluments.

## 5.4 Emerging Risks and Mitigation Measures

Wasreb has continued to identify and map out risks and mitigation measures that have a bearing on the threat to progressive realization of the right to water and sanitation as enshrined in the Constitution.

County governments, being the functional owners with respect to provision of water and sanitation services, should put in place appropriate service provision models that are guided by good practices. Amongst the emerging risks that have been identified include the following:

- Governance crisis threatening the orderliness of respective actors in the service provision chain
- Declining resource base, requiring efforts to improve water availability
- Declining access to services (reliance on unregulated services, poor coverage)
- Decline in utility performance, requiring improved monitoring
- High water losses, requiring concerted effort of all players (state and non-state) in effective implementation of NRW management standards
- Utilities unsustainability, requiring efficiency in their operations. Specific Counties failure to support their utilities in development of appropriate infrastructure and also to provide targeted subsidies as agreed in the tariff proposal.





## CHAPTER 6

### CONCLUSION



## Rallying Call for All to Take Action

Performance assessment is driven by the desire to see improved services to consumers. Performance assessment is meant to take stock of where the sector is, so that players can be guided on areas that require effort to facilitate the attainment of both national and global goals. By way of conclusion, it is recommended that focus is put on various areas as indicated below.

### 6.1 Mitigate Climate Change



Improving access is increasingly being threatened by the effects of climate change. This mainly comes in form of either prolonged drought or floods. For the year under review, overall production declined mainly due prolonged drought. The law requires utilities to secure their water sources. The licence issued to the utilities requires that they develop climate change and disaster preparedness strategies to increase resilience and ensure mitigation measures. The Regulator is in the process of defining the characteristics of a climate resilient utility.

The United Nations has identified implementation of integrated water resources management, including trans-boundary cooperation, as a key requirement for reaching the targets under goal number six of the SDGs. In terms of implementation of integrated water resources management, Kenya was rated at 52% (SDG report 6), indicating there is still a lot of ground to be covered to attain the target of 100%.



County governments should now operationalise section 94 of the Water Act which requires that focus should also be put even on areas that are not commercially viable.



## 6.2 More Focus on Rural Areas

Article 56 (a) of the Constitution obliges the State to put in place affirmative action programmes designed to ensure that minorities and marginalized groups participate and are represented in governance system and they have reasonable access to water, health services and infrastructure. Despite the positive developments realised since the reforms in 2002, development has been skewed with focus being mainly on the commercially viable areas with little attention to the non-commercially viable areas.


This has resulted in less focus on rural areas where even basic data on issues like access is lacking. Lack of data impedes the tracking of the progressive realization of the right to water. There is need for deliberate efforts in rural areas to grow access if national targets are to be realised. Therefore, County governments should now operationalise section 94 of the Water Act which requires that focus should also be put even on areas that are not commercially viable under the guiding principle of leaving no one behind.

## 6.3 Pay Attention to Non-Sewered Sanitation

Sewerage coverage levels in the country remain relatively low putting in jeopardy the attainment of national targets on sanitation. This slow development in access is mainly attributed to the high cost of investment required for sewerage infrastructure. Achieving the 2030 target of safely managed sanitation services requires an inclusive urban sanitation approach that combines both sewered and non-sewered sanitation services. Consequently, recognizing that 84% of the population in urban areas depends on non-sewered sanitation, a pragmatic approach is needed to regulate service delivery from an inclusive perspective that acknowledges sewered and non-sewered technology modes and the importance of regulatory touch points along the entire value chain of non-sewered sanitation. We commend the increased high level commitment by government.

## 6.4 Reduce Water Loss

Non-Revenue Water continues to be a big threat to the financial sustainability of the sector. During the current period, the sector lost slightly more than seven billion shillings. Looked at



in terms of volume, the amount lost annually is equivalent to 90 million cubic metres. This amount is adequate to serve the current population of Nairobi County for almost 15 months. All stakeholders must put in place deliberate measures to deal with this challenge.

## **6.5 Improve Sustainability**

Inefficiencies in utilities, coupled with tariffs that do not cover cost, continue to hamper progress to full cost recovery. At the current average tariff of Kshs 79 per cubic meter, consumers are paying Kshs 12 per cubic meter for inefficiencies and the balance of Kshs 1 per cubic meter is covered by subsidies or deterioration of service levels. A tariff that is less than the unit cost of water billed starves the utility of funds to put into asset renewal and overall sustainability of the service. The sector needs to embrace efficiency in their operations as a sure way of promoting sustainability.

## **6.6 Governance**

The Constitution of Kenya 2010 allocated increasingly complex and resource-intensive responsibilities to County governments, resulting in inter-dependencies that require co-ordination to ensure efficiency, effectiveness and equity in service delivery.

Good stewardship ensures proper deployment of resource and curbs revenue leaks in enterprises. Wasreb will aim at promoting improved governance both at National and County levels. The Board will foster mutual co-operation with the County governments on governance of water (WSPs), identify and prescribe solutions for regulatory issues and ensure seamless service delivery to the citizenry. The capacity of WSPs will require enhancement to enable them carry out effective, efficient and sustainable water services provision. Wasreb will consequently enhance monitoring of licensees and ensure compliance with the regulatory framework.



## ANNEXES



## ANNEX 1: METHODOLOGY FOR QUALITY OF SERVICE KPIS

KPI CLUSTER	Indicator	Indicator Elements	Computation
QUALITY OF SERVICE	<b>Water Coverage</b>	Population served through individual connections-A	Total No. of active connections * Average household size  The average household size is derived from the census data and is unique for each area  The allowed per capita consumption is 20l/c/day and 10l/c/day for domestic and communal water points respectively
		Population served through yard taps -B	Total No. of active yard taps * Average No. of households served by a yard tap * Average household size  Allowed range of average number of households per yard tap is 4-10
		Population served through small MDUs-C	Total No. of active small MDUs * Average No. of households per small MDU * Average household size  Allowed range of average number of households per small MDU is 4-10
		Population served through medium MDUs-D	Total No. of active medium MDUs * Average No. of households per medium MDU * Average household size  Allowed range of average number of households per medium MDU is 11-20
		Population served through large MDUs-E	Total No. of active large MDUs * Average No. of households per large MDU * Average household size  Allowed average number of households per large MDU is >21
		Population served through Kiosks -F	Total No. taps (depends on kiosk type) * Average No. of people served per tap  Allowed range for kiosks is 100-400 people Sublocation population is derived from Census data and growth rates applied appropriately
		Number of people served with water services	A+B+C+D+E+F
		Population in Service area	Sum population of all sublocations within the WSP service area
		Water Coverage	Number of people served with water services/ Population in Service area
		<b>Drinking Water Quality</b>	Compliance with planned no. of residual chlorine tests
	Compliance with residual Chlorine standards		$\Sigma$ total no. of residual Chlorine tests within norm for all the schemes within the WSP service area / $\Sigma$ total no. of residual Chlorine tests conducted for all the schemes within the WSP * 100
	Drinking Water quality, Residual Chlorine		0.6 * Compliance with planned no. of residual chlorine tests + 0.4 * Compliance with residual Chlorine standards
	Compliance with planned no. of bacteriological tests		$\Sigma$ total no. of bacteriological tests conducted of all the schemes within the WSP service area / $\Sigma$ total no. of bacteriological tests planned of all the schemes within the WSP * 100
	Compliance with bacteriological standards		$\Sigma$ total no. of bacteriological tests within norm for all the schemes within the WSP service area / $\Sigma$ total no. of bacteriological tests conducted for all the schemes within the WSP * 100
	Bacteriological quality		0.6 * Compliance with planned no. of bacteriological tests + 0.4 * Compliance with bacteriological standards
	Drinking Water Quality		0.4 * Drinking Water quality, Residual Chlorine + 0.6 * Bacteriological quality
	<b>Hours of Supply</b>	This is the average no. of hours water services are provided per day of all the zones within a scheme	Weighted average of all registered zones, factoring no. of active connections ((hrs*Number of active connections, zone 1) + (hrs*Number of active connection, zone 2) + (hrs*Number of active connection, zone n)

## ANNEX 2: METHODOLOGY FOR ECONOMIC EFFICIENCY KPIS

KPI CLUSTER	Indicator	Indicator Elements	Computation
ECONOMIC EFFICIENCY	Personnel Expenditure as a Percentage of O&M Costs	Total personnel expenditures	Sum of personnel expenditures incurred during the reporting period  They include basic salaries, allowances, wages, gratuity, statutory and pension contributions by employer, subscriptions and training levy, leave, Incentives (Bonus) & Any other personnel expenditure.
		Personnel Expenditure as a Percentage of O&M Costs	$(\text{Total personnel expenditures} / \text{Total O+M}) * 100$
	Operation and Maintenance Cost Coverage	Total operating revenues A	Sum of billing for water, sewerage and other services  Billing for other services include charges on connection and reconnection, illegal connections, meter rent, meter testing, replacement of stolen meters and exhaustor services.
		Total operating expenditures B	Sum of expenses on personnel, BoD, General admin, direct operations, maintenance and levies and fees.  1. Direct operational expenditures include electricity, chemicals and fuel for vehicles.  2. Levies and fees include water abstraction fees, WSB fees, effluent discharge fees and regulatory levy.
		Operation and Maintenance Cost Coverage	$(A/B) * 100$
	Revenue Collection Efficiency	Total water and sewerage billing amount -A	Total amount of all bills on water and sewerage services during the reporting period of all the schemes within the WSP service area
		Total billing for other services -B	Total of all billing for other services of all the schemes within the WSP service area
		Total billing	A + B
		Total collection	Sum of all revenue collected of all the schemes within the WSP service area
		Collection Efficiency	$(\text{Total Collection} / \text{Total Billing}) * 100$

### ANNEX 3: METHODOLOGY FOR OPERATIONAL SUSTAINABILITY KPIS

KPI CLUSTER	Indicator	Indicator Elements	Computation
OPERATIONAL SUSTAINABILITY	Non-Revenue Water	Commercial Losses (Apparent Losses) A	Unauthorized consumption (e.g. illegal connections) + Customer meter reading inaccuracies, Estimates and Data Handling errors
		Physical Losses B	Leakages on transmission and /or distribution pipes + Leakages and overflows at utility storage tanks + Leakage on service connections upto the point of customer use
		Non-Revenue Water	$(A+B / \text{Volume of water produced}) * 100$
	Metering Ratio	Total number of active water connections	Sum of all active individual, MDU, yard taps, institutional, schools', commercial, industrial, bulk and other water connections of all the schemes within a WSP service area
		Total number of active metered water connections	Sum of all active individual, MDU, yard taps, institutional, commercial, industrial, schools', bulk and other water connections of all the schemes within a WSP service area that are metered
		Metering Ratio	$(\text{Total number of active metered connections} / \text{Total number active of connections}) * 100$
	Staff Productivity	The total number of staff divided by the total number of connections within the WSP service area	Total number of staff in the utility / (total number of active water connections + total number of sewer connections)



## ANNEX 4: COMPONENTS OF DRINKING WATER QUALITY

COMPONENTS OF DRINKING WATER QUALITY							
UTILITY	DWQ - Residual Chlorine (%)	DWQ - Bacteriological Quality (%)	DWQ (%)	UTILITY	DWQ - Residual Chlorine (%)	DWQ - Bacteriological Quality (%)	DWQ (%)
Nairobi	94	95	93	Kiambu	91	70	78
Eldoret	86	96	92	Limuru	96	96	93
Mombasa	66	72	70	Busia	96	96	93
Kisumu	95	96	93	Kyeni	-	-	n.d.
Nakuru	94	94	93	Tililbei	66	61	63
Thika	96	87	90	Karuri	95	88	91
Nzoia	96	71	81	Amatsi	82	45	60
Nyeri	96	96	93	Gatanga	-	-	n.d.
Murang'a South	96	96	93	Tuuru	-	76	46
Kakamega	95	95	93	Lodwar	70	43	54
Gatundu	58	59	59	Githunguri	86	91	89
Embu	96	96	93	Kibwezi Makindu	96	72	82
Kirinyaga	95	95	93	Nol Turesh Loitokitok	96	1	39
Othaya Mukurweni	95	73	82	Migori	91	-	36
Kilifi Mariakani	85	84	84	Embe	96	96	93
Malindi	73	87	81	Naivasha	95	95	93
Ruiru-Juja	95	96	93	Narok	96	44	65
Mathira	96	57	72	Nyandarua	79	-	32
Kericho	96	96	93	Kiambere Mwingi	96	96	93
Nakuru Rural	95	96	93	Eldama Ravine	73	59	65
Gusii	95	96	93	Murugi Mugumango	-	38	23
Tavevo	92	89	90	Kapsabet Nandi	74	-	29
Kahuti	96	57	73	Lamu	96	96	93
Nanyuki	96	96	93	Kirandich	n.d.	n.d.	n.d.
Nyahururu	96	96	93	Olkejuado	-	-	n.d.
Murang'a	96	96	93	Iten Tambach	96	60	74
Kwale	80	47	60	Muthambi 4K	-	-	n.d.
Imetha	95	96	93	Kapenguria	96	90	92
Garissa	96	n.d.	38	Samburu	-	-	n.d.
Bomet	96	96	93	Rukanga	93	93	93
Tetu Aberdare	58	95	80	Namanga	96	-	38
Ngandori Nginda	96	96	93	Wote	92	87	89
Meru	96	90	92	Ndaragwa	-	96	57
Sibo	91	95	93	Naromoru	-	-	n.d.
Mavoko	83	48	62	Mwala	96	96	93
Nithi	96	96	93	Yatta	76	44	57
Kitui	95	95	93	Matungulu Kangundo	67	-	27
Homabay	96	51	69	Kathita Kiirua	95	-	38
Machakos	96	96	93	Runda	96	96	93
Oloolaiser	94	66	77	Kiamumbi	96	64	77
Gatamathi	76	87	83	Nyasare	96	96	93
Kikuyu	53	81	70	Kathiani	96	56	72
Ngagaka	95	69	79	Tachasis	94	96	93
Isiolo	96	96	93	Mbooni	24	61	46

## ANNEX 5: GOVERNANCE ASSESSMENT

UTILITY	GOVERNANCE PARAMETERS												Totals		% Level of Governance	
	Utility Oversight/ Supervision		Information and Control Systems		Financial Management		Service Standards		Human Resources		User Consultation					
	15/16	17/18	15/16	17/18	15/16	17/18	15/16	17/18	15/16	17/18	15/16	17/18	15/16	17/18	15/16	17/18
	40		12		28		12		16		12		120	120	100%	
Nyeri	32	32	8	12	19	21	12	12	12	8	10	12	93	97	78	81
Kisumu	28	34	4	8	5	18	12	12	8	12	12	10	69	94	58	78
Eldoret	32	33	0	4	16	20	9	6	12	16	10	6	79	85	66	71
Kericho	39	38	8	8	7	17	5	6	16	12	4	4	79	85	66	71
Nakuru	24	35	4	8	9	21	9	6	12	10	10	2	68	82	57	68
Kirinyaga	21	29	4	8	8	17	5	5	6	8	12	10	56	77	47	64
Othaya Mukurweini	25	24	4	8	13	14	8	5	10	14	10	12	70	77	58	64
Kilifi-Mariakani	16	29	4	12	3	16	0	12	9	5	6	2	38	76	32	63
Kakamega	4	34	4	0	2	10	7	7	2	11	8	10	27	72	23	60
Malindi	24	18	4	12	9	18	7	7	6	5	6	12	56	72	47	60
Mathira	25	27	0	4	3	10	8	9	7	12	2	10	45	72	38	60
Embu	25	35	0	4	18	10	7	7	12	6	10	10	72	72	60	60
Murang'a South	37	30	4	8	5	10	7	6	10	10	10	6	73	70	61	58
Nyahururu	13	40	4	8	4	6	0	6	3	6	2	2	26	68	22	57
Nanyuki	25	26	0	4	3	10	0	6	9	13	0	8	37	67	31	56
Thika	22	19	4	8	5	19	4	8	3	9	6	2	44	65	37	54
Meru	21	26	8	4	16	8	4	7	4	8	8	10	61	63	51	53
Kahuti	24	24	4	8	9	14	5	5	15	9	8	2	65	62	54	52
Murang'a	33	22	8	8	20	10	12	6	8	9	10	6	91	61	76	51
Nakuru Rural	14	31	8	4	4	12	7	5	10	7	2	2	45	61	38	51
Nairobi	28	24	0	4	12	14	8	8	11	6	10	4	69	60	58	50
Mombasa	0	23	0	8	3	7	4	8	4	8	2	4	13	58	11	48
Gatundu	20	32	4	4	3	10	0	1	4	8	4	2	35	57	29	48
Gatamathi	20	17	0	0	5	10	5	6	4	13	2	10	36	56	30	47
Homabay	n/a	34	n/a	4	n/a	8	n/a	1	n/a	7	n/a	2	0	56	n/a	47
Bomet	24	26	8	4	3	14	5	6	6	3	12	2	58	55	48	46
Naivasha	n/a	22	n/a	4	n/a	14	n/a	7	n/a	2	n/a	6	0	55	n/a	46
Tavevo	20	13	4	8	2	18	5	5	4	8	8	2	43	54	36	45
Isiolo	20	29	4	0	8	10	1	6	4	6	8	2	45	53	38	44
Kwale	24	20	4	8	5	17	1	5	4	1	2	0	40	51	33	43
Mavoko	25	21	0	0	7	10	7	6	15	12	8	2	62	51	52	43
Nzoia	12	18	4	8	4	14	5	5	2	1	2	2	29	48	24	40
Tetu Aberdare	37	13	4	4	10	7	11	6	16	5	2	10	80	45	67	38
Kibwezi Makindu	16	14	4	4	7	15	1	6	0	4	4	2	32	45	27	38
Tililbei	n/a	27	n/a	4	n/a	4	n/a	6	n/a	4	n/a	0	0	45	n/a	38
Ngagaka	20	20	0	4	7	7	1	5	4	6	0	2	32	44	27	37
Nithi	20	17	4	4	3	11	1	4	8	6	4	2	40	44	33	37
Oloolaiser	24	17	0	0	12	9	1	6	14	5	0	2	51	39	43	33
Gusii	8	2	0	8	3	9	1	5	8	8	0	4	20	36	17	30
Kikuyu	20	10	4	4	7	9	5	6	4	4	2	2	42	35	35	29
Ruiru-Juja	n/a	2	n/a	4	n/a	15	n/a	6	n/a	4	n/a	0	0	31	n/a	26
Limuru	24	2	4	4	18	10	9	6	14	6	2	2	71	30	59	25
Narok	n/a	9	n/a	4	n/a	5	n/a	5	n/a	6	n/a	0	0	29	n/a	24
Kitui	16	10	4	4	3	5	1	5	9	2	0	2	33	28	28	23
Embe	n/a	11	n/a	0	n/a	8	n/a	5	n/a	4	n/a	0	0	28	n/a	23
Kiambu	24	2	4	4	14	9	5	6	9	4	6	2	62	27	52	23
Karuri	16	1	4	4	13	8	5	5	4	6	4	2	46	26	38	22
Rukanga	n/a	9	n/a	0	n/a	10	n/a	5	n/a	2	n/a	0	0	26	n/a	22
Sibo	20	10	4	0	6	6	5	5	13	2	0	2	48	25	40	21
Amatsi	12	9	4	4	3	3	1	1	8	4	0	0	28	21	23	18
Githunguri	12	1	4	4	13	7	5	5	6	2	0	0	40	19	33	16
Busia	n/a	9	n/a	0	n/a	6	n/a	1	n/a	0	n/a	0	0	16	n/a	13
Tuuru	n/a	1	n/a	4	n/a	4	n/a	5	n/a	1	n/a	0	0	15	n/a	13
Lodwar	0	1	0	0	0	1	1	6	0	2	0	0	1	10	1	8

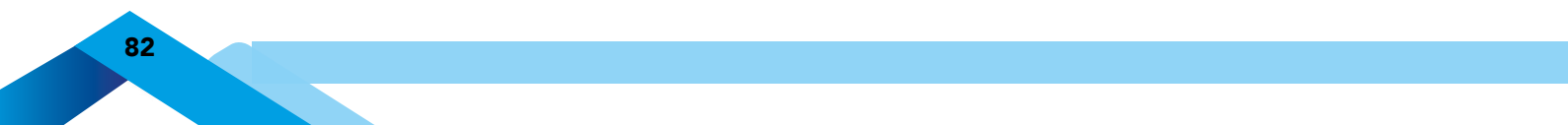
## ANNEX 6: PRO-POOR ASSESSMENT

Pro-poor Parameters Utility	Water coverage in low income areas	Level of services in low income areas	Strategy and organisation	Compliance to standards for water kiosks	Totals (84)	Weighted Score	Weighted score
	8	16	32	28	84	1,480	100%
Nyeri	8	12	28	28	76	1280	91%
Nakuru	6	12	28	24	70	1120	80%
Nakuru Rural	6	10	31	24	71	1110	79%
Kisumu	7	12	28	<b>16</b>	<b>63</b>	<b>1100</b>	79%
Kakamega	6	10	26	24	66	1060	76%
Eldoret	6	9	29	22	66	1050	75%
Kericho	6	12	26	12	56	980	70%
Naivasha	6	12	15	22	55	970	69%
Embu	5	15	23	11	54	940	67%
Nanyuki	6	13	18	12	49	920	66%
Ruiru-Juja	5	12	21	16	54	910	65%
Kapsabet	6	11	14	18	49	900	64%
Malindi	6	10	15	19	50	900	64%
Meru	6	9	16	18	49	880	63%
Thika	4	11	26	16	57	880	63%
Mombasa	5	7	23	20	55	870	62%
Mavoko	6	9	10	20	45	840	60%
Murang'a South	4	10	<b>19</b>	18	<b>51</b>	810	58%
Murang'a	2	9	30	20	61	800	57%
Nairobi	3	7	28	18	56	780	56%
Nzoia	2	8	31	18	59	770	55%
Limuru	6	8	19	6	39	770	55%
Bomet	4	8	14	16	42	700	50%
Oololaiser	3	9	10	22	44	680	49%
Nyahururu	2	8	16	20	46	640	46%
Kilifi Mariakani	2	6	14	22	44	600	43%
Mathira	1	8	17	18	44	570	41%
Gusii	1	4	23	20	48	570	41%
Gatamathi	4	8	8	8	28	560	40%
Tillibe	2	8	14	6	30	480	34%
Tavevo	0	9	12	18	39	480	34%
Lamu	2	4	7	19	32	460	33%
Imetha	3	7	6	6	22	440	31%
Kirinyaga	1	7	14	6	28	400	29%
Sibo	2	4	8	6	20	340	24%
Kahuti	1	4	8	8	21	300	21%

## ANNEX 7: CREDITWORTHINESS ASSESSMENT GUIDE

Indicators	Definition	Weight	4	3	2	1	0
<b>Economic Indicators</b>							
Poverty Rate	County poverty rates are derived simply by dividing the total number of poor people in each County in by the total population in each County	3	0-20	20-40	40-60	60-80	80-100
<b>Operational Indicators</b>							
Sewerage Coverage	Number of people served with Sewerage Services/ Population of area	1	100	90-100	80-90	70-80	<70
Water coverage	Number of people served with Water Supply Services/ Population of area	1	100	90-100	80-90	70-80	<70
NRW	Total Volume of Water Lost from Commercial and Physical Losses as a proportion of Water Produced	5	<20%	20-30%	30-40%	40-50%	>50%
No of staff per 1000 connections	Number of Staff Members/ (Total number of Connections/1000)	3	<5	6	7	8	>8
<b>Financial Indicators</b>							
<b>Revenue Indicators</b>							
Total revenue ( Excl Grants)	Total revenue from water & sewerage sales & other income	0	N/A	N/A	N/A	N/A	N/A
Revenue Diversification	The difference between the % residential revenue and %institutional	6	<10%	10-30%	30-50%	50-70%	>70%
Average tariff Differential	The difference between Average tariff per cubic metre and Production cost per cubic metre.	8	>50%	35-50%	20-35%	5-20%	<5%
<b>Cost Indicators</b>							
Total Opex	Total Operational & Maintenance Expenditure	0	N/A	N/A	N/A	N/A	N/A
Maintenance costs as % of opex	Total Maintenance Costs divided by total operations and maintenance expenditure	3	>8%	6-8%	6-4%	0-4%	>0%
Electricity as % of opex	Total Electricity Costs divided by total operations and maintenance expenditure	2	<10%	10-15%	15-20%	20-25%	>25%
Employee Costs costs /Total Opex	The Salary Costs as a % of Total OPEX	2	<25%	25-30%	30-35%	35-40%	>40%
Percentage O&M coverage	Total revenue from water and sewerage sales divided by total operations and maintenance expenditure	4	>130%	120-130%	110-120%	100-110%	<100%
Grant dependency for opex	The proportion of OPEX financed by income from Grants	3	0%	0-10%	10-15%	15-20%	20-25%
<b>Profitability Indicators</b>							
EBITDA/Revenue	Earnings Before Interest Tax, Depreciation & Amortization	5	>25%	20-25%	15-20%	10-15%	<10%
Annual Operational surplus / deficit	Total Revenue Less Total O&M Costs incurred	0	N/A	N/A	N/A	N/A	N/A
Profit / loss for year		0	N/A	N/A	N/A	N/A	N/A
<b>Liquidity &amp; Solvency Indicators</b>							
Liquidity reserves as % of annual operating expenses	Cash & Near Cash Reserves/ Annual Operating Expenses *12	5	>25%	20-25%	15-20%	10-15%	<10%
Liquidity ratio	Cash & Near Cash Reserves/ Current Liabilities	4	>1.6	1.5-1.6	1.4-1.3	1.2-1.3	<1
Debt Service Coverage Ratio	CFADS/ Total Debt Service (Interest + Principal Repayments)	5	>1.8	1.5-1.8	1.3-1.5	1.2-1.3	<1.2
Cash Flow Available for Debt Service	Net Operating Cashflow + Interest Repayments	10	>0	<0	<0	<0	<0
Debt: Equity Ratio	Total Debt/Total Equity	5	<20%	20-30%	25-30%	30-35%	>35%
Debtor Days: average number of days it takes WSP to collect monies billed	Net billed amount outstanding/ Total annual operating revenues excluding grants and transfers *365	5	<45 Days	45-60 Days	60-90 Days	90-120 Days	>120 Day
% Change in debtor days over the last financial year	(Debtor Days in Current Financial Year Less Debtor Days in previous Financial Year)/Debtor Days in Current Financial Year	5	>25%	20-25%	15-20%	10-15%	<10%
Consumer bad debt provision% Cash provision for bad and doubtful debts	Cash provision for bad and doubtful debt /Consumer bad debt provision%	5	Provision for all debt older than 60	Provision for all debt older than 90 days	Provision for all debt older than 365 days	Ad hoc limited provision	No provision
Billing Ratio	Volume of water Bought/ Volume of Water Produced	5	95% and above	93% to 94%	90% to 92%	85% to 89%	Less than 85%
Collection efficiency :Utilities ability to collect billed accounts	Total amount collected as % of the total amount billed	5	95% and above	93% to 94%	90% to 92%	85% to 89%	Less than 85%
<b>Total</b>		<b>100</b>	<b>4.0</b>	<b>3.0</b>	<b>2.0</b>	<b>1.0</b>	<b>-</b>









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