USAID | KENYA AND EAST AFRICA

FROM THE AMERICAN PEOPLE

USAID KENYA INTEGRATED WATER, SANITATION AND HYGIENE PROJECT

FINAL PROJECT REPORT
OCTOBER 2015 – December 2021

DECEMBER 2021

This publication was produced for review by the United States Agency for International Development. It was prepared by Development Alternatives, Inc.

USAID KENYA INTEGRATED WATER, SANITATION, AND HYGIENE PROGRAM (KIWASH)

FINAL PROJECT REPORT

OCTOBER 1, 2015– December 17, 2021

Award No: AID-615-TO-15-00001

Prepared for Nicholas Owuor, COR
United States Agency for International Development/Kenya
C/O American Embassy
United Nations Avenue, Gigiri
P.O. Box 629, Village Market 00621
Nairobi, Kenya

Prepared by
Development Alternatives, Inc.
7600 Wisconsin Avenue, Ste. 200
Bethesda, MD 20814

Cover photo: A child drinking water from a tap fitted within the home. The water is provided by the Machururiati Water Project in Nyamira County. The project, through a USAID investment of 106,827.29 serves approximately 3,800 people with access to clean water and sustainable services. The investment included strengthening the capacity of the staff, construction of three new water kiosks and water pipeline extensions. Others included the installation of a new water pump, a water treatment unit, a 100,000-liter tank, and solar panels.

Photo credit: USAID-KIWASH Project

DISCLAIMER

CONTENTS

ACRONYMS AND ABBREVIATIONS

AMEP	Activity Monitoring and Evaluation Plan
BCC	Behavior Change Communication
BCP	Business Continuity Plan
BDS	Business Development Services
BoD	Board of Directors
BUWASCO	Busia Water and Sewerage Company
CAP	Capacity and Performance
CBCC	Center for Behavior Change and Communication
CC CAP	Climate Change Capacity and Performance
CEC	County Executive
CHEWs	Community Health Extension Workers
CHVs	Community Health Volunteer
CIDP	County Integrated Development Plans
CLTS	Community Led Total Sanitation
CMT	Corporate Management Team
COVID-19	Corona Virus Disease of 2019
DCOP	Deputy Chief of Party
DMA	District Metered Areas
EMMP	Environmental Mitigation and Monitoring Plan
ENA	Essential Nutrition Actions
ESH	Environmental Sanitation and Hygiene
ETL	Education through Learning
FGD	Focus Group Discussion
FY	Financial Year
GHD	Global Handwashing Day
GOK	Government of Kenya
GWASCO	Gussi Water and Sewerage Company
HCF	Health Care Facilities
ICC	The Inter-Agency Coordination Committee
IND	Indicator
IPC	Infection and Prevention Control
IWRM	Integrated Water Resource Management
J2SR	Journey to Self-Reliance
KACWASCO	Kakamega County Water and Sanitation Company
KIMAWASCO	Kibwezi-Makindu Water and Sewerage Company
KIMWASCO	Kiambere-Mwingi Water and Sanitation Company
KITWASCO	Kitui Water and Sanitation Company
KIWASCO	Kisumu Water and Sewerage Company
KIWASH	Kenya Integrated Water, Sanitation and Hygiene project
LOP	Life of Project
MBONWASCO	Mbooni Water and Sanitation Company
MCWSC	Migori County Water and Sanitation Company

MIWASCO	Migori Water and Sewerage Company
MOH	Ministry of Health
NCWSC	Nairobi City Water and Sewerage Company
NEMA	National Environment Management Authority
NGO	Non-Governmental Organization
NMS	Nairobi Metropolitan Services
NRW	Non-Revenue Water
O&M	Operation and Maintenance
ODF	Open Defecation Free
ORT	Oral Rehydration Therapy
PHO	Public Health Officer
PIP	Performance Improvement Plan
PMP	Performance Management Plan
PPE	Personal Protective Equipment
RLA	Resilience Learning Activity
SBCC	Social and Behavior Change Communication
SIBOWASCO	Siaya Bondo Water and Sewerage Company
SPA	Service Provider Agreement
SPCB	Service Provider Capacity Building
TA	Technical Assistance
ToR	Terms of Reference
TOT	Training of Trainers
UNICEF	United Nation Children's Fund
USAID	United States Agency for International Development
USAID	United States Agency for International Development
USD	United States Dollar
USG	United States Government
WASH	Water, Sanitation and Hygiene
WASH FIT	Water, Sanitation, and Hygiene for Health Facility Improvement Tool
WASPA	Water Services Providers Association
WASREB	Water Services Regulatory Board
WHO	World Health Organization
WOWASCO	Wote Water and Sewerage Company
WRA	Water Resources Authority
WRUA	Water Resource Users Association
WSP	Water Service Provider

KIWASH EXECUTIVE SUMMARY

The Kenya Integrated Water, Sanitation, and Hygiene Project (KIWASH) worked to improve the lives and health of 1 million Kenyan citizens in nine counties through the development and management of sustainable water, sanitation, hygiene, and nutrition services. To this end, KIWASH along with government partners sought to address long-term issues such as the need for greater investment in water storage, better groundwater assessments, and increased water use efficiency to get the most from existing resources.

KIWASH was a five-year program funded by the United States Agency for International Development (USAID). To achieve county-based results, KIWASH was designed as a county-based project, supported by two operational hubs in Nairobi and Kisumu. The Chief of Party provided overall technical and managerial oversight with each technical key personnel taking responsibility for work plan strategy and implementation across the project, supported by technical staff in all nine counties embedded with local partners (county government, relevant government agencies, community-based organizations [CBOs], water service providers, and non-governmental organizations) to maximize day-to-day engagement across the water and sanitation network.

KIWASH activities were implemented in two principal focus areas: Busia, Kakamega, Kisumu, Migori, and Siaya counties in the Lake Victoria Focus Area, and Kitui, Makueni, and Nairobi counties in the Tana/Athi Focus Area.

The first phase of the project was a $51 million activity (October 2015–September 2020). Through an integrated, county-responsive, and dynamic approach, KIWASH made excellent strides in all areas of intervention in achieving or exceeding most of the project targets. For example, during the performance period, KIWASH enabled 874,388 people to gain access to basic and improved water services against a performance target of 850,000 people in focus counties. Additionally, 169,566 people gained access to basic and improved sanitation services in the nine focus counties against a set target of 200,000 people.

In March 2020, Kenya reported the first coronavirus disease of 2019 (COVID-19) case in the country. The virus spread rapidly from the capital Nairobi to 46 other counties. As the Government of Kenya launched a disease response mechanism, USAID was able to support the government's efforts through an extension and re-alignment of its KIWASH project. Through a 14.5-month extension (October 2020 – December 17 2021), valued at USD 8.9 million, KIWASH re-oriented its scope to respond to the COVID-19 pandemic while maintaining and advancing the development gains made between 2016-2020. Together with nine county governments, 13 water service providers, and 231 small WASH enterprises, KIWASH sought to improve access to WASH services for 98,200 Kenyan citizens while helping to reduce the spread of COVID-19 through September 2021. On this front, support from USAID and the American people enabled 131,615 people to access basic drinking water services against a target of 98,200 people. Also, KIWASH reached 528,666 people with WASH COVID messaging in KIWASH counties during the extension period surpassing the 500,000 people target. Though technical implementation concluded on September 27, 2021, KIWASH's contract end date was extended through December 17, 2021, to provide time for the project to dispose of project vehicles to newly assigned beneficiaries as outline by USAID in the final days of the project. No additional work beyond the transfer of vehicles was billed from September 27-December 17, 2021.

Stakeholder engagement for the project entailed targeted discussions with government leaders in each targeted county, as well as other sector stakeholders including civil society organizations, NGOs, community-based groups, and private actors, among others. An inventory of WASH enterprises in each targeted county was created. Some of the parameters that were investigated included: type of ownership,

project type, type of service provided, functionality status, existing customer base, prospects for future expansion, and existing management models.

KIWASH applied a demand- and capacity-building approach to reinforce WASH services across the nine counties, providing incentives to WASH and nutrition actors to connect and fully meet needs. In this approach, KIWASH focused on improving access to water and sanitation by engaging citizens and community groups to demand improved services, while building the capacity of service providers and county governments to supply, deliver, oversee, and maintain service quality.

KIWASH also engaged national government agencies to make improvements in the enabling conditions based on lessons learned in the field to expand the impact on a national scale. By focusing on both capacity and demand, KIWASH sought to reinforce performance and mutual incentives across county WASH actors.

By taking a demand-and capacity-building approach to WASH service delivery, KIWASH and partners worked to unlock opportunities for catalytic change including, better governance, increased investment, and greater accountability. This focused on improved planning and market-driven performance to help county governments, WSPs, and entrepreneurs to identify and prioritize actions they could take to address barriers. In this regard, WSPs were given technical assistance to improve their capacities in business planning, operations, and legal registration to be eligible for private financing.

KIWASH used grants mentoring, embedded technical assistance, and twinning, as well as facilitated finance and partnerships to build capacity and create demand across WASH networks in each KIWASH county. Activities were differentiated depending on whether the actor was in an urban or rural area or an informal settlement, such as Kibera.

For instance, to support improved access to clean water in urban areas, priority was given to working with WSPs with the greatest opportunity as low-hanging fruits to attract external funding to immediately expand reach, as well as explore opportunities with mature WSPs to offer sanitation products and services. In rural areas, KIWASH's work focused initially on expanding the providers of safe water wells and kiosks and improving the management and operation of those that are already in existence.

Some notable innovative interventions by KIWASH

- Through joint development, implementation, and monitoring of the performance improvement plans by the board, management, and staff of the WSPs, there was improved governance and accountability which contributed to improved service delivery.
- Electronic payments of water bills and smart water meters that were introduced minimized loopholes for staff malpractices that had crippled the water enterprises. Adoption of technological solutions such as pre-paid meters, accounting software, and non-cash payment platforms by KIWASH partners tremendously improved services and increased revenue for WASH enterprises.
- KIWASH supported 22 water projects to install solar panels which reduced operational costs and freed up resources to invest into expanding water infrastructure. The solar systems were proven to be operationally, financially, and environmentally sustainable.
- Supporting availability and affordability of sanitation products for rural communities necessitated a paradigm shift, from relying on commercial supply chains to growing new enterprises, and convincing groups to invest and pursue sanitation business.

- KIWASH stressed the need to continuously sensitize communities to understand the nature of donor support to inculcate a sense of ownership for the sustenance of gains. This would eradicate the misconception that donor-funded services should be accessed free of charge.
- KIWASH instituted a concerted capacity-building effort of partners critical to the sustainability process including the county governments, the WSPs in urban areas, and community water supply schemes in rural areas.
- At the county level, KIWASH development interventions were designed to strengthen the capacity of government staff and partner institutions to proactively plan on their own and to adopt business orientation in their programming for meaningful contribution to service delivery.

Overall achievements

- Through the project, more than 800,000 people gained access to basic and improved drinking water services in target counties between 2015 and 2021. More than 160,000 others were given access to improved toilets and 1,687 communities were verified as open defecation free (ODF).
- Over 1,830 entrepreneurs in sanitation including community health volunteers were trained to promote and market improved sanitation options. The training was also conducted for WSPs and WASH enterprises for improved service provision including the adoption of technology.
- KIWASH also supported the creation of laws/policies including investment agreements (public or private) continue to promote access to improved water supply and sanitation.
- On infrastructure, more than 130 institutions gained access to basic drinking water while more than 500 healthcare facilities, schools, water points, and markets, and other public spaces were equipped with handwashing facilities. More than 120 schools and health care facilities were provided with basic sanitation facilities.

Sustainability and scale-up

KIWASH's approach was to leave behind a self-propelling water sector and systems through enhanced project ownership and effecting an exit strategy that ensured the long-term sustainability and effectiveness of the intervention.

Some of the measures effected to realize sustainability are stated below:

- **A systematic capacity-building process – KIWASH trained** partners critical to the sustainability process including the county governments, the WSPs in urban areas, and community water supply schemes in rural areas.
- **Re-orienting the sector to commercial approaches** - Government staff and partner institutions were trained to proactively plan on their own and to adopt business orientation in their programming for meaningful contribution to service delivery.
- **Enhancing service delivery through performance improvement plans -** KIWASH supported WSPs to develop and implement PIPs to improve operational efficiency and service delivery.
- **Institutionalizing county data for decision making -** Counties were supported to institutionalize water project mapping through KIWASH's transfer of survey tools, county data, and permissions to access and update information on the mWater platform.

- **Training capacity beyond KIWASH -** KIWASH established a strategic partnership with Kenya Water Training Institute (KEWI) to ensure that small, medium, and community-managed WASH enterprises continue to receive capacity development services beyond the project. KIWASH trained to select KEWI staff on its approach and content to strengthen the business operations of WASH enterprises.

- **Strategic and sustainable investment approach -** KIWASH's priority was to invest in projects with guaranteed returns on investment. The project targeted its investments at improving companies' cash flow coupled with good governance. This would improve bankability and access to commercial financing from the local market.

- **Partnerships for sustainability -** KIWASH entered into partnerships to build synergies and enhance the sustainability of interventions. At the county level, the project steered partnerships that nurtured robust and coordinated teams capable of steering the sanitation agenda beyond KIWASH. Linkages were built between new sanitation enterprises and the market. The training was provided to public health staff and technical institutions to promote the institutionalization of advanced technology in latrine construction. KIWASH also established linkages with several microcredit organizations for the financing of sanitation investments for households.

- **Knowledge sharing** - KIWASH was built on the foundation of learning and sharing knowledge. To facilitate learning within the organization and externally, KIWASH documented project outputs to share them with stakeholders during WASH forums. Further, the project facilitated benchmarking with WASH enterprises in other counties. Sharing knowledge was intended to help improve productivity, effectiveness, and innovation and provide more effective responses to complex and dynamic situations.

- **Community-led approaches and Leveraging on local resources** - The KIWASH project championed and leveraged the use of local resources, expertise and engaged the county governments to create resources for supporting the WASH enterprises. This was on the basis that critical and sustainable changes in sanitation and hygiene rely heavily on communal ownership and leadership.

- **Institutionalization of gender mainstreaming** - KIWASH furthered the institutionalization of gender equality mainstreaming and social inclusion by providing technical advice, training, support, and on-the-spot coaching during monitoring and follow-up activities.

Lessons Learned

- Adherence to good governance practices, proper operation, and management of WSPs is critical for improved service delivery.

- Adopting technological solutions in operational systems curbs malpractices and improves service delivery.

- Augmenting infrastructure support with capacity building ensures sustainability.

- Installation of solar systems enhances service reliability by reducing operational costs.

- Entrepreneurship drives innovations, not only in products but also in business arrangements in remote rural settings.

- Existing commercial supply networks may be inappropriate; in escalating cost and miss out on hard-to-reach populations.

- Promoting a sense of ownership by involving local actors enhances project sustainability.
- Need to link community-based groups with relevant authorities for sustained working relationships.
- Conducting orientation on recoverable grant programs and providing sufficient time for recovery is necessary for sustainability. It enhances repayments.

Recommendations

Infrastructure

i. County governments should increase budgetary allocations towards WASH infrastructure support to complement capacity-building processes to reach more beneficiaries with improved WASH services and with more efficient and sustainable water schemes. WSPs should be supported to reduce their operational costs through practical measures such as the use of solar energy and gravitational flow to produce renewable and cost-effective energy for pumping water.

ii. Future programs should also consider investments in water storage facilities including damming.

Environmental sustainability

i. Counties should increase financing towards sustainable environmental conservation interventions and be supported to establish sustainable climate change governance structures.

ii. Future programs should consider expanding water resource management beyond sub-catchments serving water sources used by the supported WSPs and WASH enterprises and scaling up of natural resource management initiatives. These should include activities that do not solely depend on rainfall, increase afforestation, and environmental sensitizations.

Sanitation and hygiene

i. Sanitation programs should be allocated adequate timing and flexibility that aligns with changing project approaches and needs. Notably, traditional demand creation approaches, such as CLTS employ different expertise from sanitation marketing which requires additional expertise in finance and marketing alongside longer planning and preparation periods.

ii. Micro-credit is a key ingredient for market activation and a catalyst necessary to stimulate village entrepreneurship and purchasing power. Village microfinance initiatives should be harnessed to provide supply-side sanitation finance. The KIWASH developed sanitation revolving fund model is anchored on this principle.

iii. Projects should deploy subsidies innovatively to overcome operational and technical start-up challenges or unlock sanitation capital. Matching grants or use of county affirmative action funds were useful incentives when well structured.

Governance and policy

i. Capacity strengthening for counties should be a continuous process.

ii. Counties should be supported to expedite development/finalization of the county water policies and laws as necessary legislation where the processes are still ongoing this will help to mainstream water governance towards sustained water access.

iii. Counties should support rural water supply within WASREB guidelines by outlining the roles and functions of Water Management Committees (WMCs) /Water Users Associations (WUAs) in the

county water legislation and laws and ensure implementation with due regard to enhancing public participation and inclusion and strong financial management systems.

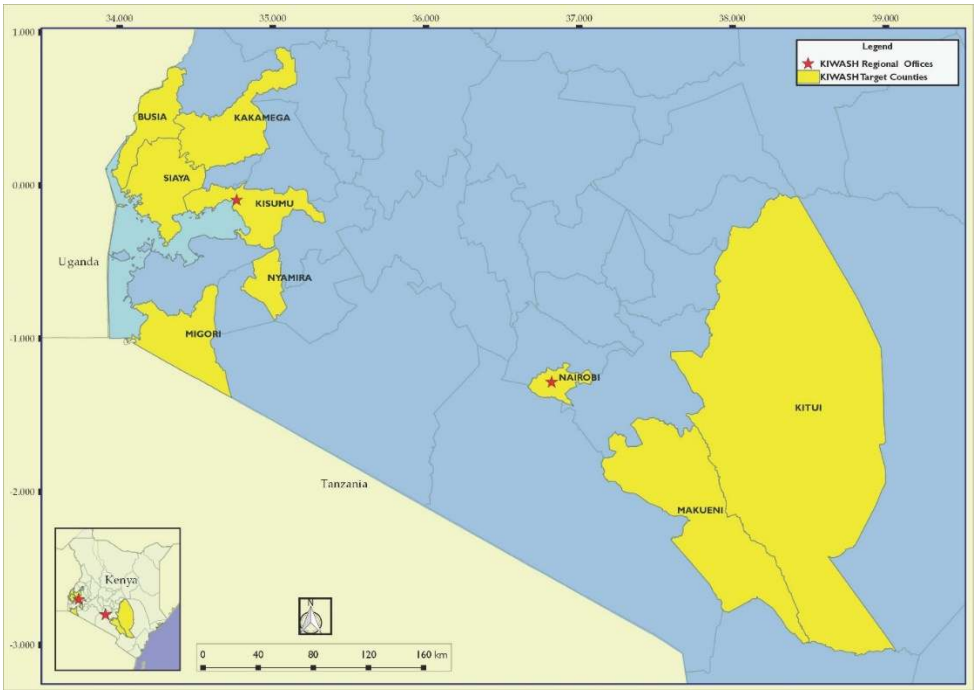
iv. There is a need to foster healthy working relationships between community-based groups and government agencies. It was evident in most cases, that the link between WRUAs, respective county governments, and other stakeholders, such as WASH enterprises was very weak. To ensure the sustainability of interventions such linkages should be promoted

v. The recoverable grant was a new concept for many WSPs, and WASH enterprises as most had previously received grants that did not require repayment. This contributed to a lack of buy-in. It is therefore important to conduct an orientation with sector players for understanding recoverable grants. Grantees should be allowed adequate time to generate revenue and increase their ability to repay the grant.

INTRODUCTION

KIWASH activities were implemented in nine counties in two principal focus areas: Busia, Kakamega, Kisumu, Migori and Siaya counties in the Lake Victoria Focus Area, and Kitui, Makueni, and Nairobi counties in the Tana/Athi Focus Area. The figure below indicates the focus areas.

Figure 1: KIWASH Project Implementation Areas



The report is divided into two main parts; Part 1 which covers the first five years of implementation and Part 2 which is the one-year extension. In the first phase, KIWASH focused on six key areas that are highlighted below.

i. **Market-Based WASH delivery models scaled up** – Through this component, KIWASH provided targeted training, coaching and mentoring support to 231 WASH enterprises to strengthen their business operations to enable them to improve and expand WASH services.

ii. **Sustained access to financing/credit for WASH** - KIWASH provided tailored technical assistance to its partner WSPs to improve their capacity to take on debt or equity financing. To achieve this, KIWASH focused on strengthening core organizational foundations that are a mark of well performing companies. These include corporate governance, strategic and business planning, marketing and customer relations and investment planning.

iii. **Sanitation and hygiene** - KIWASH supported access to basic and improved sanitation through an integrated approach to community led total sanitation (CLTS), social behavior change communication (SBCC) and sanitation marketing. The community interventions of CLTS and SBCC helped to create a demand for improved sanitation facilities in the target counties.

iv. **Environmental sustainability of WASH services increased** - The component focused on strengthening the capacity of nine county governments, institutions and communities to protect water and watershed resources. The efforts also aimed at strengthening the capacity of partners to adapt to climate change and expand water and sanitation services.

v. **Governance and policy** - KIWASH worked with county governments and WASH sector stakeholders to analyze, recommend, and support the adoption of key policy reforms. Further, KIWASH provided technical assistance which focused on institutional strengthening of WSPs and WASH enterprises/community water projects. The support involved identifying governance and operational challenges and providing technical assistance and capacity building opportunities to strengthen WASH sector operations.

vi. **Infrastructure support -** KIWASH infrastructure interventions were designed to complement technical assistance and increase revenue, reduce non-revenue water, expand distribution networks, increase billing accuracy, and reduce energy costs. Ultimately, these investments increased water coverage through new connections and improved access to water to both rural and urban communities, while reducing the cost of production and operations.

The extension period focused on seven key activities as highlighted below.

i. **Sector coordination and planning support** - KIWASH worked proactively with the national government, county governments, and WASH stakeholders to strengthen sector coordination and planning. The technical support contributed to the effective planning, design, and implementation of WASH and COVID-19 response and recovery activities.

ii. **Support to social and behavior change campaigns**- The activity was designed to support the adoption and execution of a campaign aimed at promoting proper hygiene practices. The campaign was crafted in a manner that encompasses context-based community sensitization on ways of curbing the spread of COVID-19. This involved close collaboration with the Ministry of Health (MoH) and county-level departments of public health and sanitation.

iii. **Building capacity of county staff to promote improved risk communication and community engagement -** KIWASH worked in close collaboration with the Ministry of Health and county departments of public health and sanitation to conduct targeted risk assessments in areas with high infection potential – health care facilities (HCFs) and learning institutions.

iv. **Support to water service providers to maintain service provision** – KIWASH teamed up with county governments, WASH institutions, partners, and the private sector to support WSPs to improve their operational efficiency and maintain service provision. KIWASH's support aimed to build resilient WSPs and ensure that high-risk areas such as healthcare facilities, learning institutions, and markets received adequate water services to curb the spread of COVID-19 and improve the overall health of people.

v. **Support water service provision in rural areas and underserved informal settlements -** Through this component, KIWASH aimed to strengthen the capacity of county governments in the provision of water services in rural areas and under-served informal settlements. The areas were significantly vulnerable to the COVID-19 pandemic in relation to the availability and reliability of water for handwashing and other uses.

vi. **Security of WASH infrastructure** - KIWASH in collaboration with the respective county governments continued to increase the availability of handwashing facilities, water treatment, and safe storage options in households, schools, health facilities, and other public spaces. The project also promoted the consistent treatment of water, whether at the point of distribution or household level.

vii. **WASH in healthcare facilities -** KIWASH worked with county health staff to develop and conduct risk assessments in locations with high COVID-19 infection potential including health facilities and to identify and reach vulnerable population segments with WASH services.

viii. The subsequent sections describe in details the processes and achievements that KIWASH realized in the life of project

KIWASH'S APPROACH

KIWASH applied the following key approaches to meet its set objectives.

i. **Capacity Building** - KIWASH built and strengthened the capacity of the County Government, the Water Service Providers in urban areas and Community Water Supply Schemes in rural areas to provide quality WASH services to improve on operational efficiency towards commercial thinking for sustainability as WASH enterprises.

ii. **Staff Placement within counties** – KIWASH had staff based at the counties and the office space was provided by the county governments. This was meant to strengthen the relationship and ensure the county staff were at close reach for the KIWASH project staff and vice versa.

iii. **Community-led approaches and leveraging on local resources** – To ensure self-reliance, KIWASH project in-built and championed for the use of local resources, used local expertise, locally available materials and engaged the county governments to create resources for supporting the WASH enterprises. Critical and sustainable changes in sanitation and hygiene relies heavily on communal ownership and leadership.

iv. **Social Behavior Change Communication (SBCC)** –KIWASH was aware of the need for change in critical behaviors among the recipients and community members as well as county governments to ensure that sanitation and hygiene practices are entrenched. KIWASH's SBCC approach utilized effective behavior change methodologies, promoting education through listening to positive impact practices through consistent use of latrines for human waste disposal, safe disposal of baby wastes, correct handwashing, and household water treatment and storage.

v. **Governance and Policy Reforms** – KIWASH instilled this approach through grounding on local ownership, local governance and ensuring that there were existing policy frameworks that acted as the foundation upon which development is built. Governance and enabling policies are critical for WASH to ensure all stakeholders have their roles clearly defined but also to provide proper guidance for work.

vi. **Sanitation Marketing and Community-Led Total Sanitation (CLTS)–** KIWASH adopted a sanitation marketing approach to strengthen the component and expand coverage for rural sanitation. The sanitation marketing approach basically ensured that these communities are

encouraged and motivated to increase sanitation and hygiene coverage in their own localities. KIWASH brought in market role to activate the scale of sanitation and hygiene. KIWASH went to the field and looked at what products exist for sanitation and hygiene. KIWASH identified a set of two products that were promoted. KIWASH worked with the private sector and the community on sanitation marketing approach to enhance scalability.

vii. **Grant Making** - KIWASH project was aware that public resources alone can never be enough for the WASH sector success, incorporated grant-making as a key approach. KIWASH adopted and championed for a blended approach to financing the WASH sector including grants (recoverable and non-recoverable), local financing (county governments, WSPs or community) and commercial financing (banks and micro-finance institutions).

viii. **Gender Mainstreaming and Inclusion** - KIWASH believed that WASH is an inclusive sector and thus the approaches have to adopt an inclusive model. KIWASH's gender mainstreaming and inclusion strategy aimed at integrating the needs of all people. It ensured that all the projects consider the opinions and voices of all the segments of the population including women and the youth. As part of this approach, KIWASH trained the WSPs, the WASH enterprises and the county governments on gender equality mainstreaming and supported them to develop gender policies.

ix. **Environmental Protection and Sustainability** - Environmental sustainability is responsibly interacting with the planet to maintain natural resources and avoid jeopardizing the ability for future generations to meet their needs. WASH depends largely on the environment and hence anything that degrades it hinders WASH success. KIWASH therefore championed environmental protection aimed at maintaining (and recovering when necessary) a healthy natural environment. This is in line with sustainable development that embraces environmental, social and economic objectives, to deliver long-term equitable growth which benefits current and future generations.

x. **Knowledge Management and Learning** - KIWASH project was built on the foundation of learning and sharing through effective knowledge management. Learning is a conscious attempt on the part of organizations to improve productivity, effectiveness and innovativeness while enabling quicker and more effective responses to a complex and dynamic environment. To facilitate learning, KIWASH intentionally documented project outputs with an aim of sharing them with stakeholders during WASH forums. Further, KIWASH organized and conducted exchange visits to other WASH enterprises in other counties for benchmarking. The project further organized joint planning, monitoring and evaluation to enhance synergy and avoid duplication hence conserving key resources such as time, human resource and finances.

KEY ACHIEVEMENTS

KIWASH PHASE I (2015-2020)

- ✓ 874,388 people gained access to basic and improved drinking water services in target counties as a result of United States Government's (USG) assistance.
- ✓ 169,566 people gained access to basic and improved sanitation services in target countries as a result of USG's assistance.
- ✓ 1,687 communities verified as open defecation free ODF with a monitoring plan with USG assistance.
- ✓ Over 1,830 sanitation entrepreneurs (CHVs, local artisans and PHOs) engaged in training and marketing to promote improved sanitation options.

- ✓ 13 water service providers (WSPs) and 231 WASH enterprises trained/coached for improved service provision.
- ✓ 278 businesses providing WASH services with improved management practices or technologies as a result of USG assistance.
- ✓ USD 44.1 million value of new sector funding mobilized to expand the services or increase the efficiency of water service providers.
- ✓ 26 policies, laws, or investment agreements (public or private) implemented that promote access to improved water supply and sanitation.
- ✓ 23 Water Resource User Associations (WRUAs) demonstrating enhanced capacity to deliver services.
- ✓ 22 water projects supported to install solar power as a cost-effective and eco-friendly source of energy.
- ✓ 44 WSPs and WASH enterprises benefitted from KIWASH water infrastructure development investment to increase their water coverage capacity.

PHASE II (OCTOBER 2020-DECEMBER 2021)

- ✓ 131,615 people gained access to basic drinking water services.
- ✓ 528,666 people reached with WASH COVID messaging in KIWASH counties.
- ✓ 1,332 WASH champions/CHVs trained to cascade WASH COVID messaging to communities and households.
- ✓ 135 institutional settings (healthcare facilities and schools) gained access to basic drinking water services.
- ✓ 583 health facilities, schools, water points, markets, and other public spaces equipped with handwashing facilities in accordance with local standards.
- ✓ 128 basic sanitation facilities provided in schools and health facilities.
- ✓ $10,424,529 value of new funding mobilized to the water and sanitation sectors as a result of USG assistance.
- ✓ 3,999 vulnerable people received hygiene kits in KIWASH supported counties.

Performance Data Table: AMEP Indicators for Year 1-5

KIWASH's year closeout in year 5 was characterized by closure of county offices in Q2 and minimal project activities. The table below presents the cumulative (Y1 – Y5) indicator performance results against LOP targets. Analysis of performance of Y1 – Y5 shows a positive achievement rate of 81 percent (13 of 16 targets met or exceeded). Further analysis reveals that of the targets met over the life of the project, 12 reflect significant overachievement.

However, due to the outbreak of COVID-19 pandemic, KIWASH was unable to finish a survey on completed water projects to determine the people reached with improved service quality from an existing improved service - Cross-Cutting IND 4 (HL 8.1.3). This explains a low performance of 64 percent against the set target.

Achieving improved sanitation numbers involved designing and operationalizing approaches beyond available evidence in Kenya. The multi-faceted nature of implementation required engagement of private sector supply chains, extensive resource investments, this ultimately resulted to slow start-up and slackened implementation. This led to a 64 percent against the set target for Cross-cutting indicator 5 (Number of people gaining access to improved sanitation as a result of USG assistance),

Performance Data Table: AMEP Indicators for Year 1-5

AMEP Performance Indicators	Cumulative actuals Y1 to Y5	LOP Target as at end of Year 5	% achievement at end of year 5
OUTCOME IND 5 Percentage increase in county budget allocations for basic water and sanitation.	**67%**	**No target**	N/A
Crosscutting IND 1. (HL 8.1-1) Number of people gaining access to basic drinking water services in target counties as a result of USG assistance.	**713,531**	**600,000**	119%
Cross-cutting IND 2 (HL 8.2-2) Number of people gaining access to a basic sanitation service in target countries as a result of USG assistance.	**121,836**	**125,000**	97%
Cross-Cutting IND 3 (HL 8.2-1) Number of communities verified as ODF with a monitoring plan with USG assistance.	**1,687**	**1,000**	169%
Cross-Cutting IND 4 (HL 8.1.3) Number of people with improved service quality from an existing improved? /safely managed drinking water service through USG assistance.	**160,857**	**250,000**	64%
Cross-cutting IND 5 Number of people gaining access to improved sanitation as a result of USG assistance	**47,730**	**75,000**	64%
Cross-cutting IND 6 Number of people using a shared sanitation facility that has been enhanced as a result of USG assistance.	**24,740**	**10,000**	247%
Custom Output IND 1.1	**278**	**200**	139%

AMEP Performance Indicators	Cumulative actuals Y1 to Y5	LOP Target as at end of Year 5	% achievement at end of year 5
Number of businesses providing WASH services with improved management practices or technologies under USG assistance.			
Custom Output IND 1.2 Number of people benefiting from public-private partnerships in the WASH sector.	**126,214**	**100,000**	126%
Output IND 1.3 Number of new USG-supported public-private partnerships (PPPs) formed.	**11**	**18**	61%
Output IND 2.1 (EG 4.2-1) Number of clients benefiting from financial services provided through USG-assisted financial intermediaries, including non-financial institutions or actors.	**200**	**25**	800%
Custom Output IND 2.2 Value of new sector funding mobilized to expand the services or increase the efficiency of water service providers. ('000,000)	$44.17	$34.00	130%
Custom Output IND 5.1 Percentage increase in the geographic area serviced by WRUAs.	**54%**	**50%**	108%
Output IND 5.2 (EG 11-2) Number of institutions with improved capacity to assess or address climate change risks supported by USG assistance.	**42**	**40**	105%
Output IND 5.3* Number of Water Resource User Associations (WRUAs) demonstrating enhanced capacity to deliver services.	**23**	No Target	N/A
Custom Output IND 6.1	**4,047**	**300**	1349%

AMEP Performance Indicators	Cumulative actuals Y1 to Y5	LOP Target as at end of Year 5	% achievement at end of year 5
Number of service provider staff trained for improved service provision.			
Custom Output IND 6.2	**218**	**200**	109%
Number of sector stakeholders receiving TA for improved monitoring & evaluation, reporting, and accountability.			
Custom Output IND 7.1	**26**	**9**	289%
Number of policies, laws, or investment agreements (public or private) implemented that promote access to improved water supply and sanitation.			
Custom Output IND 7.2	**-4%**	No Target	N/A

SUMMARY OF PROJECT IMPLEMENTATION

MARKET-BASED WASH DELIVERY MODELS SCALED UP

Overview

At the beginning of the program, KIWASH sought to assess the capacity of 450 small scale private enterprises providing water, sanitation and hygiene (WASH) products and services, and to build the capacity of existing business development service (BDS) providers to meet the needs of small scale private WASH entrepreneurs. It also focused on providing hands-on capacity building for WASH entrepreneurs and improving the sanitation value chain in all nine target counties. It did this by linking private operators with other enterprises or facilities that offer safe disposal and treatment of fecal sludge.

Approach and key interventions

KIWASH implemented a set of interventions that cut across different focus areas to improve and optimize service delivery for effective delivery. The project adopted a three-stage approach, as follows:

Inception Stage

The inception stage began in October 2015 with preliminary activities aimed at assessing the underlying situation and determining available market opportunities for WASH enterprises and the sanitation value chain across all the target counties. The following key activities were carried out during the inception stage:

Stakeholder Engagement

Stakeholder engagement for the project entailed targeted discussions with government leaders in each targeted county, as well as other sector stakeholders including civil society organizations, NGOs, community-based groups, and private actors, among others. An inventory of WASH enterprises in each targeted county was created. Some of the parameters that were investigated included: type of ownership, project type, type of service provided, functionality status, existing customer base, prospects for future expansion and existing management models. The inventory exercise for the additional WASH enterprises took place between July and September 2016, and the information was used to produce a final list of potential WASH enterprises for KIWASH's incubation.

Small Sanitation and Water Enterprise Market Inventory

KIWASH collaborated with partner county governments to analyze the existing gaps and the priority needs of the enterprises which existed. As such, a list was provided by respective county departments which entailed a total of 519 WASH enterprises from the nine counties. After the initial review, those enterprises that did not serve households or offer key sanitation services critical to KIWASH objectives were excluded, reducing the sample to 330. The selection of survey participants was randomized, making it difficult to determine the exact number of existing WASH enterprises in each targeted county. Using findings from the inventory, KIWASH developed a criterion that prioritized at least 200 WASH enterprises for incubation through the project. KIWASH designed the incubation process to build the capacity of WASH enterprises to meet Kenya's market demand for safe WASH services. KIWASH also noted that most of the records provided by the enterprises lacked vital information, such as production capacity/ pump details, coverage, etc., in the case of water enterprises. Many of the small and medium WASH enterprises lacked the necessary operating licenses to legally provide WASH services. Most of the enterprises, especially those providing water services, were registered as self-help groups with the department of gender, children, and social development at the sub-county level.

The enterprises also lacked high-level business acumen in their operations, providing basic/routine services while paying little attention to customer needs. Most of the enterprises were supervised by project management committees, made up of committee members whose term of office ranged from one to three years. This was not a standard practice as some management committees, particularly community-managed projects, had been in office for more than ten years which is highly discouraged. This leadership dominance led to the feeling of wanting to run the projects like personal businesses which affected the ability of enterprises to deliver reliable and satisfying services to their communities and customers. Below are the main issues that affected WASH enterprises in target counties:

- Community-owned WASH enterprises were managed through the community management module, which is voluntary and non-professionalized.
- Staff employed by the WASH enterprises lacked proper understanding of system operations such as chlorine dozing.
- Loss in revenue due to high losses of water (Non – Revenue Water).
- No/limited access to financing to meet WASH enterprises' expansion objectives.
- Lack of business plans to define WASH enterprises' business and growth objectives.
- No/ inadequate financial systems.
- Inefficient revenue collection.
- Limited/noncompliance with stipulated water quality standards.

Sanitation Value Chain Situational Assessment

To understand the sanitation value chain, KIWASH conducted a situational assessment of the fecal sludge management (FSM) set up focusing on the key actors in the sanitation value chain, private and public.

Interviews were conducted with national (Ministry of Health) and county government staff in Nairobi; the Water Services Trust Fund (WSTF); water service providers (WSPs) across all nine target counties; non-governmental organizations (NGOs), such as Practical Action, Sanergy, Kenya Water for Health Organization (KWAHO), Water & Sanitation for the Urban Poor (WSUP), Umande Trust and GOAL Kenya; and sanitation value chain enterprises (private entrepreneurs involved in the selling of sanitation products) including Nyumbani Village (Kitui County) and Shining Hope for Communities (Nairobi County).

The following constraints were identified:

- Lack of a clear policy framework and guidelines on FSM at the county level.
- Non-recognition of manual pit latrine emptiers and other related sanitation enterprises.
- Poor quality of sanitation facilities.
- Lack of market for FSM end products (e.g. fertilizers).
- Need for increased compliance with multiple regulatory bodies.
- Low priority for sanitation in the development agenda.
- High investment needs for sanitation infrastructure.
- Limited access to finance.
- Sustainability issues and inability to cover operation and maintenance costs for sanitation infrastructure.
- Inadequate level of innovation and sanitation technology options in the Kenyan market.

The recommendations on three potential areas of KIWASH intervention to strengthen the sanitation value chain were:

- Supporting the development of policies, guidelines and standards for sanitation at the national and county level, including formalization of operations for sludge management service providers;
- Improving specific components of the value chain (e.g. transfer points, decentralized treatment facilities); and
- Enhancing the efficiency of the entire sanitation value chain through partnership(s).

Prioritization and Selection of WASH Enterprises for incubation

KIWASH developed and agreed on criteria to facilitate the selection of suitable enterprises for incubation from the wider list prepared during the assessment exercise. This was based on three-tier criteria that provided representation for urban, rural, and peri-urban communities; men and women owners and managers; sanitation and water enterprises; and included WASH enterprises from all target counties. The breakdown of these criteria is shown in the table below.

WASH Enterprise Selection Criteria

Tier	Characteristics for Tier Classification

Tier 1	Registered, had a Business Plan and had more than three staff.
Tier 2	Registered and only had a Business Plan.
Tier 3	Only registered.

Using the set criteria, all enlisted enterprises were included in the selection process for KIWASH's incubation. Due to the high number of WASH enterprises and the need to enhance the transfer of knowledge during training, the incubation process for WASH enterprises was divided into phase one and phase two. Informed by the number of staff available, KIWASH used the phased approach to enhance the focus and intensity of the capacity-building support to enterprises. In total, 231 enterprises (107 in Phase One and 124 in Phase Two) were selected and benefitted from the incubation.

WASH Enterprise Capacity Development Action Plan

Based on the findings of the Small WASH enterprise market inventory, KIWASH developed a comprehensive Capacity Development Action Plan to guide the implementation of planned activities to align with the holistic approach adopted by the project. This entailed a combination of approaches, implemented in various stages, as follows:

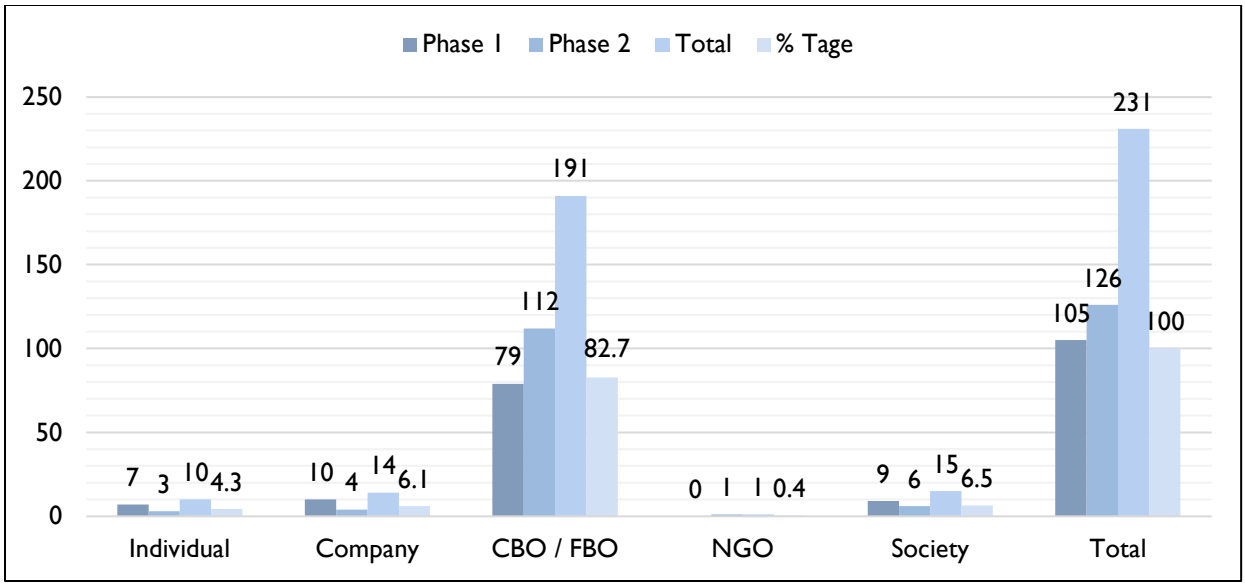
- Conducting a capacity needs assessment for the selected WASH enterprises.
- Developing individualized capacity development implementation plans for each enterprise.
- Implementing targeted capacity building interventions; and
- Periodic monitoring, reflection and learning.

The capacity development action plan aimed at creating a holistic approach that would help achieve systemic change to strengthen the operational capacity of WASH enterprises to respond to customer needs. The action plan reinforced the planning and execution of interventions based on the existing situation for the WASH enterprises, coupled with the available market opportunities and demand for the services and/ or products.

Gap analysis and development of capacity development implementation plans

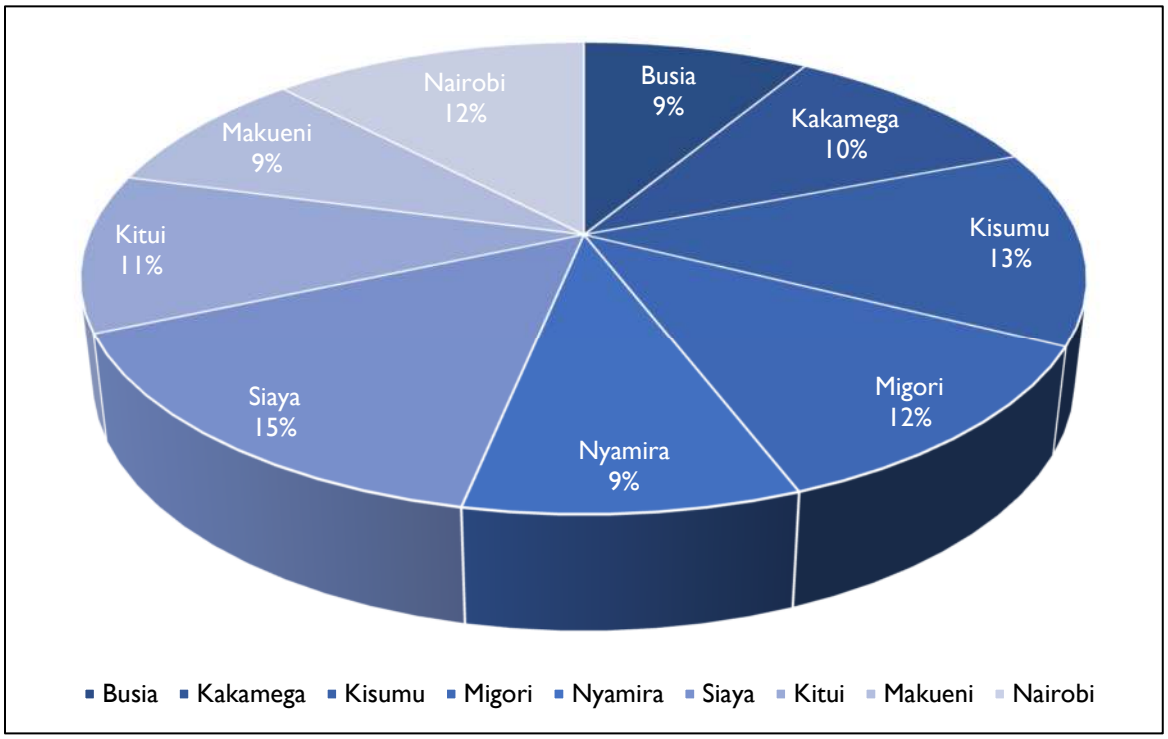
The gap analysis provided a benchmark for the key performance indicators, which led to the development of the enterprise-specific capacity development implementation plans. The analysis also provided baseline data for key performance parameters critical to achieving improved WASH services. 82.7 percent of the WASH enterprises were community owned and registered as self-help groups. The ownership of selected enterprises is summarized in the figure below.

Figure 2: Ownership of selected WASH enterprises



The 231 WASH enterprises that KIWASH incubated were equitably distributed across the nine project counties. Siaya had most of the enterprises (35) followed by Kisumu (31), Nairobi (28), Migori (27), Kitui (25), Kakamega (24), and Nyamira (21). Busia and Makueni each had 20 enterprises. These numbers are summarized in Figure 3.

Figure 3: Distribution of selected WASH enterprises by county



Development of business development services training materials and monitoring tools

From the outset, business development services (BDS) delivered to WASH enterprises were expected to cover, among other identified needs: business planning (e.g. market analysis, financial projections, and

staffing and resource requirement analysis); technical training (e.g. customer services, marketing, financial and commercial management, operations and maintenance, employee management); and specialized topics (e.g. water quality analyses, non-revenue water management, development of funding proposals).

Based on these expectations and the findings of the small WASH enterprise market survey (and later, the findings of the enterprise-specific gap analysis), KIWASH developed training modules aimed at bridging the capacity gaps of WASH enterprises. Some of the gaps realized included lack of proper financial management practices, poorly kept records, cash handling of payments leading to malpractices, high debts and inexperienced staff. Seven training modules focused on BDS activities were developed and fine-tuned for the staff and project management committee members from all 231 WASH enterprises prioritized for incubation by KIWASH. The modules that were developed included the following:

- Water Sector Reforms and Right to Water
- Know your Customer and Introduction to Marketing
- Gender Mainstreaming and Inclusion
- Introduction to Basic Financial and Business Management
- Introduction to Basic Computer Skills
- Introduction to Operation and Maintenance Basics
- Environmental Sustainability

The basic financial and business management module also included sub-topics on budget preparation and monitoring, staff management and access to finance.

KIWASH developed a monthly progress tracking tool to strengthen internal reporting and assessment for all selected incubated WASH enterprises. This tool significantly improved monthly reporting for most enterprises, which allowed for regular tracking of key performance parameters by the WASH enterprises. The tool also provided individual WASH enterprises with useful data for their planning and evidence-based advocacy.

Interventions Delivery Stage

The interventions delivery stage began in December 2016 and continued through the end of the KIWASH project. This stage entailed the execution of planned activities to successfully strengthen the business operations of WASH enterprises for improved and expanded services. Some of the activities that took place during this stage included:

- Classroom training, field coaching and mentoring, and monitoring of all WASH enterprises.
- On-site coaching and mentoring support/ technical assistance.
- Periodic reflection and learning activities.
- Linkage to commercial finance.
- Targeted infrastructure investments to WASH enterprises.
- Institutionalizing BDS in county government structures and BDS providers for sustainability.
- Monthly performance monitoring and annual capacity and performance assessments.

Classroom training in BDS modules

KIWASH conducted classroom trainings, using the BDS modules developed for the selected WASH enterprises across the nine target counties, to bridge the knowledge and skill gaps identified in the enterprise-specific capacity development implementation plans. The BDS modules were disseminated via three sets of trainings lasting one week long followed by intense on-site coaching and mentoring support and technical assistance for each WASH enterprise.

In total, KIWASH trained 766 participants (538 male and 228 female) from the 231 WASH enterprises in its BDS modules (all seven broad modules and sub-topics). This equipped them with the necessary knowledge and skills to improve their business operations and expand services. A summary of the individuals who benefited from the training conducted by KIWASH in each county is shown in the table below.

WASH enterprises that benefitted from KIWASH's BDS modules

No.	County	Training Delivery Period	# WASH Enterprises Trained	No. of Participants Trained		
				Male	Female	Total
1.	Nairobi	December 2016 to May 2019	28	48	35	83
2.	Nyamira	December 2016 to May 2019	21	40	16	56
3.	Busia	December 2016 to May 2019	20	64	22	86
4.	Kitui	December 2016 to May 2019	25	49	24	73
5.	Kakamega	January 2017 to May 2019	24	56	27	83
6.	Makueni	December 2016 to May 2019	20	57	14	71
7.	Siaya	December 2016 to May 2019	35	64	25	89
8.	Migori	December 2016 to May 2019	27	73	25	98
9.	Kisumu	December 2016 to May 2019	31	87	40	127
TOTAL			**231**	**538**	**228**	**766**

On-site coaching and mentoring support/ technical assistance

Along with classroom training, KIWASH's approach included tailored, on-site coaching and mentoring support. The additional coaching and mentoring support further instilled good business and management practices to enable WASH enterprises to improve the quality of their services, attract additional customers, increase their revenue base and expand their coverage/operations. This support ensured that the beneficiaries were able to internalize the knowledge and skills acquired and put them into practice.

A WASH enterprises' reflection workshop in Kisumu County. KIWASH used the sessions to encourage peer-to-peer learning among enterprises to trigger the adoption of best practices from well-performing enterprises.

To ensure effective coaching and mentoring support, the on-site sessions were regularly conducted after each set of training. Of the focus areas for mentoring, coaching and technical assistance included:

- Strengthening service quality, coverage and customer outreach, and user satisfaction.

- Adopting financial management and business practices like business planning, budgeting, financial reporting, asset recording, accounting systems, performance reporting, etc.
- Building capacity and incentivizing staff and project management committee members to achieve project objectives/ targets.
- Increasing technical aspects of water distribution including operation and maintenance, non-revenue water management, water quality improvement strategies, etc.

The following deliverables were expected from the participants after the mentorship/coaching and training:

- Development of marketing plans.
- Development of business plans.
- Adoption and use of monthly progress tracking tool.
- Adoption and use of MS Excel-based billing and basic accounting systems.
- Improvement of governance structures and day-to-day operations.
- Improvement of consumer feedback and complaints handling mechanisms.

Reflection and learning activities

KIWASH conducted reflection and learning activities for all 231 target WASH enterprises. These included:

- Residential reflection and learning workshops for experience sharing among peer WASH enterprises.
- Field visits to well-performing WASH enterprises to stimulate learning and adoption of best practices.
- In-house data review and reflection sessions on performance, informed by WASH enterprise reports.
- Self-mobilized and organized exchange visits between two or more WASH enterprises.
- Formation of WASH enterprise platforms within their areas of jurisdiction.
- Technical backstopping by the officials of the respective county governments' departments.
- Linkage with financial institutions, including commercial banks and microfinance lending institutions for opportunities to access commercial financing.

The reflection and learning activities were very effective in enhancing knowledge transfer among participants, creating platforms for WASH enterprises to share experiences and best practices for replication and/ or scale-up. Participants also gain insights on addressing common challenges and developed useful networks among themselves.

Linkage to commercial finance

A woman of Chyullu Valley Water Projects displays bottles of water from one of the first batches packed at the organization's recently commissioned plant.

KIWASH built the capacity of and strengthened partnerships with several financial institutions such as Family Bank, ECLOF Kenya and Kenya Commercial Bank (KCB), among others, for possible financing of WASH infrastructure projects for incubated enterprises. The KIWASH team developed and signed a memorandum of understanding with ECLOF Kenya to cement the partnership with KIWASH. These financial institutions disbursed four loans to WASH enterprises throughout the project: Makutano Sinai WASH Enterprise in Makueni (ECLOF), Chulu WASH Enterprise in Makueni (Family Bank), Masaku Water Enterprise in Makueni (KCB) and Nyasare Water & Sanitation Company in Migori (KCB). In total, Kshs. 6,000,000 (about USD 60,000) in loans were processed and disbursed to various WASH enterprises across the nine target counties. Discussions on commercial financing continued throughout the life of the KIWASH project, and were expected to benefit more WASH enterprises.

KIWASH partner, Masaku Water Enterprise made commendable strides to achieve self-reliance. After KIWASH completed infrastructure development works at the enterprise in 2019, the enterprise independently constructed a new water kiosk, purchased an additional water bowser and drilled another borehole to boost the water supply. More importantly, the WASH enterprise increased the number of piped connections from 20 to 70 households. Additionally, to diversify services, the enterprise took steps to venture into a water bottling business. The enterprise also sustained 100 percent repayment of KIWASH recoverable grant and secured a commercial loan of US $8,000 from Kenya Commercial Bank (KCB).

Institutionalizing BDS in county government structures and BDS providers for sustainability

Throughout the project implementation cycle, KIWASH emphasized the sustainability of project interventions as a key consideration for success. Part of KIWASH's sustainability plan was to ensure that a proper institutional framework was in place in every target county to support progress toward strengthened business operations beyond the project period. To accomplish this, KIWASH took an initial inventory of BDS providers in each of the nine target counties to strengthen their capacity to provide BDS to WASH enterprises. Ultimately, the decision was made to both build the capacities of the nine-county governments, as well as the mandated water sector capacity building organization, the Kenya Water Institute (KEWI).

KIWASH established a strategic partnership with KEWI by signing a partnership agreement under which KIWASH conducted a Training of Trainers (ToT) workshop for KEWI staff in May 2019 as the first step toward joint implementation of activities. The ToT workshop brought together seven staff (3 male and 4 female) to strengthen the capacity of KEWI trainers, using KIWASH's modules, to deliver capacity development interventions to WASH enterprises. As a result, KEWI developed a rollout capacity-building strategy for WASH enterprises based on KIWASH's modules.

KIWASH also continued to strengthen the capacity of county government officials from the departments of water, to equip them with the knowledge and skills to support community water projects and improve

water services. Staff from both the county and sub-county levels underwent a ToT training similar to the KEWI staff training. County and sub-county staff were then tasked with developing capacity-building strategies/ action plans, in which staff committed to taking an inventory of all projects that required support and develop a delivery plan for capacity development interventions. A total of 90 participants (71 male and 19 female) benefitted from the county-level ToT training. A breakdown of beneficiaries by KEWI and respective county governments is shown below.

TOT Workshop participants from KEWI and the nine-county governments

County / Organization	Male	Female	Total Participants
Kenya Water Institute	3	4	7
Busia County	8	1	9
Kakamega County	8	2	10
Kisumu County	8	3	11
Migori County	10	1	11
Nyamira County	6	0	6
Siaya County	7	0	7
Kitui County	9	2	11
Makueni County	8	1	9
Nairobi County	4	5	9
Total	**71**	**19**	**90**

Monthly performance monitoring and annual capacity and performance (CAP) assessments

A key task under the WASH enterprise component was to strengthen the monitoring and evaluation of WASH at various levels, including the WASH enterprise and county government levels. To do this, KIWASH used a simplified, Excel-based Monthly Progress Tracking Tool developed for WASH enterprises, to track monitoring and reporting. The use of this tool significantly contributed to improvements in monthly reporting by all 231 WASH enterprises, which enhanced their ability to regularly track key performance parameters. This exercise further provided the individual WASH enterprises with useful data that enabled them to improve planning processes. The data was also used to inform evidence-based advocacy, in addition to providing useful information for internal reflection and budgeting, for appropriate interventions. The tracking tool was also shared with county government staff during the ToT training so that they could interact with and adopt the tool to monitor the performance of WASH enterprises beyond the KIWASH project.

IMPROVING WASH PUBLIC SERVICE DELIVERY

Overview

KIWASH partnered with 11 water service providers (WSPs) to enhance their ability to access financing to expand and improve WASH services. From the start, KIWASH conducted scoping missions with the targeted WSPs to gain a basic understanding of their challenges, threats and opportunities aimed at

improving their performance. KIWASH, the relevant county government officials, WSP board of directors (BoDs) and corporate management teams (CMT) further held discussions to agree on joint interventions. The discussions led to the development of a capacity development plan.

WSP Partners

County	WSP Partner
Busia	Busia Water and Sewerage Company (BUWASSCO)
Kakamega	Kakamega Water and Sewerage Company (KACWASCO)
Kisumu	Kisumu Water and Sewerage Company (KIWASCO)
Kitui	Kiambere-Mwingi Water and Sanitation Company (KIMWASCO) Kitui Water and Sewerage Company (KITWASCO)
Makueni	Kibwezi-Makindu Water and Sewerage Company (KIMAWASCO) Wote Water and Sewerage Company (WOWASCO)
Migori	Migori County Water and Sewerage Company (MIWASCO)
Nairobi	Nairobi City Water and Sewerage Company (NCWSC)
Nyamira	Gusii Water and Sewerage Company (GWASCO)
Siaya	Siaya-Bondo Water and Sewerage Company (SIBOWASCO)

With the capacity development plan, KIWASH provided the WSPs with specialized technical assistance to improve on corporate governance, integrate gender equality mainstreaming and improve on customer relations and service. The plan also helped to develop strategic business plans and identify and develop investment proposals targeting development partners and county governments.

KIWASH also monitored the progress of WSPs in achieving economic viability and improved WASH services. It emerged that a majority of the WSPs struggled with poor performance, high non-revenue water management and were unable to meet their operating expenses. More importantly, the WSPs were not implementing their strategic plans.

Further, KIWASH conducted an analysis to understand the underlying factors behind the slow and unsustainable performance. The exercise revealed several factors that hindered optimum performance and informed KIWASH's decision to support the WSPs to develop performance improvement plans (PIPs). This included high non-revenue water, senior roles in acting capacity and ill constituted board of directors. Eight out of 11 water utilities participated in the PIP process as follows:

County	Water Service Provider (WSP)
Busia	Busia Water and Sewerage Company (BUWASCO)
Nyamira	Gussi Water and Sewerage Company (GWASCO)
Makueni	Wote Water and Sewerage Company (WOWASCO)
	Kibwezi-Makindu Water and Sewerage Company (KIMAWASCO)

County	Water Service Provider (WSP)
Kitui	Kitui Water and Sewerage Company (KITWASCO)
	Kiambere Mwingi Water and Sanitation Company (KIMWASCO)
Migori	Migori County Water and Sewerage Company (MIWASCO)
Siaya	Siaya-Bondo Water and Sewerage Company (SIBOWASCO)

Performance Improvement Plans

A Performance Improvement Plan (PIP) is a comprehensive and strategic work plan developed to address management concerns. The water utility PIPs were aimed at performance improvement and enabling the utilities achieve short and medium-term objectives. The utilities asked to identify no-cost well defined and productive initiatives to address basic challenges. This resulted into desirable results within a short time frame.

Rationale for PIP

According to the Water Sector Regulatory Board's (WASREB) Impact Report 11(2017/2018), the Kakamega County Water and Sanitation Company (KACWASCO) emerged among the top ten WSPs in the country. At the same time, three WSP partners –KIWASCO, KIMWASCO and KIMAWASCO were ranked among the top ten most improved in performance.

However, other partner WSPs were facing enormous performance challenges across their key performance indicators. SIBOWASCO and MBONWASCO were ranked among the bottom ten WSPs in the country while the BUWASCO was among the least improved in performance.

The PIP processes

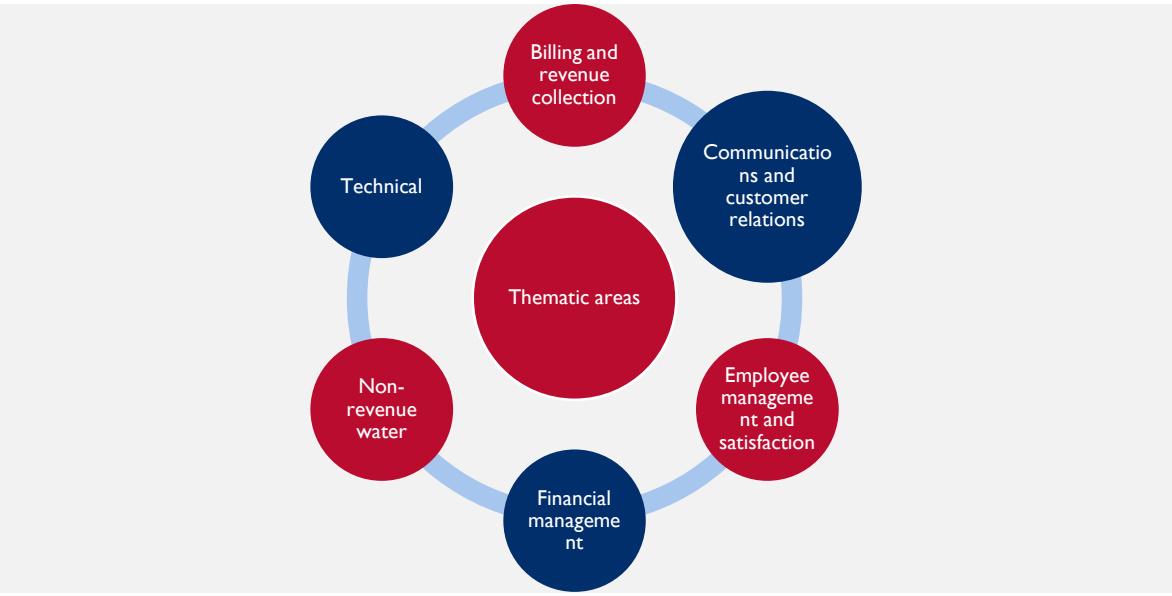
KIWASH began the PIP process by building consensus with WSPs. This was aimed at making it clear to them that for change to be realized, they had to be committed and effect deliberate changes in leadership and organizational culture. The PIPs provided specific targets, actions, milestones, and timeframes to guide the WSPs on critical commercial, financial, technical, human resource and social goals. The targets were based on in-depth institutional assessments, consultative workshops with WSP BoDs and county government representatives.

Next, KIWASH organized training workshops that applied a variety of methods to create an environment for candid discussions to unravel the underlying causes and practical interventions. The workshops encouraged participant-centered techniques guided by the principles of adult learning that including short power point presentations and group discussions sessions to deepen the understanding of identified issues and interventions.

The workshops were reinforced by field visits to participating water schemes and their service areas. This aimed to validate the issues identified and unravel others that could have been left out in the process. The field visits included random checks to establish the status with the meters, illegal connections and interaction with the customers and the wider community. Additionally, KIWASH made follow up visits to all partner WSPs to determine their progress as a guide to the PIP implementation.

Thematic areas

KIWASH clustered the PIPs into six thematic areas based on the challenges identified with the water utility companies.



Approaches and key interventions

KIWASH applied systemic action research, an inquiry-based methodology that is operated within an entire system to unlock complex problems. The focus of the approach is a systemic understanding of how change happens and how norms become established. It sought to develop insight into problems, why they emerged and how they become entrenched.

The approach is based on a belief that not only is it right for the utility to determine solutions to their own problems, but that unless they understand and own the process, any gains from interventions are likely to be very short lived. KIWASH used a participatory process that allowed involvement of all categories of utility staff to contribute to the entire PIP process from performance review, intervention decisions and implementation. The intervention was executed in a four-step process as follows:

- **Consultative performance review:** KIWASH facilitated a consultative process with the utilities' CMT and staff through focus group discussions (FGDs) and interrogation of documents and processes. Collaboratively, KIWASH and the utility team carried out an in-depth analysis of the issues, how and why they had emerged, and how they became entrenched into the utility. The process eliminated assumptions and surfaced other underlying factors that led to utility stagnation and poor performance. These were consolidated into a draft status report.
- **Validation PIP workshop:** KIWASH convened a workshop with the utility's key stakeholders – Board of Directors, staff, and county government representatives to validate the draft status report. For further verification, participants broke into teams and visited randomly selected sites with a checklist before reconvening to the validation workshop. The workshop provided the opportunity to give feedback and to discuss the issues on the ground. The validation session also

helped to eliminate assumptions and bring out many others that had not been identified. The entire process provided a basis for the utility to generate their own solutions. Ultimately, the participants highlighted performance constraining factors and developed short-term and medium-term performance improvement plans.

- **Writing the report:** The participants populated the draft report document with baseline data and targets for performance improvement. These were later revised and refined during the workshop. KIWASH then finalized the PIP document and shared it with specific utilities for action.
- **Monitoring, coaching, and advising**: KIWASH regularly tracked utility progress using the key targets and indicators developed against the baseline. As part of monitoring, KIWASH provided coaching and advisory to the utility staff through the KIWASH embedded staff, other utility experts and organized visits and phone calls.

Findings and analysis

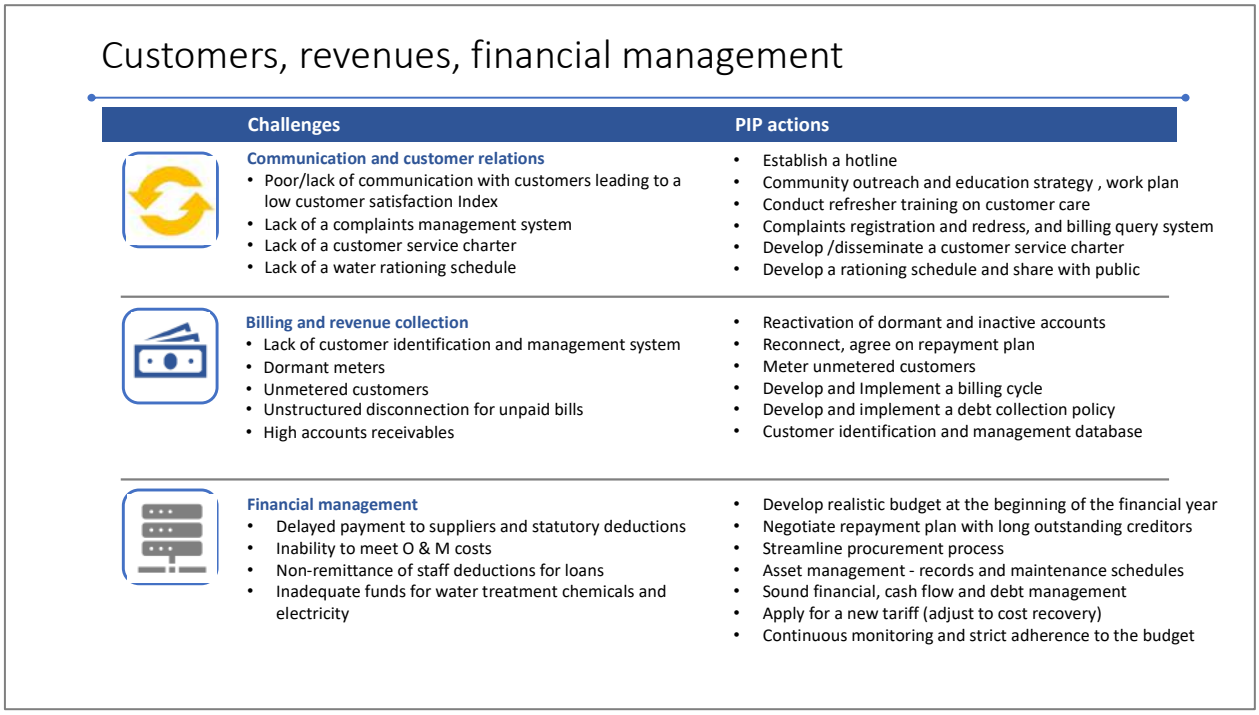
KIWASH, together with the utilities, compiled a list of specific challenges in the six thematic areas and PIP actions as summarized:

Technical, NRW, and employee management

Technical, NRW and employee management

Challenges	PIP actions
Technical • Lack of bulk meters for accurate NRW measurement • Low water production in relation to installed capacity and demand • Delayed repair of bursts • Lack of bursts reporting mechanism	• Identify number and size of bulk meters required, develop meter specifications, procure, calibrate and install. • Identify, procure and install standby water pumps • Rehabilitate leaking water tanks • Customer care staff to promptly report bursts for action • Ensure bursts repaired in reasonable time • Register bursts reporting line and disseminate to customers
Non-revenue water reduction • Illegal connections • Inappropriate placement of customer meters • Inefficient, non-functional and under-registering meters • Unattended Leaks and bursts, and repairs	• Identify illegal connections, immediate response mechanism • Rotation meter readers locations • Focus on Top 10-20 customers • Random checks on customer connection status • Develop policy to address staff corruption and collusion • Place meters to ensure accessibility, eliminate water theft • Assess/replace meters that are 5+ years old
Employee management and satisfaction • Compensation scheme is unfair and salaries are delayed • Lack clear organizational structure, gaps in structure • Lack of an HR manual and code of ethics • Lack of a training program, opportunities not shared equally • Lack of a performance management system • Inadequate communication between management - staff • Inadequate facilitation in transport and work tools	• Harmonize salaries and prioritize monthly salary payment • Assess responsiveness of organization structure and gaps • Staff rationalization, job descriptions, salary structure • Develop/update HR manual with the current labor laws • Training budget developed and included in annual budget • Annual performance targets developed • Departmental targets and staff performance targets • Forum for communication between management and staff

Billing and revenue collection, communication and customer relations, financial management



Additionally, KIWASH supported the WSP partners in recording a summary of key performance indicators as part of the PIP analysis and recommendations. The analysis found that 43 percent of all water connections were dormant (a connection that does not receive water and the records at the water provider turned obsolete) while 47 percent amounted to non-revenue water. At the same time, WSP monthly collections amounted to 88 percent of the total amount billed.

	Number of water connections			Monthly billing and collection (US$)		Water volume supplied and billed per month		
WSP	Total	Active	Dormant	Billing	Collection	Water supplied	Water billed	NRW %
BUWASSCO	9,365	6,162	3,203	36,000	29,000	106,113	35,684	66%
GWASCO	15,844	7,639	8,205	76,574	70,406	140,857	73,163	48%
SIBOWASCO	12,677	5,565	7,112	52,000	43,000	366,000	139,080	62%
WOWASCO	2,161	1,893	268	32,110	28,830	37,645	21,752	42%
KIMWASCO	3,929	2,436	1,493	48,000	45,000	53,607	32,900	39%
KITWASCO	11,623	6,957	4,666	109,891	100,204	270,252	121,191	55%
MIWASCO	5,134	3,597	1,537	16,000	13,000	773,000	481,000	38%
KIMWASCO	7,244	4,414	2,830	46,884	38,513	86,695	61,744	29%
Total	**67,977**	**38,663**	**29,314**	**417,459**	**367,953**	**1,834,169**	**966,514**	**47%**

Percentage		**57%**	**43%**		**88%**		**53%**	

Out of the 86 WSPs ranked and scored in Kenya in 2016/17 and 2017/18, KIWASH WSP partners improved on average in ranking by two places from 47 to 45 and the overall score (out of a maximum of 200) improved from 59 to 67. The WSPs that experienced a decline over the past two years of WASREB reporting are highlighted in red in the table below.

WSP	Rank		Score	
	2016/2017	2017/2018	2016/2017	2017/2018
Busia Water and Sewerage Company	33	64	75	45
Gusii Water and Sewerage Company	48	45	56	60
Kakamega Water and Sewerage Company	10	10	116	118
Kiambere-Mwingi Water and Sanitation Company	40	29	66	85
Kibwezi-Makindu Water and Sewerage Company	45	37	58	74
Kisumu Water and Sewerage Company	27	11	88	116
Kitui Water and Sewerage Company	78	36	15	75
Mbooni Water and Sanitation Company	67	80	30	18
Migori County Water and Sewerage Company	75	57	22	49
Nairobi City Water and Sewerage Company	17	24	101	94
Siaya-Bondo Water and Sewerage Company	70	77	30	29
Wote Water and Sewerage Company	50	69	54	39
Average	**47**	**45**	**59**	**67**

WASREB's Impact Report 10 (2015/16 – 2016/17) highlighted that the performance of the water services over the period had stagnated. During the period, the utilities performance grew by two percent from 36 percent in 2014/15 to 38 percent in 2016/17. The WSPs showed an improvement in different areas including NRW from 43 percent to 42 percent, metering ratio from 91 percent to 93 percent, revenue collection efficiency from 96 percent to 100 percent, operation and maintenance (O&M) cost from 100 percent to 102 percent and sewer coverage from 15 percent to 16 percent.

On the other hand, Impact Report 11 indicated improvement in water coverage, water quality, metering, and NRW management. The report also indicated reduced reliability of WSPs which had a direct impact on revenue collection. The report indicated poor performance of WSPs in cost coverage and personnel costs. Out of the 88 WSPs under WASREB's assessment, 48 either recorded stagnation or a decline in performance. Additionally, WASREB reported relatively stagnant NRW levels of between 41 percent and 47 percent despite WSP efforts to contain the losses.

Actions and Results

The findings from the implementation of the performance improvement plans contributed to improved performance levels across the six PIP thematic areas. Most of the PIPs were implemented between the year 2018 and 2019. These gains were realized despite challenging governance contexts, minimal improvement in water production levels and dilapidated infrastructure.

Billing and revenue collection

KIWASH partner water service providers experienced significant challenges in billing and revenue collection, which can be partially attributed to inaccurate and inefficient billing systems. In some of the WSPs, unethical staff colluded with customers or defrauded them into paying more for water services.

Additionally, some staff absconded their duty to conduct meter readings and submitted estimated readings. In some WSPs, a large proportion of consumer water connections were unmetered, leading consumers to pay for water services at a flat rate which meant low revenues compared to the water supplied. In most cases, the WSPs that had consumer water connections had either installed low quality class water meters that malfunctioned over time. These collective system inefficiencies led to huge economic losses for the WSPs.

Key actions on billing and revenue collection

- **Metering policies:** All WSPs developed water policies to achieve a 100 percent metering ratio. These policies also defined the type of quality meters for use, installation of meters, servicing, and replacement.
- **Integrated billing and collection systems:** All of the utilities under the PIP program began the process of acquiring or upgrading integrated billing and revenue collection systems. The WSPs recognized the need to align their operations, and are now breaking down the silos between billing and collection.
- **Customer data:** Four WSPs – BUWASCO, GWASCO, KACWASCO and MIWASCO updated their customer data bases to link their billing and revenue collection systems and improve accuracy. The customer data also captured important data such as the meter types, age of meters and functional status.
- **Eliminating dormant water meters:** To achieve this, the WSPs began by establishing why the water meters were dormant and took steps to resolve the specific issues and reconnect water customers. At the same time, the WSPs discussed with customers on plans to reconnect their water meters using quality meters together with the following modalities:
    i. Developing a meter reactivation schedule and repayment plan agreed upon with customers.
    ii. Harmonizing the customer and billing database.
    iii. Updating the customer database.
    iv. Billing software upgraded with relevant modules to enable integration.
    v. Meter readers trained on meter reading and data capture using geographical information system (GIS) technology.

Water Service Provider	Total connections		Inactive connections		Metered connections	
	2018	2019	2018	2019	2018	2019
GWASCO	15,844	15,864	8,205	6,000	10,774	15,844
KIMWASCO	3,929	3,929	1,493	1,376	3,929	3,929
KIMAWASCO	7,244	8,397	2,848	3,313	4,414	5,054
KITWASCO	13,548	14,645	6,591	5,633	13,548	13,548
MIWASCO	5,130	5,480	1,166	1,096	3,460	3,460
SIBOWASCO	13,118	14,083	7,112	3,670	4,219	9,154

Water Service Provider	Total connections		Inactive connections		Metered connections	
	2018	2019	2018	2019	2018	2019
WOWASCO	2,161	2,406	268	343	1,863	2,406
BUWASSCO	9,464	9,816	3,203	2,119	5,773	5,988

Before the PIP, GWASCO and SIBOWASCO's had over 50 percent inactive connections followed by KITWASCO with 49 percent. The WSPs took immediate actions to eliminate the number of inactive connections, which contributed to improved revenue and NRW management. In several WSPs, the metering ratio went up. For example, GWASCO moved towards the 100 percent metering mark with a few connections pending operationalization. Additionally, SIBOWASCO recorded 25 percent increase in metering ratio from 40 to 65 percent.

- **Addressing billing and collection efficiency:** WSPs put measures in place to improve billing and collection efficiency, addressing both internal and external constraints on meter reading. Internally, the WSPs strengthened the staff capacity through staff training, development of billing routes and billing cycles. The WSPs also provided transport and airtime to responsible staff. Externally, WSPs carried out community outreach and education. Additionally, where meter readers were unable to access customer premises, the WSPs accompanied the staff with warnings of actions.

As a result of these actions, majority of the utilities recorded medium to significant improvements across the indicators in just one to six months of implementing the PIPs. The table below shows results that KIWASH recorded from the PIP implementation follow-up with the utilities on billing and revenue collection.

Water Service Provider	Billing per month (US$)		Collection per month (US$)		Revenue collection efficiency (%)	
	2018	2019	2018	2019	2018	2019
GWASCO	96,000	105,000	85,000	100,000	90%	95%
KIMWASCO	45,000	506,000	44,000	57,000	95%	112%
KIMAWASCO	46,000	54,000	38,000	58,000	82%	91%
KITWASCO	105,000	137000	87,000	120,000	83%	87.5%
MIWASCO	16000	20,000	13,000	18,000	64%	90%
SIBOWASCO	59,000	89,000	42,000	83,000	82%	91%
WOWASCO*	32,000	27,000	28,000	20,000	90%	95%
BUWASSCO	36,000	39,000	29,000	42,000	80%	92%

*WOWASCO's billing and revenue collection was negatively impacted by inadequate water for supply, infrastructural challenges, and bad weather. For example, in 2019, one of the WSPs main water sources, Kamunyolo Dam was washed away by the floods affecting services to the customers. The billing and collection figures kept fluctuating and by the time of the PIP review, the figures had surged.

In 2019, WSPs recorded varying improvements in monthly billing and revenue collection compared to 2018. This was occasioned by increased collection efficiency, reduced number of dormant meters and increased metered connections.

Financial Management

KIWASH's financial management support to water utilities put them on a trajectory able to sustainably meet O&M costs and operate optimally. Over the years, the majority of water utilities experienced multiple financial management challenges, including inadequate cash flow. This led to non-remittance of statutory deductions, delayed payment of supplier invoices and inability to meet operations and maintenance cost. It also led to poor asset management, poor debt management and long creditor days. This was compounded by inadequate human and institutional capacity for sound financial management and accounting procedures.

Ultimately, poor financial management led to poor operational inefficiencies and became a conduit for huge financial losses for many water utilities. To redress these issues, utilities focused on identifying areas where they could minimize losses and waste. Some of the areas under financial management that were addressed under the PIP included tariff reviews, compliance efforts, financial management system improvements, reducing creditor days and improving debt collection management.

Key actions on financial management

- **Tariff Review:** To improve their tariff review, MIWASCO, KIMWASCO and KITWASCO initiated a tariff review application process. GWASCO, KIMAWASCO and SIBOWASCO continued to implement their cost reflective tariff that they had developed before the PIP process. However, BUWASCO and WOWASCO did not qualify for tariff review because of challenges with their corporate status and low production capacity respectively.
- **Statutory and regulatory compliance:** The majority of the WSPs were not in compliance with various statutory and regulatory requirements. Almost all the utilities owed license fees to WASREB and abstraction fees to Water Resource Authority (WRA). Others included statutory deductions to the National Social Security Fund (NSSF), National Hospital Insurance Fund (NHIF), Pension Scheme and staff loan and SACCO deductions. All of the payments attracted high interest and huge penalties levied on the utility. In some cases, utilities failed to remit staff loans owed to banks or SACCOs. This did not only result in a high financial burden to utilities, but also damaged their reputation and creditworthiness. To address this, WSP management worked together to respond to the statutory and regulatory status while the BoD supported management in addressing the situation. The WSPs also reached out to the respective agencies to agree on a payment plan.
- **Negotiating interest rates:** SIBOWASCO and BUWASCO held discussions with the Water Resources Authority (WRA) on a payment plan and on the elimination of accrued interest for dues pending as from June 2019. The two water companies made successful negotiations reducing the total amount due to WRA from US 120,000 to US 50,000 in total.

Water Service Provider	Before the PIP implementation	After PIP implementation
Busia Water and Sanitation Company (BUWASCO)	• Non-remittance of staff deductions for pension, loans, WRA, WASREB, NSSF, NHIF, tax and SACCO. • Staff salaries in arrears.	• Developed a payment plan for all staff deductions except for pension. • All salary arrears cleared.

Water Service Provider	Before the PIP implementation	After PIP implementation
Gusii Water and Sewerage Company (GWASCO)	• Non-remittance of statutory regulations– pension, loans, WRA, WASREB, NSSF, NHIF. • Non-remittance of income tax.	• The BoD approved budget to pay unremitted staff deductions. • Active payment plan for all loans.
Kibwezi-Makindu Water and Sewerage Company (KIMAWASCO)	• Unremitted deduction of staff pension for seven months. • SACCO deduction in two months' arrears. • Staff salaries in arrears.	• Debt of one million (KSH)down from 24 million.
Kiambere-Mwingi Water and Sanitation Company (KIMWASCO)	• Had no pending payments.	• N/A
Kitui Water and Sewerage Company (KITWASCO)	• SACCO remittance in arrears	• Updated staff deductions
Migori County Water and Sewerage Company (MIWASCO)	• Non-remittance of staff deductions for pension, loans, WRA, WASREB, NSSF, NHIF and tax • Staff salaries in arrears	• Payment plan put in place for statutory and salary arrears
Siaya Bondo Water and Sanitation Company (SIBOWASCO)	• SACCO, NSSF, NHIF, income tax, WRA, WASREB in • Staff salaries in arrears	• Payment plan made with respective organizations and progressing well • Salary arrears cleared
Wote Water and Sewerage Company (WOWASCO)	• Non-compliance with WRA statutory and regulatory requirements	• Payment plan under discussion

- **Integrated billing and accounting system:** During WSP performance improvement planning, it emerged that partner WSPs had high balances on accounts receivables and accounts payable. However, the WSPs lumped both accounts as debtors leading to accounting imbalances that were carried over to their financial statements. For robust financial accountability, the WSPs took steps to procure an integrated billing and accounting system.

Water Service Provider	System status after PIP implementation
Gusii Water and Sewerage Company (GWASCO)	Enhanced the use of its financial system.
Kiambere-Mwingi Water and Sanitation Company (KIMWASCO)	The ERP integrated different modules with some success.
Kibwezi-Makindu Water and Sewerage Company (KIMAWASCO)	Acquired online management system with an annual subscription.
Kitui Water and Sewerage Company (KITWASCO)	Piloted integration of different management modules – with success in the finance module.
Migori County Water and Sewerage Company (MIWASCO)	Integrated the ERP system with other departments such as finance, procurement, and HR.

Water Service Provider	System status after PIP implementation
Siaya Bondo Water and Sanitation Company (SIBOWASCO)	Acquired an ERP system to support its finance, HR, work order, procurement and payroll functions which replaced excel sheet system. The training of staff on ERP was ongoing.
Wote Water and Sewerage Company (WOWASCO)	Acquired a finance system but was pending integration with other modules.
Busia Water and Sanitation Company (BUWASCO)	The WSP is now using Quick books which replaced the excel sheet system.

- **Reduced creditor days:** Four WSPs – BUWASCO, MIWASCO, KIMAWASCO, and SIBOWASCO were unable to get supplies on credit and power disruptions became a norm. This had a ripple effect on service delivery to the customers. As a result of the PIP, the four WSPs agreed on a payment plan with Kenya Power Company, WRA, NSSF, NHIF, pension schemes and other creditors. The WSPs also redeemed their reputations, enabling them to obtain their supplies and services on credit. For example, prior to the PIP, BUWASCO depended on the county government for payment of electricity bills. The county government defaulted payment from time to time leading to a high debt at KPLC and frequent disconnections.

- **Debt Management**

Inadequate capacity and lack of proper strategies strained billing and revenue collection efficiencies in most utilities. This made it difficult to manage their customers in debt. To improve debt collection management, the WSPs developed debt management policies to provide direction and guidelines that guide the debt collection and management. The WSPs did the following:

"We could stay for weeks without supplying water to customers. Today, we are collecting enough revenue to pay bills, buy water treatment chemicals and meet basic costs. We negotiated a payment plan with Kenya Power Company, and for the last three months, we have paid our bills and reduced our debt to US 16,900."

i. Developed a list of debtors and a schedule to reach them to discuss debt payment plans.

ii. Disconnected uncooperative consumers.

iii. Enforced payment by forwarding cases to Kenya Credit Reference Bureau (CRB)

iv. Integrated relevant modules to the ERP that helped to flag and categorize debtors.

v. Established strategies and mechanisms for debt management.

In Makueni County, WOWASCO established a debt collection committee comprised of a billing clerk, accounts clerk and a plumber supported by the commercial manager. Within six months, the team had listed and contacted all the company's debtors and collected approximately USD 35,000 of debt.

Non-Revenue Water Management

High non-revenue water posed a sustainability threat to some of the WSPs. This was because of commercial losses caused by the under-registration, data handling errors and faulty customer meters. Others included water theft and illegal connections, flat rates, and low metering ratio.

Key actions on non-revenue water management

- **Consumer water meter management:** Specific WSPs formalized illegal connections and enforced penalties on the same. In Makueni County, WOWASCO legalized 23 connections. Eight were found to be illegal connections and hence the owners were fined USD 300 for water theft. The WSPs also replaced Class A and B water meters with Class D, which are better quality and function optimally. In Kitui County, KIMWASCO and KITWASCO identified 47 illegal connections and the customers were surcharged up to USD 8,413 in total. The WSPs also put up meter seals to prevent tampering of meters or theft.

- **Pipeline protection:** Several WSPs suffered frequent pipe bursts. In Makueni County, KIMAWASCO which serves areas along the wildlife corridor, experienced pipeline bursts from elephant destructions monthly. Following the PIP, the WSP approached the Kenya Wildlife Service and both parties agreed to install a three-kilometer concrete surrounding to protect the pipeline. Since then, the WSP has not reported any pipe bursts.

- **Staff involvement in NRW management.** Previously, NRW was treated as a technical issue and was only handled by the technical team. But after the PIP, majority of the WSPs made it every employee and customer's responsibility. In Kitui County, KIMAWASCO's approach to NRW involved enlisting the commitment and involvement of all staff members. This ensured that NRW issues were discussed in every staff meeting at both the head office and at scheme level to identify key hotspots and types of NRW. As opposed to the previous arrangement where NRW was the responsibility of the commercial and area managers, the WSP provided additional skilled human resources by adding a coordinator, inspectors, and field teams. Additionally, the WSP enhanced efficiency by dedicating three vehicles and motorbikes to the team managing NRW to ensure turnaround time was minimized, reducing losses.

- **Staff training on NRW metering**: KIWASH facilitated training to equip staff with the knowledge of the importance of using the right class of meters in NRW management. For example, WOWASCO's meters were mainly Class B, which were of very low quality.

- **Incentives to staff and the public:** A monetary award predetermined by the WSPs was created to encourage reporting of water theft. Additionally, punitive measures were enacted on staff colluding with customers or engaging in other fraudulent practices. For example, in Kitui County, three staff found guilty of malpractices were summarily terminated.

> "This is the best training staff have received on NRW management. We learnt that taking long hours to respond to leaks and burst, by-passes, bad class meter, incompatible pipes and meter are the major contributors of high NRW."
>
> - A plumber at WOWASCO.

- **Collecting NRW data, zoning and installing bulk meters** to determine/calculate and monitor NRW.

- **Community outreach and education** was used across the WSPs to effectively engage the customers on the importance of paying for services, and reporting water theft, leaks, and bursts.

- **Automation:** The automation of payments across WSPs greatly contributed to reducing corruption and fraud cases. BUWASCO upgraded the existing revenue collection system and integrated it with the Mpesa (a mobile payment platform) service. MIWASCO centralized and automated its payments. All the nine WSPs under this program have automated their services. For instance, physical water billing has been upgraded to on-time SMS (short text message service) billing, cash payment to bank deposits and mobile banking services. This has translated into a reduction in the loss of revenue.

Employee satisfaction and management

When employees are happy and satisfied, they are committed to supporting the company achieve its mission and objectives. Many of the water utilities remain committed to improving their employee satisfaction as a key strategic objective in their strategic plans. Further, the utilities put in place mechanisms for effective HR management and performance management systems to manage people effectively and maximize employee performance.

In other WSPs, some employees were recruited from defunct water institutions with different compensation terms. This made employee management difficult as employment terms were not harmonized leading to staff frustration and disparity. For instance, at KACWASCO nearly 50 percent of staff were either managers or supervisors. This not only complicated effective implementation of a harmonized institutional structure, but was also financially unsustainable. It further created staff conflict with cases of in subordination.

At least five out of eight utilities had difficulties remitting staff deductions and paying salaries on time. This had a negative impact on staff productivity and morale. This was also blamed on corruption that manifested in various forms. For instance, at BUWASCO, MIWASCO and SIBOWASCO, corruption manifested in various forms. However, this changed when payroll issues were addressed.

> "When the company fails to remit staff deductions, they assume that the management is 'eating' their money. But as soon as you start paying their salaries on time, there is improved rapport and they are motivated to work and deliver."
>
> Managing Director, KIMAWASCO

One of the key contributors to operational inefficiencies as identified in the performance assessment was the silo mentality across the WSPs. Departmental silos maintained the blame games, non-performance, and conflicts. Often, technical departments and commercial department were always in blame games regarding the NRW.

Key actions on employee satisfaction and management

- The WSPs initiated staff restructuring to respond to specific needs, address the duplication of roles and responsibilities and reduce staff and management conflict. In majority of the utilities, one staff performed multiple functions. For example, in SIBOWASCO roles like O&M, plumbing and meter reading were done by the same person, while in KIMAWASCO, NRW was managed by technical and commercial managers who were already overwhelmed. The company has since recruited qualified team of inspectors and this has greatly addressed the challenge of NRW. With increased revenue, WSPs have recruited new staff.

> We have procured an ERP system that has made payroll management easier. A human resource manager was also hired to streamline personnel management."
>
> Managing Director, SIBOWASCO.

- Staff hired through performance contracts and agreements.
- Formulating or strengthening HR manuals and functions. WSPs conducted training needs assessment, staff satisfaction surveys, team building activities as well as internal and external trainings for specific categories of staff.
- Measures put in place to ensure employee retention, productivity, and loyalty. For example, WSPs effected salary increments as a sign of improved performance and increased revenue at SIBOWASCO and KIMWASCO. Implementing the performance management system (WASREB has developed the PMS system for water utilities). The system tracks key performance indicators

for WSPs such as NRW, water quality and improved revenue collection efficiency to enhance improved service delivery. Staff are given targets with a rewards system.

- Recruitment of a human resources manager to oversee the human resource functions. Some utilities randomly delegated the functions causing a huge organizational gap.
- WSP department began to work on cross functional solutions with all staff. In this regard, the management had to agree on a common vision and work together to ensure they steer the staff to the same direction. One of the root causes of silos was the lack of harmonization of different organizational cultures when the water companies were established. In addressing the issue, WSPs convened regular management meetings and staff meetings to address key performance challenges.
- Signing the code of conduct by the staff to ensure they adhere to the rules and expected behavior.

Communication and customer relations

Most utilities identified improved customer relations as an important strategy towards improving operations. Initially, the companies did not have outreaches or structured channels that enhanced communication between their customers and the utilities. This situation greatly affected customer relationships.

Key actions on communication and customer relations

- **Community outreach and education** was one of the strategies implemented across the WSPs. This included organizing customer clinics and to permit utilities to interact freely with customers. Community outreach also provided customers with a sense of ownership for the water services.
- **Customer service charters**: The introduction of the customer service charters helped to improve communication with the customers regarding the services provided by the utility. Additionally, the WSPs put up fully operational customer care systems that included a customer desk, *maji*voice (water voice), hotlines and toll-free lines. This was aimed to ease company-consumer interaction by addressing queries, complains and feedback. The WSPs also installed suggestion boxes that were regularly analyzed, and feedback provided in majority of the cases.
- **Branding:** Most utilities branded their assets, offices and introduced staff badges.

Technical performance improvement plans

The biggest challenge the WSPs experienced under the technical PIP was dilapidated infrastructure, inadequate investments, poor operations and maintenance techniques and ineffective asset management. Other challenges included poor project management and poor budgeting of O&M.

Key actions on technical performance improvement plans

- Zoning the areas and installing master meters to enable data collection and management.
- Replacing the rising mains with the right size and quality to prevent against high NRW.
- Inadequate investments for expansion and rehabilitation.
- Improving procurement processes.
- Procurement processes have been streamlined by following the 2016 Procurement Act.
- An updated asset register and maintenance schedule has been developed.

- Developed a comprehensive asset register and servicing schedule.
- Burst and leaks response time have reduced to an average of three hours across the WSPs.
- WOWASCO replaced 176 non-functional meters of inferior quality. KIMAWASCO also replaced inferior meters, rehabilitated its pipeline, and repaired steel tanks to prevent leakages.

Key enablers of performance improvement plans

The development of performance improvement plans was the first step in the process. However, there was the need to have extra support at the institutional level to ensure the effective and sustained implementation of the plans. Some of the key enablers are highlighted below.

Training and capacity building

Staff training in customer care, meter reading, NRW management and peer to peer learning played a key role in motivating action among WSPs. Each training session resulted in positive implementation of identified actions such as timely meter reading and issuance of water bills to customers.

Management support

WSPs provided work resources and created a conducive environment for staff to prove their skills, achieve results and improve productivity. Providing staff with work resources such as airtime, transport, tools of work and branding materials improved staff motivation. Increased utilization of a GIS system that allowed for real time meter reading and reporting significantly reduced billing by estimate and billing errors. WSP also upgraded their financial systems to resilient and fraud-proof systems. For example, KIWASH advised BUWASCO to procure an accounting system to avoid manipulation of tasks. The upgrade was also replicated across other supported WSPs.

Enforcement internally and externally

WSPs introduced a system where staff members were made accountable for violations that were inconsistent with organizational code of ethics. Additionally, customers were penalized for water theft as a deterrence measure.

The WSPs that implemented the PIPs to the letter managed to register a number of positive gains as indicated in the table below.

Water Service Provider	Achievements
Siaya Bondo Water and Sanitation Company (SIBOWASCO)	• No longer required subsidies from the county government. • Able to meet operations and maintenance (O&M) costs. • Improved creditor relations. • Staff salaries paid on time eliminating perennial staff unrest caused by delayed salaries. Staff salary increases were also implemented.
Busia Water and Sanitation Company (BUWASCO)	• Able to meet O&M costs. • No longer required subsidies from the county government. • Improved creditor relations. • Staff salaries paid on time, eliminating staff unrest caused by delayed salary payments.
Migori County Water and Sewerage Company (MIWASCO)	• No longer required subsidies from the county government.

Water Service Provider	Achievements
Kibwezi-Makindu Water and Sewerage Company (KIMAWASCO)	• Reduced debt from USD 240,000 to less than USD 10,000. • No longer required subsidies from the county government. • Increased staff salary effected.

Gender mainstreaming in water utilities

Overview

KIWASH supported partner water utility companies to address unique challenges to promote gender equality mainstreaming. To achieve this, the companies benefited from training on gender roles for their businesses. KIWASH also demonstrated the correlation between gender equality mainstreaming and the overall performance in sustainability measures, institutional growth, customer service, corporate culture, revenue, and profitability. Following the training, the utility companies developed Gender Action Plans (GAPs) to be implemented within 12 months.

KIWASH incorporated gender equality mainstreaming training into corporate governance training with the company board of directors (BoD). The strategy generated appreciation by BoDs on the importance of gender diversity in corporate boards. Additionally, KIWASH held meetings with county leadership to raise the need to uphold the constitutional requirement of one-third gender rule in appointments. This concerted action led to an increase in the number of women in the BoDs, corporate management teams (CMT), and technical fields.

The gender challenge

KIWASH conducted a scoping mission with targeted WSPs to facilitate the development of a gender training and capacity response model. The mission highlighted the status of gender equality mainstreaming and its implementation in the targeted companies as follows:

Inadequate training on gender

KIWASH's initial assessment with WSPs revealed a severe lack of institutional and human capacity in gender equality mainstreaming. The WSPs lacked policy commitments, strategies, and guidelines. The company codes of conduct and human resource policies outlined staff social norms, rules, and responsibilities, but did not adequately address sexual harassment in the workplace.

KIWASH found that WSP staff had relatively low gender knowledge and skills. The term gender was also misconstrued to only mean women. Although some utilities had benefited from gender training initiatives as part of other past partnerships, no significant steps had been taken to practically mainstream gender in utility operations.

Inactive or lack of gender focal points

Gender focal points and committees are a mechanism to promote gender equality mainstreaming and the implementation of gender commitments. Many water utilities lacked or had inactive gender focal points. This meant that no one was available to advance the national framework for gender equality mainstreaming, including the constitutional requirement and national gender policy. The underlying assumption was that human resource managers (HRMs) were the de-facto custodians of gender equality mainstreaming.

Gender relations and social patterns

Cultural and traditional systems placed women at a lower societal status compared to men. At times, individuals transferred cultural bias to the workplace, reinforcing it as part of the institutional culture. Among partner WSPs, this reinforcement happened through undermining language. The common phrases included 'women are not technical', 'some jobs are too hard for women.' These phrases influenced decisions made during staff recruitment, division of labor, and promotions. In other instances, new female employees and interns were referred to as 'spring chicken' which patronized them and encouraged sexual harassment. Those references led to discrimination, biases, sexual harassment, and inequalities.

Inadequate female participation

The constitutional requirement for gender equity mainstreaming was well stipulated in water utilities. But female participation in the WSPs remained low especially in leadership, management, and technical areas. The stereotypes leveled against women shaped male deployment to technical areas and promotion to leadership positions negatively affecting the realization of gender equality in the water sector.

Barriers and obstacle to service access

For a long time, target water utilities listed title deeds and upfront payments as some of the requirements for a new water connection. This made it difficult for women and people with low-income cadres to access the services. Further, the conditions not only hindered access to water but significantly affected revenue to utilities due to a low customer base.

Approaches and key interventions

KIWASH partner water utility companies took specific measures in their action plans to strengthen institutional and human resource capacity and gender equality mainstreaming.

Development of gender policies

Institutional gender policies establish a clear vision and commitments to guide and accelerate the process of realizing gender equality mainstreaming. They contribute to equitable and inclusive service delivery while creating a good working environment for female and male staff.

Three KIWASH supported water utilities – Gusii Water and Sanitation Company (GWASCO), Kakamega Water and Sewerage Company (KACWASCO), and Nairobi City Water, and Sewerage Company (NCWSC) developed institutional gender policies.

The policies identified three key entry points for gender equality mainstreaming as follows:

- Investment planning to ensure that gender needs and concerns were considered and mainstreamed in investment planning.
- Day-to-day utility operations to ensure gender inequality was addressed in the regular utility operations including connecting customers, communicating, and customer care services.
- Institutional strengthening of gender to ensure it was part of the mainstream while developing institutional and human capacities.

> "Our newly revised human resource policy dedicates a whole chapter to gender equality mainstreaming. Once adopted by the BoD, the document will create a road map to a gender balanced organization that responds to the needs of female and male staff."
>
> Human Resource Manager, SIBOWASCO.

Other utilities have embedded gender equality mainstreaming in their human resource policies with stand-alone chapters. These include Busia Water and Sewerage Company (BUWASSCO), Kakamega Water and Sewerage Company (KACWASCO), Siaya-Bondo Water and Sewerage Company (SIBOWASCO), and Wote Water and Sewerage Company (WOWASCO).

Appointment of gender focal persons and committees

Following the KIWASH training on gender equality mainstreaming, this new knowledge was put into practice. Companies appointed gender focal people or assigned this role to human resource managers. WSPs also created gender committees to support the appointed focal people. At the same time, GWASCO, KACWASCO, and NCWSC developed clear terms of reference for the committees that outlined their roles and responsibilities.

Apart from the NCWSC, all committees are chaired by the human resource managers and serve as mechanisms for internal gender advocacy and training among staff. They also provide technical support to staff regarding the implementation of the gender action plans, and the gender policies where applicable. To date, the committees have since made significant gains. At the NCWSC, the committee established a lactating room for breastfeeding employees. At KACWASCO and SIBOWASCO, the committees advocated for the recruitment of women in technical areas. For example, SIBOWASCO recruited four female plumbers and two female electro-mechanical engineers as interns with prospects of being confirmed as employees subject to availability of funds.

Increased participation in leadership and ***technical work***

Constitution of the BoD and CMT

KIWASH corporate governance training attended by BoDs and CMTs included a session on gender equity mainstreaming. The sessions highlighted the role of gender diversity in leadership and management. At the company level, gender diversification also enhanced decision-making and customer relations. Participants attending the KIWASH training agreed that female staff had better people management skills compared to their male counterparts.

Board of Directors (BoDs)						
Water utility company	2016			2020		
	Male	Female	Total	Male	Female	Total
Busia Water and Sewerage Services Company	5	2	7	4	3	7
Gusii Water and Sanitation Company	8	1	9	8	1	9
Kakamega County Water and Sanitation Company	5	2	7	5	2	7
Kiambere Mwingi Water and Sanitation Company	5	1	6	5	1	6
Kibwezi-Makindu Water and Sanitation Company	5	2	7	4	3	7
Kisumu Water and Sanitation Company	6	3	9	6	3	9
Kitui Water and Sanitation Company	5	2	7	5	2	7
Migori Water and Sanitation Company	6	1	7	4	3	7
Nairobi City Water and Sewerage Company	9	2	11	8	3	11

Board of Directors (BoDs)						
Water utility company	2016			2020		
	Male	Female	Total	Male	Female	Total
Siaya-Bondo Water and Sanitation Company	6	1	7	5	2	7
Wote Water and Sewerage Company	3	2	5	3	2	5
Total	**63**	**19**	**82**	**57**	**25**	**82**

In many utilities, gender representation in BoDs remained a challenge. This was due to the fact that stakeholder groups (which are mostly men-led) constituted most of the boards. The only stakeholder body that was guaranteed to have female representation was a woman-related group. For instance, the Kitui Water and Sanitation Company (KITWASCO) had three female BoD members because the officer in charge at the county level was female. However, when she was replaced with a male officer, the number of women on the board reduced by one. In Busia County, KIWASH's advocacy through the governor's office saw the disbandment of an all-male constituted BoD. The board was reconstituted and included two female members.

Corporate management team						
Water utility company	2016			2020		
	Male	Female	Total	Male	Female	Total
Nairobi City Water and Sewerage Company	6	2	8	5	3	8
Wote Water and Sewerage Company	4	1	5	4	1	5
Kitui Water and Sanitation Company	6	0	6	6	0	6
Kiambere Mwingi Water and Sanitation Company	2	2	4	3	3	6
Kibwezi-Makindu Water and Sanitation Company	4	2	6	5	1	6
Kisumu Water and Sanitation Company	7	1	8	4	1	5
Migori Water and Sanitation Company	6	1	7	3	1	4
Siaya-Bondo Water and Sanitation Company	5	1	6	4	2	6
Gusii Water and Sanitation Company	5	3	8	5	1	6
Kakamega County Water and Sanitation Company	5	0	5	3	2	5
Busia Water and Sewerage Services Company	4	1	5	4	1	5
	54	**14**	**68**	**46**	**16**	**62**

The table highlights the result of deliberate actions to increase the number of women holding management positions. For example, before KIWASH's intervention, KACWASCO did not have any female representative in the CMT. Additionally, only four out of 15 female members held managerial positions. The situation has since improved with two women being part of the five member CMT, seven female managers out of fifteen, and two out of five are female supervisors.

Increased female staff in technical work

Initial assessments revealed that recruitment in technical areas was marred with gender bias. In most utilities, men are the preferred candidates, even in cases where women had higher qualifications. However, utilities have made deliberate actions to reverse the traditional norms and institutional cultures. This has been done through redeployments, internal advocacy to influence decisions, female empowerment, and creating an inclusive, safe working environment for women.

Transforming institutional culture

KIWASH supported the WSPs to realize institutional transformation through awareness creation, advocacy, female staff empowerment, and redeployment. This was inspired by KIWASH's initial assessment that revealed that lack of proper protective clothing and equipment deterred female staff from taking technical positions. This was also true for some male staff. Following the KIWASH training, targeted water utility companies procured basic protective gear (gum-boats, overalls, and gloves) for their technical staff.

> "We never had female employees in technical departments. We have since recruited four women in plumbing and operations and maintenance unit. We also have a female mechanical and chemical engineer. Other than that we now provide our technical staff with protective clothing. Overcoats are available for women who prefer not to use overalls."
>
> Managing Director SIBOWASCO.

- **KACWASCO:** The gender committee noted that female employees with technical skills had been assigned non-technical jobs. The committee sensitized female staff about the available technical opportunities in the company that suited their qualifications. As a result, several them were recruited and went through on-job training. Additionally, the team lobbied the CMT to redeploy qualified women to technical areas. The deliberate action resulted in an increase of female meter readers to twelve up from four with the first and the only female artisan being hired. Other notable changes included: an increase of female employees to 45 percent up from 30 percent in 2016, over 50 percent female internships (27 out of 40 interns), and a fully trained female motorcycle rider with 12 other meter riders undergoing training. Management also made concerted efforts to provide protective gear to make technical deployments attractive and retainable.

- **WOWASCO:** Two women benefitted from on-the-job training and were later redeployed as meter readers. They became the first duo to work in the company's male-dominated field. At KIMAWASCO, targeted lobbying led to two female staff aged between 35 and 45 redeployed as meter readers and line patrollers. Initially, it was difficult to convince women to take up technical jobs due to the reasons cited above.

- **MIWASCO, KACWASCO, KIMAWASCO, KITWASCO, and WOWASCO**: The management staff initiated the process of involving women in non-traditional roles. For instance, supporting the female staff to acquire motorbike rider licenses contributed immensely in motivating them. This was aimed at transforming their mindsets to overcome biased social norms.

Creating an inclusive, safe, and gender-friendly environment

Water utility companies continued to pay close attention to the biological differences of their employees. This was necessary due to the inequitable power dynamics that were a result of sex and gender-based factors. The improvement aims at creating inclusive, safe, and practical working environments for all staff irrespective of sex.

Through the KIWASH gender training, demand for protective attires and equipment was noted across most utilities as a priority. Other notable demands included: the need for flexible working hours for

lactating and nursing mothers and redeployment from working stations that are perceived unsafe or harmful to pregnant women such as laboratories and sewers. Most utilities have since reported having procured protective equipment for their field and technical staff. Other significant improvements include the following.

- **NCWSC:** The water company introduced flexible working hours for nursing and lactating mothers. The company also established an expression room with a refrigerator. Additionally, the elderly and staff with certain medical conditions are redeployed to lighter duties as the situation demands.
- **WOWASCO:** The utility introduced female-friendly sanitation facilities. The facility was improved using a sanitary bin, a handwashing station, and a mirror. Previously, male and female employees shared a facility that sometimes lacked water. The facility has also alleviated a 500-meter walk for female employees who preferred to use a far placed washroom during their menstrual period.
- **KIMAWASCO:** The utility company installed a perimeter fence around its treatment plant to minimize the threat of wild animal attacks. In addition, the WSP has since embraced technology in meter reading and provided motorbikes to the readers making the role attractive to male and female employees.

Eliminating barriers to service delivery

KIWASH-supported partner WSPs uphold the provision of safe and affordable drinking water by addressing existing inequalities to service delivery. KIWASH gender training revealed the existence of institutional barriers to water access. For instance, most utilities listed land title deeds as a condition for a new water connection. Additionally, paying for water services upfront served as a barrier for low-income earners.

The training reinforced the socioeconomic benefits of a service delivery model that is gender-sensitive and its correlation to the realization of the Sustainable Development Goals. As a result, partner WSPs took steps to lift barriers to water service delivery,

- **KITWASCO:** Land title deed was removed as a requirement for a new water connection. The utility also embarked on awareness creation of the same review to attract more applications. It was noted that women were mostly unable to receive water connections since men were the traditional custodians of land titles. Additionally, a flexible payment plan has since been introduced.
- **GWASCO:** The requirement to produce a title deed to obtain a water meter connection was replaced with a plot number, national identification card, and telephone number. The one-off installation fee of USD 30 was made payable in three installments.

> "Our idea is to provide water and collect revenue in exchange. This explains our flexible payment plans as long as the customer remains committed. Illegal connections have also significantly reduced."
>
> Human Resources Manager, GWASCO

Other utilities have also eliminated these institutional barriers and are finding other ways of replacing the title deed requirements with either a letter from the chief or personal documents to prove ownership.

MOBILIZING FINANCING FOR WASH

The ability of water utilities and county governments to stimulate financial flows is critical to reach the Sustainable Development Goal 6 (SDGs) to ensure access to water and sanitation for all. According to the Kenya's Water Services Regulatory Board, the required investment to achieve full coverage in the water and sewerage sector by 2030 is KES 1.7 trillion (USD 17 billion) with an annual financial gap of KES 1.2 trillion (USD 12 billion). Through proven innovative approaches, KIWASH contributed to narrowing the existing finance gap with a special focus on the water utilities. The following are the financing mechanisms that KIWASH pursued in support of the WASH sector.

- **Kenya Pooled Water Fund**

KIWASH's formative work with the Dutch government set a basis for potential financing opportunities for large-scale and viable water and sanitation infrastructure through the Kenya Pooled Water Fund (KPWF). Once fully actualized, the financing facility will support top tier water and sanitation companies across the country with infrastructural development through the issuance of bonds in the capital market with a long-term perspective.

- **USAID Development Credit Authority**

KIWASH training for commercial banks on USAID's Development Credit Authority (DCA) helps promote ease of lending to the water sector. The training program included the context and guidelines for providing commercial financing to the water sector, the structure of the sector, financing opportunities, and how to utilize DCA guarantees and other credit enhancements. The commercial banks – ABC Bank, Cooperative Bank of Kenya (CBK) and Family Bank – signed DCA guarantees with USAID and went into discussion with targeted water utilities on possible lending transactions. For example, through joint efforts with various stakeholders, the CBK signed a USD 9 million DCA guarantee to facilitate efficient lending to the water, energy, and agricultural sectors. Thanks to KIWASH's support, these three DCA-supported banks have issued nearly USD 15 million in new loans to the water and sanitation sector since the project's inception.

Separately, KIWASH identified and initiated discussions with local banks and microfinance institutions to explore opportunities for financing of WASH enterprises. These discussions were held with four banks

A partnership with Dow Chemicals, which is actively increasing its promotion of water treatment technologies in Kenya.

The Dow Foundation is supporting the Dow Water and Process Solutions (DW&PS) team in an initiative to offer solutions to the challenge of high fluoride content in certain water sources. The aim was to place small-scale mobile treatment units at sites where communities are adversely impacted by high fluoride content in the water. KIWASH was successful in securing technical and financial support from Dow for two target water schemes: Little Sisters of St. Francis in Kasarani, which realized 7m^3 of water treated per hour to serve a hospital, schools and the neighboring community; and Geoseismic, a private WASH enterprise operating a borehole that secured a treatment facility that delivers 2.5m^3 of water per hour to serve more than 3,000 households. For both projects, Dow Chemicals invested USD 160,000 (115,000 for Little Sisters' project and 45,000 for Geoseismic) to install treatment rigs and support monitoring, evaluation, and capacity-building activities.

(ABC Bank, Family Bank, Housing Finance Bank and Cooperative Bank), one micro finance institution (ECLOF Kenya), and one Savings and Credit Cooperative (STIMA SACCO). The idea was to support well-managed and potentially creditworthy enterprises to blend previous investments with private financing. The support varied from the type of enterprise, and the nature and value of the required investments. For

example, in Makueni County, the Chyulu Valley Water Project obtained a first-of-its-kind commercial loan through KIWASH support. The case study below gives snapshot of the finance journey of the WASH enterprise.

CASE OF CHYULU VALLEY CBO

The Chyulu Valley Community Based Organization (CBO) is a water service provider formed in 2003 with the objective of increasing water supply to the residents of Kathiani. The CBO draws its water from Chyulu Springs, a permanent shallow well. Through KIWASH's support, the CBO extended service to approximately 15,000 people in Mbukoni, Nthongoni and Mukanda markets, Mtito Andei town and all the villages surrounding these towns and market centers. The revenue from its water supply exceeds USD 2,000 per month, with a surplus of about 50 percent.

In 2018, the CBO noted a high (and growing) demand for its water. Its large consumers, including hotels and retail shops, made requests for bottled water. CBO management approached KIWASH for technical assistance to assess the viability of a water bottling project and raise commercial finance for the enterprise.

Between August and November 2018, KIWASH worked with CBO management to assess technical and market feasibility and develop a business plan for the venture. The project's establishment cost was estimated at KES 7.4 million (USD 72,798). To finance the venture, the CBO required a blend of commercial bank lending with equity contributions from its members, using a special purpose vehicle (SPV).

By April 2019, the WASH enterprise secured a conditional offer of KES 3.2 million (USD 31,480) in bank finance from Family Bank Limited. The CBO also offered an opportunity to its members to raise equity 'as shareholders', while enhancing their credibility as a private company to the bank. As a result, the CBO now operates an automated water bottling plant known as the Miracle Spring Company.

Key implementing partners

KIWASH close implementing partners towards water access included; the Ministry of Water, departments of water at county level, Kenya Water Institute, Water Services Regulatory Board and Water Service Providers Associations among others.

RECOVERABLE GRANTS

Overview

In Kenya, most WSPs and small WASH enterprises struggle to expand their services due to lack of funds or low access to affordable finance. To mitigate this challenge, KIWASH introduced a lending mechanism referred to as recoverable grants. This mechanism allowed small and medium size WASH businesses and WSPs to access goods and services that are normally out of their reach, but which can serve to improve their operations and grow their businesses. The grants serve as interest free loans from KIWASH, allowing grantees to access capital and build up their credit histories while participating in an ongoing capacity development intervention program. Only assets that increase productivity and operational capacity were eligible for purchase under this program – operational costs (such as salary, rent, trainings, etc.) were not eligible. After receiving the grant, KIWASH and the grantees agreed on a repayment schedule based on the grantee's ability to repay the acquired assets.

Rationale for recoverable grants

The willingness and ability to pay for KIWASH recoverable grants meant increased chances of accessing commercial financing. The model also instilled grantees' financial discipline since the responsibility to repay debt required effective income management and underscored the need to have readily available project designs.

Increased access to commercial finance

Nyasare Water and Sanitation Company in Kisumu County and Makutano Sinai WASH Enterprise in Makueni County each secured a 12-month loan of USD 10,000 from the Kenya Commercial Bank (KCB) and ECLOF Kenya respectively for infrastructure development. Additionally, Masaku Water Enterprise in Makueni County secured a commercial loan of USD 8,000 from KCB after sustaining 61 percent repayment of KIWASH recoverable grant valued at USD 55,567*.*

These successful applications of commercial financing were a result of KIWASH's engagement with financial institutions to explore financing opportunities for WASH enterprises. Further, a positive credit history with KIWASH's recoverable grant built a strong case on their creditworthiness.

Consideration and selection of grantees

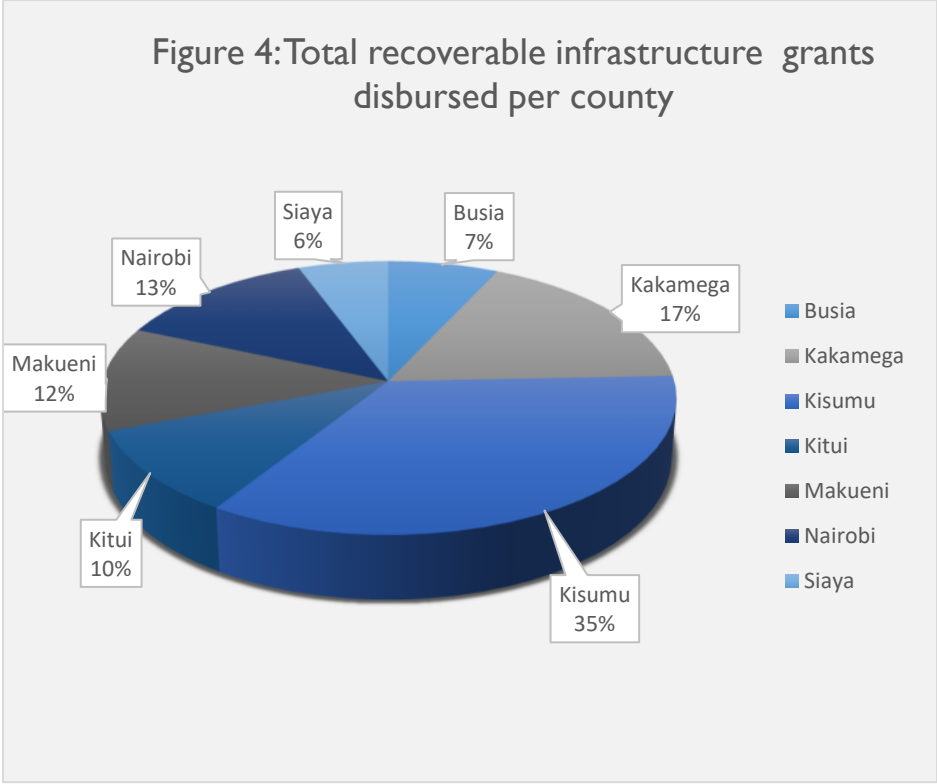
KIWASH selected grantees competitively through the issuance of Annual Program Statements (APS) or Request for Applications (RFA) targeting WSPs and WASH enterprises. In addition, successful grantees had to receive technical assistance through training in various areas such as governance, operations and financial management.

KIWASH convened a selection committee to review all the applications received, with shortlisted applicants invited to submit full proposals. An evaluation committee further reviewed received proposals, requested additional information, and notified successful applicants. Later, consulting engineering firms prepared designs for respective project sites. At this stage, KIWASH revised investment budgets based on developed infrastructure designs. Subsequently, grantees received certifications and financial capability questionnaires for their signing. Lastly, KIWASH sent a negotiation memo to USAID for approval. Once approved, KIWASH prepared and shared an in-kind grant agreement with grantees that included repayment and implementation plans.

PERFORMANCE OF THE GRANTEES

Repayments

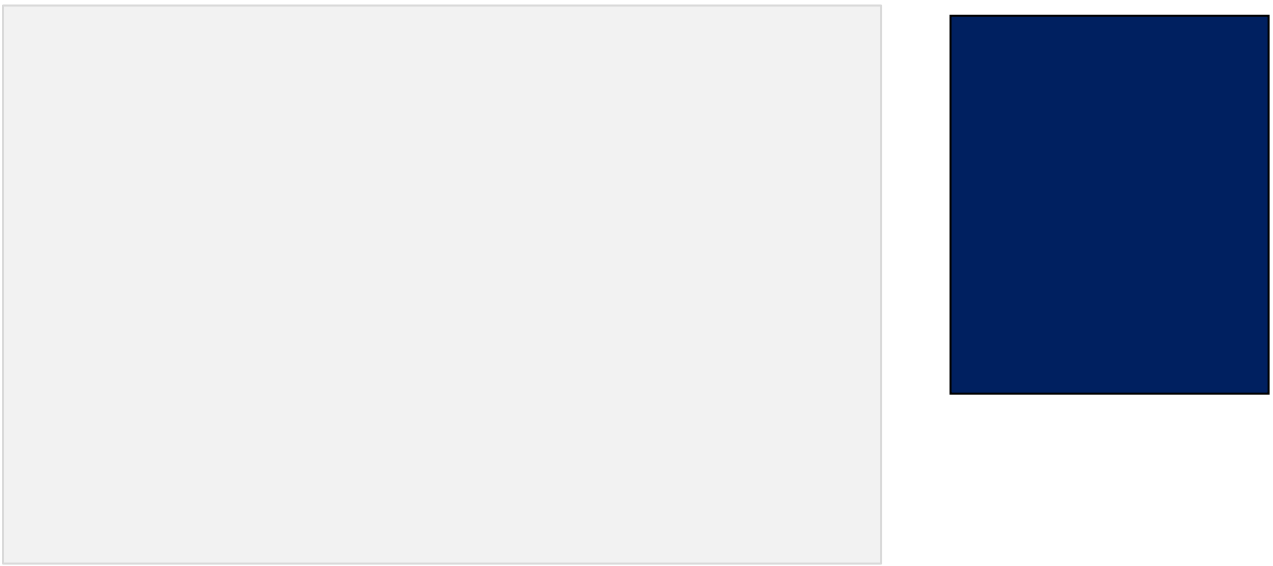
Recoverable amounts for infrastructure grants depended on the grantee's ability to repay as opposed to the value of the project. In most project sites, infrastructure works cost at least USD 100,000. This necessitated the need to agree on a 30 percent repayable amount of the total project cost due to insufficient cash flows recorded by the grantees. Upon completion of infrastructure works, the period of performance left on the KIWASH contract was used to calculate the repayment period for each grantee. The repayment duration ranged between 18 to 24 months. KIWASH received repayable amounts from grantees through bank deposit or mobile money transfers.



Water metering grant

KIWASH issued this award aimed at assisting WASH enterprises and WSPs to implement technologies that will reduce the level of water losses. The technologies included, but were not limited to: zonal and individual meters, handheld meter calibration equipment (devices), billing and accounting software, GIS mapping of water systems and other non-infrastructure interventions. The cost of meters was 100 percent recoverable.

Figure 6: Water metering grants issued: Reserved



Reasons for delayed repayment of recoverable grants

However, grantees recorded inconsistent repayments due to the following reasons:

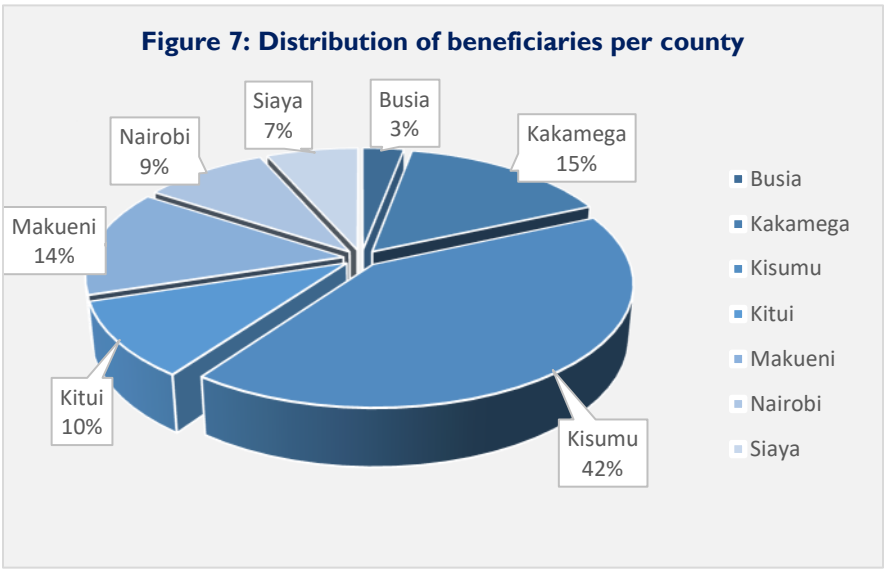
- Infrastructure construction works took longer than anticipated, which meant that the repayment period was reduced as this was also pegged on KIWASH project closure. For a consistent repayment plan, the WASH projects required to have made adequate savings as returns from infrastructure works would take some time to realize. Grantees that did not have adequate savings found it challenging to make payments consistently.
- KIWASH offered the grantees a grace period of one month or less following the completion of the infrastructure works. The grantees needed more time – approximately six months to make connections and sensitize the community on the benefits of piped water connections as they depended on the revenue generated from customers to make repayments.
- KIWASH did not offer a grace period for any water project that initiated operations starting in June 2019 and projects that had their construction works completed in 2019 and 2020. In most cases, delays in completion of works consumed time allocated for the period. As a result, the expected monthly repayments were weighty for the grantees as the full repayable amount was divided by the months remaining to project closure.
- Some grantees had high electricity costs as they use the main grid to pump water. This used a large portion of their revenue and compounded the challenge of making consistent repayments. Despite KIWASH encouraging use of solar power, the initial cost implication of acquiring the system was a hindrance to many entities especially the large water schemes.

- During the rainy season, grantees experienced reduced demand for piped water services. This meant less revenue generated making repayments challenging. At the same time, heavy rains damaged existing pipelines and pumps that shifted costs to operation and maintenance.

Closure of the grants program

On March 31, 2020, KIWASH closed the Recoverable Grants Program with no further repayments required from the grantees, as most water service providers and WASH enterprises had been significantly affected by the impact of COVID-19. Subsequently, most grantees reported a drastic reduction in revenue collection hence efforts to have them repay would yield minimum results. KIWASH resolved to allow the grantees to use the generated revenues to cater for overhead costs and other emerging expenses during the pandemic.

Figure 7: Distribution of beneficiaries per county



Non-Recoverable Grants

Funds received from recoverable grants enabled KIWASH to issue another APS – 004 aimed at supporting partner entities to acquire technologies to reduce non-revenue water. For instance, KIWASH considered technologies such as meters (zonal and individual meters), handheld meter calibration equipment, billing and accounting software, GIS mapping of water systems and other non-infrastructure interventions. Six grantees benefitted from this award.

SANITATION AND HYGIENE

Overview

KIWASH's sanitation and hygiene activities involved a close collaboration with the ministries of health and sanitation at national and county levels to support the government's national initiative to scale up sanitation coverage and end open defecation in Kenya. KIWASH rolled out Community Led Total Sanitation (CLTS) across rural communities in eight target counties. In health facilities, activities integrated sanitation and hygiene education and messaging for mothers attending maternal health clinics into oral rehydration therapy (ORT) corners. Integration of hygiene and sanitation was also supported through large-scale community outreach activities.

To achieve improvements in sanitation and hygiene behaviors in communities, the project used an adapted blend of local sanitation approaches entailing CLTS, sanitation marketing (SM), and social and behavior

change communication (SBCC), with approaches implemented sequentially or complimentarily. The preferred approaches were informed by the prevailing local county context.

The project's sanitation marketing strategies designed and phased activities to compliment demand created under CLTS and SBCC methodologies. The combined efforts of these approaches resulted in an increased number of households and villages that have collectively ended open defecation and those accessing basic or improved sanitation.

Approaches and key interventions

Creating demand for sanitation

KIWASH interventions in CLTS and SBCC helped create demand for basic sanitation and hygiene facilities in the target counties. CLTS traditionally focuses on mobilizing communities to form a social movement that catalyzes collective behavior change to stop open defecation. Using a combination of CLTS and SBCC, staff worked directly with county health officials to create demand and transform people's attitudes towards open defecation to encourage constructing and using household latrines. CLTS implementation under KIWASH programming followed a methodological process designed to move communities to 100 percent ODF status. The 7 steps entailed organizing CLTS inception workshops, pre-triggering, triggering, CLTS follow up, ODF claims, verification and certification ultimately culminating to celebrations.

A lady assists her son to wash his hands using a tippy tap constructed outside their new basic latrine.

Over the project period, KIWASH triggered 651 villages in CLTS as a first step in creating a demand for sound sanitation and hygiene in communities. By the end of the project, 414 villages were verified as open defecation free (ODF) with a monitoring plan in place. As a result of these collaborative efforts between stakeholders such as the Ministry of Health and community populations, KIWASH enabled 121,806 people to gain access to basic sanitation and hygiene services against a life of project target of 125,000 people. Over 302,876 people have also installed locally designed handwashing facilities, commonly known as tippy taps, within close proximity to their latrines across the project counties.

During the project cycle, three counties - Kitui, Migori and Siaya - were nationally declared as open defecation free, creating the impetus for other counties whose plans towards eliminating open defecation are now underway. KIWASH worked in collaboration with the county governments and other WASH partners in implementing, monitoring and celebrating of ODF milestones. Political leadership was also mobilized to provide commitments in supporting communities to sustain WASH behaviors and continue making sanitation improvements.

Although the health benefits of sanitation are evident, findings from a KIWASH-conducted consumer survey showed that perceptions about the high cost of having a toilet, convenience of open defecation together with the socio-cultural practices have kept the sanitation status low in the counties. A comprehensive BCC approach that employs strategic use of communication to address these barriers and improve the health of individuals and communities was designed to complement CLTS methodology. Traditionally, CHVs have been on the frontline in creating demand for sanitation technologies and promoting the sustained practice of desired sanitation behaviors. KIWASH's SBCC approach utilizes effective behavior change methodologies, promoting education through listening to positively impact positive practices on consistent use of latrines for human waste disposal, safe disposal of baby waste, correct handwashing, and household water treatment and storage. House-to-house visits and community meetings platforms such as dialogue meetings, focus group discussions and barazas (a public meeting mostly convened by people in authority such as chiefs) were used to reach communities with sanitation products as well as sanitation and hygiene messages.

At the wider population level, KIWASH utilized mass media channels using professionals to deliver talking walls and radio shows to increase sensitization and awareness on WASH practices. Figure 2 below shows the continuum of different audiences targeted for socio-behavior campaigns and the delivery strategies used across the spectrum.

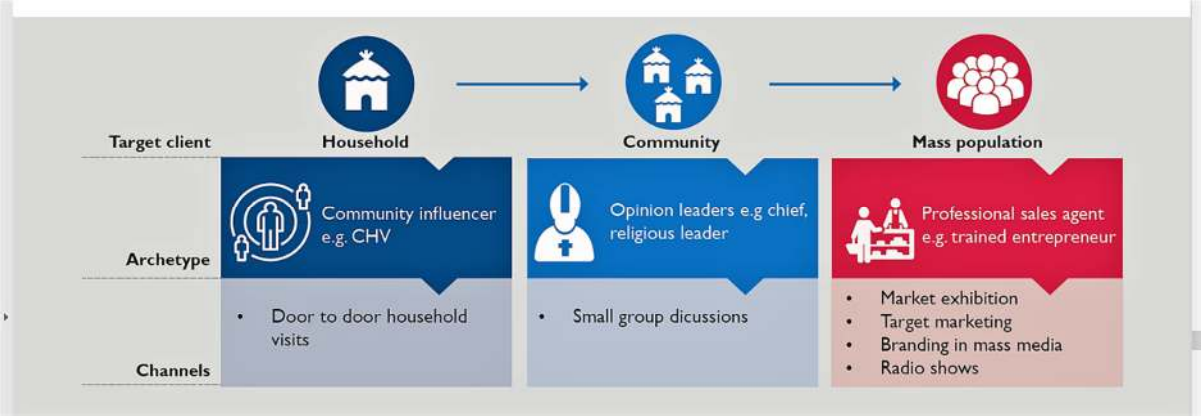


Figure 8: Conceptual design for delivering social behavior messaging in KIWASH

Over the project period of performance, house to house visits, group forums and mass media campaigns conducted by trained behavior change agents resulted in over 1 million people being reached with key WASH messages.

Transitioning to improved sanitation technologies

The model below summarizes the 6 stepwise set of activities implemented to accelerate access to improved sanitation.

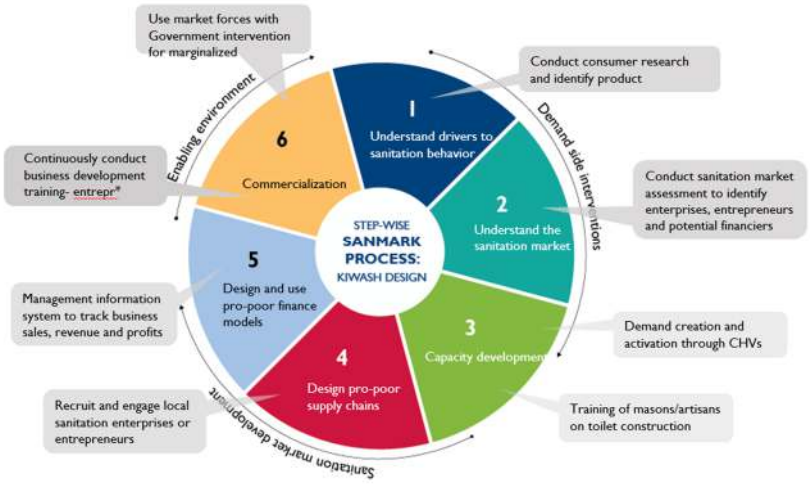


Figure 9: Activities implemented to accelerate access to improved sanitation

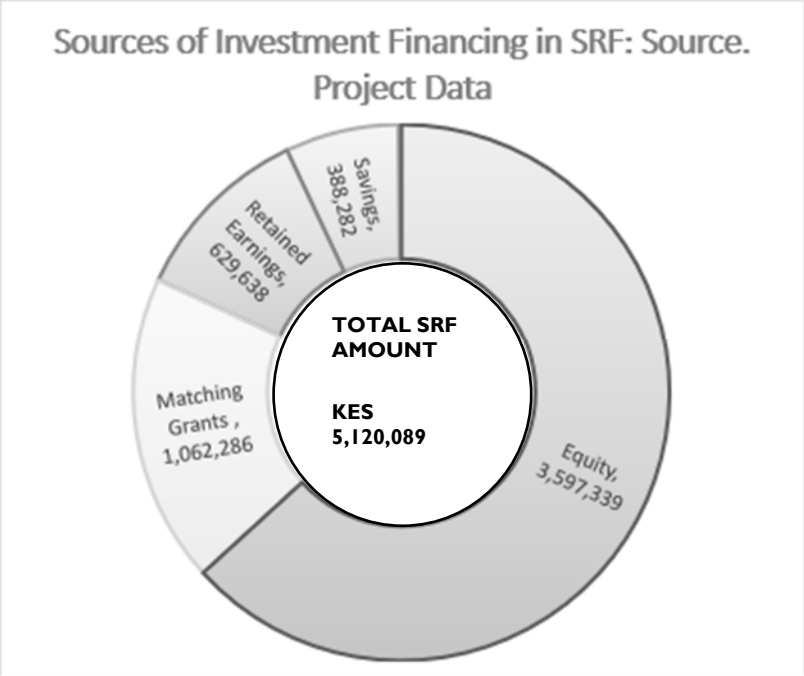
The KIWASH project used sanitation marketing (SANMARK) as an approach to compliment CLTS and accelerate achievements in ending OD and motivate communities to improving sanitation.

A SAFI latrine constrcted at a health facility to arouse community's interest.

A KIWASH-supported consumer survey provided an in-depth understanding on availability of sanitation products, capacity of suppliers to provide products or required inputs, pricing and after purchase services such as installation and maintenance of local sanitation technologies. Findings from the survey showed that communities living in areas with loose soil formation faced a high risk of collapsing latrines that proved prohibitively expensive to re-construct or negatively impacted on the motivation of households to rebuild latrines. Additionally, limited masonry skills in rural areas meant that constructed latrines were often substandard and collapsed seasonally, exacerbating affordability challenges (total costs involved in constructing the toilets) experienced in rural communities, where the majority of households earn less than a dollar a day. Other product specific challenges were related to odor, aesthetics, and functionality for people with special needs.

To address these challenges, KIWASH developed a sanitation marketing strategy from promoting SAFI latrine technology – an innovative ventilated improved latrine designed to withstand external soil pressures and collapsing - and the SATO sanitation products. SATO products were preferred and cited as affordable options that can be used to upgrade latrines when retrofitted on mud or cemented slabs. County governments provided an enabling environment for sanitation businesses to thrive, and partnered with KIWASH and private actors such as LIXIL manufactures and SIL Africa distributors to promote access and supply of SATO products. In 2019, KIWASH piloted its SANMARK strategy, an approach to help communities moving out of open defecation (OD) to have access to low cost latrine products and services. Results of this strategy have been impressive. The proportion of households having access to improved latrine in target villages increased from 3.1% to 67% in the last one and half years. The sanitation revolving fund (SRF) was integral to this success - the idea of tapping into self-help savings and credit to finance supply and retail of SATO and SAFI in OD(F) villages. KIWASH used the SRF model to stir up community investments, KIWASH committed to supporting entrepreneurial groups with a matching fund in the ratio of 1:1. up to a maximum of US $152 for each group that initiated a sanitation business. The business model overcame supply chain obstacles and demonstrated prospects of self–help group members playing an integral role in demand creation and last-mile retail of SATO products in rural areas. Through county level WASH forums, KIWASH disseminated its experiences in sanitation marketing in which other partners could leverage. As such, qua Clara- a not-for –profit organization, North Gem and Lwala CBO, Biomass International and county governments were among the partners identified to continue with sanitation marketing in KIWASH intervention sites.

A sales lady explaining the benefits of SATO products to a potential buyer. KIWASH worked with sanitation entrepreneurs to ensure the availability of improved sanitation products in rural communities

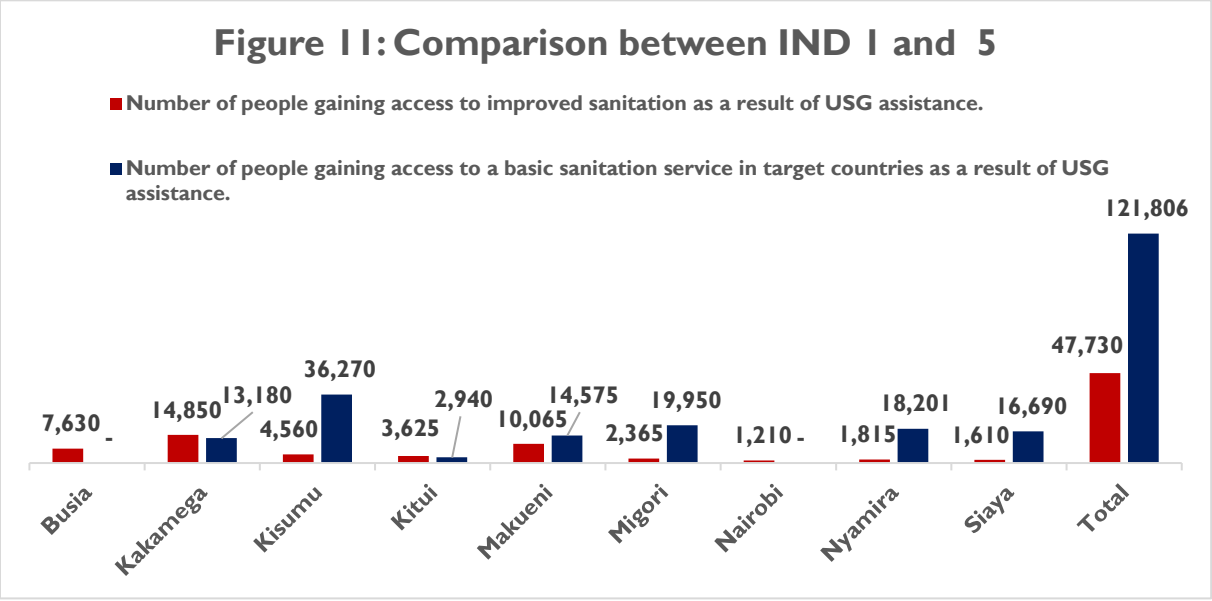


Results

Grants Leveraged ($)*	4.8 times
No. of SATO products sold	8,055
No. of entreprises established	>100

Figure 10 : SRF funds mobilized and impact

During the project cycle, 121,806 and 47,730 people gained access to basic and improved sanitation respectively due to KIWASH. The graph below shows comparison between those accessing basic or improved sanitation across the counties.



Promoting and sustaining sanitation and hygiene behaviors

Cluster specific SBCC strategies were developed with activities scheduled across nine counties and technical assistance provided through the ministries of health and community volunteers. The project developed targeted messages and applied community-based approaches to reach over one million people with WASH messages.

A key component to ensuring the sustainability of sanitation services and adoption of hygiene behaviors was building local capacity to create awareness and monitor adoption. To address this, KIWASH trained 1,648 community health volunteers (CHVs) and community health extension workers (CHEWs) on a new innovative approach - *Education through Listening (ETL) Methodology*. ETL is a participatory learning approach designed to equip behavior change agents with effective interpersonal and communication skills in the delivery of messaging. The CHVs were also provided with information, education, and communication materials (IEC) including the CHV Discussion Guide for Community Engagement for use during household visits and community forums.

WASH in maternal and child health centers

To complement and maximize the opportunities for promoting integration of WASH and nutrition behaviors, the project designed an approach for reaching out to their primary audience – ideally mothers and children - in mainline health facilities. Safe hygiene kits with promotional messages were designed, and10,000 safe water hygiene kits (in the first year) were distributed to expectant women or caregivers of children < 5 years . Distribution and health promotion were conducted from antenatal and postnatal care clinics in 25 health facilities and 46 oral rehydration corners supported within the facility diarrhea management spaces. Health care providers in clinics were trained and facilitated to cascade knowledge to CHVs who provided multiple follow up education sessions right at the beneficiary's households. Messaging was developed to educate beneficiaries on safe hygiene practices, such as safe water and sanitation. The project equipped health centers with supplies to provide at least four free refills of the household water treatment product Water Guard and soap at subsequent clinic visits, with a monitoring database established to track adherence and facilitate follow ups.

An ORT corner established by KIWASH at a community dispensary. The intervention tremendously assisted in managing diarrheal disease among under-fives.

The hygiene kit consisted of a covered 20 litre water storage container, 20 litre handwashing bucket with a tap, a bottle of water guard, a bar of soap; one packet of oral rehydration salts (ORS and Zinc dts-Z kit) for management of diarrhea cases, and branded hygiene messaging affixed on

In the last year of implementation, a quasi-experimental study was conducted to assess the impact of hygiene kits as incentives to improve behavioral outcomes. Findings showed that hygiene kit distribution increased ANC and PNC attendance, and had significant reduction in diarrhea disease in the beneficiary's group. Some WASH (use of improved water sources and handwashing practices) and nutrition (improved complimentary feeding, establishment of kitchen gardens and vitamin "A" supplementation) behaviors showed a positive shift, while others remained unchanged.

Sustainability of KIWASH results and interventions

KIWASH worked in close collaboration with county governments and departments of public health to steer planning, implementation, and monitoring of CLTS, BCC and sanitation marketing activities. The county government public health officers offered technical support in triggering, monitoring, verification, and certification of ODF villages. KIWASH also equipped community health volunteers and public health officers on post ODF measures, collaborating in the development of monitoring procedures and tools for sustaining ODF status

in villages. These measures consolidated ODF successes and helped communities in moving up the sanitation ladder, recognizing that sustainability is key to avoiding relapse/slippage into ODF status. Additionally, KIWASH erected billboards with ODF messaging in the project areas. The billboards, together with KIWASH-branded talking walls, reinforced sanitation and hygiene messages in the ODF villages and acted as a reminder to communities to adhere to desirable sanitation and hygiene practices.

The project engaged the county public health departments in sanitation marketing activities – using public health staff as crucial facilitators in demand aggregation for supply of SATO products and exploiting their health promotion expertise to expand knowledge and stimulate demand for sanitation by households. The project utilized the county public health department in supporting technical supervision and quality assurance in construction of sanitation infrastructure in communities.

KIWASH made advances in nurturing community-level organized groups to enroll and participate in sanitation businesses and utilized local village micro-credit principles to mobilize additional sanitation capital to augment limited public finance. Involvement of public office departments in SANMARK initiatives has strengthened county ownership and participation in increasing access to improved sanitation in communities. This will ensure availability and accessibility of sanitation products beyond the project's life cycle. Thirteen (13) local enterprises engaged in retailing sanitation products were trained on business development for rural sanitation enterprises, enhancing management and sustainability of their sanitation business.

Key implementing partners

Collaboration with partners and sanitation agencies ensured continuity of project activities well beyond KIWASH project life. KIWASH liaised with sanitation actors to ensure the continuity of USAID programs by handing over sanitation enterprise groups to ongoing USAID supported Afya Kamili in the Eastern Region and other not-for profit organizations working in WASH facets including Lwala Community Based Organization in Migori County, Aqua Clara International in Western Kenya region and Biomass International in informal settlements of Kisumu County.

County Results

The following table highlights specific results in focus counties.

County	No. of health care facilitie equipped with ORT corners	No. local artisans trained on construction and/or installation of SAFI latrine and SATO products.
Busia	5	70
Kakamega	5	57
Kisumu	6	46
Kitui	8	36
Makueni	5	61
Migori	5	47
Nairobi	3	
Nyamira	4	41
Siaya	5	22
TOTAL	**46**	**380**

ENVIRONMENTAL SUSTAINABILITY OF WASH SERVICES INCREASED

Overview

Kenya continues to suffer from environmental degradation caused by human activities. This is evident in receding lake levels, soil erosion which degrades the quality of water, and unpredictable weather patterns. As a result, KIWASH's environmental sustainability interventions aimed at building the capacity of nine county governments, institutions, and communities to protect water and watershed resources, building specific capacity to adapt to climate change, minimizing waste, and expanding water and sanitation services.

This involved working with government agencies such as the Water Resources Authority (WRA), National Environmental Management Authority (NEMA), Kenya Forest Services (KFS) and water service providers (WSPs). At the local level, the project worked with Water Resource Users Associations (WRUAs) to increase their technical and organizational capacity to manage the complex challenges facing their watersheds.

Approaches and key interventions

Community engagement

KIWASH collaborated with WRUAS, local groups of volunteers that manage use and protection of water resources in their communities, to increase their geographical area of service. In this capacity, WRUAs serve as a critical front-line in the protection and conservation of water sources. Their core functions include overseeing local water conservation efforts, water quality monitoring and educational activities in their communities.

As an entry point, KIWASH started by identifying communities within respective watersheds that were not engaged by WRUAs. This was closely followed by community environmental sensitization sessions that aimed at educating target communities on environmental hygiene and use of springs, soil, and water conservation on farmlands around springs. To put the knowledge into practice, KIWASH supported the establishment of spring management committees. The committees serve as advocates between local communities and county governments to improve water services and the conservation of water sources.

This formation proved effective, as committee members command the authority to address community spring issues such as encroachment and unhygienic practices by users.

Catchment conservation

In most project counties, KIWASH found encroached riparian lands, soil erosion, agricultural pollution, eucalyptus plantation in catchment areas and poor farming practices. To address these threats to catchment ecosystems, KIWASH had to devise innovative, efficient, and sustainable approaches. This involved: environmental sensitizations, focused group discussions, establishment of tree nurseries in WRUAs to raise water friendly trees, catchment afforestation, digging terraces and grass planting to control soil erosion and creation of buffer zones to discourage catchment encroachment.

Members of Awach Kasipul Water Resource Association in Nyamira County tilling seedlings at a tree nursery established by KIWASH. KIWASH worked with community groups to restore catchment tree cover by planting water friendly trees.

KIWASH also forged partnerships with local resource users and policy level institutions to improve water source catchments. For instance, community environmental awareness exercises were conducted by local WRUAs. The exercises involved planting of indigenous and water friendly trees in catchment areas, sensitizations on effects of farming around water sources and discouraging planting of eucalyptus trees around water sources. These efforts saw more community members joining respective WRUAs leading to increased participation in catchment protection activities.

In 16 WRUAs, KIWASH facilitated establishment of single tree nurseries to increase their capacity to raise indigenous and water friendly trees for purposes of catchment protection through afforestation exercises. The initiative saw production of over 250,000 water friendly seedlings that were planted in water catchments and other heavily degraded areas.

The table below highlights gains realized by KIWASH supported WRUAs.

County	WRUA	Achievements
Busia	Ikonzo	Removal of eucalyptus trees from water catchment areas in Iyabo A Village.
	Wakhungu	Cover crops such as nappier grass and sweet potatoes planted along a spring in Sirekeresi Village to control runoff (soil erosion) because of sloppy terrain.
Kisumu	Kibos	Riverbank erosion control through sustainable sand harvesting, afforestation, and good agricultural practices on farms adjacent to River Kibos.
Nyamira	Upper Gucha	Proactively increased afforestation of springs using water friendly trees and improved awareness on catchment protection issues.
Migori	Korondo Nyasare	Integrated agroforestry practices among farmers in catchment areas and wetlands. Additionally, enhanced understanding of the role of WRUAs in environmental conservation and water resource management.
Kakamega	Lusumu	Massive afforestation at Mwikhupo along the banks of River Lusumu.
	Isikhu	Eucalyptus trees removed near Tabu Spring and replaced with water friendly trees.
Makueni	Kiboko	WRUA members actively engaged in protection of the Kiboko Spring where the residents of Kiboko and Makindu get drinking water.

County	WRUA	Achievements
Siaya	Kawaya	Soil erosion controlled along sloppy lands and banks of River Yala through increased afforestation. Additionally, eucalyptus trees were removed from water catchments and replaced with water friendly trees.
Kitui	Upper Thua	Increased WRUA's membership from several springs and earth dam's management committees and individuals.

Water source quality protection

A baseline survey conducted by KIWASH revealed that springs act as the main source of water in most rural communities. As a result, KIWASH supported source water protection to increase access to clean and safe water through an integrated approach that ensured environmental sustainability. This support saw protection of 68 springs. Protection included: construction of concrete spring boxes, fencing of local sources, construction of washing bays and cattle watering points and construction of a drainage channels to prevent water stagnation. Upon completion, KIWASH facilitated the formation of respective spring management committees (SMCs) for onward management. This approach involved allowing respective communities to nominate members to join the SMCs which were tasked with spearheading spring management affairs on their behalf. All SMCs were trained by KIWASH on sustainable management of the improved springs.

A KIWASH protected spring at Khwisero area in Kakamega County. Protection involved; construction of concrete spring boxes, fencing of local sources, construction of washing bays and cattle watering points and construction of a drainage channels to prevent water stagnation

In addition KIWASH, in collaboration with respective WRUAs, supported community members to conduct spring afforestation exercises. This aimed at increasing tree cover around springs, reducing soil erosion through planting of grass and sensitizing spring users on spring hygiene and maintenance.

The integrated approach allowed community members to actively participate in spring management activities such as spot weeding, cleaning of springs, clearing of flow channels to avoid stagnation and fence maintenance to curb activities around the source aquifers that could cause agricultural pollution.

Institutional Climate Change CAP Assessment

To identify technical capacity gaps in partner institutions, KIWASH conducted climate change CAP assessments in 54 county government departments in charge of water, environment and climate change, national government institutions, WSPs and 19 WRUAs. The assessments aimed at establishing baseline institutional capacity gaps in addressing climate change challenges. The exercise revealed that most of them had inadequate technical capacity to integrate climate change into water resource management.

The following table represents list of county departments subjected to baseline climate change CAP assessment.

County	Number of institutions	Names of institutions
Kisumu	7	Departments of Water, Environment and Climate Change, NEMA, Meteorological Department, WRA and KIWASCO

County	Number of institutions	Names of institutions
Migori	5	Departments of Environment and Water, NEMA, Meteorological Department and MIWASCO
Busia	5	Departments of Environment and Water, NEMA, Meteorological Department and BUWASCO
Kakamega	5	Departments of Water and Environment, NEMA, Meteorological Department and WRA
Nairobi	6	Departments of Water and Environment, NEMA, Meteorological Department, WRA and NCWSC
Nyamira	6	Departments of Environment and Water, NEMA, Meteorological Department, WRA and GUWASCO
Kitui	6	Departments of Environment and Water, NEMA, Meteorological Department, KIMWASCO and WRA
Siaya	6	Departments of Environment and Water, NEMA, Meteorological Department, WRA and SIBOWASCO
Makueni	8	Departments of Environment and Water, Climate Change NEMA, Meteorological Department, Wote Water, Kibwezi_Makindu, and Mbooni Wote and sanitation companies

Climate change capacity building

KIWASH built the capacity of sector institutions to incorporate current and potential future impacts of climate change and variability in planning, maintaining and delivering of WASH services. KIWASH's approach is outlined below.

I. Distributing climate and run-off data for all watersheds in the nine counties and sharing this with each county government and stakeholders

KIWASH conducted an analysis of current and projected water security situation in all nine counties. This was based on various climate change scenarios through the use of downscaled climate change projections data and runoff projections. After the exercise, KIWASH conducted county stakeholder meetings with 27 institutions to present projected data for respective counties. In addition, KIWASH used the meetings as a platform to gather and understand the availability of climate data and skills set in these institutions to use climate change and runoff data in water resource management. All sessions ended with feedback gathering on the usefulness of downscaled climate and run-off projections data in planning future WASH activities.

ii. Training technical officers on climate data use in water resource planning and management.

After conducting CAP assessments and understanding the existing gaps in identified institutions, KIWASH designed a training program on climate data use in water resource planning and management. The training aimed at building skills at the national and county level in order to influence relevant policies towards being more climate change responsive. As a result, 25 officers from the departments of water, environment and climate change were trained on the use of climate change data in water safety and resilience planning, source water protection, infrastructure design and sanitation. Trained institutions also benefitted from the free installation of GeoCLIM, GeoMOD and QGIS software. The first one serves as a climate data study tool for historical and future climate data analysis with the second one acting as a tool for climate-modelling especially scenario modelling of climate variables. The third software enables complex climate modelling.

Evaluations conducted at the end of the trainings indicated that sixty percent of the participants found the knowledge to be useful in their routine work. Five major evaluation areas also showed that there was improved knowledge transfer after the training. These included new and improved knowledge in the use

of GeoCLIM and GeoMOD on generating climate scenarios from Ocean SST regions, SCS-CN, generating precipitation-runoff simulations from downscaled rainfall data and creating rainfall and runoff graphs using Microsoft Excel.

iii. Training the key institutions on full-circle climate-resilient water security planning

a) WRUAs

In seven counties, KIWASH facilitated climate resilient water security planning training targeting 17 WRUAs. The trainings aimed at increasing WRUAs' capacities to address climate change challenges in water resource management at sub-catchment levels.

The training focused on the following key specific areas:

- Water resources data development for climate change planning
- Environmental vulnerability assessment of water resources under climate change
- Water safety planning under climate change
- Environmental monitoring

After the training, KIWASH conducted progress follow ups and offered technical support to ensure successful achievement of action plans. Through this, all the WRUAs trained developed water resource data for climate change planning.

b) Policy level institutions

CAP assessments conducted by KIWASH revealed that county institutions assessed had between low and basic capacity in integrating climate change into governance, information and data use, strategic planning, resource allocation and project/activity implementation. To address these technical capacity gaps, KIWASH developed a tailored Water Security Training Module for policy level actors in year two of the project.

Subsequently, two water security planning workshops were conducted in Lower Eastern and Western regions targeting respective counties. The workshops brought together sixty-five participants drawn from national and county governments institutions such as county departments of water and environment & climate change, metrological department, NEMA, WRA and respective WSPs. All respective county institutions were clustered together and tasked to develop joint proposals on priority WASH policies/sector plans of activities into which climate change were to be mainstreamed.

c) Climate resilient water safety planning training to water service providers and WASH enterprises

KIWASH facilitated climate resilient water safety planning training to 27 utilities and WASH enterprises to improve their knowledge and skills towards climate resilient water safety measures. This aimed at enabling them to integrate water safety plan into utilities through comprehensive risk assessment and risk management approach that encompasses all steps in the water supply from catchment to consumer. The training covered all the 11 learning modules of the Water Safety Plan Manual, and the relevant tools under the FDMT project (http://www.flooddroughtmonitor.com/home). This provided the participants with specific skills on the process of developing and implementing water safety plan that considers climate adaption and resilience.

The following table represents water utilities that were trained per county.

County	No. of trained institutions	Water service providers	WASH Enterprises
Nairobi	3	NCWSC	Mutuini Water Project
			ESWAND
Kitui	2	KIMWASCO	Kithambangii Community Water Enterprise
Makueni	2	KIMAWASCO	Chyulu Community Water Enterprise
Kakamega	2	KACWASCO	Bukura Community Water Project
Siaya	3	SIBOWASCO	Osieko Nambo Community Water Project
			Simenya Community Water project
Nyamira	3	GWASCO	Machururiati Community Water Enterpise
			Nyamacheo Community Water project
Busia	2	BUWASCO	Ogallo Community Water Project
Migori	2	MIWASCO	Ndiwa Community Water project
			Nyasare Water and Sanitation Company
Kisumu	7	KIWASCO	BOCOWA
		GULFWASCO	Nyang'oma Community Water project
			Sondu Miriu Right Bank
			Ahero Catholic Water project
			Nyanas Water Scheme

iv. Supporting counties to conduct digital water resource baseline mapping and vulnerability assessments

KIWASH received proposals developed by counties during the water security trainings. The proposals aimed at improving climate resilient water security in the drinking water supplies. Makueni and Migori counties benefitted from KIWASH's support that enabled them to carry out water resources data development exercises. This entailed resource profiling, prioritization-based source climate change vulnerability assessments and mapping of water resources.

In Makueni County, the exercise was conducted in Kibwezi East Sub-County while in Migori County, the same happened in Hibwa, Korondo Nyasare, Lower Gucha and Lower Oyani WRUAs.

All exercises were preceded by water resource mapping inception workshops. Relevant stakeholders were invited such as county departments of water, environment and meteorology, KFS, WRUAs and local

public administration. Additionally, field assistants nominated from WRUAs and sub-county offices were trained on water resource mapping using open data kit.

Once the mapping exercises were concluded, KIWASH together with county technical teams supported the data validation processes. Additionally, counties committed to roll out similar mapping exercises to cover areas that were not reached in the first exercise. This aimed at establishing comprehensive resource databases to guide fact-based decision making and interventions by counties towards improving climate change resilience.

All of these actions taken together enabled the counties to build a more resilient water supply for the health and well-being of consumers as follows in the following ways:

- County governments and relevant institutions are now able to plan appropriately for their water resources' designs and development in the face of climate change, ultimately having climate resilient water infrastructure development.
- County governments have available information to enable informed decision making on matters related to climate change, such as diversification of livelihood options and climate change risk management.

County Results

The following table highlights specific results in focus counties.

County	% increase in the geographic area serviced by WRUAs	institutions with improved capacity to assess or address climate change risks supported by USG assistance.
Busia	228	2
Kakamega		2
Kisumu	424	4
Kitui	50	3
Makueni	298	1
Migori	70	3
Nyamira	135	2
Siaya	216	

GOVERNANCE AND POLICY

Overview

Through the 2010 Constitution, many WASH functions devolved to county governments. Among these were the responsibilities for water service provision and sanitation services. Smooth devolution of water services requires the county leadership to drive reform, but without disrupting services. KIWASH supported WSPs, WRUAs, WRMA county governments and ministries of water and health to refine roles, improve institutional governance, develop, and implement innovative private sector partnerships, effectively allocate budgetary resources, and refine funding streams.

Approaches and key interventions

County-level planning and budgeting

Throughout the project period, KIWASH supported county legislators and officers on WASH planning and budgeting in four key broad areas – budget allocation and development, budget execution, service delivery implementation and strengthening civil society oversight and participation in the budget cycle. KIWASH made deliberate efforts to lobby county governments to increase budgetary allocations in the WASH sector. This resulted in increased budgetary allocation eight counties as shown in the table below.

Increase in county budgetary allocations towards WASH						
County	WASH budgets (USD)				Absolute change (Years 4-1)	% increase through Year 4
	FY2016/17 (Year 1)	FY2017/18 (Year 2)	FY2018/19 (Year 3)	FY2019/20 (Year 4)		
Busia	2,493,200	4,163,075	4,621,359	4,621,359	2,128,159	**85%**
Kakamega	2,407,767	3,504,854	4,825,243	5,292,955	2,885,188	**120%**
Kisumu	1,825,243	2,323,301	2,577,670	2,853,297	1,028,054	**56%**
Kitui	6,467,520	7,048,544	6,796,117	9,293,900	2,826,381	**44%**
Makueni	4,398,631	5,386,224	5,865,670	7,388,350	2,989,718	**68%**
Migori	No data	2,427,184	2,864,078	2,592,233	2,592,233	
Nyamira	1,490,008	1,406,308	1,496,310	2,262,136	772,128	**52%**
Siaya	3,150,683	2,087,633	3,181,193	2,912,621	-238,061	**-8%**

Source: County budget reports, September 30, 2019

Sector coordination

KIWASH played a key role in ensuring that there was a coordinated WASH sector in all the nine counties of the project implementation. Formation and strengthening of WASH forums is one of the strategies that KIWASH employed to achieve the coordination of WASH activities in the counties. Eight WASH forums were created, one per county except for Nairobi. These forums also served as platforms for state and non-state WASH actors to ensure participation, dialogue, information sharing, joint planning, budgeting, monitoring and reporting. The forums also reduce the chance for omission or duplication of WASH interventions by various WASH actors.

Advancing targeted policy reforms

KIWASH supported Kenyan government policy makers at the national and county levels to refine policies and institutional roles. KIWASH also worked with county governments and sector stakeholders to analyze, recommend and support the adoption of Kenyan policy reforms. These reforms helped to remove constraints to business entry and operations along the entire WASH value chain. They also promoted an increased, sustainable, and well-governed role of WASH businesses.

At the national level, KIWASH worked closely with the Ministry of Water and Irrigation and the Council of Governors to lobby for the enactment of the Water Bill 2014 and finalization of the draft Water Policy of 2012. The bill was officially passed by parliament and ascended to the Water Act of 2016 in September

2016. This paved the way for the domestication of county Water Bills in line with the Water Act. This resulted in well-strengthened institutions with 13 WSPs, community water projects and relevant county department staff getting trained and coached with 28 policy documents finalized and operational.

The below graph summarizes the number of laws, policies, or investment agreements (public and private) implemented that promote access to improved water supply and sanitation across the nine counties where KIWASH operated. A summary of KIWASH supported policies, laws and agreements are provided here. ANNEX III: SUMMARY OF PROGRESS ON POLICIES, LAWS, OR INVESTMENT AGREEMENTS

INFRASTRUCTURE SUPPORT

Overview

At the beginning of the project, KIWASH conducted assessments to identify existing technical capacity and infrastructural gaps in partner water service providers (WSPs) and WASH enterprises. It was evident that most entities faced infrastructural challenges that stemmed from old and dilapidated infrastructure, such as high non-revenue water (NRW), low consumer connections, low service levels and high levels of operational inefficiencies. These challenges resulted into financially unsustainable water businesses due to low revenue base, high commercial water losses and high maintenance cost occasioned by aged water systems.

As a result, KIWASH designed infrastructural support in a manner that complemented capacity building efforts in identified WASH enterprises and utilities. The support aimed at addressing these challenges through tailored interventions on a case by case approach. For instance, KIWASH invested in the rehabilitation of water supply system elements, replacement of water pumps with new energy efficient units, and installation of meters to measure water production versus consumption.

Approaches and key interventions

In the first year of implementation, KIWASH concentrated on a methodology of assessing capacity gaps and designing and implementing relevant training and capacity building activities for partners. This enabled making of sound decisions towards infrastructure investments aimed at improving business performance and increasing access to water. The method of selecting utilities and WASH enterprises for technical support included a rigorous appraisal process. It involved comparing current capacity against a set of future performance goals subsequently laying a firm foundation for capacity development efforts.

Thus, KIWASH deployed the following key approaches to ensure systematic, impactful and sustainable interventions in potential WSPs and WASH enterprises.

Identification and selection of KIWASH water infrastructure projects

KIWASH in collaboration with county water departments and project owners who are mainly WSPs and WASH enterprises conducted identification and selection exercises of potential water projects that stood to benefit. The identification process involved the following highlighted steps.

i. Assessment of domestic water requirement

KIWASH conducted assessments of initial designs of proposed projects against the estimated beneficiaries, taking into account water losses occasioned by leakages and other wastages.

ii. Water source identification

This aimed at establishing respective water sources for every potential water project. KIWASH had already projected groundwater (springs or boreholes) or surface water (rivers, streams and lakes) to be the main sources. The first phase of the identification process involved surveys and use of local knowledge. Secondly, KIWASH established the approximate ultimate domestic water demand against the available water at the source. KIWASH analyzed water safety through conducting water quality tests on the raw water. The tests sought to establish whether appropriate cost-effective treatment could result in potable water quality that met the Government of Kenya's (GoK) and USAID's threshold. Further, KIWASH assessed the proposed water sources to explore the possibility of protecting them against present and future contamination through human excreta, industrial discharges and agricultural run-off. Lastly, KIWASH ensured that all water projects had water abstraction permits from Water Resources Authority (WRA).

iii. Feasibility studies

Prior to making investments in a project, KIWASH conducted feasibility studies to determine the possibility of developing available water sources and treating the water using simple and reliable technology. The studies also aimed at establishing the following;

- The possibility of transmitting and distributing water to consumers by gravity or with minimal pumping costs such as solar power-driven pumping equipment in order to manage the capital and operation & maintenance costs.
- Land ownership for the proposed water infrastructure works and pipelines wayleaves.

iv. Initial Environmental Examination

KIWASH subjected all proposed water projects to Initial Environmental Examination (IEE) as a means of ensuring compliance with USAID's environmental mitigation policies. The IEEs involved describing the proposed project implementation activities and analyzing any potential environmental issues that could arise from undertaking the project infrastructure works.

Scaling up infrastructure projects

The type of infrastructure investment varied from one project site to the other depending on need, capacity and future potential. KIWASH's support either involved direct investments or recoverable grants. KIWASH supported WASH enterprises in developing concept notes in response to KIWASH's Request for Application (RFA) for recoverable grants. KIWASH then evaluated all received applications with shortlisted projects advancing to proposal development stage. The recoverable grants aimed at increasing access to water and achieving sustainability through infrastructure works in a market-based approach.

KIWASH engaged a professional engineering and contracting firm to conduct preliminary studies for all lined up water projects that stood to benefit from direct investments. After the technical assessments, the firm developed proposed infrastructure works designs that enabled call for bids from contractors.

Investments targeted WSPs, WASH enterprises, county-level rural water projects and spring protection within sub-catchments covered by identified by water resource users associations (WRUAs). For instance, WSPs benefitted from extension of transmission and distribution water mains, rehabilitation of water supply system elements (supply intakes, water storage tanks and dosing units), replacement of pumps with new energy efficient units, supply and installation of solar powered pumps for water supply systems and boreholes and supply and installation of consumer (household) water meters. On the other hand, WASH enterprises received: replacement of submersible pumps, rehabilitation of damaged pipelines and/or pipeline extensions, construction of water kiosks with overhead storage tanks, installation of solar pumps, installation of chlorine dozing units for water treatment and latrine construction.

In summary, KIWASH identified and selected a total of 128 projects using the criteria outlined above to benefit from USG support. This included 99 projects that stood to be funded as direct investment (no requirement for repayment). Taken together, KIWASH's infrastructure investments aimed at improving overall access to basic water supply and sanitation services and improving irrigation technologies (under the then agri-nutrition programme).

The table below shows scale of activities and investments implemented by KIWASH aimed at improving infrastructure.

Promoting use of solar systems as an efficient and eco-friendly source of energy

Initial assessments conducted by KIWASH revealed that high electricity costs strained operations in most WSPs and WASH enterprises. Thus, it was paramount to understand why these projects never resulted in using solar power as a way to reduce pumping costs. As a result, KIWASH further conducted an assessment on financial barriers to the uptake of solar-powered borehole pumps by rural communities. The exercise led to formulation of a number of recommendations to help overcome the identified barriers including: improving operations and management of current projects, making revenue collection methods more efficient and transparent, educating communities to increase their willingness to pay for safe water, providing education and training on basic maintenance of schemes, promoting lending through use of established successful projects, and identifying communities with the capacity to install and operate successful solar borehole projects.

A water attendant operating a solar inverter installed by KIWASH for Nyang'oma Water Project in Kisumu County. KIWASH supported 22 WASH enterprises to install hybrid solar panels as a means of cutting operational costs and enhancing sustainability.

As a means of inculcating use of solar systems, KIWASH supported 22 water projects to install solar panels. Additionally, KIWASH partnered with county governments to encourage WSPs to use the technology at a larger scale.

Water quality surveillance

Prior to undertaking any water infrastructure project, KIWASH conducted pre-construction water testing to establish the possibility of achieving safe water that met GoK and USAID requirement (bacteriological, chemical and aesthetic). Immediately after completion of works, KIWASH conducted post construction water quality tests to ascertain the safety of drinking water to beneficiaries. In cases where water quality failed the acceptable standard of potable water, KIWASH supplied and installed chlorine dosing units to treat the water. In addition, KIWASH took remedial measures to train operation and maintenance staff on water quality and quantity preservations alongside running basic systems maintenance. This aimed at ensuring that respective WASH enterprises had the capacity to provide safe cleaning water in the future.

PART TWO

KIWASH COVID-19 RESPONSE AND RECOVERY ACTIVITIES

Introduction

Towards the end of the year 2020, KIWASH re-oriented its scope for the final year of the project to respond to COVID-19 pandemic while maintaining and advancing the development gains made between 2015 -2020. Together with nine county governments, 13 water service providers, and 231 small WASH enterprises, KIWASH aimed at improving access to WASH services for 140,000 Kenyan citizens while helping to reduce the spread of COVID-19. The section summaries the activities, results achieved and challenges during the extended implementation period (October to August 2021).

Key achievements

- ✓ 131,615 people gained access to basic drinking water services.
- ✓ 528,666 people reached with WASH COVID messaging in KIWASH counties.
- ✓ 1,332 WASH champions/CHVs trained to cascade WASH COVID messaging to communities and households.
- ✓ 135 healthcare facilities and schools gained access to basic drinking water services.
- ✓ 583 health facilities, schools, water points, markets, and other public spaces equipped with handwashing facilities in accordance with local standards.
- ✓ 128 basic sanitation facilities provided in schools and health facilities.
- ✓ $10,424,529 value of new funding mobilized to the water and sanitation sectors as a result of USG assistance.
- ✓ 3,999 vulnerable people received hygiene kits in KIWASH supported counties.

PERFORMANCE INDICATORS

KIWASH surpassed the set targets in 11 of the 15 key performance indicators in year 6. Notably, custom output IND. 2.1 – Number of people reached with WASH COVID-19 messaging. The achievement is attributed to the selection, recruitment, and training of WASH champions, increasing the level of outreach to communities with WASH COVID-19 messaging. In an effective response to the COVID pandemic, KIWASH surpassed the targets for outcome IND. 4.1 (HL8.1-1) – Number of people gaining access to basic drinking water service and Output IND 3.1(CV-P4-26): Number of health facilities, schools, water points, markets, and other public spaces or businesses equipped with handwashing facilities in accordance with local standards with USG assistance. As a result, a cumulative total of 131,615 people in FY6, and over 845,100 people gaining access to water services since the start of the KIWASH project. The joint planning and collaborative response to the COVID-19 pandemic led to KIWASH exceed new funding mobilized to the water and sanitation sectors as a result of USG assistance (**Output IND 4.5 (HL.8.4-1).** Due to the budget cut in the third quarter, there was a revision of indicator targets highlighted in red.

Performance Data Table: AMEP Indicators for Year 6

AMEP Performance Indicators	Year 6 Annual Targets	Year 6 Achievement	Percent Achievement Year 6
Outcome IND 1.1(CV-P4-27): Number of host-country COVID-19 preparedness and/or response plans in various phases (formally proposed	18	18	100%
Custom Output IND 1.1: Number of assessments conducted to identify COVID-19 hotspot areas and/or response gaps with USG assistance	9	9	100%
Custom Output IND 1.2: Number of sector stakeholders receiving technical assistance for improved monitoring, evaluation, reporting, and accountability	135	100	74%
Custom Output IND 2.1: Number of people reached with WASH COVID messaging in KIWASH counties	500,000	528,666	106%
Custom Output IND 2.2: Number of WASH champions/CHVs trained to cascade WASH COVID messaging to communities and households	1,500	1332	89%
Outcome IND 3.1(HL.8.1-4): Number of institutional settings (healthcare facilities or schools) gaining access to basic drinking water services	181	135	75%

AMEP Performance Indicators	Year 6 Annual Targets	Year 6 Achievement	Percent Achievement Year 6
Output IND 3.1(CV-P4-26): Number of health facilities, schools, water points, markets, and other public spaces or businesses equipped with handwashing facilities in accordance with local standards with USG assistance	500	583	117%
Custom Output IND 3.2: Number of health facilities, schools, water points, markets, and other public spaces or businesses with operational water safety and/or sanitary plans	30	15	50%
Output IND 3.3 (HL 8.2-4): Number of basic sanitation facilities provided in institutional settings	168	128	76%
Outcome IND 4.1 (HL.8.1-1): Number of people gaining access to a basic drinking water service	98,200	131,615	134%
Custom Output IND 4.1: Number of water and sanitation service providers supported to complete risk assessments and implement action plans	10	11	110%
Output IND 4.2 (CV-P4-23): Number of water and sanitation service providers supported with USG assistance to ensure continuity of supply chains or stockpiles of critical materials	13	12	92%
Custom Output IND 4.3: Number of WASH service provider staff trained in hygiene practices)	200	295	148%
Custom Output IND 4.4: Number of WASH service providers adopting new technologies for data collection, operations,	10	18	180%
Output IND 4.5 (HL.8.4-1): Value of new funding mobilized to the water and sanitation sectors as a result of USG assistance	$1,500,000	$10,424,529	695%

AMEP Performance Indicators	Year 6 Annual Targets	Year 6 Achievement	Percent Achievement Year 6
Custom Outcome IND 5.1: Number of county and water management committee staff trained on how to maintain and operate installed water systems sustainably with USG assistance.	150	323	215%
Custom Outcome IND 6.1: Number of households receiving household water treatment and safe storage products and training as a result of USG assistance.	82,358	117,222	142%
Custom Output IND 7.1: Number of vulnerable people receiving WASH hygiene kits	5,000	3999	80%

KEY ACHIEVEMENTS (Qualitative Impact)

ACTIVITY 1: SECTOR COORDINATION AND PLANNING SUPPORT

KIWASH worked with the national government, county governments, and WASH stakeholders to strengthen sector coordination and planning. The technical support contributed to the effective planning, designing, and implementation of WASH and COVID-19 response and recovery activities.

In the nine counties, KIWASH and the county governments co-created and signed joint work plans aligned with the County Integrated Development Plan (CIDP), the sector strategy, and WASH priorities. The joint plans formed the foundation for the major activities, including coordination with stakeholders to ensure knowledge sharing and streamlined operations.

Working with national and sector stakeholders to identify COVID-19 response gaps and back-sliding vulnerabilities

KIWASH engaged WASH stakeholders, including national and county governments, on monitoring cases and trends in COVID-19 situations. Where necessary, appropriate activities were developed on containment and management of spread of the coronavirus. This collaborative work with other WASH sector players enabled KIWASH to prioritize and concentrate support to the more vulnerable communities including schools, health facilities, market centers and public places.

In this phase, KIWASH undertook a financial stress analysis of the impact of COVID-19 on WSPs' cash flows/liquidity to cover the O&M costs and other utility operations. Through document reviews and informant interviews with WSP staff, the study was able to establish the functions that had been most adversely affected and the actions WSPs were taking to mitigate further impacts and move towards recovery. As a result, KIWASH collaborated with Water Service Providers Association (WASPA) to conduct non-revenue water management (NRW) training for WSPs. With additional information from KIWASH, WASPA also campaigned against a directive on free water by the national government as a COVID-19 containment measure. This was because some customers with the ability to pay for water services took advantage of the situation and worsened the NRW.

Nationally the directive resulted in low revenues for partner WSPs, which subsequently affected their operations. The national and county governments contributed to solutions by increasing budgetary allocations towards WASH. For instance, the Nairobi County Government received support from the national government to drill 193 boreholes in informal settlements. The water continued to be supplied free of charge and the electricity bills were settled by the national government. The support drastically reduced NRW for the county's water utility and enabled water access to genuinely vulnerable groups.

On the health frontier, KIWASH participated in weekly virtual coordination forums organized by the Ministry of Health (MoH) to provide reports on the COVID-19 situation in the country. From 2020 - 2021, the country suffered from a surge in COVID-19 infections that led to the re-imposition of restriction of movements in some project counties declared as 'district infected zones,' including in Nairobi. Through the coordination meetings, the MoH called on partners to support the government by allocating more resources towards the response. In this regard, KIWASH issued personal protective equipment that included dust coats and aprons to selected health care facilities in focus counties. The forums also advocated for the need to sensitize the citizenry on the benefits of COVID-19 vaccination to increase vaccine uptake.

Support to COVID-19 response and recovery planning at the county-level

The main goal of this component was two-fold: a) to strengthen the WASH forum approach to increase the capacity of county governments to lead in COVID-19 response, planning and coordinating stakeholders; and b) to advocate for responses and solutions that would promote the financial sustainability of the WSPs.

KIWASH signed one-year joint work plans with each of eight counties (Busia, Kakamega, Kisumu, Migori, Kitui, Makueni, Nyamira, and Siaya), with the key departments of water, health, and education in every county. The plans focused on improving water access as well as sanitation and hygiene services in public spaces and at the household level to curb the spread of COVID-19. KIWASH also used the plans to strengthen its relationships with county partners and encourage strategies for sustainable WASH interventions. The results are detailed below.

Busia County.

A joint workplan was signed with the governor following a planning process based on priorities in public health, urban and rural water service provision as listed in four documents: County Integrated Development Plan (CIDP) 2017-2021, Annual Work Plan and Budget 2020-2021, COVID-19 response plan, and KIWASH Year 6 priorities. A forum was later organized to review/monitor progress made in addressing WASH gaps and sharing experiences on COVID-19 response. Additionally, the forum contributed to building synergies and ensuring that WASH stakeholders' contribution and support in addressing COVID-19 was aligned to the county government's priorities.

Busia County Governor (right) and KIWASH's Deputy Chief of Party hold signed copies of the county's joint work plan.

Kakamega County

KIWASH worked with the departments of water, public health, and education to discuss COVID-19 pandemic containment measures and the vaccine deployment in the County. KIWASH also gave technical support in the review of the county key documents.

Kisumu County

KIWASH focused on improving the management and coordination of the WASH sector through increased budgetary allocations. To this end, the project supported and facilitated a WASH coordination workshop on improving the WASH budgetary allocation and prioritizing the WASH agenda among the county residents. The workshop, which was attended by the top level officials in charge of water, health and education passed a resolution to secure increased budgetary allocation for WASH and public-private partnership (PPP) approaches. The forum also agreed to lobby the county department of education to make budgetary allocation towards improved water access in schools to supplement the efforts by WASH partners.

KIWASH also offered technical assistance, aimed at addressing challenges related to NRW management and customer engagement. As a result, there was continued net percentage reduction in NRW for KIWASCO, GULF and NYANAS

Kitui County

The SEK mechanism: a coordination platform, which supports coordination, integration of complimentary humanitarian and development assistance facilitated close collaboration between KIWASH and the major partners in Kitui, Makueni and Taita Taveta counties. During the first SEK meeting, KIWASH was appointed as the county lead for all USAID activities in Kitui. SEK contributes to the smooth coordination of activities and strengthened cross-partner collaboration in three counties – Makueni, Kitui, and Taita Taveta (KIWASH covers Kitui and Makueni counties).

Makueni County

The WASH forum was revitalized with a meeting of the major WASH actors that discussed community education on the emerging legal and policy frameworks.Specifically, the forum discussed the Makueni Water Policy and Makueni Water Act, budgetary allocations for WSPs in the 2021/2022 financial year, finalizing the water sector regulations for enactment, and strengthening the WASH forum. KIWASH was a key member of the forum and supported the county government in the implementation of WASH priorities captured in the joint work plan.

Migori County

KIWASH used the WASH forum to disseminate the findings of the SBCC and Water and Sanitation for Health Facility Improvement Tool (WASH FIT) assessments. The findings highlighted county-specific concerns in WASH gaps and responding to the COVID-19 pandemic. KIWASH also rallied stakeholders to support the SBCC for more concerted efforts to contain the spread of COVID-19. The forum also provided an opportunity for learning and sharing to complement COVID-19 response efforts.

Nairobi County:

The County Executive Arm approved KIWASH supported Sanitation Revolving Fund Policy, Bill, and Regulations. The Fund is expected to prioritize sanitation and accelerate the achievement of the Sustainable Development Goals.

Nyamira County:

KIWASH collaborated with county-level WASH institutions, including the departments of health and water, GWASCO, and rural water supply schemes to mainstream effective and appropriate COVID-19 coordination and planning towards recovery. Specifically, KIWASH offered technical assistance to the county government in concentrating efforts and influencing decisions on response plans and actions. The periodic review of the response plan with relevant county WASH agencies enabled the continued participatory implementation.

KIWASH supported the implementation of a financial stress analysis report to help in mitigating adverse impacts of COVID-19 on GWASCOs cash flows/ liquidity to cover the O& M costs and other utility operations e.g. implementation of e-billing, development of a customer survey and identification tools, NRW and O&M training. KIWASH also supported training on simple water treatment methods and hygiene promotion to prevent the spread of COVID-19 in workplaces and amongst GWASCO customers.

Collaborating with community leaders, NGOs, civil society

The KIWASH county-embedded staff maintained communication and information sharing on community-level issues, including WASH gaps and COVID-19 messaging aimed at increasing awareness on benefits of good hygiene practice as an effective way to maintain healthy lives. Community leaders including village elders, community health workers/volunteers and religious leaders facilitated access to the vulnerable and target communities with appropriate WASH and COVID-19 messaging.

Strengthening WASH forums

KIWASH supported and participated in county WASH sector forums in the partner counties. On December 15, in Migori County, KIWASH facilitated a virtual WASH stakeholder forum. The forum updated participants on the KIWASH and county COVID-19 response plan, including budgets. The participants also discussed a road map towards the development of a Menstrual Hygiene Management Policy in the county. 18 representatives from the county government and partner WASH development non-state actors attended the Forum.

In Kisumu County, KIWASH participated in a WASH coordination forum held on November 11. The meeting discussed COVID-19 county prevalence rate, operational gaps, and mitigation measures in addressing the pandemic. The forum also discussed the status and functionality of water systems across the county. During the forum, KIWASH and the county government resolved to merge their separate plans to map the existing water systems and jointly undertake the activity.

Separately, KIWASH participated in the launch of a 60-day community engagement and risk reduction campaign in Kisumu County to promote adherence to COVID-19 response measures during the festive season of December 2020. 319,000 face masks were dispatched for Kisumu Central, Kisumu East, and Kisumu West sub-counties. A toll-free number was unveiled to report suspected cases. Overall, KIWASH built on efforts by the national and county governments to amplify COVID-19 messaging and address the gaps for sustained response behaviors.

In Kitui County, KIWASH spearheaded an inaugural county WASH forum to enhance the county's coordination in responding to the COVID-19 pandemic. It was the first time that the forum has convened since October 2020. The forum brought together 38 participants from different WASH stakeholders including the county departments of water and health, Kenya Red Cross Society, Kenya Water Institute, Tanathi Water Works Development Agency, and World Vision Kenya. The meeting agreed to create a concrete database of all projects that were implemented in the county for sharing with the county government and enhance county coordination.

Contribute to USAID sector knowledge and learning

KIWASH supported knowledge sharing and learning through the continuous engagement of relevant county government officials and WASH stakeholders at national and county level forums. KIWASH used the WASH forums and progress review meetings to call for active public participation and ensure that the WSPs remained responsive and sustainable during and post COVID-19 pandemic. This included adhering to a proper budgeting process (planning and tracking) to promote transparency and accountability as tenets of good governance in water service provision.

In collaboration with Resilience Learning Activity (RLA), KIWASH supported the development of a case study – *Strengthening County Governments' Accountability, Participation, and Commitments in the WASH Sector: Case Study of Kitui and Makueni Counties*. The case study highlights opportunities, learning points, and challenges, which KIWASH will replicate, exploit, adapt, and mitigate, for better development partnerships and sharing with stakeholders. The case study added value to KIWASH interventions, which was built on for better formulation and implementation of the KIWASH project.

Based on the recommendations of the case study, KIWASH developed a policy brief with recommendations on good governance for sustainable WASH sector programming and service.

ACTIVITY 2: SOCIAL AND BEHAVIOR CHANGE CAMPAIGNS

The activity sought to build on existing efforts by the national and county governments to amplify COVID messaging, and critically address gaps to sustain responsive behaviors for all populations, including households, communities and health care providers across all target counties. To achieve this, KIWASH developed a WASH and COVID-19 social behavior change communication (SBCC) strategy which was rolled out at county and community level to enhance adoption of improved practices while reducing transmission of COVID-19.

Development of a WASH and COVID-19 SBCC strategy

During this period, KIWASH developed a culturally adapted strategy on WASH and COVID-19 to promote behavior change and adoption of improved WASH and COVID-19 practices. The strategy was informed by a comprehensive formative assessment conducted in the nine focus counties. The assessment aimed at identifying gaps and opportunities, and subsequently guided the design of strategic WASH and COVID-19 messages aimed at mitigating the COVID-19 pandemic and improving WASH practices among communities. The development of the strategy was a highly consultative process that brought together the technical personnel and stakeholders from Centre for Behaviour Change (CBCC), KIWASH and the ministries of education, water and health. The goal of the strategy was to improve and sustain the health status of vulnerable community members through increased knowledge and adoption of recommended WASH interventions and practices for COVID-19 response, resilience and recovery within the nine target counties. It further aimed at increasing the proportion of WASH structural changes implemented relating to policies, resource allocation and services among others at policy and institutional level supporting water, hygiene, and sanitation in the context of COVID-19.

UKENYA CAMPAIGN PILLARS

- **Hygiene:** Handwashing with soap.
- **Sanitation:** Access to basic or improved sanitation facilities.
- **Water:** Promoting access to water from improved sources, household water treatment and safe storage, and bulk water treatment.
- **COVID-19 response:** Promoting infection, prevention and control (IPC) practises – wearing face masks and social distancing.
- **Social inclusion:** Promoting inclusion and gender equality in WASH service provision.

Designing the WASH/COVID-19 UKENYA campaign

Findings from the WASH/COVID-19 strategy informed development of a KIWASH campaign called UKENYA ("being Kenyan" in Swahili) aimed at creating sustainable positioning for WASH. UKENYA sought to entrench national hygiene values that are sustainable, simple, and endearing to help trigger a change in behavior at the household, institutional, and policy levels. It was created as a result of the need to care for our fellow Kenyans by ensuring the WASH goals are met through five key pillars.

Capacity building of stakeholders

Throughout the project cycle, SBCC activities were implemented in close collaboration with the ministries of health, water and education. In order to build the technical capacity of the government staff in the delivery of the SBCC campaign, county level stakeholders were taken through a Trainer of Trainers (ToT) virtual workshop facilitated by CBCC. The training focused on equipping the county WASH focal people with knowledge and skills on the implementation of the WASH and COVID-19 SBCC strategy. The training was tailored towards mitigating COVID-19 infections while at the same time sustaining the gains made towards attainment of improved WASH practices in the target counties. As part of the training, the ToTs were enlightened on how to develop county-specific training plans to guide in the

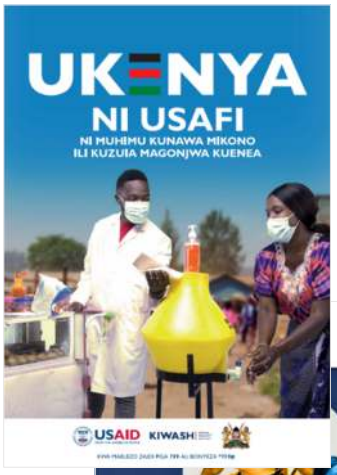
implementation of cascaded SBCC trainings to frontline health care workers. Participants were equipped with the training materials to support the roll out of the trainings. The workshop also contributed to the ongoing efforts of KIWASH to partner with national and county governments to provide effective SBC solutions in the context of COVID.

Training of frontline health care workers on social behavior change communication

Community health volunteers (CHVs) and community health assistants (CHAs) were trained on social behavior change communication activities in Busia, Kakamega, Kisumu, Kitui, Makueni, Migori, Nyamira and Siaya counties. The training aimed at equipping the frontline health care workers with the knowledge, skills and materials required to implement WASH-SBCC campaign measures tailored towards mitigating COVID-19 infections. The training sessions were facilitated by the respective county SBCC ToTs with support from KIWASH staff. The participants were taken through the *Education through Listening* approach which is a participatory and interactive technique of disseminating information to communities. The participants were further issued with UKENYA guides to support in the implementation of the SBCC activities. The participants developed detailed action plans on the roll out of the interpersonal communication activities which were shared with the sub-county and county teams who were required to offer supportive supervision.

Scaling up and institutionalizing approaches for sustaining hygienic behaviors in households, communities, and institutions

The trained CHVs with support from the public health teams rolled out the SBCC activities at community level. The activities were implemented in three-fold:



Interpersonal Communication activities: The trained CHVs conducted household visits in their respective villages for a period of two months. Each CHV was tasked to map out the households and provide baseline information on hygiene, sanitation, safe water and COVID-19. In the first month, the CHVs conducted the door to door sensitization sessions using the UKENYA guides as reference materials. They were also required to document the information shared with the respective households in the reporting tool jointly developed by KIWASH and the county governments. In the second month, the CHVs re-visited the household to assess uptake of the improved behaviors. KIWASH and the sub-county public health teams conducted supportive supervision to ensure the activities took place in adherence with the COVID-19 protocols and also provided technical input when required.

Community based activities: The public health teams, County SBCC ToTs from various departments trained by KIWASH and the CHVs conducted sensitization sessions at community level. The activities were undertaken in health facilities, schools and market centers. These activities were held in accordance to the Ministry of Health guidelines on COVID-19. The facilitators disseminated information based on the five UKENYA pillars on hygiene, sanitation, water, COVID-19 response, and inclusion.

Mass media: KIWASH reached communities with information on WASH and COVID-19 through posters. 12,500 UKENYA posters were produced and disseminated through the ministries of health, education and social services in the respective counties. The posters were also placed in high risk settings such as health facilities, market centers and border points.

In addition to interpersonal communication spearheaded by the CHVs, the project reached people with WASH and COVID-19 messaging. This involved county stakeholder's forums, health talks in health facilities and in Kisumu, a number of people were reached with WASH and COVID-19 messaging through the KIWASCO SMS Platform:

- **KIWASCO SMS Platform:** The Kisumu Water and Sanitation Company supported the project through provision of the SMS platform to share messages on WASH and COVID-19. This was after a sensitization meeting on the KIWASH SBCC strategy showcasing the objective of UKENYA and the five pillars. The KIWASH project developed the messages and shared with KIWASCO who subsequently shared this with the customers.

The outlined techniques contributed to increased community awareness and knowledge on improved WASH and COVID-19 response practices at the household and community level.

ACTIVITY 3: RISK COMMUNICATION AND COMMUNITY ENGAGEMENT

Through this activity, KIWASH worked with institutions to address emerging challenges in maintenance and operations of handwashing facilities, and World Health Organization (WHO) approved protocols in public spaces. The project conducted risk assessments in high risk settings to prioritize interventions in marginalized and vulnerable groups. Thus, the activity focused on training and capacity development in coordination with county governments and development partners to scale-up best practices and protocols, and ensure approaches that foster ownership and participation are mainstreamed in project delivery.

Conducting WASH-FIT assessment to assess WASH status and determine priorities

KIWASH worked with county health staff to develop and conduct risk assessments in locations with high COVID-19 infection potential, including health facilities, and to identify and reach vulnerable population segments with WASH services. A water and sanitation for health facility improvement tool (WASH FIT) assessment was conducted in institutional settings and market centers which were high risk settings for COVID-19. Before the commencement of the data collection exercise, KIWASH trained 54 (27 females and 27 males) public health enumerators drawn from all KIWASH target counties on the use of the WASH FIT tool. The KIWASH enumerators, in close collaboration with county public health, education, and water departments visited schools, health facilities, and public places/markets to identify gaps in WASH and COVID-19 using the tool.

Following the WASH-FIT assessments conducted in quarter one targeting 55 institutions and public spaces in each of the nine target counties, the project further undertook joint follow-up site visits to selected institutions. The joint assessments were conducted to disseminate the results of the WASH FIT assessment and further assess the type of WASH infrastructure support that would benefit the institutions. The key ministry representatives and staff from the institutions participated in the exercise providing additional information on the WASH situation. Schools and health facilities with poor WASH indicators were selected to benefit from infrastructure support that included renovations and construction of new facilities.

Support to WASH global advocacy days

On October 15, 2020, KIWASH joined other WASH stakeholders in celebrating Global Handwashing Day. The day's theme was, *Hand Hygiene for All*, and aimed at gaining the support of the national government on delivering essential services that enable all people to practice hygiene. The national event held in Nairobi County was graced by First Lady Margaret Kenyatta.

A KIWASH exhibition booth during World Toilet Day national celebrations in Migori County. KIWASH supported county departments of health and water to commemorate various advocacy days such as World Water Day and World Handwashing Day.

In other partner counties, the event was marked by different activities, including roadshows with stopovers at public centers to disseminate COVID-19 and WASH messages. The community health workers (CHVs) also held demonstrations and distributed pamphlets highlighting safe WASH and hygiene practices. KIWASH supported the event with banners, posters, and stickers with COVID-19 messaging. The participating teams further conducted a transect walk to ascertain the presence of handwashing stations in schools and health facilities.

Identifying high-risk populations

The respective county departments of health and social services participated in the selection of high--risk populations in the target counties. The selection of these populations was based on their vulnerability towards COVID-19 and WASH related challenges. The majority of the counties selected had populations living with disabilities, elderly and those who are immuno-compromised. This exercise paved the way for a well-coordinated distribution of the hygiene kits across the counties.

Design and implement WASH COVID-19 infection prevention and control measures for high risk populations and facilities

KIWASH conducted infection prevention and control (IPC) trainings for health care workers in 30 facilities in each of the target counties. The main output of these trainings was the development of operation and maintenance (O&M) plans for the respective WASH facilities and infrastructure. The O&M plans provided a detailed description of the current WASH infrastructure and facilities in place, the gaps, plans, financial implications and the people responsible for maintenance of the systems. Key areas of focus included access to water, sanitation, and hygiene, including personal protective equipment and waste management. The facility staff were required to provide summary descriptions of the facilities in place, accessibility of the infrastructure, reliability and functionality of the systems. After the trainings, they jointly filled the operation plans providing information on the frequency of implementing the WASH and IPC related activities. The plans also indicated the resources required, timelines, persons responsible, implementing partners who support the initiative and implementation status. The individual O&M plans were shared with KIWASH and the county health department for follow ups.

ACTIVITY 4: SUPPORT TO WATER SERVICE PROVIDERS TO MAINTAIN SERVICE PROVISION

In KIWASH partner counties, WSPs were already under stress caused by limited cash flow, supply chain challenges, and gaps in an operational capacity. The COVID-19 pandemic further reduced their average national collection efficiency by 30 percent, coupled with a flood that affected water systems in Busia, Kakamega, Kisumu, and Migori counties. To address these challenges, KIWASH partnered with respective county governments and utility management to agree and develop sound interventions to ensure that utilities could maintain service provision with clear planning for longer-term needs and shorter-term emergency priorities.

Conducting stress-testing for selected WSPs

Assessing the financial impact of the COVID-19 pandemic on WSPs

The purpose of the stress testing activity was to understand the financial implications of COVID-19 on WSP operations and to identify and prioritize response options. KIWASH collected and analyzed historical revenue, expenditure trends and known financial impacts or cost increases of both personnel and other costs. This was done alongside assessing the pandemic's potential impact on discrete revenue sources. A rapid assessment of the utility operations was carried out alongside the stress testing, and both the financial and the utility operations information were used to determine areas where actions were required and where cost reduction alternatives were viable.

KIWASH assessed the impacts of the COVID-19 pandemic on WSPs or utilities using a stress-testing model developed by USAID's Water, Sanitation and Hygiene Finance (WASHFIN) project. The assessment investigated the WSPs' cash flow liquidity to cover operation and maintenance costs and other utility operations. It also explored actions taken by the WSPs to mitigate the harsh impact of the pandemic and move towards recovery.

To enhance understanding of WSP perceptions and response to the pandemic, KIWASH held virtual and physical interviews and consultations with the corporate management teams, heads of sections, and staff of the target WSPs. KIWASH reviewed relevant data from the WSP management accounts for a desk review and input into the stress-testing model. This was followed by data analysis and presentation of the results. KIWASH completed stress tests for seven WSPs namely: BUWASSCO, KACUWASCO, KIMWASCO, KITWASCO, MIWASCO, SIBOWASCO, and WOWASCO.

The stress test revealed increased financial stress for the WSPs. This resulted from reduced cash flow and redirection of costs towards the COVID-19 infection and prevention control. A number of unbudgeted purchases such as handwashing facilities, soap and face masks were made in compliance with COVID-19 regulations to facilitate smooth operation and safety of staff. A national directive for water companies to provide free water to vulnerable communities alongside non-disconnection of unpaid water bills in the first three months of the COVID-19 outbreak in the counties also contributed to financial stress for WSPs. The assessment also revealed that the utilities were not adequately prepared for disruptions.

It was notable that some of the WSPs benefited in key performance areas from relief measures instituted to cushion the country from COVID-19, enabling them to take on actions that would further protect them from adverse impacts of the pandemic. Notably, KIMWASCO encountered frequent power disconnections by the Kenya Power and Lighting Co. (KPLC) in the period prior to the pandemic for nonpayment of monthly electricity dues. The presidential directive halting power disconnection for clients unable to pay during the initial period of the pandemic, enabled the utility to consistently supply water even with outstanding power bills. Some of the immediate actions it took up included: system upgrades, mobilizing resources from the county government and other stakeholders, establishing debt collection

teams, disconnecting the non-paying customers, and escalating the billing estimates for the customers who were denying the meter readers access to their premises.

Supporting the WSPs to develop and implement business continuity plans

To respond to the financial stress experienced by the WSPs, KIWASH facilitated sessions for development of BCPs with seven partner WSPs. The BCPs identified and prioritized measures to be taken to ensure continuity of essential functions over the short and medium-term periods. These sessions were held for each utility, to ensure their unique challenges were identified. Those trained and supported to formulate BCPs were: GWASCO, MIWASCO, KITWASCO, KACUWASCO, KIMWASCO, WOWASCO and KIWASCO.

Through the sessions, the WSPs conducted a thorough analysis of the impact of COVID-19 on essential functions. The workshops were conducted in a participatory approach in which each utility was accorded opportunity to analyze the risks and impacts of the pandemic and formulate short-and medium-term plans for continuity and recovery of essential functions. The BCPs covered human resource management, establishing a BCP team, development of workforce contingency plans, staff training, and plans to protect the physical and mental health of the workforce. The BCPs also included communication plans, recovery strategies, and corresponding budgets.

Following the development of the BCPs, dissemination meetings were held to sensitize the corporate management teams (CMT). The objectives of the dissemination meetings were to present the BCP to the management and the driving team, to initiate implementation and help staff understand their roles, create awareness of the need for implementation reviews and mitigation actions.

The BCP dissemination meetings were conducted for: BUWASSCO, KACUWASCO, KIMWASCO, KITWASCO, MIWASCO, SIBOWASCO, and WOWASCO.

KIWASH visited KIWASCO to follow up on implementation of their internally developed BCP document. This BCP was however not shared, with information only collected from a member of the implementation team.

WSP	Priority areas identified
BUWASSCO	• Improvement of internal/external communication • Metering of customers billed on flat rates • Activating IT modules for SMS billing.
KACUWASCO	• Increasing water production • Customer identification survey • Updating the customer database • Increasing the revenue collection efficiency • Payment of creditors • Opening up social media channels
KIMWASCO	• Reducing estimated billing and unread meters by procuring four motorbikes • Reducing response time to leaks and bursts from 10 to 8 hours • Training on the use of the ERP, developing a communication strategy • Strengthening the debt collection team to improve cash flow • Reducing the creditors' payment period from 60 to 30 days.
KITWASCO	• Setting up a customer service office in each of the demarcated service areas • Clearing all salary arrears • Provision of protective gear to pipeline repair and maintenance staff • Training of staff on COVID 19 protocols

WSP	Priority areas identified
	• Creating COVID 19 awareness among potential casuals to reduce their fears • Cash flow and debt collection progress to be reviewed weekly.
MIWASCO	• Management to focus on NRW reduction strategies • Improving the billing efficiency from 60% to 100% by billing the 40% of customers who are not currently billed— • Developing a comprehensive wish list for the ERP implementation team • Implementing an internal and external communication plan and debt management strategy.
SIBOWASCO	• Developing a communication policy • Developing a debt collection strategy • Increasing monthly billing by ensuring all meters are properly installed and functional • Data management to ensure all information is correctly stored for ease of retrieval.
WOWASCO	• Relocating twenty-five (25) consumer water meters • Reducing estimated billing from 49% to 30% by July 2021 • Part payment agreements with customers with dormant connections • Reducing NRW from 39% to 34% • Regularly sending bulk SMSs to customers to remind them to pay their bills.

Supporting WSPs to improve their operational efficiency

KIWASH had facilitated the development of the PIP for partner WSPs in the first phase to address various management issues and achieve operational efficiency. These plans provided specific targets, actions, milestones, and timeframes to achieve critical commercial, financial, technical, and social goals. KIWASH facilitated the development of the PIP for eight targeted utilities based on interviews and workshops with the management team and staff members, board members, county representatives, and key stakeholders. Previous reports shared the primary challenges and actions identified and specific targets set with each WSP.

Performance improvement plan status review and training

WSPs were supported through PIP follow-up and training sessions to review and update the progress made in PIP implementation. The sessions focused on undertaking a comprehensive analysis of the status, based on the six thematic areas identified and the preliminary plans developed. It was noted that across WSPs, the implementation of the PIP was negatively affected by the COVID-19 pandemic. This period had a substantial negative impact on cash flow for the utilities. In some utilities, it led to a huge increase in creditors. It was noted that the PIP for most WSPs, was not cascaded down to staff and internalized.

The PIP status review, facilitated by KIWASH, commenced with an overview of the six thematic areas: technical, billing and revenue collection, non-revenue water, financial management, communication and customer relations, employee management, and satisfaction. Following this, the WSPs, in their groups, reviewed their target level of achievements in the expired PIP. They identified their success factors and challenges during the expired PIP implementation and set new targets for the next twelve months. The updated PIP's detailed the achievements of PIP implementation, success factors, challenges, and new targets. The WSPs taken through the PIP status review and training were: KIMAWASCO, GWASCO, WOWASCO, MIWASCO, KIMWASCO, KITWASCO, BUWASSCO and SIBOWASCO.

Performance improvement Plan follow up training

KIWASH held PIP follow-up workshops to document progress made since the earlier review of the PIP performance against targets in February 2021. These follow up workshops were held for BUWASSCO, SIBOWASCO, KACUWASCO, MIWASCO, GWASCO, KIMWASCO, KITWASCO, WOWASCO and KIMAWASCO between April and May.

Analysis of WSPs improvement between February and March 2021

WSP	Parameter	Feb-21	Mar-21
BUWASSCO	Billing per month	4.6M	4.6M
	Revenue collected	3.5M	5M
	Revenue collection efficiency	76%	108%
	Account receivables	57M	85m
	Dormant connections	3,087	2,960
	Connections billed on flat rate	1,216	1,326
	Connections billed on estimates	453	500
GWASCO	Billing per month	12.5M	14.5M
	Revenue collected	11M	11.3M
	Revenue collection efficiency	88%	78%
	Dormant connections	7500	6201
KIMWASCO	Billing per month	7.0M	7.6M
	Revenue collected	6.2M	9.4M
	Revenue collection efficiency	95%	134%
	Account receivables	34M	32M
	Dormant connections	1,670	1,586
	Connections billed on estimates	180	533
KITWASCO	Billing per month	12.0M	11.5M
	Revenue collected	13.2M	12.9M
	Revenue collection efficiency	110%	107%
	Account receivables	162M	188M
	Dormant connections	5,979	5,824
	Connections billed on estimates	1,715	1432
MIWASCO	Billing per month	2.5M	2.62M
	Revenue collected	1.4M	1.45M
	Revenue collection efficiency	56%	76%
	Account receivables	32M	33.4M
	Dormant connections	1,886	2,261
	Connections billed on flat rate	245	244
	Connections billed on estimates	510	1,221

WSP	Parameter	Feb-21	Mar-21
SIBOWASCO	Billing per month	10.6M	10.3M
	Revenue collected	9.7M	10M
	Revenue collection efficiency	91.5%	97%
	Account receivables	150M	148.7
	Dormant connections	677	644
	Connections billed on flat rate	299	199
	Connections billed on estimates	69	36
WOWASCO	Billing per month	3.8 M	3.6M
	Revenue collected	4.4M	4.1M
	Revenue collection efficiency	116%	114%
	Billing efficiency	99%	99%
	Account receivables	12M	11M
	Dormant connections	888	894

Analysis of KIMAWASCO's improvement between December and April 2021

KIMAWASCO	Dec-20	Apr-21
Billing per month	5.3M	8.5M
Revenue collected	6.2M	8.0M
Revenue collection efficiency	106%	85%
Account receivables	34M	32.7M

Training on customer relations management, NRW and O&M

KIWASH facilitated three joint training workshops focused on improving economic viability through reduction of NRW and cost of operations and customer relationship management.

	Utility	Location	Timing	No. of participants		
				Male	Female	Total
Workshop 1	MIWASCO, SIBOWASCO and BUWASSCO	Pinecone Hotel, Kisumu	24th-25th Feb, 2021	16	5	21
Workshop 2	KIMWASCO, KITWASCO, KIMAWASCO and WOWASCO	Maanzoni lodge, Machakos	3rd- 4th March, 2021	13	4	17
Workshop 3	KIWASCO, KACUWASCO and GWASCO	Vittoria Suites, Kisumu	March 17th - 18th	12	5	17

The participants deliberated on experiences and challenges faced with NRW. These included road construction obstructions, pipes with leaks and bursts, illegal connections, unread and jammed meters and piping challenges. Others were meter and pipe quality, dilapidated water infrastructure, corrupt practices

in meter reading and lengthy turnaround time in management of bursts and leaks. It was noted that WSPs had challenges in providing and adhering to the correct procurement specifications. Participants were sensitized on how various pipe material, quality, and workmanship result in NRW. There was emphasis on the importance of meters as a critical component of WSPs economic viability and how integrity and good governance in procurement influence the quality of meters purchased by a WSP.

The teams developed action plans towards improving their commercial and physical losses status on metering and pipes. The WSPs proactively developed creative and innovative solutions to tackle the problems. These were for integration into already existing strategic plans in their companies. The trained participants were expected to cascade the training to other staff to ensure the impacts of the training sessions were sustained, thus ensuring overall sustainability.

Some of the next steps agreed upon were:

- The WSPs to re-evaluate their priority areas and continue implementing the action plans agreed during the workshops.
- During the workshop, digitization of data through GIS was identified as a critical step for immediate implementation and KIWASH indicated willingness to assist the WSPs with technical advice whenever required.
- KIWASH to finalize the first draft of the report on gender mainstreaming, customer care management, NRW & O&M and share with the WSPs management as soon as possible for their review and input.

Training on operation and maintenance cost coverage and NRW

KIWASH facilitated training workshops for KITWASCO and GWASCO on operation and maintenance, cost coverage and NRW training workshops in May. The purpose was to enhance WSPs' capacity for improving economic viability through improved understanding of O&M cost coverage, reduction of NRW and cost of operations. In addition, the utilities were furnished with the Occupational Safety and Health (OSH) Guidelines for water utilities in Kenya and tools for enhancing OSH capacity in the COVID-19 pandemic, especially under International Labour Organization (ILO) guidelines.

The training employed a mixed method training approach, incorporating a learner-centred training approach alongside theoretical presentations. The participants were trained on the importance of O&M cost coverage as critical to the performance of a utility, as it is the first step towards full cost coverage to ensure long-term financial sustainability. The participants were also tasked with developing technical specifications towards improving their commercial and physical losses, especially on metering and pipes, valves, and pumps.

The two forums had a total 30 participants. The KITWASCO forum had 15 participants (4 female, 11male) that included regional managers, area supervisors, laboratory technician, sewerage officer and other officers drawn from the technical department. The workshop held by GWASCO had 15 participants (11male, 4 female).

Corporate Governance

The implementation of PIPs was affected by the COVID 19 pandemic in varying degrees in majority of the KIWASH partner WSPs. To support water utilities to implement their PIPs in order to realize operational efficiency beyond the COVID-19 pandemic, KIWASH conducted refresher courses to 10 WSPs on corporate governance to sustain and improve oversight and efficient management and operations. The training provided was designed for boards and senior management to govern their enterprises with integrity and embed objectives agreed to under the service provision agreement license. The corporate

governance training included assisting the board of directors and the CMT to improve individual and corporate performance, enhance transparency, foster accountability and ensure public participation.

Some of the actions that were implemented include:

- Constituting board committees (only two utilities Kisumu and Nairobi had these committees before the training)
- Develop and implement Terms of Reference (TOR) for board committees
- Formulating board manuals, charters and work plans
- Formulating risk management frameworks
- Finalizing and implementing performance contracts
- Conducting training needs assessments and trainings
- Conducting board evaluations
- Monthly submission of reports to WASREB, Water Resources Management Authority (WARMA) and County Executive Committee (CEC)
- Adherence to budget and procurement plans
- Carrying out employee satisfaction surveys
- Pro-actively working to meet the 30% gender rule in the board composition.
- Reviewing and adopting WSP operational policies and manuals
- Complying with legal norms and collaborating with WASREB and other institutions
- Renewing Service Provision Agreement licenses with WASREB
- Developing a succession plan

Governance Status of WSPs

	Operating License	Complete CMT	MD in place	Complete BoD	Tariff	Last AGM
WOWASCO	No	MD and TM in acting capacity	Acting	Yes	Valid	2016
KIMAWASCO	No	Yes	Yes	Yes	Valid. Expiring in Dec 2021	2015
KITWASCO	No	Yes	Yes	Yes	Expired	Feb 2021
KIMWASCO	No	Yes	Yes	Current board term has expired	Expired	Dec 2020
BUWASSCO	No	Majority Acting	Yes	Yes	Expired	None since registration
KACWASCO	No	Procurement Manager acting	Yes	2 board members yet to be recruited	Expired.	2019
GWASCO	No	No	Acting MD	No	Expiring June 2021	Dec 2020

SIBOWASCO	Yes	Technical Manager Acting	Yes	Yes	Valid	Nov 2020
MIWASCO	No	HR Manager and internal auditor, Acting	Yes	Yes	Valid	Nov 2020
KIWASCO	Yes	Yes	Yes	2 members waiting ratification in an AGM	Expired	Dec 2020

Corporate governance workshops delivered

KIWASH supported seven WSPs on corporate governance training to sustain and improve the oversight and efficient management and operations of the water service delivery.

Topics covered during corporate governance workshops

- Good corporate governance, purpose and benefits
- Understanding of roles/functions/liabilities of board members
- Composition and structure of relevant board committees.
- Regulatory framework in the water sector and county water bill
- Management of board practices and meetings
- Board conduct and strategic leadership
- Management of board dynamics
- Financial oversight and evaluation of board members
- Operationalization of board committees
- Board commitments and action planning
- Orientation with the Water Act 2016

KIWASH's trains a corporate management team from MIWASCO on good corporate governance. This aimed at instilling the principles of efficient management and operations of the water service providers.

Summary of corporate governance gaps in water utilities and proposed solutions

Utility	Participation	Challenges identified	Solutions proposed
KIWASCO, March 2021	18 participants (5 female and 13 male)	Unfair/preferential treatment to staff, BoD usurping roles of management, conflict of interest, gender imbalances at board level, recruitment, weak practices around convening, preparation and board meetings, political interference.	Corporate envisioning and teamwork, reconciling conflicts among board, advocacy for greater funding from county, establish a register for recording conflict of interest cases at board, clear board meeting agenda and road maps for implementation, improved practices around board meetings, enhance corporate communication and improve staff motivation.
KIMWASCO and KITWASCO, May 2021	KIMWASCO 11 (4 female, 7 male)	Conflicting roles and conflicts between WSPs and county departments on water projects, road construction, interference in service delivery, weak board	Improved consultation between water utility and county departments. **KIMWASCO** Improved board practices; constituting committees per WASREB guidelines,

Utility	Participation	Challenges identified	Solutions proposed
	KITWASCO 17 (3 female, 14 male)	practices and non-operationalization of board committees, low board awareness of policies, laws and guiding documents for utilities, outdated policies.	review of policy documents, finalizing performance contracts, board training on finance, ICT and risk management, review of strategic plan, development of board charter and developing tools for board evaluation. **KITWASCO** Board induction on strategic plan and relevant sector laws and guidelines, development of TORs for board committees and charter, relevant manuals and policies, training on financial management and reporting, benchmarking visits, performance appraisals for the board and CMT, culture change programs, review of the strategic plan.
WOWASCO and KIMAWASCO May 2021	KIMAWASCO 11 participants (4 female, 7 male) WOWASCO 7 participants (1 female, 6 male)	WOWASCO has an interim board that has been in office for over three years, both had not held AGMs for over 5 years owing to lack of internal audits, no review of strategic plans and no board performance evaluations	**KIMAWASCO** Development of a succession plan, self-evaluation of the board, hold AGM, resource mobilization, risk management, develop policies and harmonize utility's guiding documents to WASREB's models and guidelines, outsource services of a company secretary and restructuring of board committees. **WOWASCO** Application for the SPA license renewal, finalize/ratify the board charter, recruit HR officer and internal auditor, hold an AGM.
BUWASSCO and SIBOWASCO May 24th – 26th, 2021	BUWASSCO 12 participants (3F, 9M) SIBOWASCO 13 participants (3F, 10M) from	SIBOWASCO Board had exceeded the number of meetings allowed by WASREB, both boards weren't monitoring implementation of strategic plans. Other challenges were unnecessary employment, board usurping management roles and micromanagement, absenteeism, delayed salaries, failure to deal with board agenda, political interference.	**BUWASSCO** Collecting outstanding debt, reduce NRW, approval of procurement plan, employee motivation, and payment of all statutory contributions. **SIBOWASCO** Adherence to best board practices, effective meeting management, full participation and contribution during meetings, implementing board and committee charters, board evaluations and managing staff non-performance. Maintain management oversight, staff training, carry out mass disconnections and increase monthly revenue billing/collection.

Supporting WSPs to follow COVID-19 safety protocols

KIWASH implemented COVID-19 safety protocols as a cross-cutting activity, in trainings and meetings. The majority of water utilities had institutional Occupational Safety and Health policies in line with Occupational Safety and Health (OSH) Act 2010. The OSH was enacted by parliament in 2007 and revised in 2010 to provide for the safety, health and welfare of workers and all people lawfully present at workplaces. With this as a basis, emphasis was laid on the COVID-19 pandemic, (itself a new Occupational Safety and Health risk), focusing on the roles and responsibilities of employers and the rights and responsibilities of employees in OSH in tackling COVID-19. The recommended COVID-19 mitigation protocols were promoted and general OSH measures to prevent and reduce stress during the course of the pandemic.

In addition, KIWASH developed a holistic COVID-19 manual with additional measures to the institutional Occupational Safety and Health (OSH) Act 2010, in order to mitigate and prevent the spread of the infections and the adverse impacts on the businesses. The module was to be used in tandem with the Occupational Safety and Health Administration (OSHA) or any other industry-specific occupational health resources.

The manual empowers WSPs with basic knowledge about the disease, and how to get the workplace ready for mitigating COVID-19. It is fashioned for use by the management and staff of water utilities, to help them identify the risks of being exposed to and of contracting COVID-19 in the working environment, and to determine any appropriate control measures to implement.

This includes key steps, such as setting up an emergency team and conducting a risk analysis to determine the workforce exposure levels. It also covers critical steps on how to mitigate the spread in the workplace. The manual provides guidelines on how to enhance the coping mechanisms for the staff and ultimately ensuring business continuity in incidences of COVID-19 at work. The module recognizes the need for effective communication in the fight against the virus and as a vital component in the utility's management during the pandemic. The module also provides guidelines on how the WSPs can generate effective communication plans for both internal and external communication.

Strengthening gender equality and social inclusions in WASH services

"I once showed up at client's house carrying my spanners and other tools ready to fix a faulty water connection. He loudly dismissed me by clarifying that he had called for a plumber not a woman" - The first female manager at Migori Water Scheme under Migori Water and Sewerage Company.

In the first phase of KIWASH, the program promoted gender-sensitive approaches to water supply services to enhance equitable access to services and participation of women in leadership, decision-making, and technical work. This contributed to the decline of institutional and technical barriers, and more effective participation of women in technical and decision-making through strengthening institutional frameworks to challenge harmful gender and practices. To sustain these practices, KIWASH assisted WSPs to formulate institutional gender policies to support institutional change and guide gender equality mainstreaming. During the extension phase, KIWASH supported 11 water utilities on gender equality mainstreaming training and one in validation of its gender policy.

Gender equality mainstreaming workshops

During 2021, four workshops on gender equality mainstreaming covering 11 utilities were held. The workshops identified gaps in the gender mainstreaming process and developed action plans to close the gaps. Some of the challenges that were commonly reported among the organizations included lack of a framework for gender integration in the organizations recruitment policies to address gender equality, cultural perspectives on gender roles, poor representation of women in the technical department and insufficient knowledge and training to promote and adopt gender responsive approaches. Notably, many of the organizations have yet to establish gender committees to champion the process of mainstreaming, while some of those established were reported to be inactive.

Participants in the workshops were equipped with knowledge and skills on how to challenge harmful gender norms and practices in the water and sanitation sector. KIWASH supported the WSPs to formulate actionable plans to tackle the gender gaps in their respective utilities and as guides towards achieving gender equality mainstreaming.

Gender Policy Finalization

The NCWSC was supported to review and finalize a gender equality mainstreaming policy and establish an annual work plan towards gender mainstreaming. The action plan developed with the support of KIWASH was to be incorporated as a gender policy addendum. The NCWSC gender policy was reviewed and edited into a final draft for submission for approval by the utility's Board of Management. A team of 11 (4 female and 7 male) staff were involved in reviewing the policy and developing the action plan in May 2021.

Quarterly gender equity mainstreaming follow-ups

Following the completion of the gender equality mainstreaming training workshops, and development of action plans by the water utilities, follow-up meetings to review and support implementation of the action plan were carried out with the utilities.

Some progressive actions were reported to have taken place within the WSPs. KIMAWASCO had begun to include men in traditionally 'female' jobs (i.e. billing) and placed women in technical roles. In BUWASSCO, the organization was compliant on the two third gender rule at the board and staff levels while MIWASCO had fully implemented the HR manual in regard to recruitment matters, and also incorporated a clearly defined guideline on staff promotions. In KIMWASCO, two women were trained to ride motorbikes to participate in line patrolling and the organization also increased the number of women at management level.

KIWASH discussed and highlighted the importance of gender equality considerations and its role in achieving institutional performance and economic viability. In BUWASCO, the organization has begun to implement a sexual harassment policy. The Company's HR policy and code of conduct was amended with additions addressing gender mainstreaming and gender balance. In KACUWASCO, the procurement process for sanitary bins begun per the organization's action plan.

ACTIVITY 5: SUPPORT WATER SERVICE PROVISION IN RURAL AREAS AND UNDERSERVED INFORMAL SETTLEMENTS

Within the KIWASH counties, the majority of the population live in rural areas and informal settlements, where nonfunctioning systems are still prevalent and WASH service delivery is generally low. While COVID-19 infections were initially concentrated in urban areas such as Nairobi and Mombasa, progressively more cases began to be reported in rural areas, primarily due to intra-county movement.

The pandemic adversely affected many areas of the Kenyan economy, including the provision of basic services such as water, sanitation and hygiene. The situation was even more dire in informal settlements where population density is high and provision of WASH services is typically poor.

This activity sought to strengthen the capacity of county governments in provision of water services in rural areas and under-served informal settlements. These areas are particularly vulnerable in the context of the COVID-19 pandemic as they have limited availability of clean, reliable water for handwashing and other uses. In the implementation period, KIWASH achieved the following.

Updating county water facility/ service maps and identifying non-functional systems

KIWASH strengthened the collection, monitoring and use of WASH data at project and county government levels by updating water facility/service maps to identify non-functional systems, and facilitating immediate repairs and establishing maintenance and repair processes. KIWASH initiated the process to support WASH data collection, with the development of a rapid assessment toolkit with *mWater*, a secure, cloud-based survey management platform for use in real-time mapping of rural water projects in all KIWASH counties. The toolkit had clear metrics to help determine the functional status of WASH facilities in rural areas and informal settlements. KIWASH collaborated with the WASREB on development of the toolkit to align it to the regulator's outlook, for possible upscaling to other counties.

Subsequently, KIWASH developed criteria for selecting rural water projects to be mapped and supported the county governments to prepare an inventory of water projects to be surveyed. The project collaborated with county government teams on recruitment and training of enumerators in the use of the *mWater* platform at sub-county level.

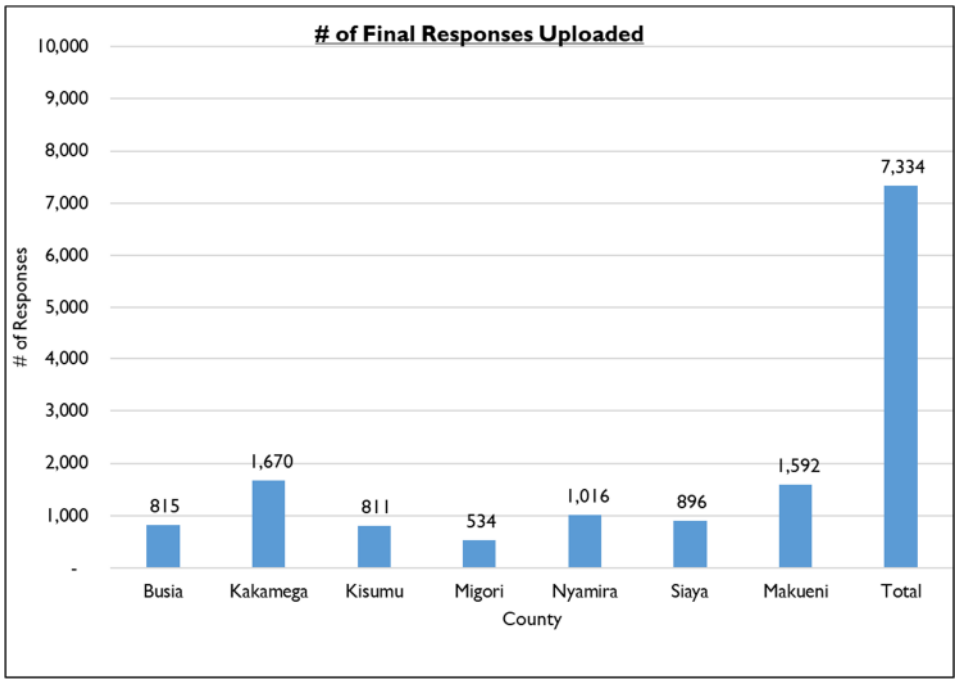
The counties assigned county and sub-county staff to be involved in the mapping of rural water projects and dedicated one officer to manage the database and regularly update the data. The project provided technical coaching and mentoring support to the designated county and sub-county teams.

Seven KIWASH counties (Busia, Kakamega, Kisumu, Makueni, Migori, Nyamira and Siaya) undertook data collection and refinement and checked for accuracy and relevance of the data. This involved collaboration with the designated county and sub-county staff in each county prior to uploading the final version comprising 7,334 datasets to the *mWater* portal. During this time, KIWASH provided related technical assistance to the counties as well as to Nairobi and Kitui counties where data was collected by Nairobi City and Sewerage Company (NCWSC) and Rural Focus Limited, prior to KIWASH initiating the extension phase. Rural Focus Ltd independently supported the Kitui County Government to map 3,231 water projects/ systems in an open data kit (ODK) and subsequently uploaded the data to the *mWater* online platform. As at close of the KIWASH implementation, sub-county water officers had begun to update new facilities on the platform and were conducting functionality and asset inventory surveys for the mapped systems. These activities culminated in dissemination meetings for transfer of the *mWater* survey tool to the county governments in the seven counties, to enable them to continue mapping and tracking water projects. KIWASH handed over county-specific reports and data to the counties to

A KIWASH staff orienting the Kisumu County Executive Committee Member, Water (sited) on the mwater software installed in a computer handed over to the county water department.

support decision making, alongside the necessary permissions to access and update the water project functionality/ service map information on the *mWater* platform. The project provided additional coaching and mentoring support in navigation and use of the portal. KIWASH also donated dedicated high capacity computer equipment to the departments of water in the nine county governments to strengthen their capacity to map and continuously update data on rural water projects, including their functionality. The computers will serve as repositories of WASH-related data, which will contribute to institutionalizing mapping processes at county level.

Figure 12: Data on water projects/services uploaded to mWater



Details of computers and accessories handed over to counties

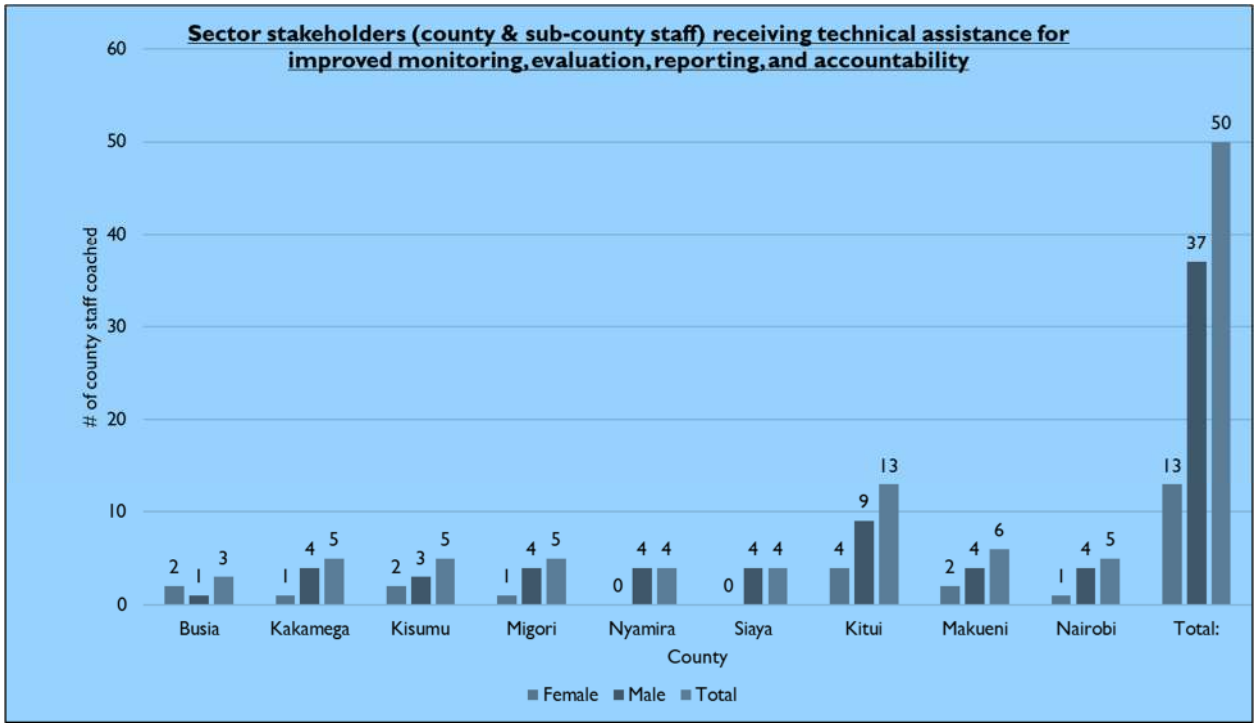
Item	Specifications
Desktop Computer (HP or Dell):	• Core i7 Processor • 8GB RAM • 1TB Hard Disk • Complete with Monitor and licensed Windows 10 Professional OS
Printer	• HP LaserJet Pro Economy Printer
UPS	• APC 750VA UPS Power Backup
Operating System	• Microsoft Office Professional 2019
Antivirus	• Sophos Intercept X Antivirus

Training, coaching and mentoring of county and sub-county staff in the use of the *mWater* application

KIWASH supported enhancement of the capacity of county teams to use the *mWater* application through continuous training, coaching and mentoring of the teams. A total of 50 staff (13 women and 37 men) in the nine KIWASH counties were trained on how to navigate and use the *mWater* application. The team begun to adopt the platform and its application for county water services sector monitoring, reporting, and planning.

In Kitui County, KIWASH and Rural Focus Ltd supported the county government to establish a Water Services Data Management System and together trained a team of four county staff in the use of *mWater*. The team will lead progressive adoption of the *mWater* platform and its application for county water services sector monitoring, reporting, and planning.

Figure 13: Sector stakeholders receiving technical assistance for improved monitoring



Organizing rural water projects data by typology of needed repairs

KIWASH supported the seven counties of Busia, Kakamega, Kisumu, Makueni, Migori, Nyamira and Siaya to organize mapping data by typology of needed repairs and the estimated costs of the repairs for the dysfunctional and non-functional projects identified during the mapping exercise. There were three typologies/ classifications: minor, medial and major. The typologies will enable the respective county governments to select priority projects for repairs, based on cost, need and/ or potential for impact or any other applicable criteria.

The typologies for each of the seven counties are shown below:

Name of County	Minor (KES)	Medial (KES)	Major (KES)
Busia	< 1,000,000	1,000,000 - 5,000,000	> 5,000,000
Kakamega	< 100,000	100,000 - 1,000,000	> 1,000,000
Kisumu	< 300,000	300,000 - 1,000,000	> 1,000,000
Migori	< 100,000	100,000 - 1,000,000	> 1,000,000
Nyamira	< 500,000	500,000 - 1,000,0000	1,000,000 - 8,000,000

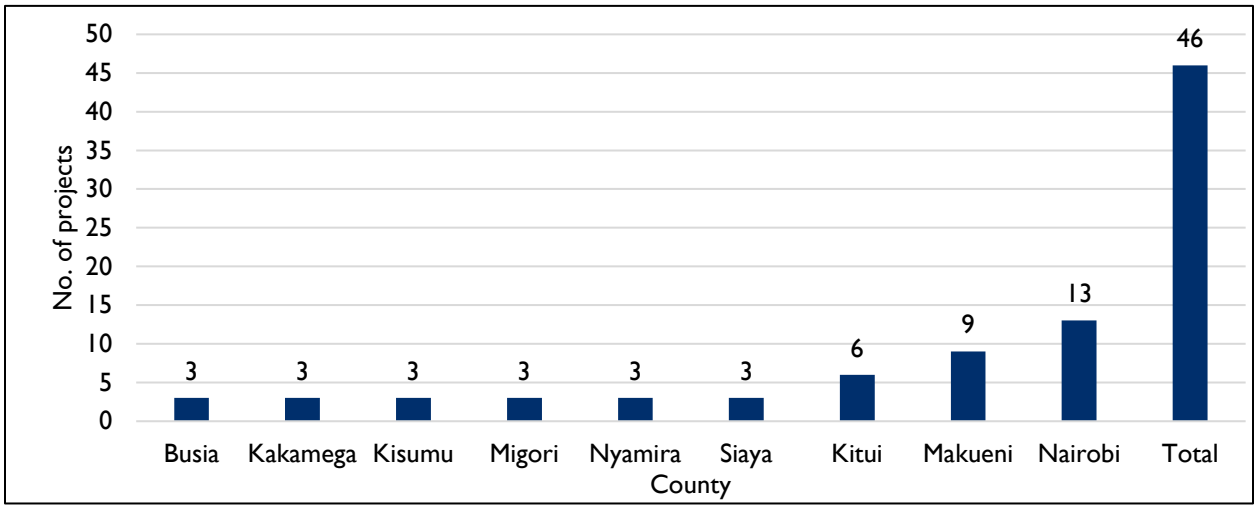
Name of County	Minor (KES)	Medial (KES)	Major (KES)
Siaya	< 500,000	500,000 - 1,000,0000	1,000,000 - 12,000,000
Makueni	< 100,000	100,000 - 1,000,0000	> 1,000,000

Facilitating immediate repairs of dysfunctional water systems and establishing maintenance and repair processes

The purpose of this task was to support the county government WASH teams to implement small scale infrastructure works to re-establish the operations of dysfunctional water systems, and to establish maintenance and repair processes.

KIWASH collaborated with county departments in identification of viable projects for potential support. The collaboration involved joint field assessments to gauge the infrastructure needs of non-functional water projects and subsequently, the development of tentative budgets towards undertaking immediate repairs and optimization of operations in these systems. A total of 46 projects were selected.

Figure 14: Number of selected projects per county



KIWASH personnel supported the execution of various infrastructure processes that included: design, procurement of contractors, site handovers, and acquisition of WASH supplies, such as tanks and pipes for immediate repairs for implementation of selected projects.

Designing and implementing quick-impact interventions

A lady fetches water from a communal point operated by a rural based Kanoto Water Project in Makueni County. KIWASH supported the project through installation of solar panels to reduce the pumping costs and constructed water distribution to increase water access.

In priority areas where existing infrastructure for provision of water could not be repaired or was non-existent KIWASH, in collaboration with respective county governments, identified quick-impact, small-scale infrastructure projects. These projects, were initiated in COVID-19 high-risk areas (hotspots) in both rural areas and informal settlements. The projects were implemented following field assessments to carry out and harmonize the scopes and budgets of the proposed projects followed by design and joint implementation. A total of 33 projects in rural and informal settlements were completed. KIWASH encouraged county governments to leverage resources from KIWASH and other WASH actors including the private sector through public-private partnerships. One such opportunity was presented by the County Government of Makueni which was exploring opportunities for public-private-community partnerships (PPcPs).

Analyzing root causes of non-functional systems and developing lessons learned

The activity was aimed at identifying and documenting best practices and lessons learned from the initial and extension phases of the KIWASH project. This included the causes of failure for nonfunctional water systems, for learning, as well as integration into KIWASH implementation approaches.

The rural water component developed nine case studies illustrating achievements and lessons, and best practices of specific rural water projects/ WASH enterprises under KIWASH support during the extension phase, some of which were also supported in the main phase of the project.

Coaching and mentoring of WASH enterprises

To sustain the gains made in operations and service delivery, KIWASH provided coaching and mentoring support to WASH enterprises incubated during the project's initial phase on a needs basis. A total of 48 WASH enterprises received coaching and mentoring support in such areas as record keeping, customer relations, progress monitoring, financial management, resource mobilization, professional management, and conflict resolution, among others. A total of 122 staff/committee members were trained (70 women and 52 men) from 38 projects/ WASH enterprises.

No. of water management committee staff that received coaching & mentoring support

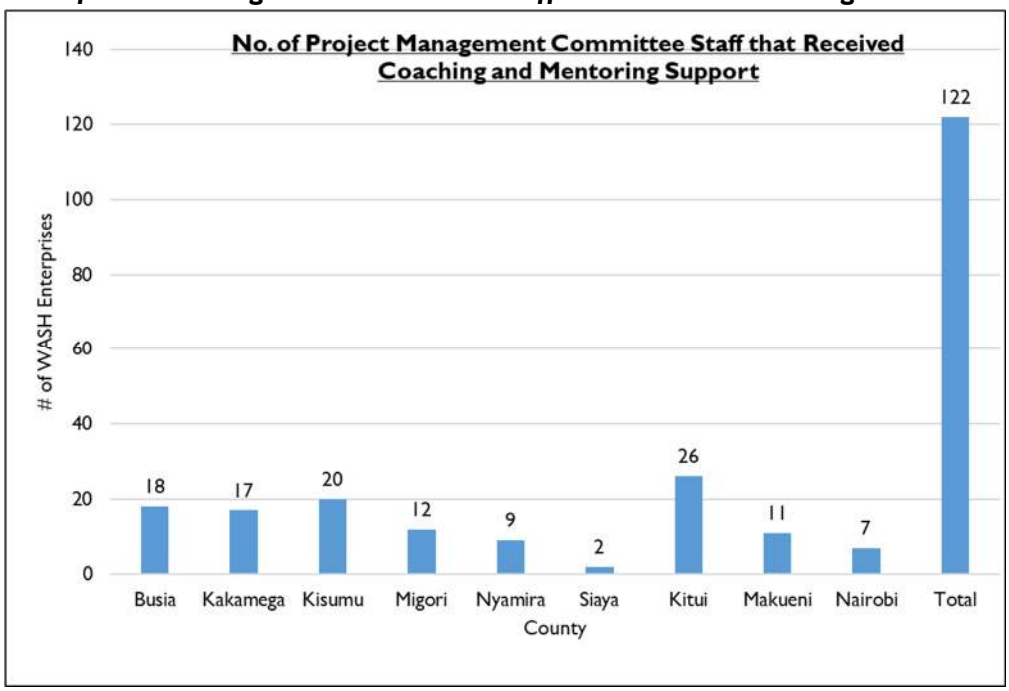


Figure 15: Number of project management committees that received coaching and mentoring support

Access to financing

KIWASH continued to build linkages with financial institutions to leverage alternative financing for WASH enterprises as a way of fostering sustainable operations. Access to finance however remained a key constraint for smaller, less formal water service providers in rural areas and informal settlements. KIWASH continued to support projects requiring access to WASH financing, including commercial loans.

In Makueni County, Makutano Sinai Enterprise received a USD 9,500 grant from Aqua for All through Sidian Bank as part of a blended financing package. This funding was to support enterprise plans to build a 50 cubic meter storage and distribution tank. However, there were lengthy delays in Makutano Sinai's access to a loan of USD 34,000 from the Sidian Bank, and KIWASH supported the water enterprise to link with WaterStarters Fund to apply for a commercial loan with them. In Kisumu, KIWASH supported Pithur Water Project to prepare its fund request to SANA, from where it obtained support to lay 600m of pipeline. In Busia, KIWASH supported Ogalo Water User Association to engage with Kenya Commercial Bank for a commercial loan of USD 1,500 for system expansion.

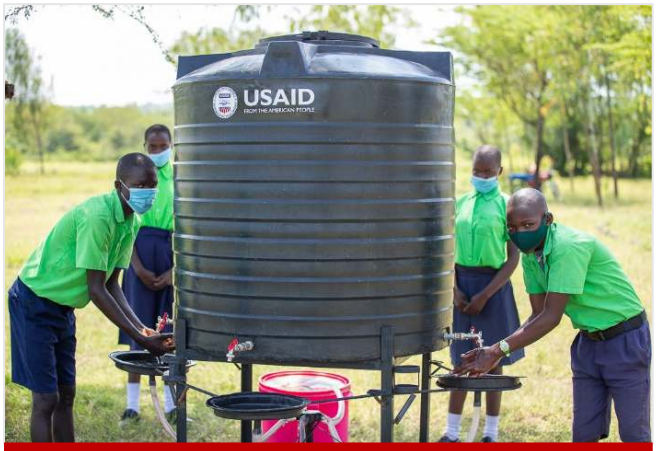
ACTIVITY 6: SECURITY OF WASH INFRASTRUCTURE

To strengthen the fight against COVID-19 and other infections, KIWASH promoted the adoption of proper handwashing practices through delivery of handwashing stations to high risk institutions. In addition, the project supported vulnerable populations with safe water treatment chemicals to guarantee access to quality drinking water.

KIWASH implemented quick impact small scale water supply projects to provide clean, safe and reliable water supply to communities in rural areas and urban informal settlements, facilitated water connections to institutional settings (schools and health care facilities) to ensure basic water supply for drinking and for improved sanitation, rehabilitated existing and construction of new sanitation facilities at selected needy institutional settings that provide privacy and hygienically separates human excreta from human

contacts and provided household water treatment and safe storage products and training to needy households. KIWASH achieved the following key results.

Provision of critical handwashing stations



Pupils using a handwashing station supplied by KIWASH. Each school received a multi-user handwashing station while health facilities/border points received single-user foot-operated stations.

KIWASH distributed 742 handwashing stations to schools and health facilities to promote hand hygiene practices. The project designed the facilities to meet the increased demand in the institutions and serve the populations which are at high risk. Schools with no or limited number of handwashing facilities based on the WASH FIT assessment were supplied with 1000 liter containers fitted with multiple taps and a stand, while health facilities that did not meet the set targets as per the assessment received 100-liter single user foot/ hand operated handwashing facilities. KIWASH worked closely with the school health clubs to ensure that the facilities were fully functional, well maintained, and accessible. In healthcare facilities, the handwashing facilities were placed at strategic points to encourage handwashing practices and serve as nudges for reinforcing the importance of hand hygiene if practiced by patients/health workers at critical care points. Trained healthcare workers and IPC officials were assigned the responsibility of maintaining the handwashing stations.

Improving water treatment at the household level

KIWASH provided 90,000 households with water treatment products to ensure that the water is safe for human consumption. The households were issued with combined chlorination and coagulation products (PUR), water guard and 20-liter safe storage containers. This was done through the link to health facilities where vulnerable populations affected by floods, the mothers with children under five and those with underlying conditions were targeted. Health talks and demonstrations on point of use water treatment was conducted to equip the community members with skills on how to treat water using the chemicals. The CHVs were tasked with the responsibility of monitoring the usage at household level to ensure the community members are accessing safe drinking water.

A lady from Kakamega County washes hand from a hygiene kit provided by KIWASH. Households were issued with combined chlorination and coagulation products (PUR), water guard and 20-liter safe storage containers to ensure water treatment.

The table below gives a summary of the distribution.

		Products		
	County	Combined chlorination and coagulation products in powder form – Purifier of water (PUR)	150ml bottle of water disinfection products (water guard)	20- itre branded safe storage containers
1	Kitui	12,000	12,000	3,500
2	Makueni	12,000	12,000	3,500
3	Nairobi	-	3,000	500
4	Kisumu	9,000	12,000	3,500
5	Kakamega	12,000	12,000	3,500
6	Busia	12,000	12,000	3,500
7	Migori	12,000	12,000	3,500
8	Nyamira	10,000	12,000	3,500
9	Siaya	11,000	12,000	3,500
Total		**90,000**	**99,000**	**28,500**

Increased access to basic water services

During Year 6, KIWASH completed the implementation of 19 quick impact WASH infrastructure projects at a budget of USD 865,430. The projects activities involved construction of new and rehabilitation of existing water supply schemes, water connections, water harvesting and installation of water storage tanks and construction of new and rehabilitation of existing sanitation facilities (improved latrines) at institutional settings.

KIWASH enabled reliable water access to schools that lacked piped water connections

The completion of these projects provided additional clean and reliable water services to the targeted communities, thereby improving the sanitation and hygiene of the beneficiaries. The table below summarizes the projects implemented.

WASH infrastructure implementation during Year 6

	Project	County	Contract value (USD)
1	Kisumu WASH infrastructure projects Lot 1	Kisumu	51,843
2	Kisumu WASH infrastructure projects Lot 2	Kisumu	61,274
3	Siaya WASH infrastructure projects Lot 1	Siaya	56,770
4	Siaya WASH infrastructure projects Lot 2	Siaya	61,634
5	Kakamega WASH infrastructure projects Lot 1	Kakamega	15,596
6	Kakamega WASH infrastructure projects Lot 2	Kakamega	70,780
7	Kakamega WASH infrastructure projects (Electro-Mechanical Works)	Kakamega	12,742
8	Busia WASH infrastructure projects Lot 1	Busia	17,730
9	Busia WASH infrastructure projects Lot 2	Busia	43,687
10	Busia WASH infrastructure projects (Electro-Mechanical Works)	Busia	32,992
11	Migori WASH infrastructure projects	Migori	33,238
12	Nyamira WASH infrastructure projects	Nyamira	43,815

	Project	County	Contract value (USD)
13	Nyamira WASH infrastructure projects (Electro-Mechanical Works)	Nyamira	14,327
14	Kitui WASH infrastructure projects	Kitui	72,269
15	Kitui WASH infrastructure projects (Electro-Mechanical Works)	Kitui	26,138
16	Makueni WASH infrastructure projects	Makueni	119,125
17	Makueni WASH infrastructure projects (Electro-Mechanical Works)	Makueni	25,610
18	Nairobi WASH infrastructure projects Lot 1	Nairobi	8,338
19	Nairobi WASH infrastructure projects Lot 2	Nairobi	88,522
Total			**865,430**

Water connections and improvement of sanitation facilities at institutional settings and public places

During Year 6, KIWASH facilitated water connections and the improvement of sanitation facilities in institutional settings and public places. These interventions increased access to water and improved sanitation facilities at schools, health centres and public places and as a result, help in the fight against COVID-19.

As a result, 169 institutional settings (i.e. schools and health facilities) and public places were connected with water supply systems and additional water storage, while 339 improved sanitation facilities were provided at institutional settings as a result of the WASH infrastructure implementation during the year.

The table below summarizes the distribution of WASH infrastructure development.

Photo frame 1: A dilapidated sanitation facility at Nalu Primary School in Migori County. Photo frame 2: A newly constructed sanitation facility by KIWASH for the same school. The school with a population of over 600 pupils was served by three dilapidated toilets (1 for girls and 2 for boys). The school benefitted from four sanitation facilities.

WASH infrastructure projects investments in the project counties and outcomes

No.	County	Number of water connections in institutions & public places	Number of improved sanitation facilities in institution settings (schools & health facilities
1	Kisumu	28	26
2	Siaya	27	37

3	Kakamega	9	34
4	Busia	9	58
5	Migori	9	14
6	Nyamira	4	18
7	Kitui	7	40
8	Makueni	42	85
9	Nairobi	34	27
TOTAL		**169**	**339**

ACTIVITY 7: HEALTH FACILITY WASH

KIWASH used the WASH FIT risk-based approach that was developed by the WHO to ensure WASH infrastructure and practices are safely managed, sustained and provide reliable services. To achieve long-term improvements in health care facilities' (HFCs') WASH, the project collaborated with county governments and partners to institutionalize the use of the WASH FIT approach in improving access to water, sanitation and hygiene services as well as health care waste management.

Supporting critical immediate IPC actions in HCFs.

KIWASH, with support from the Ministry of Health, conducted IPC trainings for health care workers in 270 health facilities in nine counties. The aim of the trainings was to build the capacity of the facility based staff in the prevention, identification, monitoring, and control of the spread of infections in health care facilities. Given the rising cases of COVID-19 in the country, it was crucial for facilities to have comprehensive IPC practices and measures in place. The trainings were guided by the updated Kenya IPC guideline on COVID-19 that ensured that IPC practices are carried out in a standard way across all health care facilities in Kenya. Effective IPC has been proven to reduce hospital-acquired infections by at least 30 percent (WHO 2016). The training focused on access to water, sanitation and hygiene services and was informed by the WASH-FIT assessment that was conducted in the health facilities. The project guided the health care workers in the development of a detailed O&M plans of the WASH infrastructure in place.

Infection prevention and control materials arranged ahead of a distribution targeting health facilities. Each selected facility received waste segregation bins, a knap sack sprayer, gum boots, light duty gloves, a cleaning bucket, 25 kgs chlorine drum, branded apron and dust coats.

KIWASH further supported the institutions with IPC materials to promote regular cleaning and disinfection of surfaces. Each of the 30 selected facilities in the focus counties received waste segregation bins, a knap sack sprayer, gum boots, light duty gloves, a cleaning bucket, 25 kgs chlorine drum, branded apron and dust coat.

Designing and building on successful approaches to deliver WASH kits to vulnerable populations in target counties

KIWASH distributed hygiene kits to 3,999 vulnerable people across the counties. The distribution process entailed prior engagements with the county teams on the selection of the at-risk populations. The respective county teams held meetings with the departments of health and social services to review existing data on the vulnerable populations while ensuring social inclusion and equity in the selection process. The two departments thereafter engaged their sub-county teams to allow for fair distribution of the beneficiaries. In counties such as Busia, the local administration also participated in the selection and distribution exercise. The detailed preparation and selection process facilitated an efficient delivery process across all counties. Distribution points which in most cases were health facilities were selected and beneficiaries reached the sites as planned. The beneficiaries each received a 20 liter jerrican, a 20-liter handwashing container, a branded cloth face mask, a bar of soap and water guard.

A lady poses with hygiene kits distributed by KIWASH. The package comprised cloth face mask, 20-liter jerrican, water storage bucket, 1kg bar of soap, and a 500ml water purifier.

CHALLENGES

The section attempts to highlight some of the challenges experienced in the KIWASH life of project and may inform future programming.

Inadequate budgetary allocation to the WASH sector

Despite county governments gradually increasing their funding towards WASH services, the budgetary allocation is not commensurate to the wider plans captured in their CIDPs. The situation is further compounded by delayed disbursement of county revenue from the national government. As such, most of the jointly identified projects that are co-financed might delay implementation. Additionally, the rigidity of the public finance budget development cycle makes it very difficult to re-allocate funds to emerging costs occasioned by the outbreak of COVID-19.

Lack of readily available data to inform quick decision making

In project programming, the need for verified and accurate data cannot be overemphasized. However, most of the projects proposed for water infrastructural support did not have sufficient technical information such as engineering designs and drawings, boreholes development data, pre-and post-construction water quality reports, and as-built drawings. Lack of this information resulted in infrastructure construction taking longer than anticipated.

High costs of infrastructure interventions

Several proposed water projects were either dysfunctional or nonfunctional. Assessments jointly conducted by KIWASH and respective county governments indicated extremely high tentative budgets which surpassed the provided project costs per project.

Staff turnover and transitions

High staff transitions at the county levels continue to result in high staff turnover in water utilities. This subsequently leads to loss of gains made in WSPs such as gender mainstreaming. Besides, verbal commitments do not match the actual budgetary allocations to implement gender action plans. In other cases, commitments to actualize gender mainstreaming, there were no proper mechanisms to monitor the commitments.

The politicization of staff recruitment:

Politics have significantly affected the attractiveness of senior positions at the water utilities. For example, in three utilities, senior females rejected job promotions citing political interference and job insecurity as key factors.

The expectation of preferential treatment from the members of County Assemblies

Interventions requiring support or inputs from the members of County Assemblies delayed or failed to get endorsements due to the expectation of special treatments such as per-diems. For example, in Busia County, the passing of the County Environmental Policy stagnated since the members failed to secure an out-of-town workshop to discuss the document.

OPPORTUNITIES

Enhanced political goodwill from county governments and other government agencies

Politics dictates the allocation of scarce resources, which is an enabler to successful interventions. In the nine focus counties, KIWASH has continued to enjoy a cordial working relationship with the respective county governments. For instance, the allocation of office spaces for KIWASH's embedded staff is a clear indicator of goodwill from the county partners. Additionally, relevant county departments continue to take part in the KIWASH led co-planning and co-creation sessions. This avenue provides an array of opportunities to undertake joint interventions which are county-owned, county-led, and county-managed for sustainability.

Possibilities of partnerships with other sector actors

The county WASH forums provide opportunities for partnerships through co-funding, knowledge sharing, and technical support. Also, there is a growing interest in collaborations, which can be harnessed for maximum outcomes. For instance, KIWASH collaborated with USAID WASHFIN on utility business planning. Besides, the existence of several WASH actors undertaking diverse COVID-19 related interventions at the county level creates more room for partnerships. This is further made possible by the clear flow of information among partners hence curbing duplication or omissions during programming.

Untapped resources

The co-creation strategy continues to open opportunities to explore and benefit from previously untapped resources such as skilled manpower, sector-specific data, and funding. In most responses, sector actors operated in silos most often leading to the reinvention of the wheel. For instance, in Makueni County, co-creation towards COVID-19 response saw the department of planning channel USD 12,000 towards WASH-related activities. Previously this money would not be tapped due to the silo approach to implementation.

- *Counties are well equipped to lead, manage, and own the water project functionality mapping to prepare, review and update water facilities/ services maps and use the results for evidence-based investment planning.*

LESSONS LEARNED

Water Access

Promoting partnerships to expand service delivery

Different stakeholders will continue to invest in areas that suit their objectives and priorities. Whereas this means more resources trickling down to different initiatives, it also means duplication of roles and flooding is likely to occur in some interventions. This can be avoided by promoting partnerships that aim at expanding services in a coordinated manner. For instance, KIWASH strengthened county WASH forums that acted as platforms for discussing priority needs, fostering partnerships, and enhancing stakeholder coordination.

Augmenting infrastructure support with capacity building

Capacity-building should be tied to infrastructure support to realize maximum gains from investments. The assumption that all WASH enterprises require is hardware support is a fallacy that results in unsustainable projects. For instance, benefitting entities should be trained on how to manage an increased customer base occasioned by expanded water services. This can include training on bookkeeping, customer relations, non-revenue water management, and operations and maintenance training. This not only enables the entities to run commercially sustainable water businesses but also, instills a sense of ownership. Therefore, it is prudent to complement infrastructure investments with training.

Installation of solar systems enhances service reliability by reducing overreliance on grid power

High electricity bills accrued during water pumping threaten to cripple operations of most WASH enterprises where unpaid bills lead to disconnection from grid power. To address this challenge, KIWASH supported 22 water projects to install solar panels. The installation enabled the water projects to pump water during the day replacing diesel fuel and electricity where possible. Thus, reduced operational costs lead to increased profits that can be channeled into expanding water infrastructure. Additionally, a solar-powered pumping system is advantageous due to its simplicity and durability. The system has been proven to be operationally, financially, and environmentally sustainable.

Automating operational systems improves service delivery and curbs malpractices

Despite most utilities and WASH enterprises having proper water infrastructure in place, their operations continue to be crippled by staff malpractices. This is evidenced by Illegal connections facilitated by staff and other forms of corruption that thrive on loopholes in operational systems. For instance, a meter reader may collude with some consumers to under-declare consumption in exchange for a bribe. In other cases, utility staff receives bribes to scrap off high unpaid water bills. The introduction of electronic payments for water bills and smart water meters can minimize these cases. Adoption of technological solutions by KIWASH partners such as pre-paid meters, accounting software and non-cash payment platforms tremendously improved services and increased revenue for WASH enterprises.

The thorough hiring process of engineering consulting firms reduces the chance of sub-standard work

The process of hiring engineering consulting firms should be thorough to avoid future errors in water systems. In isolated cases, KIWASH had to deal with faults emanating from errors in designs made by contracted firms. This led to changes in project designs which had a high-cost implication. For instance, the design profile for a pipeline in Kisumu's Nyanas/Nyakach Water Project failed to deliver water to the endpoint. This necessitated the installation of an extra elevated tank after completion of the project.

Adherence to good governance practice, proper operation, and management of WSPs remain critical in realizing sustainable management of water utilities.

Over the years, many WSPs had suffered effects of weak management that led to poor service delivery and general performance of the water utilities. The performance improvement plans provided specific targets, actions, milestones, and timeframes to focus the WSPs on critical commercial, financial, technical, human resource, and social progress and goals. With regular monitoring of the progress, the water utility management teams can take responsibilities and tasks that will ultimately aid the utilities to improve service delivery levels. By jointly developing, implementing, and monitoring the performance improvement plan, the water utilities are tasked to enhance accountability and response towards improved service delivery. This way, achieving good governance practice becomes progressive.

NOTED

- Targeted capacity building has an enormous impact on building critical management skills.
- Effective communication leads to sustained support from customers, suppliers, and others.
- WSP development of a financial management system that is efficient and incorruptible is important for improved operational efficiency.
- Teamwork is critical in achieving organizational goals and objectives. The PIP process incorporated all staff including meter readers and plumbers.
- Recruiting qualified staff contributes to utility performance. This includes a results-oriented structure, a competent team, collaborative environment, recognition, management support, motivation, and continuous staff development.

Sanitation and hygiene

Entrepreneurship drives innovations, not only in products but also in business arrangements in remote rural settings.

Supporting availability and affordability of sanitation products for rural communities necessitated a paradigm shift, from relying on commercial supply chains to growing new enterprises, and convincing groups to invest and pursue sanitation business. Though building community sanitation groups into enterprises was successful, not every self-help group member was entrepreneurial and motivated to translate stocks into sales. Additionally, visionary entrepreneurs eventually wanted to break away from groups and pursue business aggressively and were willing to take risks.

Projects to increase rural sanitation should therefore invest in building entrepreneurship, working across strengthening both demand and supply as opposed to exclusively focusing on supply.

For development projects, reaching the sanitation sweet spot involves working across demand creating to market development of both entrepreneurs and enterprises, but importantly recognizing when and how to change strategies for optimal gains in profits and health.

Mainstreaming SBCC into process steps and/or converging both approaches in the same program locations creates optimal impact

KIWASH recommends that SBCC is integrated with CLTS approach. This is ideal, although it may not always be practical at start-up as SBCC design takes longer and may delay implementation.

- The use of intrapersonal communication (IPC)channels to target individual and community drivers to latrine usage are more impactful.
- SBCC design, implementation, and monitoring require deliberate investments in building capacity for technical skills and financial resources.

- Efficient SBCC is a long-term venture, it needs embedded institutions and partners to support courses beyond a project's span.
- Management information systems embedded in SBCC approach can show project progress and inform design changes to SANMARK/CLTS process

Existing commercial supply networks may be inappropriate; in escalating cost and miss out on hard-to-reach populations.

Introducing new products requires pro-poor supply chains. Local financial intermediaries, such as micro-credit groups, SACCOs, and Financial Service Associations (FSAs) form effective distribution channels for pro-poor sanitation products such as SATOs.

The government's role is central in building capacities for locally produced sanitation products, ensuring fair competition or pricing, and monitoring the standards and quality of products or services.

Like in any other market, the threat from unscrupulous dealers is real. There is a need to protect consumers from exploitation especially in matters affecting their health and wellbeing. Additionally, the government is well placed to set standards to regulate public health interventions. Training curriculum and modules are better anchored and delivered under Government institutions. For commercially manufactured goods, collaborate with Governments to aggregate and link demand from local enterprises to interested users, broker market information, and promote health education.

Other key lessons include:

- Sanitation entrepreneurs/enterprises are rare, especially in locations with marginalized far–to–reach communities where WASH needs are the greatest.
- Enterprise segmentation facilitates understanding of market depth, breadth, and penetration by suppliers.
- There is a huge latent demand/market for low-cost sanitation products and technologies. Local social entrepreneurs are key to activating these markets.
- Start with quick wins. Leverage and develop capacities of existing social enterprises to invest in sanitation business than focusing on high-volume commercial players.
- Enterprises may require subsidies to mobilize sufficient start-up capital. Business development training is not enough to interest entrepreneurs.
- Private entrepreneurs emerge with market growth and are drivers of commercialization at scale.
- The government's role is crucial in regulation (though not commonly done), health promotion, and aggregating demand from far-to-reach communities.

Environmental Sustainability

Investing in capacity building initiatives as a panacea to serious institutional gaps

There is a need to strike a balance between investing in infrastructure, personnel training, and availing resources to execute agreed-upon action plans. In most assessed institutions, serious institutional gaps were recorded. For example, county governments lacked the technical capacity to create sustainable interventions to address climate change challenges. This can be averted by conducting more tailored training and committing budgetary allocations to environmental and climate change interventions.

Promoting a sense of ownership by involving local actors

The misconception that donor-funded services should be accessed free of charge remains a hindrance to income-generating activities run by supported entities. For instance, most WRUAs that engaged in commercial production of water-friendly trees recorded a low customer base from local communities who anticipated free tree seedlings. In other cases, members of host communities expected allowances before participating in environmental conservation activities, such as afforestation. Thus, there is a need to continuously sensitize communities to understand the nature of donor support to inculcating a sense of ownership for the sustenance of gains.

Linking community-based groups with relevant authorities for sustained working relationships

The need to foster healthy working relationships between community-based groups and government agencies cannot be over-emphasized. However, it was evident in most cases, that the link between WRUAs, respective county governments, and other stakeholders, such as WASH enterprises was very weak. Therefore, there is a need to promote linkages to ensure the sustainability of interventions, which can only be harnessed through synergies.

Recoverable grant

Complementing financial assistance with capacity building

Management committees are at the heart of any decisions by WASH enterprises. Therefore, it is important to ensure that governance structures are well constituted for effective administration. For instance, during the program, enterprises managed privately as businesses recorded a higher repayment rate compared to community-run projects. Further, the willingness of the grantees to repay the loan depended heavily on the commitment by respective management. KIWASH also identified the need for continuous onsite financial management and bookkeeping training alongside water infrastructure development support.

Conducting thorough orientation on a recoverable grant program

The introduction of the recoverable grant came in as a new phenomenon for many WSPs and WASH enterprises as most of them had previously received grants that did not require repayments. As a result, there was skepticism of the concept and a lack of buy-in by decision-makers. Hence it is paramount to conduct an orientation with sector players to fully understand the concept to scale up the concept.

Reducing implementation period for a successful recoverable grant program

It is critical to ensure that the period between project design, implementation, and completion is minimized. This provides grantees with an adequate period to generate revenue increasing their ability to repay the grant. KIWASH noted, that it took substantive time for most projects to attract and process new customers and that affected their ability to collect sufficient revenue to service their loans

Repayable amount based on ability to pay

Water infrastructure development is capital intensive with most of the KIWASH supported projects costing at least US$ 100,000 for minimal improvements. On the contrary, cash flows for the majority of KIWASH partners were not sufficient to meet the monthly repayment. This informed the decision to have the grantees pay at least 30 percent of the total cost. Ability to repay this amount was a positive indicator of progress towards creditworthiness.

Strategic public-private community water partnerships are critical in leveraging finances towards increased water supply to the rural communities in Kenya.

In Kakamega, the rehabilitation of Shibuname Community Borehole Project provided approximately 10,000 new beneficiaries with access to basic drinking water. The project was implemented through a tripartite agreement between USAID-KIWASH, the Kakamega County Government, and a private sector

actor – Acacia Exploration. In line with the agreement, USAID-KIWASH supported the project in business development and water governance, the Acacia Exploration provided a grant for infrastructure development while the county government led in project monitoring. As a result, the project benefited from a new water pump, a hybrid solar pumping unit, and a galvanized water storage pump with a capacity of 100m³. Others included the construction of water kiosks equipped with 10,000-liter tanks and rehabilitation of distribution lines to unserved areas under the supply area.

Selection of grantees should be jointly conducted by field and grant officers to ensure comprehensive documentation of grantee's information.

Besides providing a good database, this is important for easy tracking and accessing grantees when needed. Additionally, this makes it easier to find grantees where they need assistance. Frequent site visits to benefitting WASH enterprises and WSPs help to strengthen project monitoring and create the opportunity to remind grantees of upcoming or due repayments.

Governance and policy

i. Governance is key and has no substitution – It MUST be fixed.

ii. Policies, legislations, rules and regulations are critical for the sector to be successful.

iii. Coordination of actors and stakeholders is challenging but paramount.

iv. Learning and Knowledge Management is indispensable.

SUSTAINABILITY AND ROAD TO SELF-RELIANCE

Delivering sustainable WASH services to unserved and underserved communities remains a major challenge for governments and development agencies. From inception, KIWASH's approach was to leave behind in its areas of intervention, a self-propelling water sector, and systems by creating project ownership and planning an exit strategy to ensure the long-term sustainability and effectiveness of the intervention. This involved ensuring the right policy environment and WASH companies/enterprises that can provide sustainable service to their customers and communities.

Some of the measures put in place to enhance sustainability include:

Capacity Building

- KIWASH built and strengthened the capacity of all stakeholders critical to the sustainability process; the county governments, the WSPs in urban areas, and community water supply schemes in rural areas. KIWASH used a seven-step process in systematic and sustainable capacity building that included: stakeholder engagement, training needs assessment, developing training modules, implementing the training, evaluating the capacity building, development of performance improvement plans (PIPs), and coaching and mentoring.

- KIWASH consistently strove to strengthen the capacity of the respective county governments to maintain their support to the development of WASH enterprise capacity development strategies/ action plans to inform their investments and technical support toward business development services (BDS) and ensure the sustainability of WASH enterprises within their areas of jurisdiction. ToT workshops were held for county and sub-county staff in the final phase and formed part of the progressive handover of the KIWASH capacity-building strategy for WASH enterprises. This was a crucial step aimed at institutionalizing this role in mandated water sector institutions to improve and expand future WASH operations.

- The project's approach to training coupled with on-the-job coaching and mentoring helped to instill a sense of ownership and sustainability, which is essential in ensuring continuity beyond the project period. This was also noted in the process of policy formulation and development across the nine counties that KIWASH was operating in.

- KIWASH provided intense training on corporate governance to WSPs to help them establish an appropriate legal, economic and institutional environment that allows them to thrive as institutions advancing long-term shareholder value. This coupled with the business orientation placed them in a better position to align and meet the objectives agreed to under the service provision agreement (SPA) license.

- Counties were supported to institutionalize water project mapping through KIWASH's transfer of survey tools, county data, and permissions to access and update information on the mWater platform. The project provided coaching and mentoring support in the use of the portal alongside the issuance of computers to enhance their capacity to map and update data on rural projects. This capacity is vital to guide decision-making on water services.

Commercial and self-sustaining approaches for WASH enterprises

- KIWASH supported WSPs to develop PIPs to improve operational efficiency and service delivery. The PIPs were developed through a participatory process that encompassed the insights and experiences of all stakeholders. KIWASH ensured discussions and dialogue on the PIP priorities were cascaded to promote ownership by departments and staff. The PIPs were embedded in the Board's performance agreement with the county and staff performance. The PIP is reviewed periodically to appraise the situation and to address emerging issues. KIWASH envisages that this will be sustained beyond the project period.

- KIWASH established a strategic partnership with KEWI to ensure that small, medium and community-managed WASH enterprises continue to receive capacity development services beyond the project. KIWASH trained select KEWI staff on its approach and content to strengthen the business operations of WASH enterprises.

- KIWASH's priority was to invest in projects with guaranteed returns on investment. The project targeted its investments at improving company cash flow coupled with good governance. This would improve bankability and access to commercial financing from the local market. KIWASH's established linkages with other development partners, local manufacturers of quality goods, and financial institutions also guarantee sustainability.

Innovative approaches to resource mobilization

KIWASH advocated for blended financing for sector sustainability. This combined local financing (county governments, WSPs, or community), and commercial financing (banks and micro-finance institutions). It should include recoverable and non-recoverable grants, commercial financing, and community contributions.

To access such financing, WASH enterprises should be run as business ventures for success and sustainability. They should be strengthened to become bankable but also to absorb financing.

The ability by 21 percent of WASH enterprises to pay KIWASH recoverable grants on infrastructure and 25 percent of meter grants repaid before repayment was stopped to provide relief to enterprises impacted by the COVID pandemic demonstrated willingness and commitment to sustainably take credit.

Partnerships

- KIWASH entered into partnerships to build synergies and enhance the sustainability of interventions. The project partnered with KEWI for capacity building, Family Bank, ECLOF Kenya, and KCB for WASH financing and DOW / Dupont for technology options for water treatment.

- The project employed partnerships that nurtured robust and coordinated teams capable of steering the sanitation agenda at the county level. Linkages were built between new sanitation enterprises interested in retailing low-cost sanitation products and the market. The training was provided to public health staff (who were also required to trigger demand) and technical institutions to promote the institutionalization of advanced technology in latrine construction. KIWASH also established linkages with several microcredit organizations to mobilize finance for sanitation investments for households.

- The project collaborated with multi-national agencies to leverage political commitments and policy reforms in counties. Collaborations forged between county governments of Makueni, Migori Nyamira, and UNICEF enhanced multiagency coordination on sanitation and hygiene and facilitated cross-learning and sharing of best experiences in WASH programming. This partnership supplemented internal resources contributing to quality, timely and sustainable delivery of results.

WASH coordination, collaboration, and learning

- WASH is multisectoral and demands integrated approaches and coordination. Collaboration of actors is critical and is most effective when institutionalized. KIWASH supported county governments to come up with policies and legislation anchoring the WASH Forums in their structures. The WASH coordination units were created in the counties' department of health and water with staff to steer the coordination agenda. The project further organized joint planning, monitoring, and evaluation to enhance synergy and avoid duplication as well as facilitate prudent use of resources. KIWASH continued to advocate and lobby the county governments for more support towards additional human capacity and funding to further strengthen WASH coordination forums at the county level beyond its existence.

- KIWASH was built on the foundation of learning and sharing knowledge. To facilitate learning within the organization and externally, KIWASH documented project outputs to share them with stakeholders during WASH forums. Further, the project facilitated benchmarking with WASH enterprises in other counties. Sharing knowledge was intended to help improve productivity, effectiveness, and innovation and provide more effective responses to complex and dynamic situations.

Community-led approaches and Leveraging on local resources

- The KIWASH project championed and leveraged the use of local resources, expertise and engaged the county governments to create resources for supporting the WASH enterprises. This was on the basis that critical and sustainable changes in sanitation and hygiene rely heavily on communal ownership and leadership.

- KIWASH worked with project owners and technical officers in the counties on a participatory basis during the implementation of water supply projects. The project transferred completed water supply projects to project owners using a handover plan. Before handover, KIWASH trained O&M staff to ensure they had the necessary skills to operate and manage the schemes. KIWASH

provided technical reference documents including engineering designs and drawings, relevant technical information, and operations and maintenance manuals as well as warranties on equipment.

- KIWASH continued to strengthen the institutionalization of gender equality mainstreaming and social inclusion by providing technical advice, training, support, and on-the-spot coaching during monitoring and follow-up activities. A review of action plans before project closure showed that WASH enterprises had made notable progress towards mainstreaming gender issues. NCWSC reviewed and finalized its gender policy while some WSPs had begun to implement HR manuals and provisions that promote GEM mainstreaming and social inclusion. Boards were reported to have increased the number of women represented and there was an overall shift regarding the allocation of roles in positions traditionally regarded as either female or male.

RECOMMENDATIONS

Government	Water Service Providers	Non-governmental organizations/USAID
County governments should increase budgetary allocations towards WASH infrastructure support to complement capacity-building processes to reach more beneficiaries with improved WASH services.	WSPs should adopt the culture of using high-quality materials for plumbing and pipe network extension i.e. HDPE and PPR pipes & Class C meters to reduce breakages and high maintenance costs.	Future programs should consider investments in water storage facilities including damming
WSPs should be supported to harness solar energy and gravitational flow to produce renewable and cost-effective energy for pumping water.	Training of field staff on proper installation, operations, and maintenance of meters and pipe network to improve efficiency and reduce operational costs should be scaled up.	Future programs should consider expanding water resource management beyond sub-catchments serving water sources used by the supported WSPs and WASH enterprises, and scaling up of natural resource management initiatives. These should include activities that do not solely depend on rainfall, increase afforestation, and environmental sensitizations.
Counties should increase financing towards sustainable environmental conservation interventions and be supported to establish sustainable climate change governance structures.	iGender mainstreaming in water utilities should be emphasized to improve female staff productivity and the livelihoods of women and youth consumers externally. Specific measures may include: Developing clear targets to monitor gender equality mainstreaming action plans. Increasing budgetary allocation to facilitate the implementation of gender equity action plans. These include awareness creation, training and rewards, and incentives. Accelerating an inclusive, safe, and gender-friendly working	Projects should consider accommodating new knowledge emanating from implementation to inform and allow for innovation, adaptation, and re-strategizing for successful outcomes. The CLA is a useful model in this process.

Government	Water Service Providers	Non-governmental organizations/USAID
	environment by strengthening the organizational culture.	
County governments should prioritize data and water point mapping to realize the strategic plan activities towards efficient water access	Strengthen rural water supply management (per WASREB guidelines); outline the roles and functions of Water Management Committees (WMCs) /Water Users Associations (WUAs) in the county water legislation and laws and ensure implementation; particularly with a focus on enhancing public participation and inclusion in WUAs/WMCs, and strong financial management systems	Sanitation programs should be allocated adequate timing and flexibility that aligns with changing project approaches and needs. Notably, traditional demand creation approaches, such as CLTS employ different expertise from SANMARK which requires additional expertise in finance and marketing alongside longer planning and preparation periods.
Many WSPs still have unstable boards and they require additional support to help them streamline corporate governance.		Development projects occasionally encounter emergencies that may set back their gains for instance the ongoing COVID-19 pandemic and flooding. Risks should be appropriately factored in to ensure resilience is mainstreamed and adequate planning measures to mitigate and respond to the crisis are incorporated.
Promote public-private partnership arrangements and investments in the county water systems		Projects should deploy subsidies innovatively to overcome operational and technical start-up challenges or unlock sanitation capital. Matching grants or use of county affirmative action funds were useful incentives when well structured.
Support institutional strengthening of WSPs and rural water schemes by incorporating the county's main water utilities, reviewing its structures and policies. These include measures to enhance social accountability, provide consultation and feedback, and greater representation of the county residents in the management of WSPs and rural water schemes		Programs should invest resources; technical assistance or incentives to accelerate access to consumer finance and ensure product availability and reach.
Devolving O&M to sub-county and ward level for timely response to breakdowns and efficient service delivery. Strengthening sub-county structures and ensuring resource allocation to make sub-county water officers well equipped to support better service delivery.		The strengthening capacity of counties should be a continuous process.

Government	Water Service Providers	Non-governmental organizations/USAID
Strengthening water governance beyond the current focus on water development at the expense of institutional support at the county level (including well-defined roles and responsibilities of water resource and management institutions and departments in the county).		Improving coordination between different institutions and county departments to avoid duplication and conflicts; to optimize efficiency and effectiveness.

ANNEX I: KIWASH WATER INFRASTRUCTURE PROJECTS

	Project	County	Estimated beneficiaries
1	Alema borehole project	Busia	11,447
2	Mundika (BUWASCO)	Busia	16,248
3	Sisenye Water Scheme	Busia	14,300
4	Ogallo Community Water Users Association	Busia	2,830
5	Butere Town Supply (KACWASCO)	Kakamega	13,575
6	Iremere / Onadachi Springs	Kakamega	500
7	Kakamega Town Supply (KACWASCO)	Kakamega	14,500
8	Khwisero North Community Water Supply	Kakamega	13,405
9	Soy Water Supply	Kakamega	15,000
10	Matunda Water Supply	Kakamega	15,000
11	Ahero Catholic Water Project	Kisumu	4,500
12	Boya Community Water Project	Kisumu	7,210

	Project	County	Estimated beneficiaries
13	Gulf: Nyahera Mkendwa Scheme	Kisumu	9,070
14	Kisumu Informal Water Project	Kisumu	23,018
15	Masogo Water & Sanitation Company	Kisumu	2,993
16	Nyanas WSP: Nyakach Water Scheme	Kisumu	11,350
17	Nyangoma Community Water Supply	Kisumu	3,500
18	Sondu Miriu Right Bank Community Water Supply	Kisumu	10,950
19	Kithambangii Water Project	Kitui	5,013
20	Musengo Water Project	Kitui	10,000
21	Tharaka Women Water project	Kitui	56,538
22	Tyaa River Water Project	Kitui	5,000
23	Mumbuni Katalwa	Kitui	4,510
24	Kaanani Kiboko Water Project	Makueni	6,000
25	Makutano/Sinai borehole	Makueni	17,623
26	Masaku Water Supply Project	Makueni	1,000

	Project	County	Estimated beneficiaries
27	Mbukoni Kyulu valley borehole	Makueni	3,700
28	Mbumbuni high lift pumps	Makueni	6,311
29	Nzueni Borehole Self Help Group	Makueni	4,398
30	Unoa-Kyemole Water Supply Project	Makueni	10,000
31	Ukia Swaa	Makueni	6,374
32	Midida	Migori	2,300
33	Muhuru Community Water Supply	Migori	9,031
34	Ndiwa Borehole Community Water	Migori	4,500
35	Sare Awendo (MIWASCO)	Migori	18,067
36	Geosemic Water Company	Nairobi	3,365
37	Little Sisters of St. Francis Water Supply	Nairobi	6,714
38	Soweto High Rise	Nairobi	1,500
39	Katwekera Tosha Network	Nairobi	3,735
40	Ikonge Water Project	Nyamira	10,200
41	Machururiati Water Project	Nyamira	3,800

	Project	County	Estimated beneficiaries
42	Akala Community Water Project	Siaya	7,403
43	Osieko Nambo WUA	Siaya	8,000
44	Sirembe Community Water Supply	Siaya	6,310
	Totals		410,788

ANNEX II: SUCCESS STORIES AND SNAPSHOTS

Solar energy kept us afloat amidst a pandemic

Since 2016, funding from USAID through the Kenya Integrated Water Sanitation and Hygiene (KIWASH) Project has enabled 231 small and medium water projects to tackle infrastructure and skills challenges to reach more people with clean water and sustainable services. The challenges are unique to each water project.

One of these projects is in Kamulu Town on the outskirts of Kenya's capital, Nairobi. The project was started in 2013 by a resident of Kamulu when he saw that other residents faced an acute water shortage. "Residents here relied on two shallow wells with limited supply. I felt I needed to help salvage the situation," he said.

One of the beneficiaries of Geoseismic Borehole, appreciates that the water has high pressure and is consistent.

In the months that followed, Kamulu's resident secured a loan from Equity Bank to finance a 138-meter-deep borehole. He further equipped the project with a water pump that generated 15 cubic meters of water per hour, a water tower tank, and three water storage tanks totaling 25,000 liters. Despite this promising start, the Geoseismic Water Project faced two main challenges.

First, the borehole water had fluoride levels well above the World Health Organization's acceptable levels of 1.5mg per liter and put consumers at risk of dental and skeletal fluorosis. Secondly, the project's electricity bill was high, and starting in 2015, the project experienced frequent electricity outages that slowed down the water supply to consumers.

A unique partnership between USAID, DuPont Company, and Davis and Shirtliff came together to address the first challenge. They provided a defluorination machine to balance the fluoride levels and improve the water quality for consumers. As a result, the project contributes to a healthier community free from the risk of fluorosis.

To address the second challenge, KIWASH installed 84 solar panels at the project site in order to reduce operating costs. As a result, the project's electricity bill came down from an average of USD 300 to USD 150 per month. "The solar energy came in very handy between April and September 2020 when we experienced long power outages," said the organizing resident of Kamulu. "Were it not for the solar panels installed through KIWASH support, the project would have ground to a halt. But through the pandemic, we continued to supply water to consumers, albeit through water rationing and using water trucks."

In addition to the solar panels, KIWASH supported the project to expand and upgrade its water pipeline. It added 3.5km of new pipeline, nearly doubling its customer base from 80 to 150 connections. It also created a separate pipe to ensure a dedicated line to one of its highest consumers – an apartment block with 38 tenants. With an additional pipeline network, KIWASH also constructed two water kiosks complete with storage tanks to allow easy access of the purified water.

Despite the economic challenges brought on by the coronavirus pandemic, the project continues to prosper. It makes an estimated revenue of USD 3,000 per month, up from USD 1,600 in water sales, allowing for cost recovery and opportunities to serve more community members. The Geoseismic Water Project has also created employment for four people, including two kiosk attendants drawing approximately USD 30 to USD 40 per day and a project assistant that supports meter reading and billing. The project also has plans to expand the project's storage capacity from 80,000 liters to 200,000 liters.

As a result of these changes, 1,000 families, totaling approximately 5,000 people, have access to basic water services through 25 piped water connections and two water kiosks. The presence of the project has led to a positive social-economic impact and growth in the locality as residents settle around the water point.

A pathway to sustainable expansion of WASH enterprises

Along the Kisumu-Nairobi highway is the town of Ahero, where two enormous steel water tanks stand side by side by the road. The tanks bear the mark of the 'Boya Water Project,' and occasionally act as a landmark for many travelers along the highway. The tanks serve several water kiosks that bear the same project name. On market days, these kiosks along the highway are a beehive of activity, with water jerricans dotting the collection points.

Officials from Boya Water Project interact with a water consumer served through a KIWASH constructed water kiosk

The treasurer for the Boya Water Project in Kisumu County was pleased to see the community benefit. "As a water project, we had a dream to ensure our consumers had reliable and clean water," he said. "Gladly, USAID's Kenya Integrated Water Sanitation and Hygiene (KIWASH) Project shared the same vision as us and aided us in a big way," he added.

As a standard practice, KIWASH started by analyzing significant challenges constraining Boya's operations. The review noted that the enterprise suffered from high defaulted water bills and commercial water losses due to water theft and old water systems, which together resulted in low revenue. The company also relied heavily on expensive electricity to pump water, resulting in high rates for its customers. Finally, Boya Water Project suffered from a general lack of professional expertise.

To address these challenges, KIWASH supported Boya to improve and expand its infrastructure, reduce its operational costs, and realize its goal of supplying clean water to the residents. KIWASH helped construct approximately two kilometers of water pipeline to reach underserved residents and replacing old and worn-out pipes. KIWASH also installed a 24,000-liter steel tank to boost water storage and increase supply hours, constructed five water kiosks to increase accessibility, installed a solar pumping system to reduce electricity bills, and provided a water treatment unit to supply safe water to consumers.

"In addition to the huge support to improve our water systems, KIWASH also trained and mentored our management committee and technical staff to ensure we embraced the right practices of running an economically viable water business," said Boya's treasurer. "KIWASH also gave us a USD 4,402 recoverable grant to purchase water meters as a measure to curb the runaway commercial water losses," he added. KIWASH uses recoverable grants as soft capital to water service providers to enable them to expand their operations and increase their effective delivery of water services.

"KIWASH's support did not only set us on an upward trajectory towards realizing our dream but also made us a commercially viable water enterprise," Boya's treasurer said proudly. Boya Water Project has reduced its commercial water losses from slightly over fifty percent in 2019 to 23 percent in 2020. All of its 930 customers – 76 of which were added in the last year – have metered connections, ensuring accurate water readings and billing. Solar panels have helped the project cut down on electricity costs by 42 percent to the USD 7,000 per month. "All these improvements taken together

have enabled us to maintain an average monthly revenue collection of USD 3,000 in 2020, despite the advent of Coronavirus disease in Kenya," said the project's secretary.

"In four years, KIWASH has been able to drastically improve our capacity as a water enterprise. The fruits of their support will be long felt by generations to come," said Boya's treasurer. The Boya Water Enterprise became the first KIWASH-supported project to fully repay the recoverable grant. The project then explored the option of commercial financing, valued at USD 45,000, to construct a 50,000-liter steel tank.

"My tap used to run dry for a whole month, and sometimes I forgot that I had a water connection in the compound. That is history now," said a 70-year-old beneficiary of the Boya Water Enterprise.

Innovative technology reducing barriers, increasing access to water

The Little Sisters of St. Francis Community Water Project in Nairobi's Kasarani area benefits approximately 57,000 students, patients, and community members with access to safe drinking water. The Catholic sisters run the project alongside a community hospital, primary school, pastoral care center, vocational training center, and a shelter for rescued street children.

"Since we started using water from the project, my children no longer complain of upset stomachs or diarrhea," said a resident of Kasarani where the Little Sisters of St. Francis Community Water Project provides safe water to the community.

The water project is unique. Water in this area of Nairobi is high in fluoride and unhealthy for human consumption. Through a partnership between KIWASH and DOW Chemical Company, a fluoride decontamination treatment system was installed in 2018. DOW donated an energy-efficient filtration system while KIWASH provided technical assistance and infrastructure support to expand the existing water pipeline, install an efficient pump, and construct two water kiosks.

Over time, project management noted that not all customers were able to access water during normal working hours. "Our customers are comprised of professionals and business people who work late into the evening. Our concern was that they were unable to keep up with the business hours at the water kiosk," said one water project manager.

As a solution, the project introduced an automatic vending machine that dispenses different amounts of water (five, 10, or 20 liters), with the use of a chip coin. "To date, we have distributed 100 chip coins to our customers at US $2. They are very excited about it as they can access water anytime without time restrictions. That means that they can run their businesses during the day with ease and fetch water at their convenience. The chip coin technology also came in very handy during the Coronavirus pandemic because it encourages cashless transactions and physical distancing," said one project water technician and operator.

One beneficiary of the water project is a laboratory assistant at the community hospital and a mother of three children. "At work, we depend fully on the project's water for lab work and other hospital procedures. For home use, mainly cooking and drinking, I fetch approximately 40 liters per week. My family has benefitted a lot from the water. Before we had the water kiosk, we used tap water to cook, which was at times highly chlorinated, smelly, or brown. As such, my children constantly complained of upset stomachs and diarrhea. I am very excited to have access to this water as my children are no longer ill from unsafe water," she said.

To encourage more chip coin use, the project introduced a pay bill number through which customers send money directly to the project's account, as opposed to relying on the water kiosk attendant to load money on their mobile phones. This has improved project accountability.

Over the past year, the project also had its share of challenges. For roughly six months, road construction barricaded access to one of the water kiosks, limiting the number of customers. In May 2020, the project's water pump broke. This led the project to depend on water trucks to supply water to the community hospital and meant the project could not serve any individuals for two weeks until the pump was repaired. Lastly, the government's revenue agency launched a levy on entities running water businesses, which also coincided with the outbreak of the Coronavirus pandemic in Kenya.

"The challenges during the coronavirus pandemic brought down our sales by 30 percent, but we are recovering and hope to have fully recovered by December 2020. We also have plans to put up a full-time solar-powered system for the fluoridation unit and to purchase a water distribution truck to increase water supply in the locality," said a project manager.

Solar power saves community water project

St. Monica Secondary School sits in the outskirts of Kakamega town and is home to more than 500 students. For a long time, the school lacked a reliable water source and depended on water vendors whose services were not only expensive, but also lacked guarantees in the quality of the water they supplied.

The installation of solar panels has ensured reliable water services to the community and reduced operational costs.

Seven years ago, the national government sunk a borehole within the school to address its recurrent water challenges. The borehole turned out to be high yielding, providing more water than the school needed. The government then extended water pipes into to a water kiosk in the central outdoor market and several individual households. These extensions led to the development of the Lubao Community Water Project.

A committee was set up to manage the project on behalf of the community. Equipped with a diesel water pump, the water kiosk and more than 80 household connections, it was a promising start for the project.

"Unfortunately, it did not take long before the committee started experiencing internal challenges. From funds embezzlement to dominance by some members, the future stood shaken," said the secretary of the project's new committee. "It became impossible to know how much money the project generated, which affected our ability to purchase fuel or pay for maintenance costs," he added.

At one point, the project ground to a halt for more than two weeks due to a faulty water pump and fast accruing debts. Public outcry to the county government saw the disbandment of the managing committee and the subsequent election of a new one.

The secretary remembers the challenge the new committee faced to get the pump running again. "Our priority was to restore water services, so we quickly serviced the diesel pump with funds mobilized from our consumers," said the secretary. But at US $50 per day for diesel fuel, that solution was not sustainable. "We resolved to connect to grid electricity as an alternative to the high cost of diesel," he said.

This option worked for a while, and the water project was able to grow its customer base. But as the number of consumers increased, so did the time required to pump water. "Our monthly income was US $560 against an electricity bill of US $550. At times we had to dip into our pockets to meet repair costs," recalls the vice chairperson for the water project committee.

When the COVID-19 pandemic reached Kenya, clean, reliable water became even more critical to prevent the spread of the virus. The U.S Agency for International Development, through the Kenya Integrated Water, Sanitation and Hygiene Project (KIWASH), stepped in to provide the Lubao Water Project with support. To enhance reliable water services, KIWASH installed solar panels to power the pump without the need for expensive fuel or grid electricity. "The solar panels reduced our electricity costs by half which is an enormous boost to the project," said the secretary. "We have commenced offsetting debts and expanded water connections to 70 new consumers and four schools," said the vice chairperson proudly.

In addition to the solar panels, KIWASH also provided training for the management committee on effectively and sustainably running a water business. "Thanks to the training by KIWASH, we have enhanced our financial management by ensuring cashless payments, proper recordkeeping, and even improved our customer relationships by having a social media platform," said the secretary. The newly revamped operations also attracted support from the county government through a pipeline extension of over one kilometer.

"With the increased savings and more consumers, we hope to meter all our connections and purchase a bigger storage tank in the near future," said the secretary.

ANNEX III: SUMMARY OF PROGRESS ON POLICIES, LAWS, OR INVESTMENT AGREEMENTS

Policy/Bill	County	Status					
		Stakeholder engagement/ analysis	Drafting	Public consultation and debate	Revision of the draft Policy/Bill	Approval Cabinet Legislative Assembly	Full and effective implementation
County Water Policy	Busia	x	x				
	Kakamega	x	x	X	x	x	
	Kisumu	x	x	X	x	x	x
	Siaya	x	x	X	x	x	
	Kitui	x	x	X	x	x	
	Migori	x	x	X	x		
	Nyamira	x	x	X	x	x	
	Nairobi	x	x	X	x		
	Makueni	x	x	X	x	x	x
	Nairobi	x	x	X	x		
County Water Bill	Busia	x	x	X	x	x	x
	Kisumu	x	x	X	x	x	
	Kakamega	x	x	X	x	x	x
	Siaya	x	x	X	x	x	x
	Nyamira	x	x	X	x	x	
	Kitui	x	x	X	x	x	
	Migori	x	x	X	x	x	x
	Makueni	x	x	X	x	x	x
	Nairobi	x	x	X	x		
County Environmental Health and Sanitation Policy	Busia	x					
	Kakamega	x	x				

Policy/Bill	County	Status					
		Stakeholder engagement/ analysis	Drafting	Public consultation and debate	Revision of the draft Policy/Bill	Approval Cabinet Legislative Assembly	Full and effective implementation
	Kisumu	x	x	X	x	x	
	Siaya	x	x	X	x		
	Kitui	x	x	X			
	Migori	x	x	X	x		
	Nyamira	x	x	X	x	x	
	Makueni	x	x	X			
	Nairobi	x	x	X	x		
	Busia	x	x	X			
	Kakamega	x	x	X			
County Environmental Health and Sanitation Bill	Kisumu	x	x	X	x	x	
	Siaya	x	x	X	x		
	Kitui	x	x	X			
	Nyamira	x	x	X	x	x	
	Nairobi	x	x	X	x		
	Migori	x	x				
	Makueni	x	x	X	x		
	Nairobi	x	x	X			
Nairobi City County Sanitation Revolving Fund Policy	Nairobi	x	x	X	x	x	
Nairobi City County Sanitation Revolving Fund Bill	Nairobi	x	x	X	x	x	
Nairobi City County Sanitation Revolving Fund Regulations	Nairobi	x	x	X	x	x	

ANNEX IV: FINANCIAL SUMMARY: RESERVED