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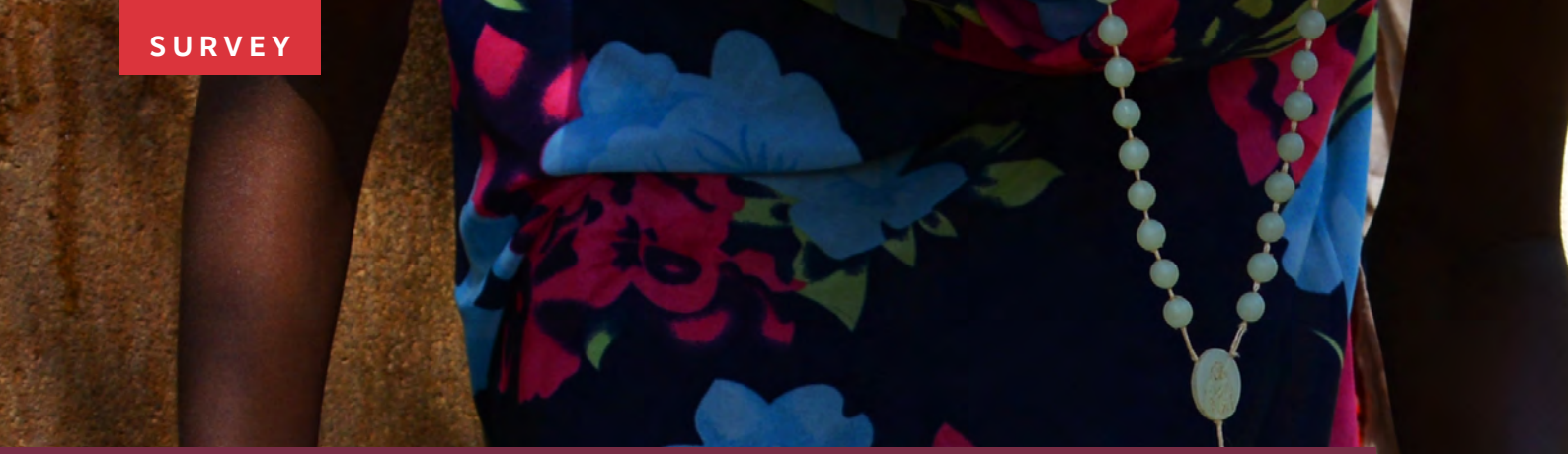

May 2025

Just and Sustainable Urbanisation Platform (JSUP)

Harmonized Survey Report on Best Practices for Sustainable Solutions on Water and Waste Management in Informal Settlements of Kisumu, Makueni, and Nakuru Counties

Co-funded by the European Union

Civil Society Urban Development Platform

PACJA PANAFRICAN CLIMATE JUSTICE ALLIANCE

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Contents

Foreword

This Harmonized Survey Report on Best Practices for Sustainable Solutions on Water and Waste Management in Informal Settlements of Kisumu, Makueni, and Nakuru Counties represents more than just data—it reflects the voices, struggles, and aspirations of communities working toward sustainable urbanisation and climate justice. It is a testament to what is possible when local insight meets collaborative action, policy commitment, and inclusive civic engagement.

At the heart of this report is a recognition that sustainable urbanisation cannot be achieved without addressing the foundational issues of access to clean water, effective waste management, and meaningful participation of youth and women. The findings contained herein not only offer insights into lived experiences but also spotlight best practices, policy gaps, and practical opportunities for improving urban resilience and quality of life.

This report is a key output of the Strengthening Civil Society Engagement for a Just and Sustainable Urbanization (SCEJU) project, a three-year initiative (2024–2026) co-funded by the European Union. Led by the Friedrich-Ebert-Stiftung (FES-Kenya) in partnership with the Civil Society Urban Development Platform (CSUDP) and the Pan African Climate Justice Alliance (PACJA), SCEJU aims to enhance democracy and inclusive processes in urban quality of life, climate change, and biodiversity in Kenya. The project focuses on empowering youth, women, and vulnerable groups in Kisumu, Nakuru, and Makueni counties to tackle critical challenges in sustainable water and waste management, particularly in informal settlements where access to essential services remains limited despite existing policies like the Sustainable Waste Management Act 2022.

We express deep appreciation to the Just and Sustainable Urbanisation Platform (JSUP) team for their outstanding coordination, commitment, and rigour in shaping this important work. They include Lead Researchers: Jared Ontita, Jennifer Kianga and Nyumbah Nyanjo'ng. Assistant Researchers: Merceline Odhiambo, Lucy Ngorongo, Karen Munyae, Patrick Ndunga, Chrispine Owalla and Marita Agufana.

Our sincere gratitude extends to the Friedrich-Ebert-Stiftung (FES) Kenya Office for its consistent leadership and support in advancing urban social justice and democratic governance. We also acknowledge the instrumental contributions of the Civil Society Urban Development Platform (CSUDP) and the Pan African Climate Justice Alliance (PACJA) for their enduring efforts to amplify grassroots voices and integrate climate justice into local development agendas.

This publication would not have been possible without the generous support of the European Union Delegation to the Republic of Kenya, whose co-funding through the SCEJU project underscores the importance of multi-actor partnerships in sustainable development.

We are equally thankful to the county officials and community participants in Kisumu, Makueni, and Nakuru, whose openness, insights, and participation enriched the depth and relevance of the survey. Their contributions continue to be the cornerstone of evidence-based advocacy, policymaking, and programmatic innovation.

As we turn these pages, may they inspire stronger commitments and renewed partnerships to ensure that the promise of sustainability reaches every informal settlement, every household, and every future generation.

Titus Kaloki & George Wasonga, SCEJU Programme Coordinators

Executive Summary

This report explores contemporary best practices, policy gaps, and opportunities for sustainable water and waste management (SWWM) in informal settlements of Kisumu, Makueni, and Nakuru counties. Co-funded by the European Union, under the Strengthening Civil Society Engagement for a Just and Sustainable Urbanization (SCEJU) project, which aims to strengthen civil society actors and grassroots organisations as independent agents of accountability and sustainable development. The highlights and findings of this harmonized report are born of a rigorous survey that was undertaken in the three aforementioned counties. This report highlights the policy gaps and opportunities coupled with knowledge, attitude and practice in the day-to-day lives of the sustainable water and waste actors in the three counties.

The report seeks to support national and county decision-makers in relation to sustainable water and waste management in the informal settlements in Kisumu, Nakuru and Makueni by fostering dialogue leading to platforms for sharing information and the exchange of good practices for improving the services in sustainable water and waste management. The report further invites county governments and multilateral agencies to recognize and address constraints and regulatory structures that have impeded the growth of the circular economy around sustainable water and waste management in the three counties targeting the youth and women. In doing so, governments, multilateral agencies, civil society and the private sector would enable the deep pool of actors, especially women and young people, as well as unlock the vast fortunes within the circular economy.

The overarching purpose of this survey was to document the best practices and policy gaps and opportunities around sustainable water and waste management in the mapped informal settlements of Kisumu, Nakuru and Makueni counties. The intent is to have a comprehensive understanding of the water and waste management value chain and find a way to enhance influence on providing sustainable solutions on water and waste management that benefits the women and youths.

The findings of this survey are meant to inform the SCEJU project's overall objective of strengthening democracy and inclusive democratic processes in matters of urban quality of life, climate change, and biodiversity in Kenya This is in line with Development Goal 11, aimed at achieving sustainable cities and communities, including a 2030 target of reducing the per capita environmental impact of cities, in part, by focusing on municipal and other waste management (UN, 2019) through strengthened responsive, inclusive, participatory, and representative governance in sustainable water and waste management and climate justice across Nakuru.

Highlights of the findings

Sustainable Water Management

- In all the three targeted counties, the survey found out that households practice simple yet effective safe water conservation and treatment, like boiling drinking water and using storage due to scarcity. Also, a common feature is the harvesting of rainwater. Kisumu indicated that 62% of households have embraced the method.

- In relation to the enforcement of the process of water, the Water Services Regulatory Board (WASREB) controls the pricing of water that's provided by NAWASCO and other private providers. This is a key enforcement aspect that is respected by all the actors in the water sector.

- All the counties are facing the challenge of dilapidated and worn-out water infrastructure. In some municipalities across the counties, they're still using colonial and outdated infrastructures which are unable to meet the growing demand due to population growth.

- Kisumu has embraced innovative strategies to improve access and affordability of water, particularly in informal settlements. One notable model is KIWASCO's Direct Meter Management (DMM) system, which decentralizes water provision by empowering community-based operators to manage water kiosks. These kiosks often operate on a token-based system, giving residents 24-hour access to water at lower costs.

- In Nakuru, 90% of its source of water is boreholes, with challenges of fluoride content being high.

- Makueni and Nakuru counties are faced with water scarcity, with urban centres relying heavily on boreholes and water trucking. Low water pressure and rationing are common, and high-rise buildings often face water shortages.

- In Makueni the main water source, Kaiti River, is contaminated by pesticides, herbicides, human waste, and industrial/hospital waste. Residents face challenges such as water pollution, high costs, and encroachment on water catchment areas.

Sustainable Waste Management

- Across all three counties, there are notable numbers of women and youth initiatives that work within the water and waste value chain. In Nakuru there is a group of women that converts solid waste to organic fertilizer and the forming of BSFs, for example, Grinncom Investment, which turns solid waste from markets into organic.

- On solid waste management, all three counties depend largely on private actors to provide services. In Kisumu, collection is largely privatized (48%), with the county depending on a single legal dumpsite (Kasese), which suffers from poor accessibility. In Nakuru, solid waste actors are organized under the umbrella of Nakuru Solid Waste Management Association (NASWAMA) with 93 member and a signed memorandum of understanding with the county government. In Makueni thirty-nine (39) undesignated solid waste transfer stations are provided in different market centres within Wote Municipality; 11 out of these have skip bins.

- Also notable in all counties are organized and informal groups at main municipality dumpsites that segregate waste for sale Presence of private waste management firms and waste collectors such as scrap metal vendors, plastics, and paper.

- Kisumu's waste management sector benefits from active grassroots involvement, particularly in informal settlements. The private sector and community-based organisations (CBOs) like Gasia Poa play a leading role in regular waste collection.

- Kisumu County is the only one that has established Material Recovery Centres (MRCs) in Obunga, Manyatta, and Kaswino. These centres support waste segregation, sorting, and recycling, reducing pressure on landfills and promoting a circular economy. Nakuru and Makueni are in the process of setting their MRCs. They have a lot to learn from Kisumu.

- In Nakuru County, NAWASCO's development through PPP is seen as a best practice case since it has provided employment to many youth and women and also clean energy.

- The Makueni County government has deployed one hundred and fifty-eight (158) casual market cleaners who assist in the collection and disposal of solid waste, which offers employment to the women and youth.

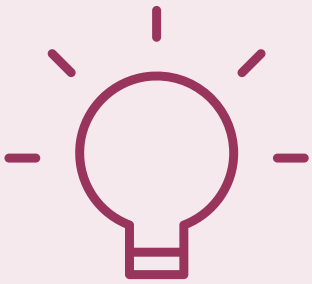
Policy Gaps

- National legislation like the Sustainable Waste Management Act (2022) remains poorly domesticated.
- Enforcement suffers due to limited capacity, low awareness, and resistance from informal sectors due to lack of knowledge on their role in the value chain and fear of being integrated into formality leading to taxes.
- Regulatory mandates around waste segregation are inconsistent and often unenforced due to coordination among key actors.

Recommendations

SCEJU

- Initiate more in-depth research on sustainable water and waste management in the project areas on specific aspects of waste and water management to assist the target counties in the implementation of the Sustainable Water and Waste Management Act 2022.
- Conduct awareness in collaboration with different actors on waste and water management at the targeted counties.
- Work with civil societies and private parties to support the development and domestication of solid waste management law in all three target counties. Through building their capacities to lobby and advocate for policy development, changes, and budget allocation to the sector.



County Governments

- Prioritize policy development within the county assembly in relation to the domestication of the Sustainable Water and Waste Management Act 2022.
- Municipalities can also spearhead the process of development of by-laws around water and waste management in line with the national law, especially around segregation at for ease of enforcement.
- Through the county assemblies, the county should prioritize budget allocation for the water and waste management sector. This will assist in upgrading the water and waste infrastructure in the identified counties.
- The country should work around PPP in water and waste management to enable meeting the growing demand for these goods and services. So far there is progress across the counties, and more should be done.
- Awareness creation and public participation on water and waste should be prioritized, reaching out to non-traditional actors in the field. This will enhance the deepening of interest in water and waste management at the county level. These can be done through citizen forums across the different municipalities.

Women and Youth

- They should take up roles in the sustainable water and waste value chain to create employment for themselves.
- The target group should take up an active role in engaging the county government and other actors through advocacy on sustainable water and waste management in their respective counties.
- They should lobby the county government to create a friendly working environment and reduce fees for youth and women's groups to facilitate their ability to compete in the sustainable water and waste sector. This should target county government tenders for provision of services and goods to the youth and women, given locked as per the national procurement procedures through access government procurement opportunities (AGPO).

2.0 Methodology

The survey adopted a mixed methods approach (quantitative and qualitative) in order to gather and process primary and secondary data. Mixed methods of collecting data were adopted to enable triangulation and allow for verification and cross-checking data using several pieces of evidence. Primary data was collected in the form of quantitative and qualitative data. Quantitative data was collected from individual waste and water management actors, county government officials, and regulatory agencies using questionnaires deployed in a blended approach – and through interviews. Qualitative data was collected through Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) which covered Kisumu, Makueni and Nakuru Counties. Secondary data was collected using qualitative data collection methods through a literature review of existing internal documents and external sources, including published documents and legal frameworks.

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County Findings

01 Kisumu County
02 Nakuru County
03 Makueni County

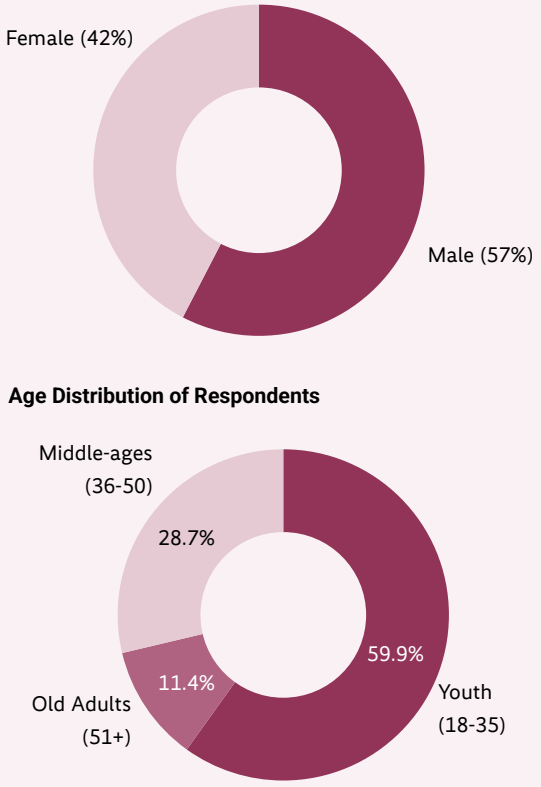
Kisumu Findings

3.1 Demographic Profile of respondents

The survey findings highlight critical demographic dynamics that shape access and participation in water and waste management. The data indicates that 59.9% of the respondents were youth (ages 18–35), underscoring the importance of integrating youth-driven solutions into environmental policy. Middle-aged individuals (36–50 years) comprised 28.7%, while older adults (51+ years) accounted for just 11.4%, pointing to a knowledge gap and the under-representation of elder voices in planning and implementation.

Fig. 1

Age Distribution of the Respondents



3.2 Gender

Gender analysis shows a near-balanced representation, with women comprising 42% and men 58%. Despite women bearing the brunt of daily water collection—spending an average of 3.2 hours per day compared to men's 1.1 hours—they remain underrepresented in decision-making. Only 33% of community water committee positions are held by women. Additionally, traditional gender norms have discouraged greater female participation in waste management, where men dominate 65% of the roles.

3.2 Water Access and Use

Despite its location on Lake Victoria, Kisumu only utilizes 50% of its built water production capacity (80,000 m³/day). Barriers include high electricity costs, pollution, and aging infrastructure. KIWASCO, the main provider, has achieved 93% coverage but struggles to supply underserved informal settlements, where residents rely on expensive vendors (KES 5–20 per 20L jerrycan). Sewerage coverage remains critically low at 18%.

Notable practices include:

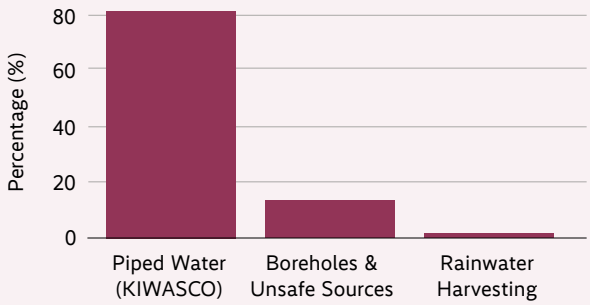
→ Rainwater harvesting by 62% of households.

→ Piloting of token-operated kiosks in low-income areas.

→ KIWASCO's partnerships with WWF and USAID for source protection and sustainable farming.

Fig. 2

Main Sources of Water in Kisumu



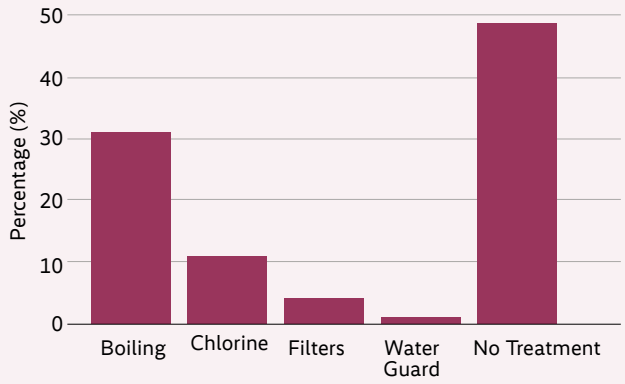
3.3 Water Treatment and Safety

Water safety remains a concern, especially in informal areas. Although KIWASCO maintains high quality, 49% of respondents do not treat drinking water. Boiling is the most common method (31%), followed by chlorine (11%). Low uptake of Water Guard and filters indicates barriers in affordability or awareness. However, 49% of residents do not

treat their water, posing health risks, especially in areas with questionable water quality. Only 2% of respondents reported using rainwater as their main source, indicating underutilization despite potential.

Fig. 3

Water Treatment Methods Used



3.4 Best Practices in Water Management

→ Kisumu has embraced innovative strategies to improve access and affordability of water, particularly in informal settlements.

→ One notable model is KIWASCO's Direct Meter Management (DMM) system, which decentralizes water provision by empowering community-based operators to manage water kiosks. These kiosks often operate on a token-based system, giving residents 24-hour access to water at lower costs.

→ Another commendable practice is rainwater harvesting, reported by 62% of surveyed households. While this is largely done at the household level, it demonstrates high community awareness of conservation techniques.

→ In partnership with WWF and USAID, KIWASCO has also been involved in watershed protection and afforestation around water sources such as Kajulu, helping safeguard the water supply from pollution and depletion.

→ CSOs and KIWASCO run education campaigns on water conservation, showcasing an example of public-private and community collaboration.

3.5 Wastewater Management

Only 19% of Kisumu households are connected to sewer systems. Open ditches (40%) and septic tanks (25%) are more commonly used for wastewater disposal. These practices pose health and environmental risks, especially in flood-prone areas.

Waste management systems are severely strained:

→ 40% of wastewater is disposed of in open ditches.

→ Only 19% of households are connected to sewer systems.

→ Solid waste collection is largely privatized (48%), with the county depending on a single legal dumpsite (Kasese), which suffers from poor accessibility.

Illegal dumping is rampant due to:

→ Absence of designated bins (reported by 74% of respondents).

→ Poor enforcement of the Sustainable Waste Management Act (2022).

→ Inadequate funding (waste management receives <KES 10M annually).

Despite these constraints, promising models have emerged:

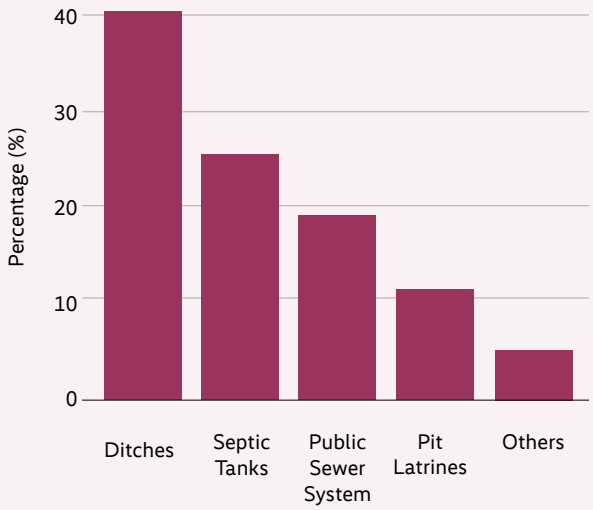
→ Material Recovery Centres in Obunga, Manyatta, and Kaswino.

→ Active grassroots engagement through actors like Gasia Poa and the Kisumu Waste Actors Network (KIWAN).

→ Use of the polluter pays principle and CSO-led clean-up campaigns.

Fig. 4

Waste water Disposal Methods

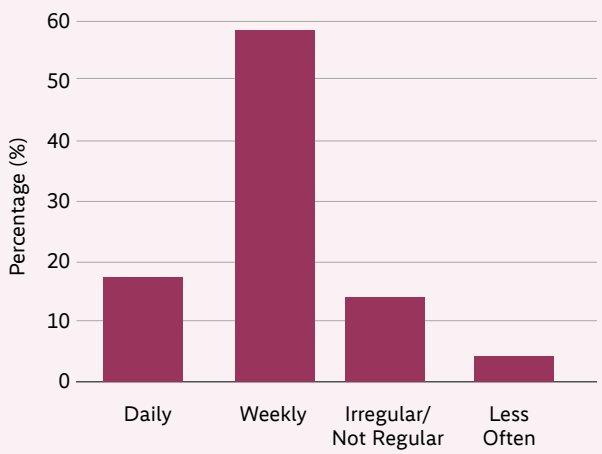


3.6 Solid Waste Collection and Disposal

Solid waste collection is largely privatized (48%) but inconsistently delivered. Weekly collection is most common (58%), though 14% of residents report irregular service. Illegal dumping persists due to limited collection points and poor road access to the only legal dumpsite in Kasese.

Fig. 5

Household Waste Collection Frequency

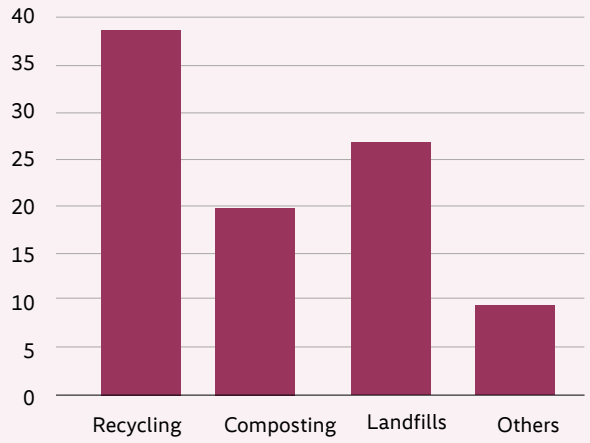


3.8 Community Practices and Participation

Communities participate in recycling (39%) and composting (20%), yet 72% of households do not consistently segregate waste. Focus groups revealed youth and women are aware of sustainable practices but lack infrastructure and support to implement them effectively.

Fig. 6

Community Waste Management Practices



3.7 Best Practices in Waste Management—Speaker Notes

- Kisumu's waste management sector benefits from active grassroots involvement, particularly in informal settlements. The private sector and community-based organisations (CBOs) like Gasia Poa play a leading role in regular waste collection.
- The county has established Material Recovery Centres (MRCs) in Obunga, Manyatta, and Kaswino. These centres support waste segregation, sorting, and recycling, reducing pressure on landfills and promoting a circular economy.
- Local clean-up initiatives and advocacy efforts, often led by civil society and youth groups, are another key practice, fostering community ownership of sanitation.
- The adoption of the polluter pays principle has been recognized as a strategy for enforcing accountability, though more formal enforcement is needed.
- These practices show that while challenges exist, community-driven and partnership-based models can deliver results when supported by the right infrastructure and policies.

3.9 Policy Gaps

3.9.1 Implementation and Enforcement

- National legislation like the Sustainable Waste Management Act (2022) remains poorly domesticated.
- Enforcement suffers due to limited capacity, low awareness, and resistance from informal sectors.
- Regulatory mandates around waste segregation are inconsistent and often unenforced.

3.9.2 Regulatory and Institutional Bottlenecks

- Lack of special electricity tariffs for water utilities raises operational costs.
- Landlords and unlicensed businesses face minimal enforcement on waste standards.
- Weak inter-agency coordination limits public-private partnerships (PPPs) and joint programming.
- CSOs face bureaucratic hurdles (e.g., multi-layered NEMA licensing).

3.9.3 Budget and Financing

→ Water and sanitation allocations range from KES 90M to 300M, far below required levels.

→ Waste management severely underfunded; current allocations < KES 10M.

→ Overreliance on donor funding jeopardizes sustainability.

3.10 Community Perspectives

3.10.1 Gender and Youth Dimensions

→ **Women fetch 78%** of household water, spending an average of 3.2 hours daily.

→ Youth cited inequity in access, unreliable supply, and water-related health burdens.

→ Gender representation is lacking in decision-making: women hold only 33% of positions in community water committees.

3.10.2 Focus Group Observations

→ **Water:** Distance, cost, and contamination top concerns. Rainwater harvesting and community tanks are preferred solutions.

→ **Waste:** Open burning and illegal dumping are common. Youth propose 3Rs (Reduce, Reuse, Recycle) and greater civic education.

→ **Community Engagement:** CBOs seen as vital intermediaries. Participants called for inclusion in planning and implementation.

3.11 Opportunities for Reform

3.11.1 Policy and Regulation

→ Fast-track **domestication** of the SWM Act (2022).

→ Introduce **electricity subsidies** for water utilities.

→ Reform conservancy fees and enforce planning regulations on sewerage access in commercial buildings.

3.11.2 Infrastructure and Technology

→ Solarize water production systems (e.g., replicate the Malindi PPP model).

→ Expand sewer networks and upgrade dumpsite roads.

→ Invest in low-tech waste transport systems for informal settlements.

3.11.3 Community and CSO Engagement

→ Institutionalize ward-level planning committees.

→ Strengthen community health promoters (CHPs), radio campaigns, and school programs for behavior change.

→ Support CSO co-implementation and financing through matching grants.

3.11.4 Financing Models

→ Mobilize climate adaptation funds, carbon credits, and plastic credit schemes.

→ Establish a Kisumu Environmental Trust Fund, pooling public and private contributions.

→ Subsidize water access in low-income neighborhoods.

3.12 Conclusion

Kisumu County faces deeply interconnected challenges in water and waste management, exacerbated by rapid urbanisation, weak enforcement, and underinvestment. However, scalable innovations already exist—from rainwater harvesting to community recovery centres. With targeted investments, gender-responsive programming, and policy reforms, Kisumu can transform from a site of environmental vulnerability to a model for sustainable urban resilience. Aligning these efforts with Kenya's Vision 2030 and the SDGs will ensure not only improved services but also strengthened democratic governance and inclusive development.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4.0 Nakuru Findings

4.1 Socio-Demographic Characteristics of the Respondents

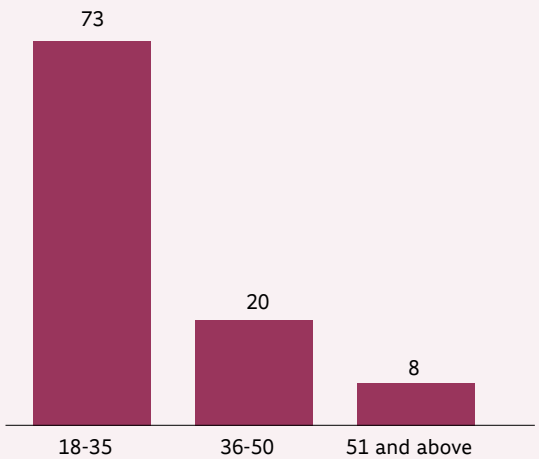
The survey aimed to gather information about the socio-demographic characteristics of the respondents. This involved collecting data on age, gender, and occupation. The goal was to better understand the intersectionality and perspectives of specific target groups within their respective geographical regions.

4.1.1 Age

The age cohort distribution finding indicated that the majority of the respondents, 73, are between the ages of 18 and 25 years, followed by 20 respondents who are between the ages of 36 and 50, and lastly only 8 recorded ages above 51 years old. These results are in tandem with the SCEJU project which targets youth as one of the target populations in regard to employability and livelihood. The figure below illustrates that age distribution among the respondents.

Fig. 7

Age Distribution of the Respondents



4.1.2 Gender

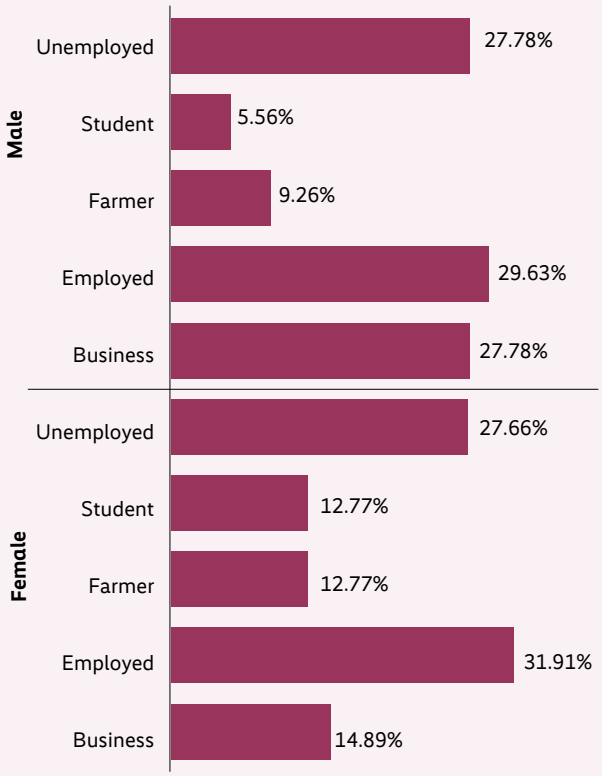
The results on gender showed an almost equal representation of males and females, with 47% of female respondents, while male was 54%. From observations in the field and other sources of data collection, the survey found out that the sector of water and waste management is highly dominated by males as compared to females. From this finding, this percentage is an encouragement that females are taking up the role in the sector.

4.1.3 Occupation

Sustainable water and waste management actors' livelihoods are a crucial indicator of their socio-economic status and political independence. Being able to connect their participation to their opportunities for employment and a supportive policy framework is important. Results from the survey indicate that most of the respondents are either unemployed, employed or in other businesses. This applies almost equally to the respective genders. The results indicate that fewer students and farmers were reached through this survey, and true to the design, the survey was targeting respondents in the water and waste management value chain. Figure 3 below provides a detailed breakdown of the percentages in the respective genders.

Fig. 8

Respondents' Occupation with given Gender



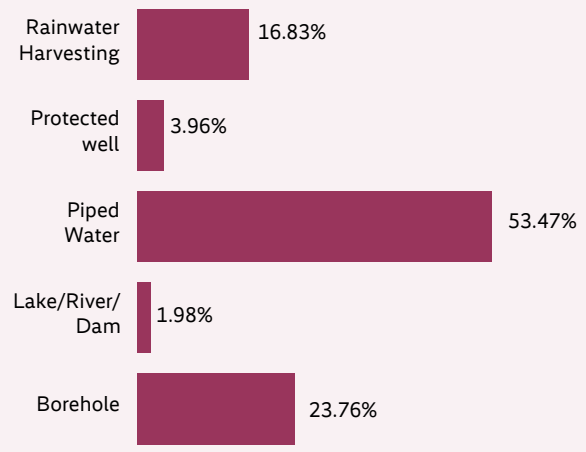
4.2 Sustainable Water Management

4.2.1 Source of Water in Nakuru County

During the KII with a representative from NAWASCO, he stated that 90 percent of the water that serves the vastness of Nakuru County comes directly from borehole water. He mentioned that NAWASCO currently has 40 boreholes with an ambition to drill more to cater for a demand. The remaining 10% comes from the rivers. The rivers, therefore, are well maintained so as to blend with the groundwater. Once the water is blended, the fluoride levels go down. Once this water is treated it's then made available to the consumers through piped water. This is in line with the finding of the survey where the respondents reported that 53.47% of their water sources are piped water. This was closely followed by 23.76% whose source of water is from boreholes. This phenomenon was further explained since private owned bore holes are operated within the county and they mostly come in to serve the demand that NAWASCO could not meet directly. The rest of the respondents depend on water harvesting, while others source their water from rivers and dams as illustrated in the figure below.

Fig. 9

Sources of Water in Nakuru County

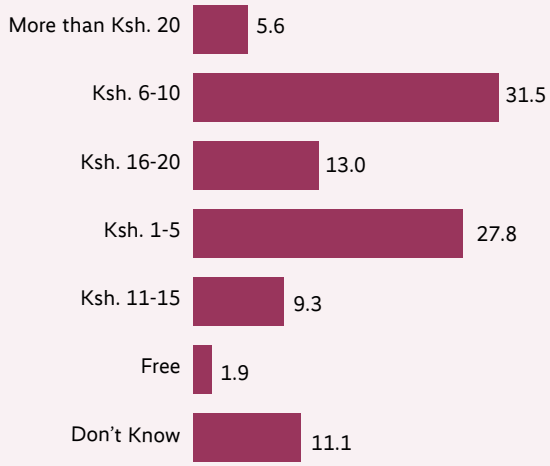


4.2.2 Average Cost of a 20-liter Jerrycan

The cost of water in Nakuru County is a bit high, and this is due to the high electricity bill that NAWASCO needs to pay on a monthly basis. NAWASCO needs to pay those bills in time; if not, the power is shut, therefore causing challenges when it comes to water supply. Despite the above. NAWASCO is regulated, and they cannot come up with new prices every now and then. The regulation is a measure of consumer protection. WASREB is pro-consumer, hence ensuring the welfare of the consumer is catered for. The study findings sought to know the average cost of a 20-litre jerrycan of water. 31.5% of the respondents indicated that the price ranges between 6 and 10 KSH. Followed closely with 27.8% who indicated that the price range is between 1 and 5 KSH. This variation in prices can be explained by the different localities and the source of that water, either from NAWASCO or private water venters, as illustrated below.

Fig. 10

Average cost of a 20-litre jerrycan of water in Nakuru



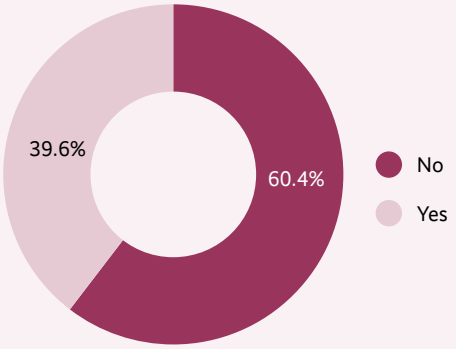
4.2.3 Water Treatment at Households

The responses on whether they treat their drinking water before us indicated a shock response of 60% reporting that they don't treat their water before drinking against 40% who indicated that they treat their water. This response comes from a backdrop of the survey finding that water in Nakuru County has high fluoride levels. During a focus group discussion in Naivasha town, participants raised concerns about the quality of water due to high levels of fluoride. In another focus group discussion in Nakuru city municipality, participants stated that the river source for the water they drink has been compromised and cases of letting in liquid waste have been a challenge. Despite this knowledge from the residents, they still indicate that a majority do not treat their water before drinking.

> *"If you want to identify a Nakuru-born-and-bred person, just look at their teeth. They're brown, and that's a firm confirmation due to the fluoride in the water."*
>
> *Participants during the FGD in Naivasha Town.*

Fig. 11

Response on Treating Drinking Water Before Use

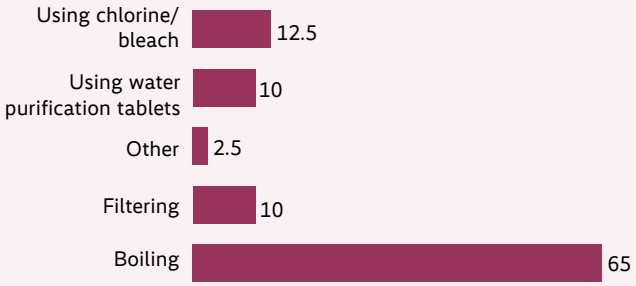


4.2.4 Method of Water Treatment

The survey further sought to find out what the common method used by residents in Nakuru to treat water is. A majority, 65%, responded with boiling their water as the most common way of treating water. Others were using chloride at 12.5%, filtering at 10%, and purification tablets at 10%, respectively. The same was supported during focus group discussions where respondents stated that boiling has worked better for many over a period of time and it's more preferred.

Fig. 12

Water treatment methods applied by Nakuru residents



4.3 Best Practice in Water conservation and Management

→ In relation to enforcement of the process of water, the Water Services Regulatory Board (WASREB) controls the pricing of water that's provided by NAWASCO and other private providers. This is a key enforcement aspect that is respected by all the actors in the water sector.

→ Households practice simple yet effective safe water conservation and treatment, like boiling drinking water and using storage due to scarcity. Also, a common feature is the harvesting of rainwater.

→ In regard to policy on water use. Nakuru has laws that govern the sustainable use of the scarce resource.

- Nakuru Water and Sanitation Act (2020)
- County Water and Sewerage Services Strategy
- Department for Water and Sanitation Services (Charter)

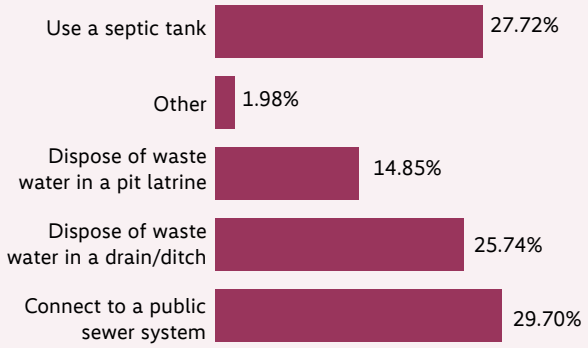
4.4 Waste Management

4.4.1 Water Waste Disposal Mechanisms

On water waste disposal, the survey found out that 29% of the respondents indicated that they're connected to the public sewer system. This is followed closely by 27.72% who use septic tanks as a means of wastewater disposal. Other practices are the use of pit latrines and disposal in ditches. Some of these practices are not in line with sustainable waste management and the laws that govern waste management.

Fig. 13

Common water waste disposal methods in Nakuru.



4.4.2 Waste Disposal Challenges

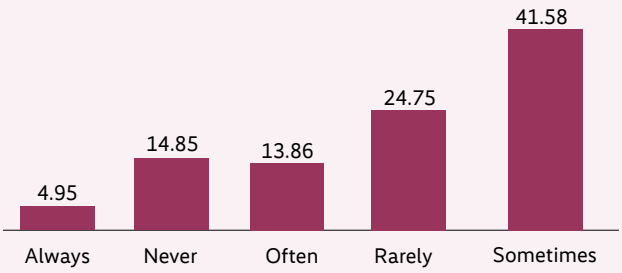
The survey asked about the challenges experienced in waste disposal within the county. The majority of the respondents, at 41.58%, indicated that they sometimes experience challenges related to waste disposal, as illustrated in the figure below. We further interrogated the challenges, and one of the majors is the disposal of sanitary materials. The county government stated that there has been an improvement in solid waste disposal due to the organization and coordination of the Nakuru Solid Waste Actors Association, which has enhanced collection. Interviews with the chair of the association indicated that sorting at home is still a challenge for many homes, but the actors have found a way of sorting the waste. He suggested more awareness for the dwellers to enhance waste disposal in the county.

The challenge of sanitary waste in Naivasha is a menace that has led to blockage of drainage and other health hazards related to burning, like air pollution.

Participants in FGD in Naivasha Municipality.

Fig. 14

Frequency of Experincing Challenges on Waste Disposal

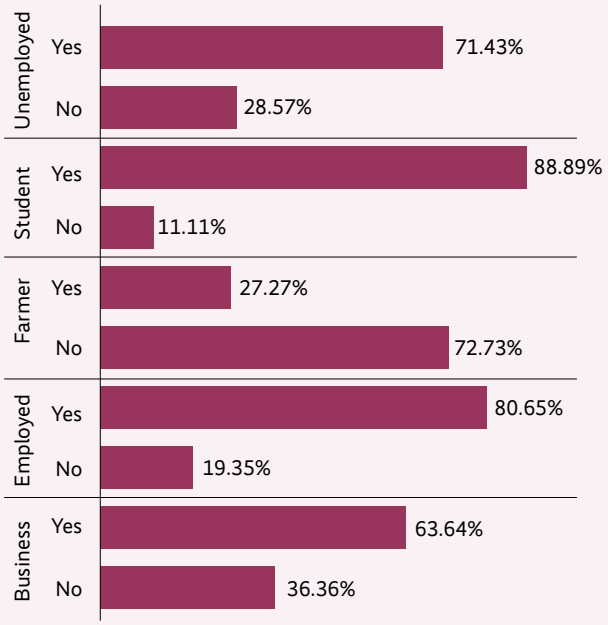


4.4.3 Payment of Waste Disposal Services

When it came to payment of waste disposal services, we received positive responses from the majority of the respondents across their occupations. Only the farmers who suggested an unwillingness to pay for waste disposal services. Students and the employed respondents recorded the highest approval for paying for services related to waste disposal within the county.

Fig. 15

Payments for Waste Disposal Services Across Occupation



4.4.4 Reason for Non-compliance in Payment

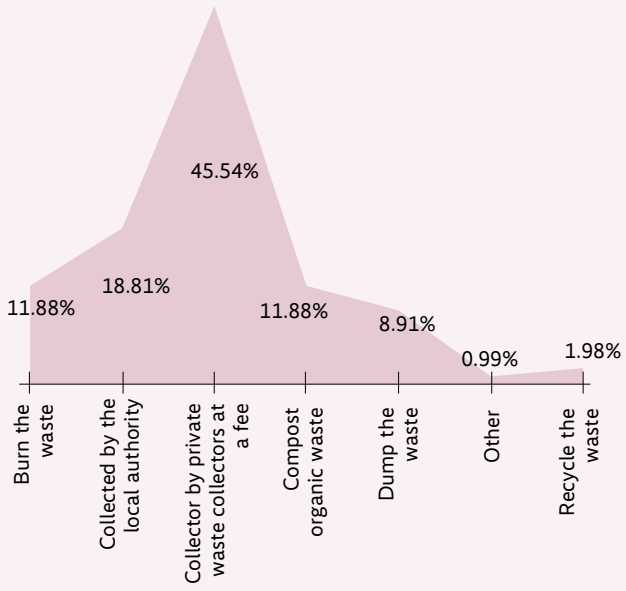
The survey further sought to find out the reason for non-compliance in payment for the waste disposal services. 53.3% responded that they dispose of their waste by themselves, 26.7% stated that the waste collection services do not cover their areas yet as a justification for non-compliance to pay, 10% indicated that they are not in a position to afford the cost of the services, and 3.3% indicated that disposal of waste is the role of the government, thus there is no need to pay for such services. During focus group discussion, respondents stated that they usually burn their waste, especially plastic, while others stated that what's left is either fed to other animals like dogs and chickens if their household does not produce much waste. These responses indicate that much needs to be done, especially around awareness in line with the Sustainable Water and Waste Management Act 2022, to convert these attitudes and perceptions around waste management. Also, there is a need to widen the scope in terms of service provision for waste disposal across the country to reach those who are not currently served by waste collectors, as per the findings of the survey.

4.4.5 Solid Waste Disposal Methods

On the disposal methods applied in Nakuru County, 45.54% of the respondents indicated that solid waste is collected by private waste collectors for a fee, 18.81% indicated that it's collected by the local authority, while 11.88% indicated that it's used as compost (organic waste) and others burnt, respectively. Only 1.98% indicated that solid waste is recycled, as illustrated in the figure below.

Fig. 16

Solid Waste Disposal Methods Practiced by Nakuru Residents

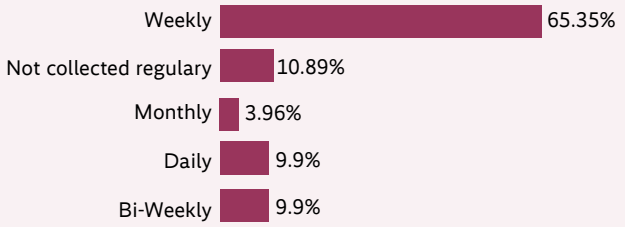


4.4.6 Frequency of Solid Waste Collection

The study asked about the frequency of waste collections in the county. A resounding 65.35% responded that their waste is collected on a weekly basis. While 3.96% indicate that solid waste is collected on a monthly basis. These findings were corroborated by the Chair of Nakuru solid waste actors, who stated that they are required by the local authorities to collect a minimum of once a week to avoid sanitation challenges. He further stated that it also depends on the amount of waste the household produces that affects the frequency.

Fig. 17

Household Solid Waste Collection Frequency in Nakuru



4.4.7 Barriers to adopting sustainable waste management practices

When it comes to barriers that are affecting the adaptation of sustainable waste management practices, 25% of the respondents indicated that lack of awareness and knowledge is the leading barrier. This was closely followed by cost and financial constraints and poor infrastructure in regard to waste collection at 18% and 15% respectively. During discussion with the county government, the failure to have a waste recovery center is also a challenge and also the limited budget for ensuring waste management practices are enforced well. The other was lack of legislation that is in line with the 2022 Act. Nakuru has not aligned or domesticated the act that calls for among others sorting at source as best practice.

4.5. Community Awareness and Engagement

4.5.1 Most Effective in Encouraging Community Members to Adopt Sustainable Waste Management Practices

When it came to how best can the community be engaged and encouraged to adopt sustainable waste management practicehs, 39.7% of the respondents indicated that they should organize community clean-ups campaigns, 13.5% indicated that there should be deliberate efforts to share success stories of other communities practicing while some felt that all the above methods will yield results when combined.

4.5.2 Community Engagement Importance

One of the important aspects of this survey is the engagement of women and youth on matters of sustainable water and waste management. The survey sought to find out the opinions of Nakuru residents on community engagement. 94.04% of the respondents scored the importance of community engagement on matters of sustainable waste and water management in the county. They suggested consultation with the county government on matters of water and waste will lead to sustainability in tackling sector challenges. During KII, one of the actors suggested that the approach by the county government is more of rubber-stamping what they want to work on, thus lacking genuine consultation from the onset that leads to ownership of any initiative.

4.6 Best Practice in Waste Management

→ The availability of organized waste actors under an association is an initiative that's worth emulating despite the lack of a domesticated waste law. Examples:

- Nakuru Solid Waste Management Association (NASWAMA) with 93 members and a signed memorandum of understanding with the county government.
- Nakuru Waste Reclaimers Gioto SHG.

→ NAWASCO's briquette development through PPP is also a best practice since it has provided employment to many youth and women and also clean energy.

→ There are different women and youth initiatives that convert solid waste to organic fertilizer and feeds, for example, Grinncom Investment, which turns solid waste from markets into organic fertilizer.

4.7 Nakuru Conclusion

Key takeaways from the survey indicate that Nakuru County is on track in embracing sustainable water and waste management according to the 2022 Act. The survey can conclude that all the relevant actors, especially those targeted by this survey, are willing and ready to engage in finding lasting and workable solutions with the sustainable water and waste management sector. The survey concluded that there is a semblance of organized actors within the sector working hand in hand with the county government and other regulatory agencies within the sector despite the lack of an updated act on solid waste management.

4.7.1 Conclusion by Sector

4.7.1.1 Water

The water sector faces a huge challenge in terms of meeting the growing demand. The survey found out that currently there is a deficit in the water sector and a growing

demand owned by the growing and expanding city. New municipalities also have their own demand. This survey concluded that the quality of water in Nakuru is declining due to the challenges that were listed, like the level of fluoride. This aspect affects the county as a whole and, more importantly, the targeted informal settlements in the municipalities mapped and marked by the survey.

Notwithstanding the above, the survey can conclude the water sector in Nakuru is well regulated with close collaboration among the sector agencies at the county and national levels. Extreme care is taken in ensuring the above conclusions are being worked on, and several solutions have been sought to enhance water sustainability in Nakuru City County.

4.7.1.2 Waste

The survey can conclude that waste management in Nakuru is fairly informally run. The local authorities are only involved with waste within the town and city areas and are targeting only the public markets. The rest of the areas are handled by private waste actors. The survey concluded that with inadequate legislative framework, most of what's being done by the actors gives room for challenges to do with waste management that might lead to risks associated with sanitation.

The survey also can conclude that resources are a challenge in Nakuru in respect to waste management. This is guided by the finding of lacking or limited infrastructure, like the waste collection, and also the limited coverage of the sewerage systems across the informal settlements of the county.

4.8 Nakuru Recommendations

From the findings in this survey, Nakuru County could adopt a few measures that will improve the areas of water and waste management in the city and beyond. Listed below are some of the recommendations:

1. Enhance landfill management with proper engineering techniques to prevent excessive pollution.

2. Promotion of recycling initiatives by first establishing recycling centers. Educate the youth and women on how this can be done and enhance their capacity for waste management, plus provide a conducive environment for recycling to be done.

3. Support and encourage businesses and youth and women's groups in adopting circular economy practices.

4. Encourage/educate households and businesses to separate waste at the source, i.e., organic, recyclable, and hazardous.

5. Conduct educational campaigns on sustainable water use.

6. The county government of Nakuru should invest in modernized water distribution systems to reduce leakages and losses.

7. Relevant institutions prioritize protection of water sources. This should be done by enforcement of strict regulations to prevent pollution of water bodies, implementation of watershed management programs to protect the lakes and underground water sources, and afforestation and reforestation in catchment areas.

8. Infrastructure improvement and development should be a priority. The relevant water authorities should invest in modernized systems to reduce leakages and losses.

9. Encourage industries and households to adopt water recycling and reuse techniques.

10. Organize sensitization programs on waste management and the importance of a clean environment.

11. Increase the public-private partnerships (PPP) because they have been shown to bear much fruit in the previous county engagements.

12. The county government should prioritize the domestication of the Sustainable Water and Waste Management Act 2022. This should be done collectively with actors in the water and waste sector.

13. Civil society organizations working in water and waste management should build the capacities of key actors so that they can develop joint advocacy plans to engage the local authorities to respond to demands and challenges affecting people living in the informal settlements across the Nakuru municipalities.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5.0 Makueni Findings

5.1 Demographic Characteristics

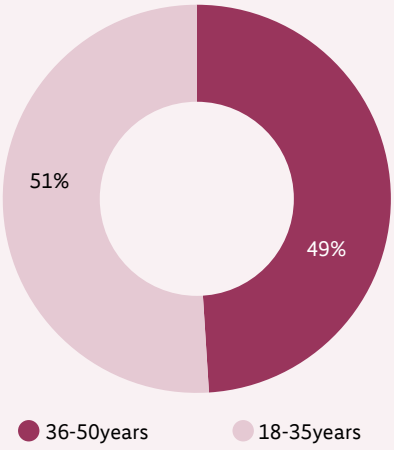
The survey aimed to gather information about the socio-demographic characteristics of the respondents. This involved collecting data on age, gender, and occupation. The goal was to better understand the intersectionality and perspectives of specific target groups within their respective geographical regions.

5.1.1 Age

The age distribution for this survey is as shown below.

Age distribution of respondents in Makueni county

Fig. 18



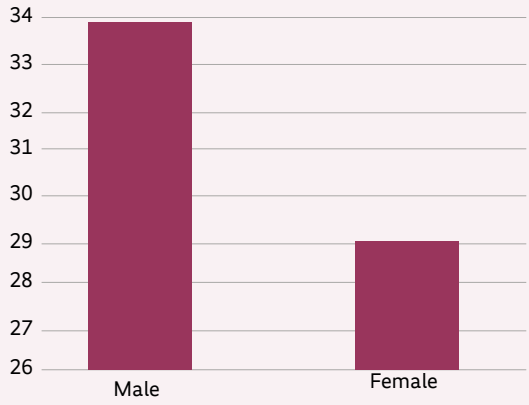
This study was undertaken by a slightly youthful population whereby 51% of the respondents were aged 18 -35 years. This was in line with the SCEJU project objectives whose target is youth for employability and livelihoods.

5.1.2 Gender

The distribution by gender for this study showed that more men than women were reached. It was observed that more men than women engage in water and waste management in Makueni County, hence redefining the role of men in the sector. It also translates to the fact that waste and water distribution is a male-dominated sector. Below is a graph showing this representation.

Gender distribution of respondents in Makueni County

Fig. 19

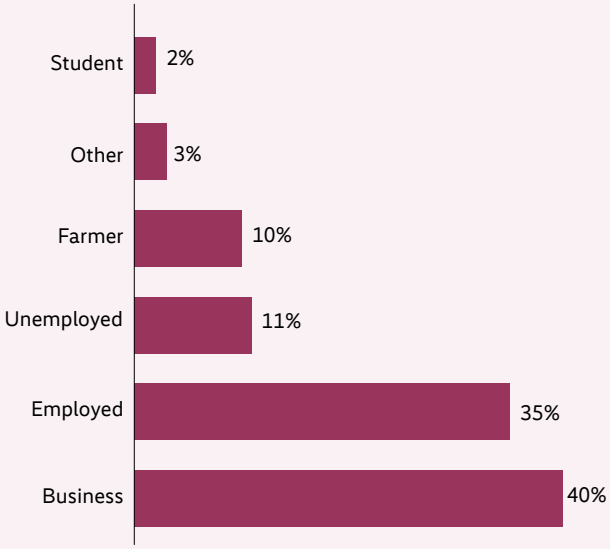


5.1.3 Occupation

Sustainable water and waste management actors' livelihoods are a crucial indicator of their socio-economic status and independence. Most respondents were people in business.

Distribution by Occupation

Fig. 20



5.2 Sustainable Water Management

The table below contains the responses about the main source of drinking water. Here's the frequency distribution of each source:

Source of Water	Frequency	Percentage
Piped Water	10	27.78%
Lake/River/Dam	10	27.78%
Borehole	9	25.00%
Rainwater Harvesting	5	13.89%
Protected Well	2	5.56%
Unprotected Well	1	2.78%

Table 1: Distribution by water source.

It was realized that piped water and lake/river/dam are the most common sources of water in Makueni County, with each accounting for 27.78% of water use by source. This indicates a mix of centralized and decentralised water systems in Makueni County. Additionally, boreholes are also a common water source in Makueni. While numerous efforts to adopt advanced water harvesting systems for sustainability were made, there was a low recording of rainwater harvesting from the study. This shows that the concept is yet to be embedded in the community, and mass action is required. Other sources of water are wells, both protected and unprotected, which are recorded in areas with higher water tables.

The use of water from lakes/rivers/dams and unprotected wells may pose risks to water safety since these sources are more susceptible to contamination. The low use of protected wells also depicts limited infrastructure for safe groundwater access.

Municipalities enjoy piped water, as shown by the predominance of piped water as per the responses of this study, while rural towns have access to a lake/dam/river as their main source of water. Wote town, which is the headquarters of Makueni County, has multiple water sources, such as borehole, river, and piped water.

5.2.1 Water Treatment and Management Strategies at Household Level

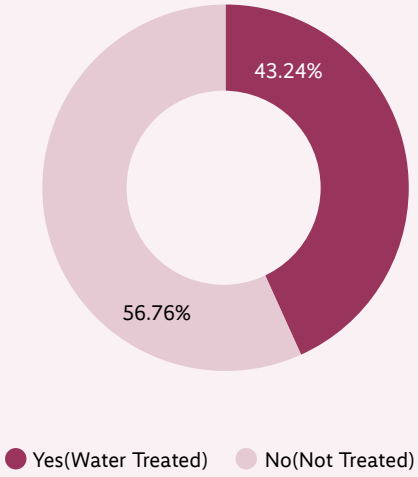
Boiling water is a traditional method of water safety which is considered effective. Below is the comparison in percentage for households that consider this water treatment method in Makueni County.

A majority of respondents (56.76%) do not treat their water before drinking, which could indicate potential health risks due to consumption of untreated water. A significant portion (43.24%) treats their water, suggesting awareness and practices to ensure safer drinking water. Households have adopted more low-cost treatment solutions such as chlorine and UV purifiers.

A majority of respondents (67.57%) indicated that there are no community-led initiatives for water harvesting or conservation in their area. A smaller but significant portion (32.43%) reported that such initiatives do exist, suggesting that some communities are actively engaged in water conservation efforts.

Fig. 21

Water treatment at household level.



A larger population (80%) in Makueni harvest rainwater and use it as a source of water. Forty per cent of households recycle water for activities like irrigation and cleaning, while other households have adopted efficient appliances to reduce consumption as a water management strategy.

5.3 Highlights on Water and Waste management in Makueni County

5.3.1 Waste Management

According to the survey, the current state of waste management practices in Makueni are poor, with no formal sewerage systems in urban areas. Solid waste management is inefficient, with only one operational public dump site and limited waste collection services. Illegal dumping is rampant, and there is no material recovery facility (MRF) in the county. Key issues include illegal dumping, lack of waste segregation, inadequate waste collection schedules, and insufficient funding for waste management. Hospitals and industries often dump waste illegally, exacerbating environmental and public health risks. The county is advocating for better waste management practices, such as constructing more dump sites and enforcing laws against illegal dumping. However, budgetary constraints and lack of enforcement capacity hinder progress.

Wote Municipality's solid waste policy 2024 outlines gaps that are also identified under this survey. This policy was published in March 2025. These areas remain unattended as at the time of this report because of the following:

- Lack of a fully-fledged materials extraction process of the total value of waste
- Unavailability of land to put up solid waste management infrastructure
- Technological and operational limitations (Poor infrastructure); no transfer stations, and material recovery facility
- Inadequate public sensitization on solid waste management
- Inadequate monitoring of establishments dealing with waste and enforcement of the legal framework relating to waste management;
- Lack of a framework to guide fee charges of the private sector waste management companies, thus most of them collect without proper regulations and follow-up
- Lack of segregation of waste at source and inadequate number of receptacles

Some best practices and milestones with regards to waste management are:

- Availability of thirty-nine (39) undesignated solid waste transfer stations provided in different market centers within Wote Municipality; 11 of these have skip bins.
- Allocation of a skip loader to facilitate the collection of solid waste from the different stations to dumpsite
- Deployment of one hundred and fifty-eight (158) casual market cleaners who assist in the collection and disposal of solid waste
- Organized and informal groups at main municipality dumpsite that segregate waste for sale
- Presence of private waste management firms and waste collectors such as scrap metal vendors, plastics, and paper
- Availability of strategic guidelines, policies and frameworks by County government to provide pivotal role in guiding waste disposal and management

5.4 Water and Sanitation

The Current State Water supply in Makueni County is inadequate, with urban centers relying heavily on boreholes and water trucking. Low water pressure and rationing are common, and high-rise buildings often face water shortages. The main water source, Kaiti River, is contaminated by pesticides, herbicides, human waste, and industrial/hospital waste. Residents face challenges such as water pollution, high costs, and encroachment on water catchment areas. The county's water infrastructure is outdated and unable to meet the growing demand due to population growth. Drought Response Mechanisms include tree planting, sand dam construction, and protection of riparian lands. However, these efforts are insufficient to address the recurring drought issues.

The Makueni water policy 2019 further outlines some key water related solutions to WASH situation in the county, thus providing a developmental projection for the county. such are highlighted from this survey, and remain undone since 2019:

- Develop systems for factory waste disposal
- Establishment of sewer systems at major towns and municipality
- Enforcement of relevant policies and acts by the respective agencies
- The county government has, however, made efforts in the following actions:
- Organize sensitizing forums Promote personal hygiene including hand washing with soap and protection of food and water within market centres
- Formalization of institutional framework and deploying relevant officers
- Ensuring provision of relevant facilities and adequate water access

Makueni County stands at an advantage in policy development and being at the forefront of making developmental guidelines; however, implementation remains a challenge. This is based on the availability of policies such as the Environment and Climate Change Policy 2020, the Makueni Climate Change Act 2020, the Makueni Water Policy 2019, and the Wote Municipality Solid Waste Policy 2024. Due to obvious reasons such as budget constraints and lack of solid implementing frameworks, these remain undone, thus causing a lag in the water and waste management as well as related developments in the county.

Additionally, waste management is a rising concern whose details and benefits are not popular in Makueni, making innovations and research around this area limited.

5.5 Points of Action and Way Forward—waste and Water Management.

1. Establish parameters that help find the best approach to enforce the existing guidelines and frameworks. This can

be done in tandem with the respective officers and state agencies. Knowledge exchange forums and workshops can be conducted with the different actors to establish the best approach to implementation and learning. This will also enhance synergies for collaborative efforts towards water and waste management in Makueni County.

2. Promote public-private partnerships and collaborations to enhance waste and water management in Makueni. These can come in handy to provide resources for infrastructural development and bridge budget gaps in the rehabilitation of infrastructure and systems in Makueni County. Prompt the development of this framework with the different state agencies and actors.

3. Establish high, middle and low-level institutionalization of actors. This will enable the distribution of actions for water and waste management in Makueni. This shall enable the actors to operate within their level of capacity and resources available. This redistribution not only allows all actors to perform in their best interest but also allows all aspects of the ecosystem to be taken up by the various interested actors.

4. Advance advocacy by the Makueni civil society network. Civil society plays a pivotal role in advancing the development agenda as well as ensuring human rights, gender equity, democracy and advancing the voice of the people in water and waste Management in Makueni. It shall be prudent to promote the formation of this wing to support civic engagements targeting WASH in Makueni.

5. As much as the county government of Makueni has plans to help formalise the operationalisation of informal water and waste actors, these groups can take the initiative to conduct registrations and acquire legal documentation. In addition, these groups can be trained to ensure formal operations within the ecosystem and advance the water and waste management agenda in Makueni.

6. WASH is a male-dominated sector in Makueni, with women and children suffering most from adverse effects of climate change such as water scarcity and flash floods, waterborne diseases and other disease breakouts. Advocacy for gender equity in WASH in Makueni County can be enhanced through civil society, state and non-state actors.

6.0 Conclusions and Recommendations

In conclusion, we've analyzed the data from this survey and believe that the exercise was worth undertaking due to the insights that have been highlighted and interrogated in the findings above. The findings documented in this survey report present very factual and critical scenarios and views of actors in the sustainable water and waste value chain in the three counties of Kisumu, Makueni and Nakuru. The contents of the report exhibit critical reflections that provide an opportunity for actors to address portending gaps in practice and policy while scaling up and learning from each other how. From the discussions and arguments presented above, we can conclude with the following recommendations:

6.1 Recommendations

SCEJU Team

- Initiate more in-depth research on sustainable water and waste management in the project areas on specific aspects of waste and water management to assist the target counties in the implementation of the Sustainable Water and Waste Management Act 2022.
- Conduct awareness in collaboration with different actors on waste and water management in the targeted counties.
- Work with civil societies and private parties to support the development and domestication of solid waste management law in all three target counties. Through building their capacities to lobby and advocate for policy development, changes, and budget allocation to the sector.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County Governments

- Prioritize policy development within the county assembly in relation to the domestication of the Sustainable Water and Waste Management Act 2022.
- Municipalities can also spearhead the process of development of by-laws around water and waste management in line with the national law, especially around segregation at source for ease of enforcement.
- Through the county assemblies, the county should prioritize budget allocation for the water and waste management sector. This will assist in upgrading the water and waste infrastructure in the identified counties.
- The country should work around PPP in water and waste management to enable bringing the growing demand for these goods and services. So far there is progress across the counties, and more should be done.
- Awareness creation and public participation on water and waste should be prioritized, reaching out to non-traditional actors in the field. This will enhance the deepening interest in waste and waste management at the county level. These can be done through citizen forums across the different municipalities.

Women and Youth

- They should take up roles in the sustainable water and waste value chain to create employment for themselves.
- The target group should take up an active role in engaging the county government and other actors through advocacy on sustainable water and waste management in their respective counties.
- They should lobby the county government to create a friendly working environment and reduction of fees to youth and women groups to facilitate them to compete in the sustainable water and waste sector. This should target county government tenders for provision of services and good with the youth and women given a % locked as per the national procurement procedures through access government procurement opportunities (AGPO).

Just And Sustainable Urbanisation Platform (JSUP)

This report explores contemporary best practices, policy gaps, and opportunities for sustainable water and waste management (SWWM) in informal settlements of Kisumu, Makueni, and Nakuru counties. Co-funded by the European Union, under the SCEJU project, which aims to strengthen civil society actors and grassroots organisations as independent agents of accountability and sustainable development. The highlights and findings of this harmonized report are born of a rigorous survey that was undertaken in the three aforementioned counties. This report highlights the policy gaps and opportunities coupled with knowledge, attitude and practice in the day-to-day lives of the sustainable water and waste actors in the three counties.

Further information on this topic can be found here:
↗ **kenya.fes.de**

Friedrich Ebert Stiftung