

# Bridging the sanitation data gap in Nakuru, Kenya

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Figure 1 – Old Town Wastewater Treatment Plant., Nakuru, Kenya © NAWASSCO.

## Summary

In the city of Nakuru, Kenya, there is a shared understanding among decision-makers of the urgent requirement to bridge the sanitation data gap. Nakuru Water and Sanitation Services Company (NAWASSCO) is the main utility in Nakuru County, and the mandated authority for water and sanitation service provision in the city of Nakuru. NAWASSCO's responsibilities are devolved from Nakuru County Government, which has responsibility to undertake county public works and services including water and sanitation services and stormwater management systems in urban areas.

Responsibilities for water and sanitation services in Nakuru are underpinned by the County Government Act 2012 and subsequently by the Nakuru County Water Policy 2017 and the Nakuru County Updated Integrated Development Plan (2018–2022), which aim to ensure effective and responsive basic service provision including pro-poor targeting.

Under the decentralization of water and sanitation functions to NAWASSCO, the utility is responsible for provision of water and sanitation services (sewered and onsite) within the area specified in the license. Faecal waste emptying services are provided by the private sector companies, which are contracted by NAWASSCO. The utility is responsible for wastewater and septage treatment and disposal in the city, and for the development of assets for service provision. Responsibilities for sanitation regulation in Kenya are presented in Figure 1 below.

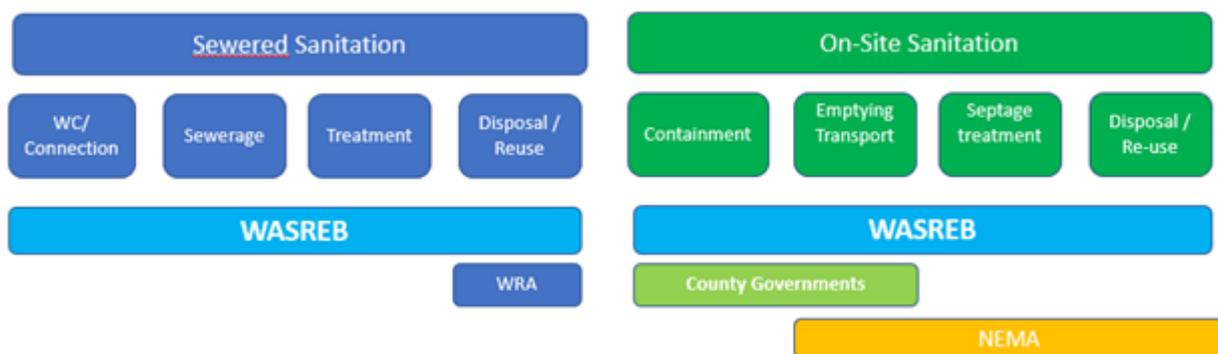


Figure 2 – Responsibilities for sanitation regulation in Kenya.

Relating to industrial wastewater, the Kenya Water Act (2016), Environmental Management Coordination Act (EMCA 1999), the EMCA Water Quality Regulations (2006) and WASREB Water Quality and Trade Effluent Guidelines require those discharging effluent into the sewerage system to meet effluent discharge requirements. These standards are enforced by the Water Service Providers (NAWASSCO in Nakuru), which have the power to institute measures to monitor and control the quality of trade effluent discharged into their sewerage systems.

This case study details how NAWASSCO is collaborating with the national regulator Water Services Regulatory Board (WASREB) to develop a new tool to provide the basis for enhanced sanitation data management and informed sanitation investment planning.

## Overview

### Geographical information

**Country:** Kenya

**City:** Nakuru

**City population:** 512,100



### Problem

- Coordination within Nakuru County government on provision of effective sanitation services has been lacking. In addition, the budget for sanitation services is limited and mostly directed toward solid waste management.
- The wider regulatory environment for sanitation involves overlapping and sometimes conflicting mandates.
- Standards for on-site sanitation as well as newer simplified sewerage systems are still to be formalized.
- Information management systems to support effective compliance monitoring and performance reporting are lacking.

### Solution

- The regulatory authority, WASREB, developed national-level onsite sanitation guidelines, which are complemented by the Nakuru County Public Health and Sanitation regulations and Standard Operating Procedures (SOPs).
- To increase access to improved and safely management sanitation and hygiene, dedicated budget for sanitation and wastewater management is estimated and reflected in the Nakuru Sanitation Investment Plan 2030. In addition, the utility is collaborating with WASREB to pilot a sanitation development fee to raise revenues for onsite sanitation services.
- To improve sanitation data management in Nakuru and support effective long-term investment planning, NAWASSCO participated in a pilot of the Citywide Inclusive Sanitation Services and Planning (CWIS-SAP) tool, part of wider efforts to strengthen data management processes within the utility.

## Problem

A key challenge to effective service provision in Nakuru has been the lack of coordination of sanitation management within the County Government. Nakuru Countywide Sanitation Technical Steering Committee (NACOSTEC) was launched in 2020 and is currently charged with coordinating the management and planning of sanitation services across the county. However, lack of budget allocation and weak oversight of onsite urban sanitation provision still hinder achievement of the service goals.

The sewer system in Nakuru serves an estimated 114,000 (27%) people within the city environment and it is estimated that only 28% of the wastewater generated by the urban population is collected into the sewers. Where residents rely on shared toilets linked to the sewer network, blockage of sewer pipes is a key challenge. A similarly low proportion of faecal sludge (35%) is estimated to be safely treated Table 1.

Table 1: Summary of key data for Nakuru city

<b>Demographics</b>	Population in NAWASSCO service area	552,420
	Population density	289.7 KM <sup>2</sup>
	Low-income area (LIA) population	308,194
<b>Water and sanitation services</b>	Water network coverage (%)	91
	Sewerage coverage (%)	28
	Dependent on onsite sanitation (%)	72
	Access to improved containment (%)	64
	Dependent on shared facilities (%)	41
	Wastewater treated (%)	28
	Sludge treated (%)	35

Source: NAWASSCO.

There are regulations at the national level for water and sanitation. However, the wider regulatory environment for sanitation in Kenya is characterized by overlapping and sometimes conflicting regulatory mandates. The existing legal and regulatory framework covers conventional sewerage and septic tanks, with most of the onsite sanitation services across the service chain receiving little, if any, regulatory oversight. Standards for onsite sanitation, as well as newer simplified sewerage systems, are still to be formalized.

The main sources of sanitation financing at the county level include tariffs, taxes and transfers. Taxes are exchequer allocations from general county revenues, derived from various taxes and equitable share of national revenue, and paid into the County Revenue Fund for provision of services. This also includes National Government conditional and unconditional grants. Due to non-existent budget codes, data is limited on budget allocation to sanitation services, although it has remained less than 2% of the County budget. In addition, the allocation budget for sanitation services is directed more towards solid waste management.

Compliance monitoring is currently weakened by factors including inadequate funding for regulatory agencies; inadequate human resources and institutional capacity; political interference; and the lack of an inclusive national sanitation management information system for effective compliance monitoring and performance reporting.

## **Solution**

WASREB is adopting an increasingly important role in this area, having developed national-level onsite sanitation guidelines, which in Nakuru are complemented by the Nakuru County Public Health and Sanitation regulations and Standard Operating Procedures (SOPs). But enforcement of the regulations and SOPs is currently limited due to lack of capacity at the County level, with pronounced negative impacts on levels of safe faecal sludge management in particular.

The Nakuru Sanitation Investment Plan 2030 estimates that to increase access to improved and safely managed sanitation and hygiene in urban areas, including for vulnerable and marginalized groups, the county will require approximately KES 25 Billion (\$US 210 Million). This will include KES 13 Billion (\$US 109 Million) to support the rehabilitation and expansion of existing sewerage systems in Nakuru and the construction of a new wastewater treatment plant; while the wider investment is envisaged to provide increased access to safe onsite sanitation in all urban and peri-urban areas.

Analysis of the County development budget showed a steady increase between fiscal years 2014/15 and 2017/18. The utility also raises revenue through fees paid by emptiers and exhausters at faecal sludge disposal points, and it is collaborating with WASREB to pilot a sanitation development fee for onsite sanitation services. However, much of the allocation for sanitation was directed towards solid waste management.

There are significant initiatives underway to strengthen sanitation data management in Nakuru. At the national level, it is also important to note that the newly enacted National Sanitation Services Management Policy recognizes the need to develop strong compliance monitoring systems to underpin effective sanitation regulation.

As the service provider responsible for sewerage and onsite sanitation, decision-makers within NAWASSCO are mindful of the need to strengthen data management processes within the utility, to support effective long-term investment planning. The utility has up-to-date information on key metrics, including the number of domestic and industrial connections to the sewer network (18,078 and 248 respectively), data which is readily accessible through an automated system. However, other key data necessary to guide investment and service planning – for example, the proportion of households with access to pit latrines and septic tanks respectively within a given

service area –has historically been lacking, or where it exists, domiciled within other institutions (for example, the Department of Health). In the view of Zaituni Kanenje, Manager for the low-income customer services department of NAWASSCO, in order to make better informed decisions on investments for wastewater and faecal sludge management, the utility must ‘ensure we put together all the data on sanitation — this has been the gap’.<sup>1</sup>

To address this issue, NAWASSCO participated in a pilot of the Citywide Inclusive Sanitation Services and Planning (CWIS-SAP) tool, in collaboration with the Kenyan regulator WASREB and with support from ESAWAS. Nakuru was one of two cities involved in the pilot, together with Lusaka, Zambia. As outlined by Richard Cheruiyot, Director of Monitoring and Enforcement at WASREB, helping utilities to optimize their investments in sanitation service provision was key to the rationale for developing the tool: ‘as we think about investments in sanitation, we need to have a basis for planning different interventions...we need to understand how we can optimize our investments in sanitation to achieve the desired outcomes’.<sup>2</sup> As the focal point for sanitation investment planning at the city level, the utility is responsible for populating and maintaining the tool, but from a regulatory perspective, the tool can assist WASREB in assessing the effectiveness of investments at the utility level and guiding resource allocation.

The tool starts with a mapping of current city-level service coverage (the baseline scenario) and the costs to provide services, revenues and safety levels associated with each of the sanitation systems in use. The tool then enables the user to model different scenarios and considers associated changes to hardware, revenue and service delivery models.<sup>3</sup> In Nakuru, NAWASSCO modelled three scenarios in addition to the status quo:

- i. **Onsite-heavy investment:** for example, investment in four transfer trucks, six mobile desludging units and one wastewater treatment plant (WWTP)
- ii. **Mixed investment:** for example, 25km sewer network extensions, one WWTP, one vacuum truck
- iii. **Sewer-heavy investment:** for example, 57km sewer network extension, one WWTP

Using data provided by NAWASSCO and WASREB, the tool compares the outcomes of each scenario against key metrics, presented in Table 2.

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<sup>1</sup> KII: Zaituni Kanenje. 28<sup>th</sup> June 2022.

<sup>2</sup> KII: Richard Cheruiyot, 22<sup>nd</sup> June 2022.

<sup>3</sup> CWIS SAP Learning Brief – Regulatory Use Cases

Table 2: CWIS SAP Indicators. See Figure 2 for example dashboard for 'Service Coverage'

Key metric	Indicators
Service coverage	Service coverage for low-income and non low-income households, disaggregated by sanitation categories: <ul style="list-style-type: none"> <li>- Sewers</li> <li>- Non-conventional</li> <li>- Safe containment</li> <li>- Unsafe containment</li> </ul>
Equity	<i>[All indicators sub-divided by low-income / non low-income households; sanitation categories]</i> Public Expenditure Targeting Public Expenditure Capex Public Expenditure Opex Public Expenditure per Capita Average Annual Household Expenditure
Sustainability	<i>[All indicators sub-divided by low-income / non low-income households; sanitation categories]</i> Total Government Cost (Grants & Government Transfers) Cost Coverage (R/C Ratio; Net profit / loss) Water Requirement
Safety	Safely managed Faecal Waste (percentage of waste safely managed at each level of the sanitation chain for each sanitation category)
Investment	Utility Net Income Private Operator Net Income Available Finance vs Required Investment
Subsidy	Capex Breakdown (by infrastructure component) Subsidy Requirement Household Components (by containment option)

Development of the tool has been a collaborative and iterative process. The tool was designed by Athena Infonomics and Aguaconsult, with technical inputs from WASREB and the Eastern and Southern Africa Water and Sanitation (ESAWAS) Regulators Association and financial support from the Gates Foundation. Following creation of the initial prototype by Athena and Aguaconsult, consultative meetings were held involving NAWASSCO and WASREB to optimize the tool, and key NAWASSCO staff were given editing rights to make changes, including the technical manager, geographic information systems (GIS) specialist and low-income customer services manager. Figure 1 shows the user interface and example outputs of the tool.

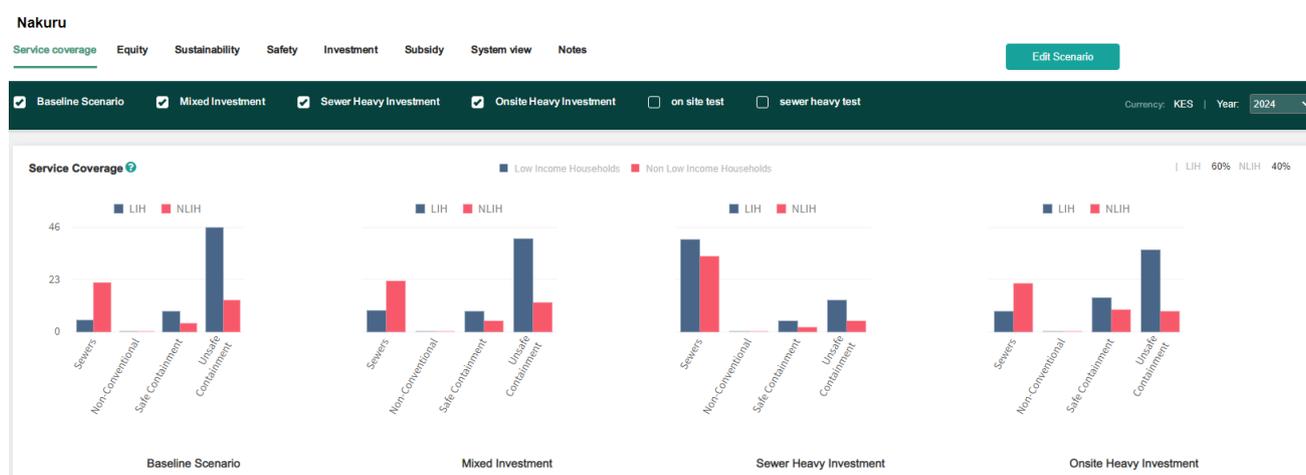


Figure 1 – User interface for the draft CWIS-SAP tool. Source: www.equiserve.io: accessed 16th May 2023.

## Lessons learned

As outlined by Richard Cheruiyot, WASREB, the pilot has itself been formative in underlining the level of data required to support effective long-term sanitation investment planning. The process of populating the tool was instructive in identifying data that is required for decision-making by NAWASSCO, but which is not currently collected: '(The pilot) has opened up understanding from utilities of the data they have to collect. It has pushed utilities to develop systems to ensure that data is available.' The pilot has also revealed that data storage is currently fractured, with information domiciled in different departments within NAWASSCO – to complete the tool, the utility had to call different people from different departments. To support more efficient decision-making and informed investment planning, this information needs to be centralized. As an immediate next step, NAWASSCO is considering the creation of a new post with responsibility for M&E across utility departments and functions.

## Useful links

[Wasreb Impact Report 14.pdf](#)

[2018–2022 Nakuru County CIDP.pdf \(kippra.or.ke\)](#)

[Global Report on Sanitation and Wastewater Management in Cities and Human Settlements | UN-Habitat \(unhabitat.org\)](#)

<https://www.wsup.com/insights/referee-responsibilities-regulations-and-regulating-for-urban-sanitation/>

<https://www.esawas.org/index.php/publications/sanitation/download/8-sanitation/52-longform-citywide-inclusive-sanitation-who-is-responsible>

<https://www.esawas.org/index.php/publications/sanitation/download/8-sanitation/51-longform-citywide-inclusive-sanitation-how-can-accountability-be-strengthened>

<https://www.esawas.org/index.php/publications/sanitation/download/8-sanitation/50-longform-citywide-inclusive-sanitation-how-can-resourcing-be-managed-effectively>

[https://www.esawas.org/repository/Esawas\\_Report\\_2022.pdf](https://www.esawas.org/repository/Esawas_Report_2022.pdf)

<https://www.gsma.com/mobilefordevelopment/resources/innovative-data-for-urban-planning-the-opportunities-and-challenges-of-public-private-data-partnerships/>

<https://www.gsma.com/sotir/>

<https://www.gsma.com/mobilefordevelopment/resources/partnering-with-the-public-sector-a-toolkit-for-start-ups-in-the-utilities-sectors/>

<https://www.gsma.com/mobilefordevelopment/resources/water-utility-digitalisation-in-low-and-middle-income-countries-experiences-from-the-kenyan-water-sector/>

## Further reading and references

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- Blackett, I, Hawkins, P, & Heymans, C. (2014). The Missing Link in Sanitation Service Delivery: A Review of Fecal Sludge Management in 12 Cities. *Water and Sanitation Program: Research Brief*. <https://www.wsp.org/sites/wsp/files/publications/WSP-Fecal-Sludge-12-City-Review-Research-Brief.pdf>, last accessed May 2022
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## About the author

**Emanuel Owako** is a project planning, design and implementation specialist with experience that spans across research into policy influencing, market systems strengthening, WASH business modelling, incubation of WASH businesses and entrepreneurs, innovative WASH financing, building of markets focusing on pro-poor segments, capacity building of utilities and devolved governments through policy frameworks and knowledge sharing for scale up. He currently works with WSUP as Global Project Controller and supports country teams in providing technical advice and guidance on projects including design, implementation, and reporting.

**Zaituni Kanenje** is a sociologist with a Master's degree in Community Development with a bachelor's degree in Social Work and Social Administration, and a diploma in Community Development. She is the head of low-income/informal areas at Nakuru Water & Sanitation Company (NAWASSCO), where her role focuses on providing water and sanitation services in Nakuru city. She has over 10 years' experience in WASH with utilities and implementing WASH programmes in the low income/informal settlements.

**Sam Drabble** is an urban WASH professional with over 10 years' experience in urban WASH research, technical publications, programme evaluation and peer-to-peer learning. He currently holds organization-wide responsibility for the Evaluation, Research and Learning function at Water & Sanitation for the Urban Poor (WSUP). While at WSUP Sam has supported the rollout of research programmes across WSUP's seven programme countries, authored or edited over 60 WSUP technical publications, and delivered research for wide-ranging institutional clients including World Bank, ESAWAS and WHO.

**Dewi Hanoum** is currently working at UN Habitat, Urban Basic Services Section covering the areas of WASH. She has decades of working experience in the field of sanitation, wastewater management and environmental management. She has a civil and sanitary engineering background and previously worked in academia and as a consultant.

The case study in this story is a further detailed of the case study presented at the [Global report for Sanitation and Wastewater Management in Cities and Human Settlements](#).

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## About the institution / organisation

**Water & Sanitation for the Urban Poor (WSUP)** is a non-for-profit company that helps transform cities to benefit the millions who lack access to water and sanitation. WSUP was created in 2004 as a response to the urban explosion that has left many cities unable to provide basic services, such as access to a toilet or drinking water, to low-income communities. <https://www.wsup.com/>



**Nakuru Water and Sanitation Services Company Limited (NAWASSCO)** is a private company, registered on 8 September 2003 under the Companies Act (Chapter 486, Laws of Kenya registered). Its major shareholder is the

County Government of Nakuru. NAWASSCO staff is made up of the Corporate Management Team, Middle Management and Unionizable Staff. <https://nakuruwater.co.ke/>



**UN-Habitat** is a United Nations agency that works for a better urban future based in over 90 countries and promotes the development of socially and environmentally sustainable cities, town and communities. UN-Habitat strives for adequate shelter with better living standards for all, and advocates for urbanization as a positive transformative force for people and communities, reducing inequality, discrimination and poverty. <https://unhabitat.org/>



### **About the IWA Inclusive Urban Sanitation Initiative**

IWA's Inclusive Urban Sanitation initiative responds to a huge and growing public need - safe sanitation in combination with access to safe drinking water and hygiene underpins good health. The aim of this initiative is reshaping the global urban sanitation agenda by focusing on inclusive sanitation service goals--and the service systems required to achieve them - rather than the traditional singular focus on expanding sewer networks and treatment works. This forms part of IWA's larger agenda to promote inclusive, resilient, water-wise, and sanitation-secure cities.

### **About the Inclusive Urban Sanitation Stories**

The Inclusive Urban Sanitation stories are documenting some of the policies, practices, and approaches that demonstrate how stakeholders especially those in urban areas (e.g., public sector, operators, academics, regulators, and other key actors) are taking part or contributing to Sustainable Development Goal 6 which require water and sanitation concepts and norms to look beyond technology and the usual focus on building infrastructure. Increased focus is on safety, inclusion, environment, public health, and multiple technology solutions tailored to different geographies and socio-economic contexts for building climate-resilient cities. The stories aim to inspire urban stakeholders to discuss ways for advancing inclusive urban sanitation, especially in low- and middle-income countries.