

Photo Credit: Jacob Katue/Oxford University



Sustainable WASH Systems Learning Partnership

# Understanding Factors and Actors to Achieve Sustainable Drinking Water Systems in Kitui County, Kenya

August 2018

In December 2017, a county water audit estimated 57 percent of 460 piped schemes and 45 percent of 687 handpumps were fully operational. Despite significant progress in building over 3,000 waterpoints across Kitui County in recent years, the challenge of providing sustainable drinking water services remains high. Reflecting this challenge, Kitui County Government has identified 'Water and Food' as one of its five strategic pillars. This brief presents the ranking of different factors for sustainable systems based on priorities of 42 Water, Sanitation, and Hygiene (WASH) actors in a forum hosted in February 2018 and attended by the County Minister for Health and Sanitation. The goal is to provide targeted and actionable research to progressively deliver universal, reliable, and accessible water services to benefit Kitui County's 1.2 million people, particularly women, children, and other vulnerable groups.

Kitui County Government, like all county governments in Kenya, has a legal mandate to provide safe and reliable drinking water services to everyone. Progress toward this goal is supported by multiple actors under the leadership of the Ministry of Agriculture, Water and Livestock Development (MAWL). Since 2016, MAWL has convened quarterly WASH fora to promote coordination, transparency, and sustainability in the planning, delivery, and maintenance of water infrastructure for communities, schools, and health facilities. This includes technical collaboration with the University of Oxford's programs operating in the county since 2012.

## Key Findings

- 1,147 piped schemes and handpump water sources were audited in Kitui County (December 2017).
- 57 percent of piped schemes and 45 percent of handpumps were fully operational.
- Actors in the Kitui County WASH sector have **over 327 years of experience** combined.
- Women working in WASH** are few relative to men, but have over twice the experience.
- Priority factors** identified by 42 WASH actors to promote sustainable rural water systems include:
  - **Building more infrastructure**
  - **Sustainable finance**
  - **Reliable service delivery**
- Factors considered to be of **lower priority** include:
  - **Private sector engagement**
  - **Mapping and monitoring systems**
- Government staff and more experienced actors place higher priority on **sustainable finance**.



In 2017, United States Agency for International Development (USAID) funded the Sustainable WASH Systems (SWS) Learning Partnership to test new ideas, approaches, and tools to overcome barriers for improving the sustainability of WASH services through systems approaches. In Kenya, SWS is supporting the Kitui County WASH forum, through MAWL, to (1) analyze the county’s rural water service system and understand issues, (2) set priorities, and (3) take steps to strengthen the system for sustainability.

Sub-County	Piped Schemes			Handpumps		
	Not Operational	Operational	Partly Operational	Not Operational	Operational	Partly Operational
Kitui Central	37%	49%	14%	28%	28%	44%
Kitui East	27%	56%	15%	48%	41%	11%
Kitui Rural	28%	53%	19%	43%	42%	15%
Kitui South	33%	57%	10%	37%	54%	9%
Kitui West	27%	59%	14%	32%	46%	22%
Mwingi Central	24%	63%	10%	48%	38%	14%
Mwingi North	22%	69%	8%	15%	79%	5%
Mwingi West	25%	46%	25%	45%	31%	24%
<b>Grand Total</b>	<b>28%</b>	<b>57%</b>	<b>14%</b>	<b>38%</b>	<b>45%</b>	<b>17%</b>

Figure 1. Operational status of rural water sources in Kitui County (December 2017)

During the February 2018 forum, the County Minister for Health and Sanitation emphasized the importance of understanding why water sources fail and challenged the WASH forum to investigate what can be done to sustain water service delivery. An SWS-supported audit of all county water infrastructure was undertaken to inform WASH actors on the status of rural water services. Findings were disseminated and discussed in detail with actors attending the forum.

This brief provides a baseline snapshot of the composition of the Kitui WASH forum and priority issues as perceived by actors in response to the water audit findings and ensuing dialogue. The information was collected at the end of the forum through a short, semi-structured survey that was voluntarily and anonymously completed by 42 out of 57 WASH actors present. The findings of the survey are discussed below.

### What is the profile of the WASH actors?

#### Participation:

Fifty-seven WASH actors representing 27 organizations working in the county water sector took part in the February 2018 WASH forum. Actors from government/policy institutions represented half (50%) of the 42 respondents, followed by those from the non-governmental organization (NGO) sector (28%). Actors from urban and rural water utilities (12%), private sector (5%) and research institutions (5%) represented a lower share.

#### Expertise:

Two-thirds of respondents identified with a technical, engineering, or management background, and one-fifth identified with a social or community development profile. Government and policy institutions and



WASH partners/actors meet in Kitui every quarter to discuss rural water sustainability (Photo Credit: Hope Sila/Kitui County Government)

private sector organisations were predominantly (>80%) represented by their technical, engineering, or management staff, while NGOs and water service providers were typically (50–60%) represented by social/community development experts.

### Women working in WASH:

Despite an inclusive invitation, fewer women work in WASH with a subsequently lower share of participation (12% in February 2018; 22% in November 2017). Most women attending the forum work for the government/policy sector. Notably, female participants had a higher level of education (Honours degree) and more experience (20 years on average) than male participants.

### Experience working in Kitui WASH sector:

Thirty-nine of the 42 respondents who answered the survey question on their work experience in Kitui county have a total of 329 years of experience, and the group average is 8 years. Disaggregating by sector, actors from the government/policy sector account for most of the experience in the county (72% of the aggregate years, with an average of 12.5 years) followed by those from the NGO sector (65 years in total, with an average of 5.4 years). As noted, women – though fewer in number – have more than double the experience of men working in Kitui county.



Tany and Tara handpumps are few compared to the Afridev type but record higher non-functionality rates in Kitui (Photo Credit: Cliff Nyaga/Oxford University)

### Education:

The proportion of actors with an Honours degree or higher was largest among women, NGOs, research, and private sector actors. Overall, most actors (69%) had a degree qualification or higher.

### How do WASH actors rank different factors to promote a sustainable WASH system?

WASH actors individually ranked eight preselected drinking water sustainability factors: (1) new infrastructure

development, (2) financial sustainability, (3) service reliability, (4) sector coordination, (5) post-construction support, (6) mapping and monitoring, (7) new operation and maintenance (O&M) models, and (8) private sector engagement. These factors were measured on a scale of 1 (high priority) to 8 (low priority). A combined ranking was computed using z-scores to measure how far (in standard deviations) a factor was above or below the average ranking by the group or its sub-groups. Of the 42 respondents, 17 actors did not correctly rank from 1 to 8, so the data was split into complete (correct ranking) and incomplete cases to compare across results. Results of respondents using the correct ranking (n=25) largely agreed with the magnitude and direction of all respondents (n=42). For brevity, this brief presents the ranking results of all respondents in Figure 2 on page 5. Further disaggregated analysis was done to understand actor priorities by the following sub-groups:

1. All respondents (n=42);
2. Government/policy sector (n=21);
3. > 10 years of experience (n=12);
4. Expertise in technical, engineering, or management (n=27); and,
5. Education (Honours degree or higher) (n=29).

Respondents considered the following three factors to be important for the sustainability of drinking water systems: (1) new infrastructure, (2) sustainable finance, and (3) service reliability. Alternatively, two factors were perceived to be weakly associated with system sustainability: (1) private sector engagement, and (2) mapping and monitoring. In addition, more experienced government and policy sector respondents identified the factor new O&M models to be important for sustainability. Government was the only group not to rank mapping and monitoring of low priority. Of note, the factor sector coordination received an intermediate ranking by all groups. The reason why this factor wasn't considered to be of higher importance is unclear but worthy of reflection given that the WASH fora convenes actors for this purpose.

### Are there opportunities for rural public-private partnerships?

The low ranking of the factors private sector engagement and new O&M models requires further examination, particularly given the government's growing emphasis – both nationally and in counties – on leveraging the private sector for expertise, innovations, and investments to bridge the financing gap for service delivery.

There are various ongoing initiatives in both urban and rural water sub-sectors in Kenya seeking to stimulate private sector participation. In Kitui, the FundiFix model is an example of a rural public-private partnership that is advancing four key pillars for drinking water sustainability: (1) monitoring, (2) professional maintenance service provision by incubating a social enterprise Miambani Ltd., (3) sustainable finance, and (4) coordination by government. The FundiFix initiative has led to the provision of reliable water services to more than 50,000 people in Kitui's Mwingi North sub-county by ensuring timely maintenance and repair of rural water infrastructure. However, at the current scale user tariffs are insufficient to cover local costs (working ratio of 15%) and for the last two years Miambani Ltd. has been underwritten by a Kitui Water Services Maintenance Trust Fund.



Miambani Ltd. has an office, a team of technicians, and stocks spare parts for prompt response to reported breakdowns (Photo Credit: Cliff Nyaga/Oxford University)

Exploring the FundiFix model for co-financing infrastructure maintenance forms part of the program's learning and research efforts around what models are appropriate to achieve sustainable rural water services in Kitui County.

## Future Learning

This analysis provides a basis for continued observation of shifts in actor behavior, policies, and strategies to support WASH fora discussions on the critical measures required for sustainability of rural water systems. Additionally, the following key considerations were identified:

1. **A more inclusive learning forum:**  
Ensuring more women join the WASH forum would provide greater experience and expertise. All county actors from the private sector, donor groups, and research sectors need to be identified and incentivized to participate in future events. Local politicians, including Members of the County Assembly, would also provide important insights.
2. **Forging a shared vision:**  
Actors' opinions varied as to the priority factors that will support sustainable drinking water systems. To coordinate county planning and actions, actors will need to further analyze and understand the rural water system and negotiate priorities.
3. **Structured WASH fora approach:**  
To coordinate the forum, it is paramount all actors adopt a structured agenda that is responsive to opportunities identified in this brief and designate a forum secretariat (with a chair, co-chair, secretary, thematic areas, groups leads, etc.).
4. **Future learning opportunities and outputs in 2018:**
  - A **learning agenda** will be developed with county WASH actors;
  - A **Kitui County water audit map and report** will be produced;
  - A **conceptual database** of water system performance will be developed with WASH actors to hold and maintain information from the water audit. A mechanism for updating the database will be demonstrated with one Sub-County of Kitui.

## Z-score ranking by WASH actors across water sustainability factors

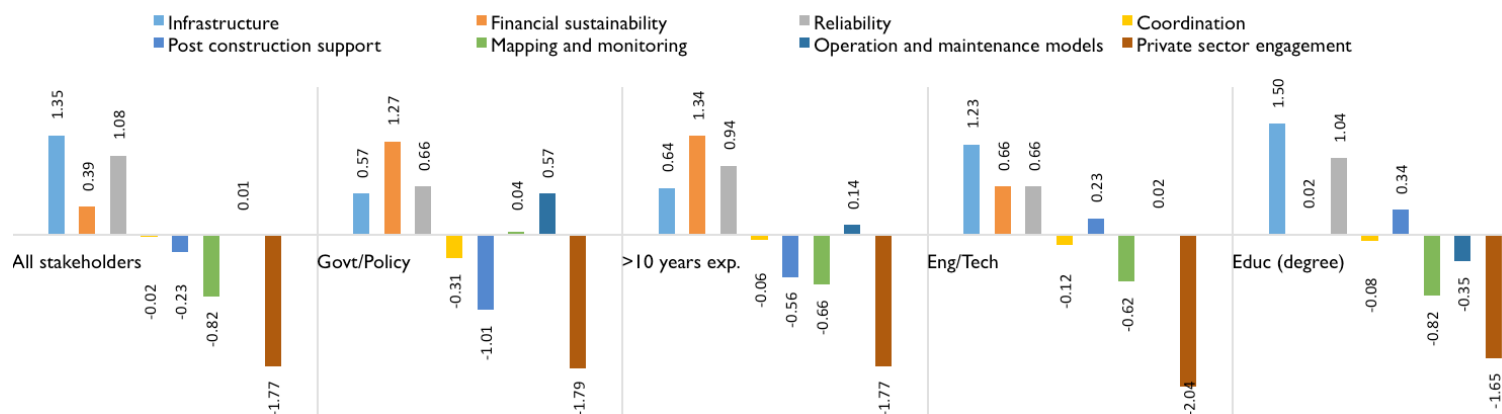


Figure 2. Actors’ ranking of priority interventions for drinking water system sustainability (n=42)

### About the Sustainable WASH Systems Learning Partnership in Kenya:

SWS is a global programme working in four countries to identify and test locally-driven solutions to the challenge of developing robust local systems capable of sustaining WASH service delivery. In Kenya, SWS’s concept team four is testing a risk-based approach to rural water supply sustainability in Kenya by developing and scaling-up the FundiFix model – a performance-based, private sector maintenance model – to include small-piped schemes for communities, schools, and other facilities to provide a basis for universal rural water service delivery systems.

### About the REACH Programme in Kenya:

REACH is a global research programme implemented by Oxford University in partnership with UNICEF to improve water security for five million poor people in Africa and Asia, by delivering world-class science on water security, establishing science, practitioner and enterprise partnerships, and building capacity and networks to transform policy and practice. At the Kitui observatory, REACH is supporting the design of more effective institutions to address rural water security risks from rainfall variability, unreliable infrastructure, and unsustainable finance.

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Disclaimer: The views expressed in this publication do not necessarily reflect the official policies of SWS Learning Partnership or REACH Programme and do not necessarily reflect the views of DFID or USAID.

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