JOINT ANNUAL OPERATIONS MONITORING REPORT 2017

HARAMBEE

WaterFund
Financing the Water Sector

JAOME 2017

Joint Annual Operations Monitoring Report 2017

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EXECUTIVE SUMMARY

In its efforts towards fulfilling the mandate of providing water for the under-served, the Water Sector Trust Fund (WSTF) is increasingly emphasizing the need to ensure sustainability of its investments. The Fund has developed an operations monitoring framework for assessing the functionality, performance and sustainability of all WSTF-funded infrastructure and investments that were implemented during the previous five years.

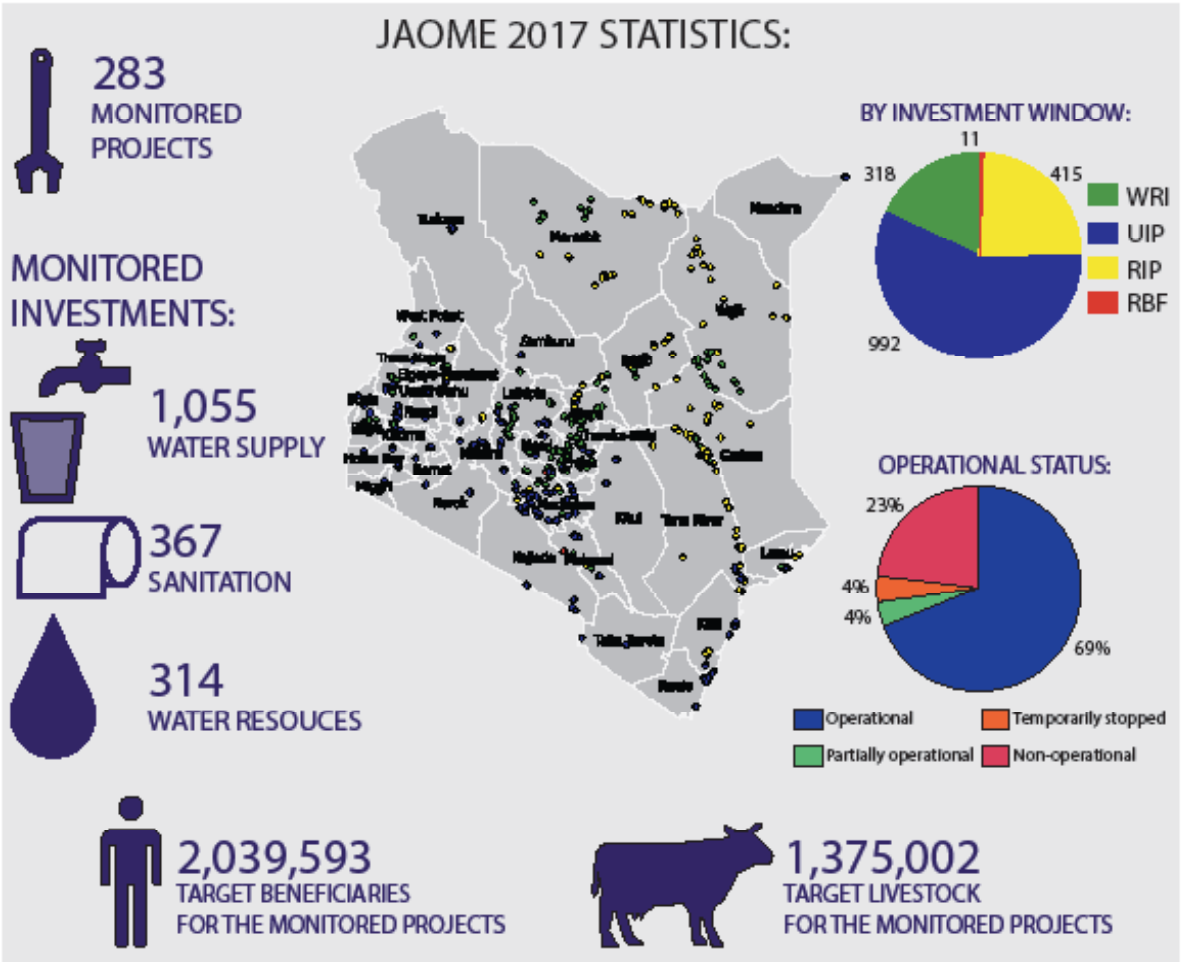
Through establishing the operational status of the WSTF-funded infrastructure, the Joint Annual Operations Monitoring Exercise (JAOME) supports long term planning and robust monitoring by identifying supply and service gaps, highlighting underserved areas and ensuring better controls for future funding based on performance. It also supports learning lessons on what kind of investments work and why, thereby informing future investment planning and priorities. Finally it allows key stakeholders to monitor coverage and access, ensuring accountability for the past investments.

The geo-referenced data on the investments is collected by WSTF Staff and County Resident Monitors (CRMs). The data was collected using a mobile application and published on a dashboard including geo-referenced maps and graphics on key parameters. In order to enhance transparency, accountability and sustainability, this data is to be made publically available by embedding the dashboard in the WSTF website.

During the JAOME (2017), a total number of 1,736 investments were visited, of which 992 were funded through the urban investments, 415 through rural investments, 318 through water resources and 11 through results based financing. The JAOME established that of the rural investments funded during 2012-2017, 56% were still fully operational, while the corresponding figure for urban was 76%. The sanitation investments showed a slightly higher success rate in terms of operational status as 75% of rural sanitation projects and 93% of urban sanitation projects were found to be operational. 56% of the water resources projects were determined to be operational.

A sustainability index (SI) was developed as a key performance metric to facilitate assessment and monitoring of sustainability of investments in the Counties. The SI evaluates the sustainability of a project based on four indicators; (1) Operational status; (2) Revenue collection; (3) Age and success rate, and; (4) Condition of facility. The results show that the rural water supply and sanitation investments scored 35% and 69% for sustainability and water resources scored 32%. Urban investments reached a higher success rate of SI score, with 68% for water supply and 93% for sanitation. The performance difference between urban and rural projects is largely related to revenue collection, which is higher for urban investments. Involvement of women in operations responsibility seemed to generally improve the sustainability of projects in all cases.

We envisage that the performance measures developed under this framework will be adopted and continually improved to respond to the dynamic sector challenges in enhancing water access in Kenya.



Ismail f. m. shaiye

ISMAIL F. M. SHAIYE

Chief Executive Officer

Water Sector Trust Fund

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ABBREVIATIONS AND ACRONYMS

CBOs	:	Community Based Organization
CLTS	:	Community Led Total Sanitation
CGs	:	Council of Governors
CRM	:	County Resident Monitor
DPs	:	Development Partners
FGD	:	Focus Group Discussion
GIS	:	Geographic Information System
GOF	:	Government of Finland
GOS	:	Government of Sweden
GOK	:	Government of Kenya
HH	:	Household
J6P	:	Joint 6 Programme
KEWI	:	Kenya Water Institute
KM	:	Kilometer
Ksh/ KES		Kenya Shillings
KPI	:	Key Performance Indicator
M&E	:	Monitoring and Evaluation
MoH	:	Ministry of Health
MWS	:	Ministry of Water and Sanitation
NARWASCO		Narok Water and Sewerage Company
NRW	:	Non Revenue Water
ODF	:	Open Defecation Free
PSF	:	Public Sanitation Facility
PLWD	:	Persons Living with Disabilities
RWH	:	Rain Water Harvesting
SL	:	Service Levels
ToR	:	Terms of Reference
VIP	:	Ventilation Improved Pit Latrine
WASH	:	Water and Sanitation for Hygiene
WaSHMIS		Water and Sanitation Hygiene Management Information System
WSPs	:	Water Services Providers
WSTF	:	Water Sector Trust Fund
WRA	:	Water Resources Authority
WRM	:	Water Resource Management
WRUAs	:	Water Resources Users' Associations
WU	:	Water Utility

1

BACKGROUND

1.1 Introduction

The Ministry of Water and Sanitation (MWS), Water Sector Trust Fund (WSTF) and Development Partners (DPs) are increasingly emphasizing the need to ensure sustainability of investments in the water sector. In response, the Fund conducted a comprehensive and intense Joint Annual Operations Monitoring Exercise (JAOME) in September, 2017 to assess the functionality and performance of WSTF-funded infrastructure implemented and investments made since 2012. The purpose of the joint monitoring exercise was to assess the present condition of investments commissioned in the last 5 years. It was expected that 95% of all infrastructure would still be fully operational and in good technical and operational condition by the end of 5 years.

The JAOME 2017 entailed the collection of geo-referenced data and photographic images of investments funded during 2012-2017 using WSTF commissioned GIS applications. Six (6) teams comprising of the County Resident Monitors (CRMs) and WSTF programme staff carried out this nation-wide data collection exercise over a two week period. The enumerators received orientation training so as to prepare them for the exercise. The training mainly focused on the use of field data collection applications, their scope and limitations; logistical arrangements and schedules as well as on security issues.

The JAOME 2017 was the second time the operations monitoring was conducted. Operations monitoring has been previously conducted in 2016, when all WSTF-funded projects that were implemented during the period 2011-2016 were monitored. During JAOME 2017, instead of monitoring all projects as was done in the first JAOME, 445 projects were sampled covering 58% of all projects funded during the review period. The sample was designed to be representative in terms of the age of the investments, the different investment programmes as well as the counties. The sample was designed so that 100% of 1-year old and 5-year old projects are visited, and that each project is visited three times during the assessment period of 5 years. In addition, JAOME 2017 methodology was revised so that all programmes funded by WSTF, including urban and Output Based Aid (OBA), were part of the exercise which was a key step towards a harmonized monitoring system.

The data collected during the exercise provides up-to-date findings for informing the implementing agents on the operational challenges in order to formulate mechanisms for addressing such issues and for the Fund to continuously improve its systems. The joint operations monitoring is a key pillar in streamlining and harmonising strategies that the Fund is currently implementing and its actualisation is expected to inform future decision making in the funding of investments. The results of the exercise are to be made publicly available on a geo-referenced database embedded on a web platform to enhance transparency, accountability and encourage sustainability.

1.2 Rationale for the Joint Annual Operations Monitoring Exercise

The design of the JAOME was premised on project follow-up, which focuses on the post commissioning phase, in order to assess the long-term sustainability of these projects and through further analysis, identify key factors that lead to the success and sustainability of investments.

WSTF has continuously revised its project monitoring tools and has adopted compatible operations monitoring concepts and procedures across its urban and rural investments. Whilst investment funding is captured through regular routine progress monitoring systems already in place, the operations monitoring focuses on the post-commissioning phase and integrates the information in a single platform. This makes it possible to go beyond the one time capture of investment and related progress and bringing in various aspects related to sustainability. An updatable data collection format that grows with new information is a vital addition as a primary tool to enable the Fund to build their central information database. The JAOME approach makes it cost effective and easy to update project information on an annual basis through an easily replicable, harmonised process.

Through establishing the operational status of the WSTF-funded infrastructure, the JAOME supports long term planning and robust monitoring through identifying supply and service gaps, highlighting underserved areas and ensuring better controls for future funding based on performance. JAOME supports in meeting this target by providing lessons learned on what kind of investments work and why, thereby informing future investment planning and priorities. Finally it allows key stakeholders to monitor coverage and access, ensuring accountability for the past investments.

1.3 Objectives of the Joint Annual Operations Monitoring

The main objectives of the operations monitoring exercise are to;

1. Establish the percentage of the WSTF-funded infrastructure which is operational ("as working") and to compare it with the initial project scope ("as planned") and the infrastructure ("as built").
2. Enable the Fund to present detailed, reliable and complete geo-referenced data on the operational status of all funded infrastructure. This information is visualized on online platforms and accessible for all stakeholders.
3. Develop and implement remedial measures and, if deemed necessary, to prevent poor performing utilities from having their proposals funded (focusing on sustainability of past investments).
4. Prepare the Fund for the evaluation ("as used") and assess the outcomes and impacts of investments over time.

2 STUDY METHODOLOGY

2.1 Consultations and initial planning

The process commenced in 2016 prior to the first JAOME with consultative meetings between the teams from WSTF and Upande Ltd to discuss the project aspects so as to define outcomes and determine:-

1. Technical requirements
2. Tools for conducting the monitoring exercise
3. Approach in implementation of the project

The initial meetings in 2016 focused on defining the scope of the exercise, timelines and expected outcomes. The project would be best summed up as a mapping exercise, where the Fund needed to get the exact locations of the different investments that have been funded in both rural and urban areas as well as WRUA activities and also to capture three key aspects of these investments:

1. Exact locations with coordinates obtained using GPS;
2. A photo showing current state; and
3. Attribute information that would determine their functionality and sustainability.

In subsequent discussions, given the timeframes and based on what the WSTF was already using, the use of a mobile data collection tool was agreed. The consultant was tasked to provide the tool based on the agreed deliverables, i.e. the three key aspects to be captured, while factoring in the limited timeline (one month). In doing so, the Fund developed a data collection template based on the experiences from the urban programme and impact reports including Community Project Cycle (CPC) and UNICEF; and also provided the field staff and physical devices to be used in the exercise.

In order to make some revisions to the JAOME approach and tools, another consultation process was conducted over a period of one month in 2017, starting from mid-August to mid-September. The main objective was to review the tools and the process so as to make some necessary revisions. As part of the revisions, JAOME 2017 methodology was harmonised so that all programmes funded by WSTF, including urban and Output Based Aid (OBA), were part of the exercise which was a key step towards an integrated monitoring system for the Fund.

2.2 Preparation of Data Collection Tools and Instruments

This section describes the technical components and the process stages of the implementation of the exercise.

2.2.1 Coding and organisation of the data for collection

Two forms for the data collection tool were developed; (1) The general form for assessing the project level information, and; (2) The investment form for assessing the data for each infrastructure. The general form includes questions on governance, finances and beneficiaries of the project (Annex 1). In the investment form the data to be collected at the various sites was organised in blocks of the WSTF structure of investment types namely; water supply, sanitation and water resources as follows (Annex 2). The form asks specific questions on the condition, completion status and operational status of each investment. Other questions include:

Maintenance and operations responsibility; Revenue collection; Beneficiaries; Service reliability, and specific questions on Gender Equality and Social Inclusion (GESI).

The investment types captured by the form are the following:

a. **Water Supply:** i) Intakes: * Weir * Borehole * Springs * Wells; ii) Pumps and Power Source: * Solar * Submersible * Well head Pumps * Generating Sets; iii) Treatment: * CFU -10-15 m3/hr * CFU -15-25 m3/hr * Chemical dosers * Conventional Treatment Unit * Slow Sand Filters; iv) Storage: * Masonry tanks-1m3, 2m3, 5m3, 10m3, 25m3, 50m3, 75m3, 100m3, 135m3, 150m3 * Elevated steel tank * Elevated Concrete tank; v) Transmission: * GI Pipeline * Anchor block * Valve chamber; vi) Distribution: * Water Kiosk * Cattle Trough * Stand pipes; vii) Building: * Pump house * Store * Laboratory house

b. **Sanitation:** i) Public: * PSF-Regular * PSF-Mini; ii) School Sanitation: * 4 door VIP * 2 door VIP; iii) Disability; iv) Hand washing facility; v) Septic tank: * Standard * Large; vi) Bio digester: * 90m3 * 50m3 * 25m3; vii) Household

c. **Water Resources:** i) Regulation: * Self-regulating weir * V-notches; ii) Management: * Water pans * Earth dam * Berkad *RHW * Sub-surface dam * Djabia * Check dams

2.2.2 Technical Components

Table 1 presents the details on the technical components of the data collection tools.

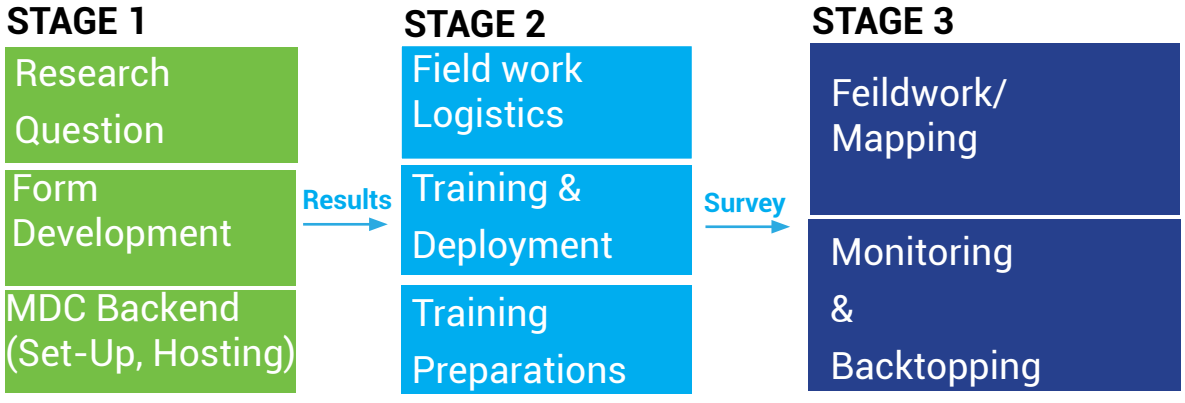
Table 1. Technical components of the data collection tools.

Software Platform:	Ona: Is a platform designed to work with mobile data collection tools. The platform provides a database and backend management of collected data.
Database:	Local Server, Cloud Backup. Apart from the Ona provided database. Upande created several backups of the data collected from the field
Mobile App:	Open Data Kit (ODK) Collect. This data collection tool was selected due to its ease of customization for the exercise at hand and also for the ease of which the questions could be digitized and edited when so needed.
Mobile devices Specs:	The Physical mobile devices to be used GPS enabled Sim Card Slot Internet Enabled SD Card Slot 6 GB Internal Memory

2.2.3 Data collection process

The Diagram below (Figure 1) displays the general process of methodology and iterations employed during the implementation and actual field work conducted during JAOME 2016 and 2017.

Figure 1. Methodological process for the implementation of JAOME.



Stage 1

WSTF 'Client' plans to carry out a digital mapping exercise in the counties that they have implemented water and sanitation projects in. The client came up with a set of variables that were to assist in getting intended results from interviewee responses. The questions were then fed into the mobile data collection Tool.

Upande Ltd worked on the Mobile Data Collection (MDC) backend i.e. hosting and setting up client's account on the Ona platform. WSTF and Upande then worked together in developing and improving the form, from questionnaire to mobile app ensuring that all checks and controls are captured, and sequence of questions are in the right order.

Stage 1 a & b iterations: While WSTF kept refining the questions based on the internal feedback, Upande team would update the mobile app to ensure everything is well captured.

The General and the Investment forms consisted of 536 projects for pre-loading to the mobile tool. The names and other information were provided to Upande ltd and prefilled in the mobile app. The pre-filled form information included the following data on the facilities, in order of selection:-

1. The County and Constituency where the facility is located
2. The investment window, through which the project was funded
3. The Project name
4. Project Brief: a description of what the facility entails
5. Year of completion of project
6. The programme, through which the project was funded
7. Funding source
8. Facility category: Water Resource project, Sanitation project or Water supply project

The above helped the enumerators to find and assess the specific investment facilities through the mobile application, hence saving time. The project brief also helped in checking what kind of investments were included in the project.

Upande then developed and refined an Android app and deployed it in the App store for ease of access by users.

Stage 2

The plan was to field test the mobile application. However, due to time constraints this phase could not be conducted. Instead, WSTF together with Upande tested the Mobile Data Collection app in the office with the assumption of a field environment.

The enumerators sourced from WSTF staff and CRMs were trained on the data collection and enumeration techniques. After a session of training on how the tool works, the enumerators were sent to the field and mapping work commenced.

Stage 2 c & d Iterations: With the feedback from the field testing team, the questionnaire/form was to get necessary changes.

Stage 3

Stage 3 e:

The Survey data collected by enumerators was sent into the database on a daily basis, preferably in the evening after the days exercise, and being monitored by consultant and Client. Two changes to the mobile collect app necessitated by the situation on the ground were also carried out during the mapping

exercise. The two changes were: (a). Change of selection mode of some items in the questionnaire from single select to multiple select and (b). Addition of some investments that were missing in the form already loaded in the tablet. The enumerators would update the Data collection forms remotely i.e. over the web, by deleting the form in their mobile devices and importing and installing the latest form.

Stage 3 f:

All the while Upande ltd kept WSTF updated on what is going on in the field in regard to the field data being submitted by the enumerators.

Stage 3 g:

WSTF and Upande would on a daily basis communicate with field surveyors regarding any changes, feedback on the quality of work and how to adjust. The data collected was shared with WSTF in CSV form and on a mapping platform to show the facilities' locations.

2.3 Training of field enumerators

The training involved orientation of the field teams comprising of WSTF programme officers, programme assistants and interns involved in the field data collection. A Technical Advisor was also assigned to at least one team. The total number of enumerators was as follows;

i. 6 Team leaders who were WSTF programme officers

ii. 15 Enumerators comprising of programme officers and assistants

iii. 24 CRMs

iv. 4 Technical advisors

Ideally, the training process would involve two stages including a theory which is specifically customized for the project delivered in a classroom setting and then a field exercise to put theory into practice. The following content was covered during the orientation training:-

i. How to install the WSTF app from the Android App store

ii. Downloading the relevant form for use in the mapping

iii. Filling blank form/ questionnaire

iv. Editing the saved data after filling in the questionnaire/interviews

v. Sending the finalized form to the cloud database

vi. Field logistics, team composition and itinerary

vii. Other cross cutting issues such as security, remunerations

viii. Roles and responsibilities

2.4 Field Survey and Organization of the Field Survey/ Data Collection

2.4.1 Sampling

During the first JAOME (2016) all 788 completed WSTF-funded projects from the 5-year period of 2011-2016 were visited in order to establish a baseline data. This baseline data is essential for future operations monitoring for assessing trends in the data collected in the subsequent years. However, due to limited resources, it was not possible to carry out the exercise on the same scope every year. Based on the lessons learnt from the JAOME 2016, the concept and methodology of the exercise was thus revised.

Instead of monitoring all projects as done during the first JAOME of 2016, the projects were instead sampled. The total sample included 445 projects, representing 58% of all projects funded during the review period. The sample was designed to ensure representation in terms of the age of the investments, the different investment programmes as well as counties' distribution. Firstly, the sample varied depending on the age group of the projects. All projects were monitored, when they reached their five-year completion anniversary (sample size of 100%). The projects are considered to be fully handed over to the implementing partners after the period of five years and are no longer monitored by the WSTF. Furthermore, all newly completed projects are monitored within their first year of operation. The 2nd, 3rd, and 4th year-projects are sampled. Of each year 33 percent of the projects were visited. The 33% rotates so that all of the projects are visited once within the three years. After setting the criteria for the sample, the projects were randomly selected.

During the monitoring, each investment/component within each sampled project was visited. This sampling approach has been successfully implemented in the second JAOME of 2017.

2.4.2 Field organization and logistics

The overall coordination, approvals and final authorization was the responsibility of the Manager, Monitoring and Evaluation, while technical backstopping was given by a team of 4 Technical Advisors.

The 445 sample was organized in 6 clusters based on counties, number of projects in the county and distances between projects. The number of projects per cluster ranged between 26 and 122 with the smaller teams allocated to expansive counties. Each cluster was assigned: a WSTF programme officer as the leader in charge of field coordination, leadership and adherence to schedules; At least 2 WSTF programme assistants charged with the responsibility of data collection enumerators to assists. Each CRM had the responsibility of supporting the field teams but exclusively within their county(s) of jurisdiction.

Detailed itinerary was prepared for each cluster in consultation with drivers and the CRMs on the ground. At least one vehicle was allocated to each of the 6 clusters. Annex 3 has details on field organization and logistics.

2.5 Data cleaning and screening

In the second year of JAOME the quality assurance of the data was developed to be more systematic. Information on all the projects to be monitored was loaded to the monitoring tools in order to have a reference to what is expected to be found on the ground including the locations and the project briefs describing the funded project components. Also a two phased quality check was carried out. First, the field teams went through the data with the team leaders before submitting it to the Fund. Secondly, the submitted data with focus on the key indicators, including the operational status, the condition and the

quality of works, were checked against the picture of the investment and, if necessary, changed. Another team double-checked those answers, after which the data sets were ready for analysis.

2.6 Data analysis

2.6.1 Sustainability Index

The sustainability index (SI) was developed as a key performance metric to facilitate assessment and monitoring of sustainability of investments in the Counties. It is a statistical measure describing the sustainability of investments for each County. This tool was established for JAOME 2016 as a key quantitative performance measure to facilitate the assessment and monitoring of sustainability of investments in the Counties to support progress evaluation over time and the development of appropriate response measures. For the purposes of the assessment, sustainability will be defined as the ability of an investment to realize the objectives within 5 years of operation. This definition is purely focused on outcomes and outputs of the investments.

In addition to the County level assessments, the National Level average was assessed and any County with an index of less than 70% of the National Average was red flagged and considered as a High Risk County. The 2017 assessment and analysis builds on the baseline created in 2016. It is expected that refinements to the Index will be made annually in line with best practices, better methodological approaches and availability of better performance indicators. However, in 2017 the same indicators were used so that comparisons to the baseline could be conducted.

The sustainability Index comprises of four categories- the Functionality and Reliability of an investment, Revenue collection, Age and Survival rate, and the Condition of the investment.

The function is specified as:

SI=f (FR, RC, AS, GC)

Where:

SI is the Sustainability Index

FR is the Functionality of the investment

RC is the Revenue Collection

AS is the Age and Survival (and operational) rate of an investment

GC is whether the investment is in Good Condition (and operational)

The Sustainability Index score is between 0 - 100%, with 100% depicting a high sustainability rate of the investments. The Indicators, definition, formula and weight are presented in Table 2. The highest weight (50%) was given to revenue collection with the idea that without revenue collection, the investment does not have long term sustainability. Functionality, i.e. the operational status, is a key attribute to describe the status of the services and is given the weight of 25%. The age and survival rate of the investment is given a weight of 15%. The condition of an investment is given a smaller weight (10%) since the condition is, while important, not essential for the usability and sustainability of the facility.

Table 2. SI indicators, their definitions, formula and weighting used for the calculation of the index.

No.	Indicator	Definition	Formula	Weighting in Index
1.	Revenue Collection	Indicates if water charges are collected.	Calculated as a percentage of investments with revenue collection from total number of investments. This is limited to investments that are expected to collect revenue, namely: Distribution systems; intakes; water resources management structures; livelihoods; Public Sanitation Facilities (PSFs), and; Decentralized Treatment Facilities (DTFs).	50%
2.	Functionality of the investment	The percentage of investments that are operational.	Percentage of investments that are fully operational from the total number of investments.	25%
3.	Age and Survival (operational) rate of an investment	The percentage of investments that are still operational after 2 years since completion.	Percentage of investments that are operational and are over 2 years old out of all the investments of the age over 2 years.	15%
4.	Condition of an Investment (that is also operational)	The percentage of operational investments that are also in good condition.	Investments that are in good condition and operational divided by total number of investments.	10%
	Total			100%

3

STUDY FINDINGS

3.1 Location of the Investments in Kenya

The operations monitoring targeted 445 projects, out of which 414 were decided to be safe to monitor after a closer evaluation, excluding the projects on the Lamu mainland (closed for security reasons). Out of these, 390 were reached, with some factors such as weather, security or closure to access impeding the reach of some projects. The 390 projects covered 1,736 investments, out of which 11 were under Results Based Financing (RBF), 992 under the Urban Investment Programme (UIP), 415 under Rural Investment Programme (RIP) and 318 under Water Resources Investments (WRI) (Figure 2).

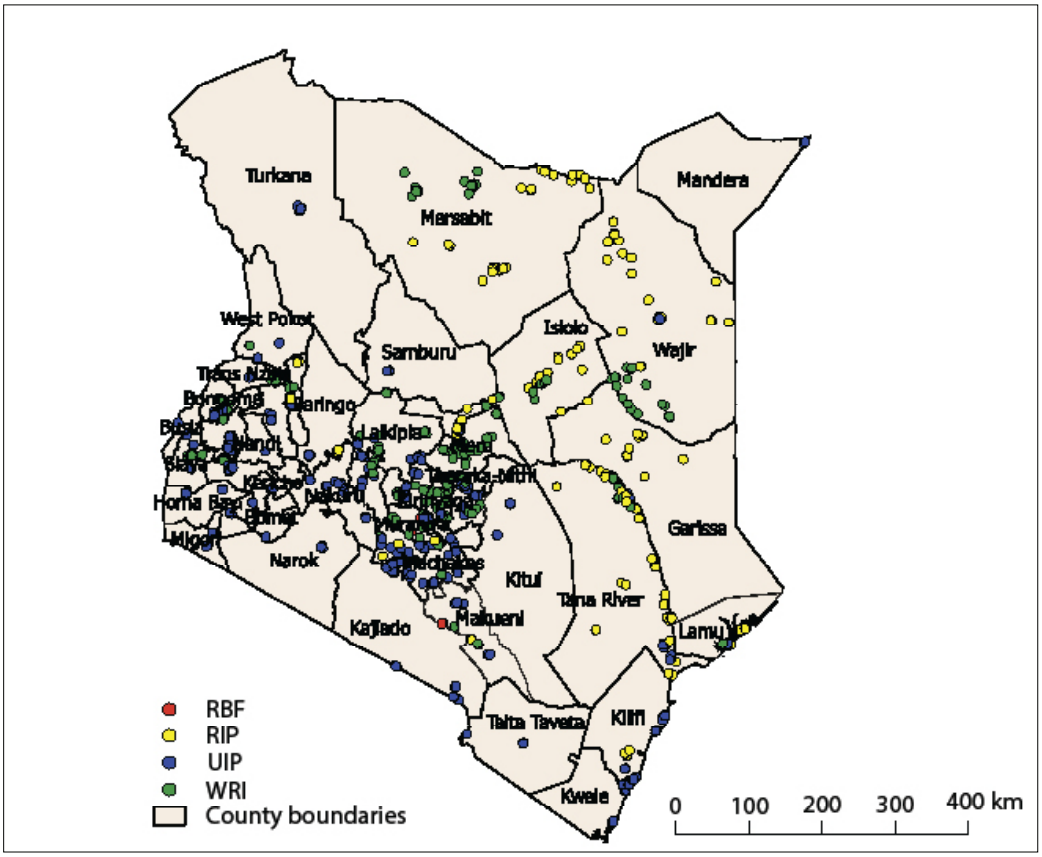


Figure 2. Geo-coordinated locations of the monitored investments by Investment windows: RBF (Results Based Financing), RIP (Rural Investment Programme), UIP (Urban Investment programme), WRI (Water Resources Investments).

3.2 Completion status of Projects

Out of all the investments, 97% were found to be completed, with 100% of investment for RBF, 94% for RIP, 97% for UIP and 96% for WRI (Figure 3). If categorised by year of completion, clear majority of investments were completed for 4- and 5-year old projects, while the newer projects approximately 5% were not found completed on ground (Figure 4).

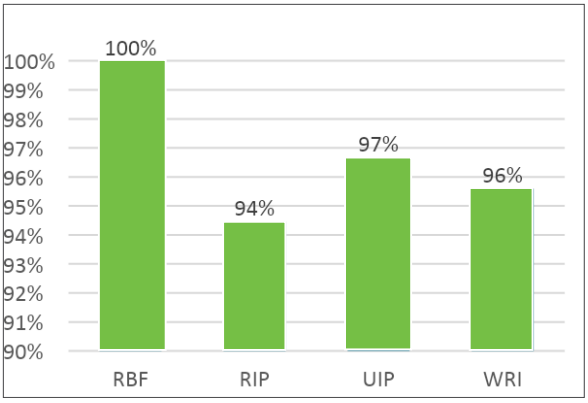


Figure 3. Completion status by programme.

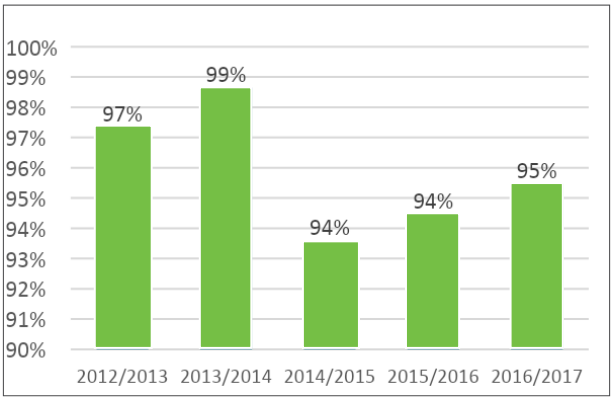


Figure 4. Completion status by stated completion year.

3.3 Operational Status of the Projects

A total of 69% of all visited infrastructures were found to be operational (Figure 5), with 100% of the RBF investments, 76% of the urban investments, 56% of the rural investments and 56% of the water resources investments being operational during the time of visit (Figure 6). When comparing investment categories, sanitation category was the most successful one with 82% of investments operational at the time of visit, whereas 66% of water supply investments and 56% of water resources investments were found to be operational (Figure 7).

The best performing programmes in terms of operational status are the Output Based Aid (OBA), Upscaling Basic Sanitation for the Urban Poor and UPC (Urban Projects Concept), if assessed based on the operational status of the monitored investments (Figure 8). These are all urban programmes, implemented through established Water Service Providers (WSPs). The Kenya Water and Sanitation Project (KWSP) had the least operational investments, partially explained by the fact that the programme is the oldest one of the monitored ones, as it ran during the period of 2005-2013.

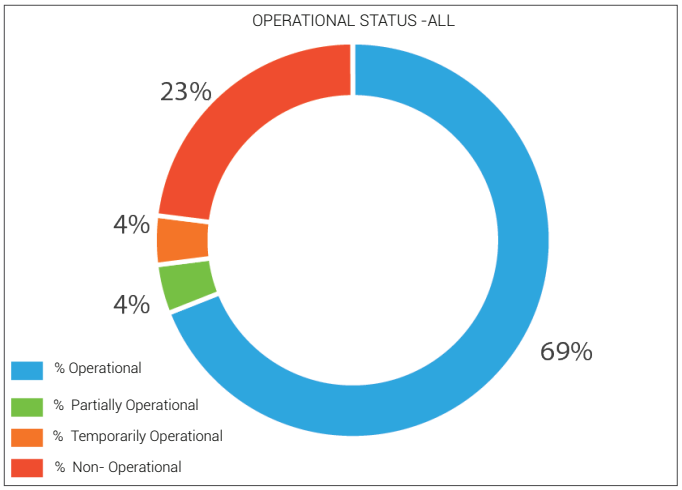


Figure 5. Operational status of all investments funded by WSTF during 2012 – 2017.

An investment was considered operational if it was operating at the time of visit; temporarily stopped if the structure was functional but for example the water source was temporarily dry, partially operational if some of the investment was operating while some components were not, and non-operational if the investment was completely non-functional, it was not being operated or used or the water source permanently dry.

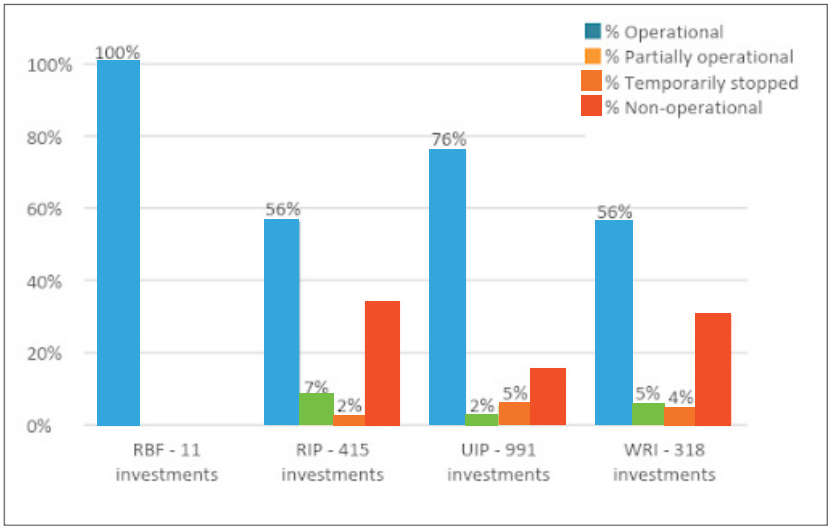


Figure 6. Operational status by investment programme RBF (Results Based Financing), RIP (Rural Investment Programme), UIP (Urban Investment Programme), WRI (Water Resources Investments).

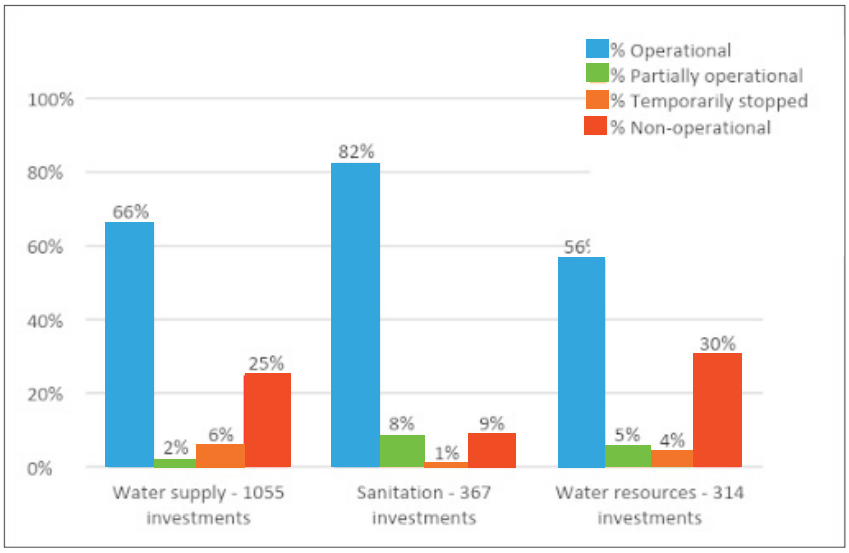


Figure 7. Operational status by investment category.

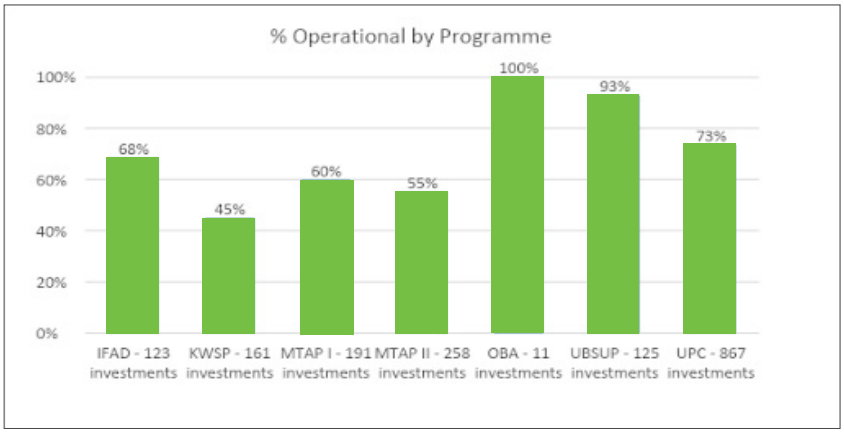


Figure 8. Operational status by programme: IFAD (International Fund for Agricultural Development), KWSP (Kenya Water and Sanitation Programme), MTAP I and II (Medium-Term Arid and Semi-Arid (ASAL) Programme), OBA (Output Based Aid), UBSUP (Upscaling Basic Sanitation for the Urban Poor) and UPC (Urban Projects Concept).

3.3.1 Water supply investments

The most common water supply investment types and their operational status are presented in Figure 9, showing that the more successful water supply investments have been pipelines, boreholes and storage tanks, whereas none of the seven water pans were found to be fully operational. The non-operational status of the water pans can be partially explained by the prevailing drought conditions at the time of monitoring.

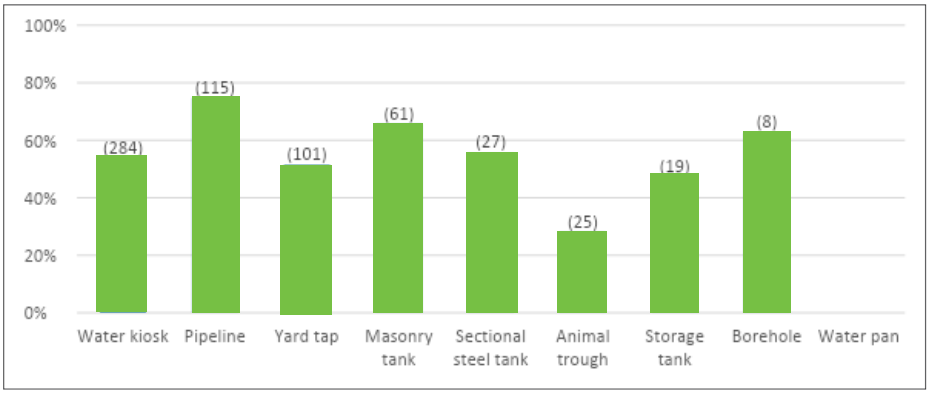


Figure 9. Operational status of the most common water supply investment types. Number below in brackets indicates the number of investments in that category.

3.3.2 Sanitation

Out of the sanitation investment types, the household sanitation funded under the Upscaling Basic Sanitation for the Urban Poor (UBSUP) concept as well as the Public Sanitation Facilities (PSFs) were most commonly operating (Figure 10). The PSFs were commonly found to be in frequent use with a good level of revenue collection.

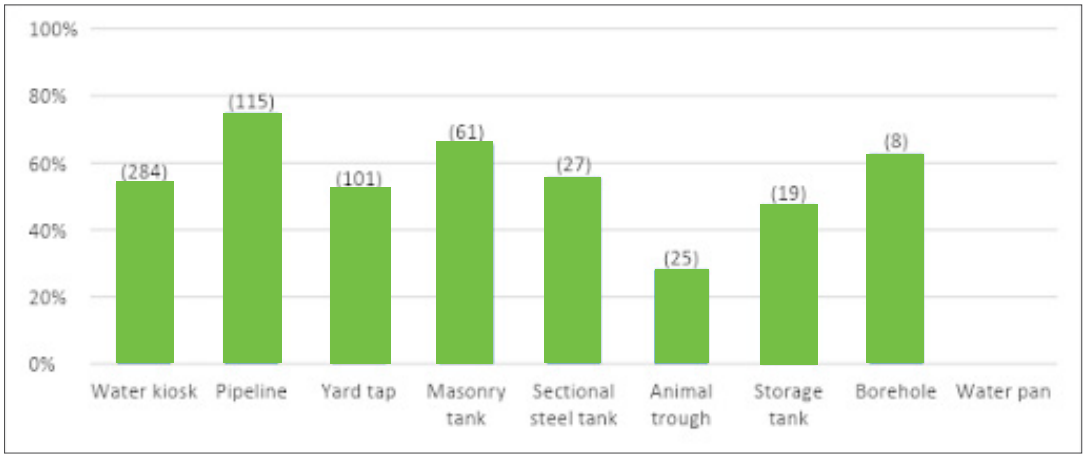


Figure 10. Operational status of the sanitation investment types. Number below in brackets indicates the number of investments in that category.

3.3.3 Water resources

In water resources, the energy saving jikos and the tree nurseries were more successful with over 80% of the investments found to be operational, whereas the water harvesting tanks were commonly found to be non-operational due to often missing a connection to the water harvesting structures (Figure 11). Instead of operating for collecting rainwater, the tanks were commonly used for storage for other purposes. If the arid counties, namely Garissa, Isiolo, Lamu, Mandera, Marsabit, Tana River, Turkana and Wajir, are analysed separately, they generally have a lower success rate for many of the water resources

investments. For example only two of the four (50%) monitored tree nurseries were found successful. Similarly, of the 76 monitored rainwater harvesting tanks, 22 were found operational (29%) across the eight arid counties, demonstrating that the suitability of such investments in those counties should be reconsidered.

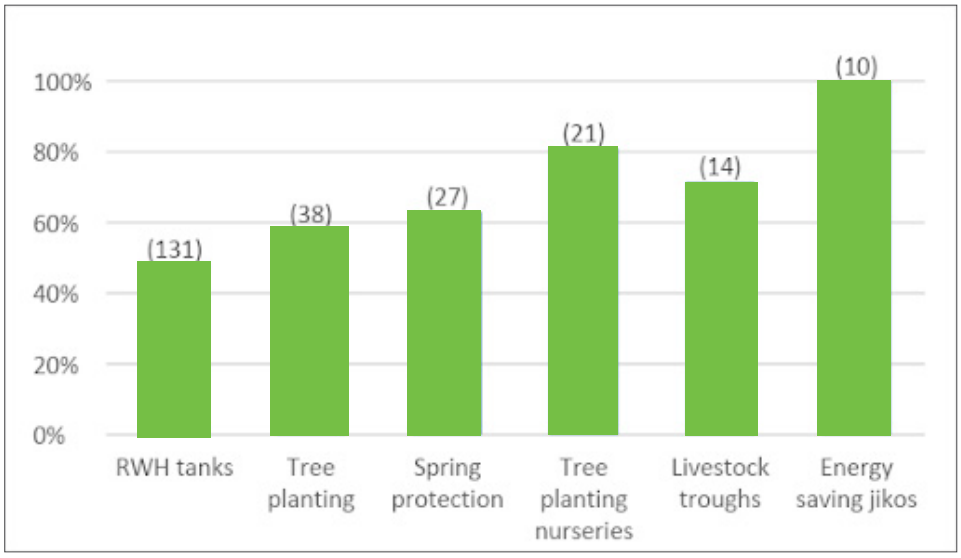


Figure 11. Operational status of the most common water resources investment types. Number below in brackets indicates the number of investments in that category.

3.4 Sustainability Index

3.4.1County Sustainability Index

The County Sustainability Index (CSI), calculated using the four indicators described in Section 2.6.1, ranks counties based on their performance (Figure 12). The results for the CSI show that there is a large variance in terms of the sustainability of investments across the counties. The best performing counties were Nyandarua (70 investments), Migori (18 investments), Turkana (27 investments), Kakamega (14 investments), Kisumu (33 investments) and Narok (28 investments), in that order. Counties with less than 10 monitored investments were excluded from the analysis as the sample was considered too small to be representative for a comparison with other counties. In all top performing counties majority of the projects were funded through the urban investment window. All of these Counties reached a score of 80% or above.

Figures 13, 14, and 15 present the results for the CSI separately for each investment window, for the UIP and RBF, the RIP, and the WRI, respectively. For the UIP and RBF investments (Figure 13), the best performing counties were Nyeri (24 investments), Nyandarua (70 investments), Migori (18 investments), Kilifi (84 investments), Embu (30 investments) and Elgeyo Marakwet (17 investments), in that order. All of these Counties reached a score of 90% or above. Counties with less than 10 monitored investments were excluded from the analysis.

For the RIP investments (Figure 14), the best performing counties were Lamu (13 investments), Tana River (59 investments) and Garissa (95 investments), in that order. All of these Counties reached a score of 50% or above, with only one above 80%. Counties with less than 10 monitored investments were excluded from the analysis, leaving 11 Counties to be scored with the CSI.

For the WRI investments (Figure 15), the best performing counties were Vihiga (13 investments), Embu (28 investments), Nyeri (20 investments), Kirinyaga (23 investments) and Isiolo (18 investments) in that

order. All of these Counties reached a score of 35% or above, with only one above 40%. Counties with less than 10 monitored investments were excluded from the analysis, leaving 14 Counties to be scored with the CSI.

The results show (Figure 16) that the rural investments scored 45% for sustainability, with rural water supply scoring 35% and rural sanitation 69%. Water resources scored 32%. Urban investments reached a higher success rate of SI score of 72%, with 68% for water supply and 93% for sanitation. The performance difference between urban and rural projects is largely related to revenue collection, the primary indicator selected for sustainability, which is higher for urban investments. In both JAOME 2016 and 2017, the urban investments, due to their connection to the established WSPs, collect revenue leading to a consistently higher SI. This points to the need to build a strong culture of revenue collection and management under a regulatory regime preferably linked to the Water and Sanitation Regulatory Board (WASREB) for the upcoming rural Water Utilities (WUs).

It should be noted that while the SI can be used as indicative of the sustainability of investments in counties, it cannot be used as the sole indicator to determine future investments, as more performance indicators are necessary to provide a fully informed and accurate picture of the performance of each county. The relevance of the SI is strongly influenced by the numbers and values of investments, in this case, the per capita investment costs. In the future, investment per capita should be reflected to the SI results in order to inform the investment policy of WSTF on the most optimal size and amount of funding to reach sustainable results.

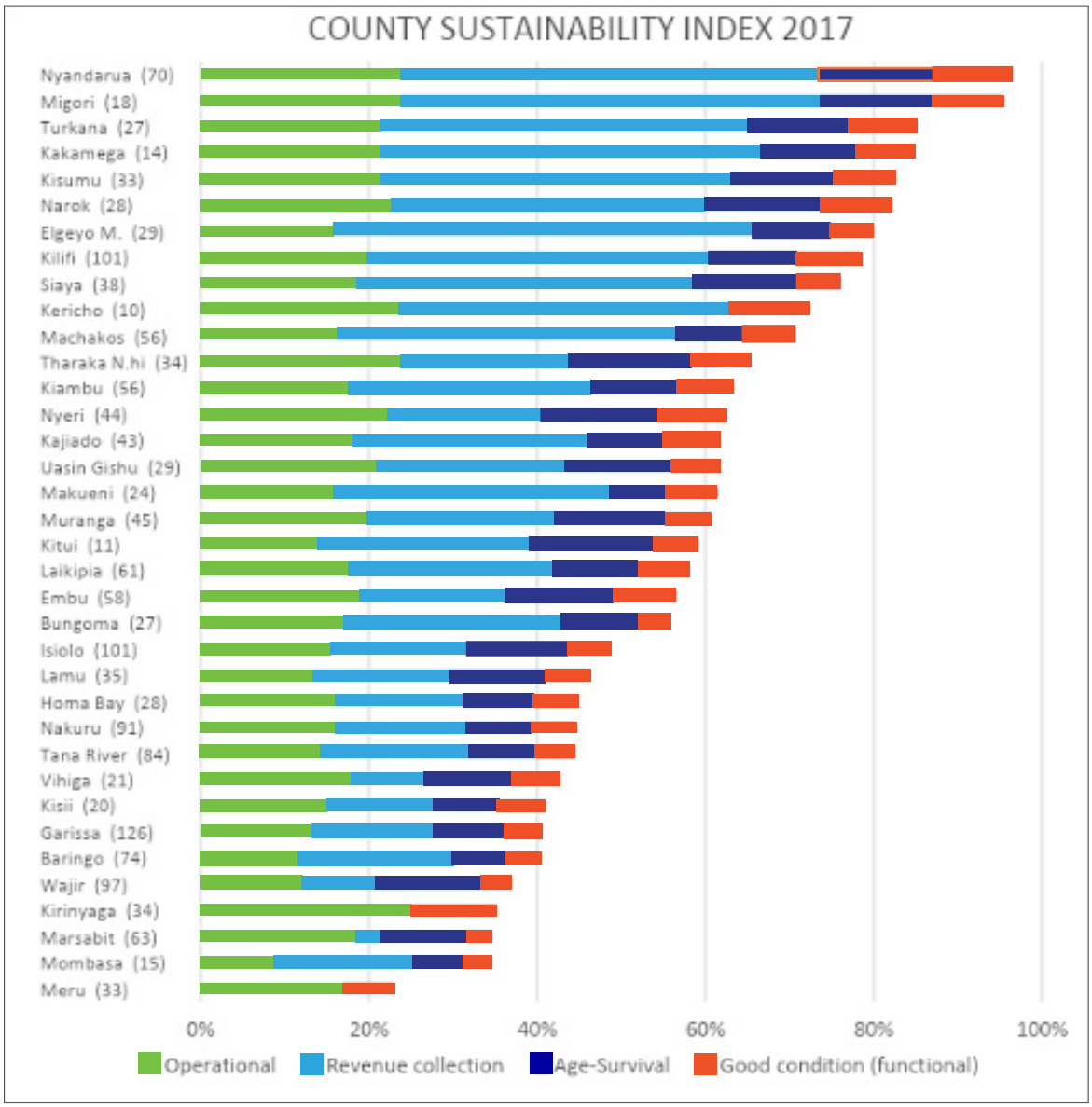


Figure 12. County sustainability index (CSI) 2017 for counties with a sample size of above 10 investments (number in brackets indicates the number of sampled investments in each county). The indicators contributing to the CSI are the following: Functionality (=facility is operational at the time of visit) of the investment (25%), Revenue Collection (Weight 50%), Age and Survival (operational) rate of an investment (Weight 15%), Condition of an Investment (that is also operational) (10%).

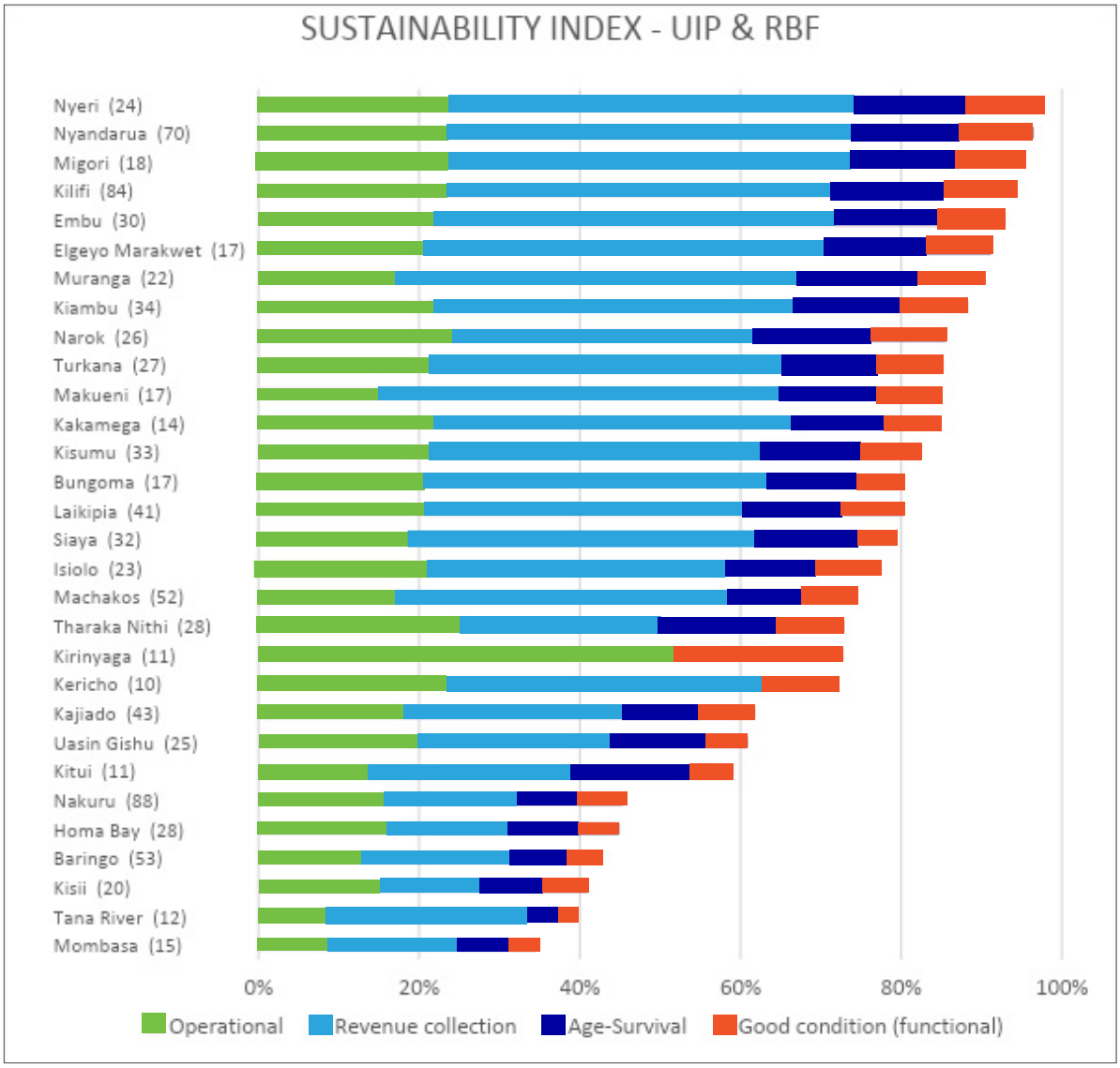


Figure 13. County sustainability index (CSI) 2017 for UIP and the RBF for counties with a sample size of above 10 investments (number in brackets indicates the number of sampled investments in each county). The indicators contributing to the CSI are the following: Functionality (=facility is operational at the time of visit) of the investment (25%), Revenue Collection (Weight 50%), Age and Survival (operational) rate of an investment (Weight 15%), Condition of an Investment (that is also operational) (10%).

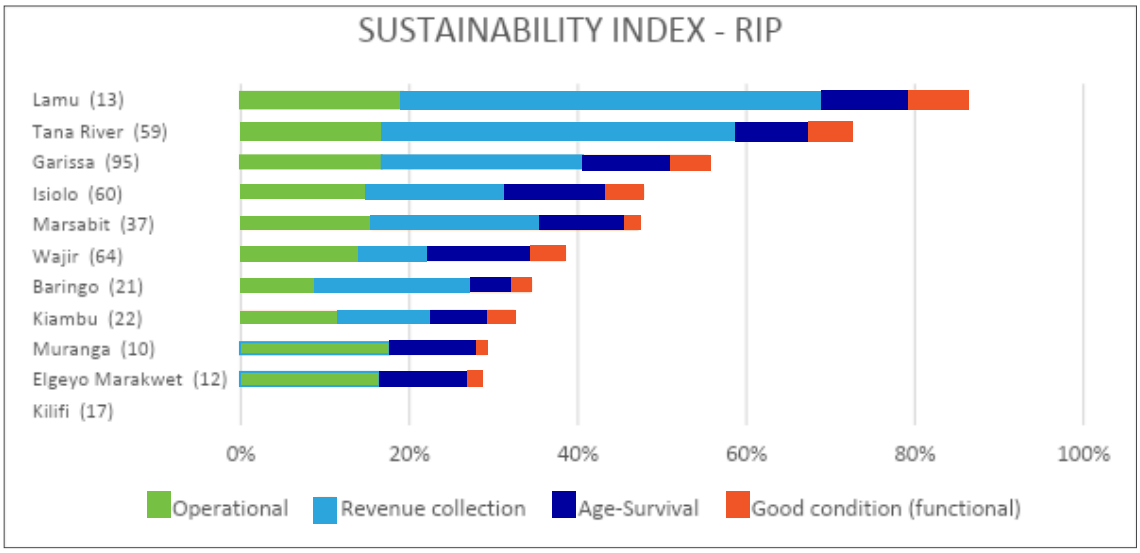


Figure 14. County sustainability index (CSI) 2017 for RIP for counties with a sample size of above 10 investments (number in brackets indicates the number of sampled investments in each county). The indicators contributing to the CSI are the following: Functionality (=facility is operational at the time of visit) of the investment (25%), Revenue Collection (Weight 50%), Age and Survival (operational) rate of an investment (Weight 15%), Condition of an Investment (that is also operational) (10%).

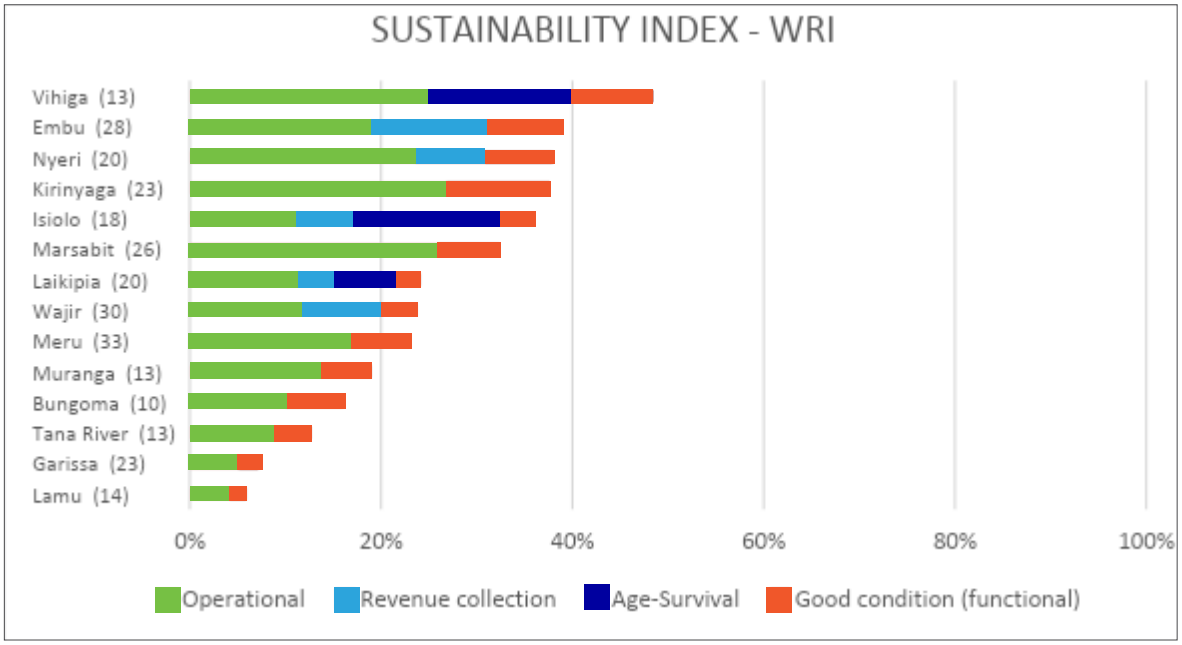


Figure 15. County sustainability index (CSI) 2017 for WRI for counties with a sample size of above 10 investments (number in brackets indicates the number of sampled investments in each county). The indicators contributing to the CSI are the following: Functionality (=facility is operational at the time of visit) of the investment (25%), Revenue Collection (Weight 50%), Age and Survival (operational) rate of an investment (Weight 15%), Condition of an Investment (that is also operational) (10%).

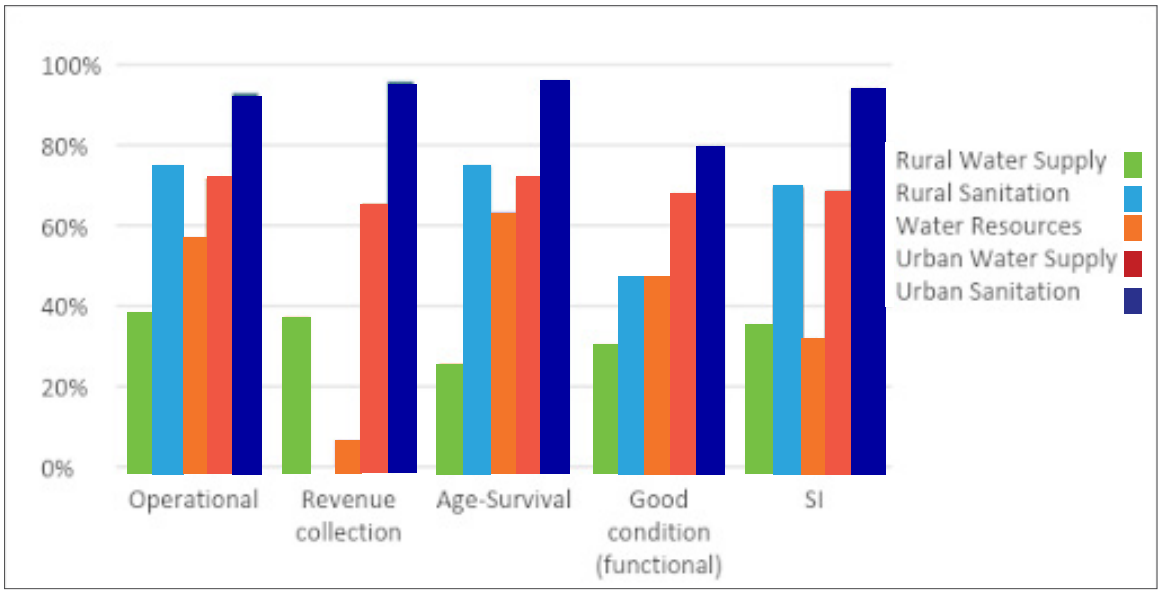


Figure 16. The Sustainability Index (SI) and its four indicators for RIP Water Supply, RIP Sanitation, WRI, UIP Water Supply and UIP Sanitation. The indicators contributing to the SI are the following: Functionality (=facility is operational at the time of visit) of the investment (25%), Revenue Collection (Weight 50%), Age and Survival (operational) rate of an investment (Weight 15%), Condition of an Investment (that is also operational) (10%).

3.4.2 County Flagging on the Basis of the Sustainability Index

The JAOME (2017) among other objectives sought to assess the level of sustainability of investments as well as flag the Counties that would be determined as having low levels of sustainability. In addition to the County level assessments, the National Level average was assessed and any County with an index of less than 70% of the National Average was red flagged and considered as a High Risk County. Only counties with more than 10 investments monitored were included in the comparison. While some comparison can be carried out in terms of the CSI scores, some reservation to the interpretation of the results should be granted. There is a clear difference between the performance of counties which had more urban projects and those which had more rural projects, the former generally performing better than the latter. The CSI thus depends largely on the type of investments that are monitored that specific year. However, counties performing consistently well or poorly based on the SI helps in the consideration for future WSTF support, but observing this requires a long-term and systematic monitoring.

The National Average sustainability index was 55% and based on the predetermined criteria (any County with an index of less than 70% of the National Average), 70% of the National Average was 38%, essentially meaning that the classification would be as follows:

*Table 3 . Performance criteria for County Flagging. *CSI= Aggregate total of each County*

Performance Criteria	Flagging categories	Flagging status
A county with an SI above 80% of the National Average; *CSI≥80%	A county with an SI above 44%	Green
A county with an SI between 71% and 79% of the National Average; 70%>*CSI<80%	A county with an SI between 38% and 44%	Amber
A county with an SI below 70% of the National Average; *CSI<70%	A county with an SI below 38%	Red

Table 4 . County Flagging on the Basis of the Sustainability Index.

No.	Ranking of Counties based on CSI 2017	Flagging status
1	Nyandarua	Green
2	Migori	
3	Turkana	
4	Kakamega	
5	Kisumu	
6	Narok	
7	Elgeyo Marakwet	
8	Kilifi	
9	Siaya	
10	Kericho	
11	Machakos	
12	Tharaka Nithi	
13	Kiambu	
14	Nyeri	
15	Kajiado	
16	Uasin Gishu	
17	Makueni	
18	Muranga	
19	Kitui	
20	Laikipia	
21	Embu	
22	Bungoma	
23	Isiolo	
24	Lamu	
25	Homa Bay	
26	Nakuru	
27	Tana River	

No.	Ranking of Counties based on CSI 2017	Flagging status
1	Vihiga	Amber
2	Kisii	
3	Garissa	
4	Baringo	
1	Wajir	Red
2	Kirinyaga	
3	Marsabit	
4	Mombasa	
5	Meru	

Table 5 . Sustainability Index of water supply by rural investment types.

Investment TYPE	Tot No of investments	Functional	Revenue collection	Age-survival (operational)	Good Condition	SI
Building	3	33%		33%	33%	33%
Distribution system	80	31%	35%	8%	21%	29%
Intake / water source	19	42%	56%	57%	32%	50%
Pipeline	15.	40%	10%	0%	33%	27%
Pipeline appurtenances	13	23%		0%	23%	16%
Pump / Energy source	14	50%		17%	50%	40%
Rainwater harvesting	29	55%		65%	41%	55%
Storage tank	29	38%		24%	34%	33%
Water supply ALL	**202**	**38%**	**37%**	**26%**	**30%**	**40%**

Table 6. Sustainability Index of sanitation by rural investment types.

Investment TYPE	Tot No of investments	Functional	Revenue collection	Age-survival (operational)	Good Condition	SI
Community sanitation facility	48	77%		91%	52%	**76%**
Household sanitation	1	100%		100%	0%	**80%**
Institutional sanitation	161	74%		73%	45%	**68%**
Sanitation ALL	**210**	**75%**		**75%**	**47%**	**69%**

3.4.3.2 Sustainability Index for water resources investments

The water resources investments performed slightly lower with a 32% sustainability score (Table 7). The water resources schemes are commonly related to catchment conservation and thus do not collect revenue which leads to a lower sustainability score. Some investments, which currently do not collect any revenue, would have a potential to do so. An example of this would be livelihood investments.

Table 7. Sustainability Index of water resources investment types..

Investment TYPE	Tot No of investments	Functional	Revenue collection	Age-survival (operational)	Good Condition	SI
Water resources management structures	182	53%	5%	74%	43%	**31%**
Catchment management	114	60%	13%	35%	51%	**32%**
Regulation	8	88%	50%	100%	88%	**71%**
Livelihood	7	86%	0%		43%	**30%**
Water resources ALL	**311**	**57%**	**6%**	**63%**	**47%**	**32%**

3.4.2.3 Sustainability Index for water supply by urban investment

The sustainability index for the urban investment types is generally higher than for the rural investments with average score of 68% for water supply and 93% for sanitation (Tables 8-9). The more successful investment types are buildings, intakes, pumps, public sanitation schemes and sewer network extensions. Distribution systems and DTFs scored lowest.

Table 8. Sustainability Index of water supply by urban investment types.

Investment TYPE	Tot No of investments	Functional	Revenue collection	Age-survival (operational)	Good Condition	SI
Building	3	100%		100%	100%	100%
Distribution system	613	69%	65%	68	64%	67%
Intake / water source	1	100%			100%	100%
Pipeline	100	77%	%	84%	74%	78%
Pipeline appurtenances	53	94%		94%	87%	93%
Pump / Energy source	4	100%		100%	100%	100%
Storage Tank	73	70%		73%	70%	71%
Water supply ALL	**847**	**72%**	**65%**	**92%**	**68%**	**68%**

Table 9. Sustainability Index of sanitation by urban investment types.

Investment TYPE	Tot No of investments	Functional	Revenue collection	Age-survival (operational)	Good Condition	SI
DTF	12	50%			50%	**50%**
Household sanitation	117	97%		75	80%	**87%**
PSF	24	96%	96%	100%	92%	**96%**
Sewers	3	100		100	67	**93**
Sanitation ALL	**156**	**93%**	**96%**	**96%**	**79%**	**93%**

3.5 Comparison to JAOME 2016

3.5.1 County Sustainability Index

The following are the challenges experienced during the exercise; The JAOME 2016 provides a useful baseline for comparisons to the data collected in the subsequent years. The comparisons should however be done with caution since there are some differences in the methodology used in the first and the second year.

Firstly, the projects are different as the first year covers those of 2011-2016 and the second year those of 2012-2017. Secondly, the projects of years 2013-2016 were sampled for JAOME 2017. The CSI thus depends largely on the type of investments that are monitored that specific year. Thirdly, the quality control for the data was more systematic during the second year as described in methodology section. This meant that it was determined more strictly whether or not a specific investment is considered to be actually operational, affecting the overall sustainability score.

Fourth, some changes were done to the tools, including the question on revenue collection more

specifically directed on investments such as distribution systems, intakes, water resources management structures, livelihoods, PSFs and DTFs. During JAOME 2017 the revenue indicator was calculated as the percentage where revenue is collected out of the number of investments where revenue should be collected. In JAOME 2016 the indicator was calculated as percentage of investments where revenue collected out of all investments (including investments such as fencing). The new method of calculating is more precise but naturally also results in a change in the indicator value. Also, in JAOME 2016 a proxy indicator for revenue collection for the urban data had to be used, as projects were approximated to be collecting revenue if revenue collection efficiency for the project areas were > 0%. This meant that the revenue collection indicator was estimated more optimistically in 2016, whereas in 2017 the indicator was more accurate.

The overall national SI was 56% in 2016 and 55% in 2017, and thus there was no major difference between the two monitoring years. The county SI partially followed the same patterns as last year, with counties such as Meru, Wajir, Baringo, Garissa, Vihiga, Tana River, Nakuru, Lamu, Isiolo, Makueni, Kajiado, Tharaka Nithi, Kakamega and Nyandarua getting the SI index with a less than 10% difference to the previous year (of the Counties where at least 10 investments were sampled in 2017) (Figure 17).

The counties where a difference of more than 20% to last year's index occurred included: Mombasa, Marsabit, Homa Bay, Embu, Kitui, Kericho, Elgeyo Marakwet, Narok and Turkana (of the Counties where at least 10 investments were sampled in 2017). No projects in Kirinyaga and Migori were monitored in 2016, therefore appearing blank in Figure 17.

In Mombasa the SI score had lowered drastically compared to 2016 as only one fully functional project was monitored for JAOME 2017, out of 3 in total. In Junda/Vikwatani Water Project two of the water kiosks were found non-operational, one lacking a water source and another due to operational issues. Of the two other projects monitored in Mombasa one new one was found incomplete (Bokole Water Pipeline Extension) and one 5-year old one which was almost entirely non-operational due to the area not having enough water for the project to run (Mtongwe Water Project).

In Marsabit, majority of the projects monitored both in 2016 and 2017 were institutional sanitation and rain water harvesting structures. During JAOME 2017 specific care was taken to cleaning the data and making sure that if for example a toilet was missing doors or if a rain water harvesting tank was not connected to the gutter, they were not recorded as functional. This most likely has lowered the score for the Marsabit investments this year.

The CSI score was also much lower for Homa Bay in JAOME 2017 in comparison to JAOME 2016 as revenue collection in the projects monitored were more irregular, whereas in the previous year revenue was recorded as being collected at 100% of the infrastructure monitored. The difference can partially be explained by the proxy indicator used for urban projects in 2016.

In Embu the main difference between years 2016 and 2017 in terms of the SI score is found in the revenue collection efficiency. Four recently completed WRUA projects were monitored in Embu, which commonly have a challenge in revenue collection, thus affecting the SI score negatively. Also in Kitui the revenue collection was the largest determinant in the difference between the SI score in the previous year in comparison the next year. The same was found in Kericho, where the difference in the SI score of 2016 and 2017 can be largely explained by the difference in revenue collection and the change in the methodology applied in estimating the indicator.

A major improvement in the SI score since 2016 occurred in Elgeyo Marakwet, Narok and Turkana. In Elgeyo Marakwet three rural projects and 1 urban project were monitored in 2016, when the urban project was found mostly functional, whereas the rural investments were largely found non-operational due to poor maintenance and vandalism. In 2017 two rural and two urban projects were monitored,

where the two urban projects were found largely operational whereas one of the 5-year old rural projects was fully non-operational. A significant change in the SI score for Narok can be explained by the fact that in 2016 two largely non-operational rural projects were monitored whereas in 2017 four mainly operational urban projects were monitored. Finally, in Turkana the projects monitored in 2017 mostly collected revenue, which improved the SI score considerably. In the rest of the counties the difference between the SI score in 2016 and in 2017 ranged between 10-20%.

This chapter highlights the importance of systematic collection of operations monitoring data spanning a couple of years prior to concrete conclusions on the county performance can be made. Once a couple of years of evidence on sustainability has been collected, clearer patterns can be detected from the data. In the future the red flagged counties will be required to submit a sustainability improvement plan and reports during their submission of funding proposals to insure that identified implementation challenges are adequately addressed and monitored. This approach however depends on the programme in question and whether or not it has required counterpart commitment from the county. For example, school WASH through the MTAP programme (Medium-Term Arid and Semi-Arid (ASAL) Programme) is run solely by the school management committee and implemented through the Community Based Organisations (CBOs), and the responsibility of the sustainability of the project should lie with the funded school.

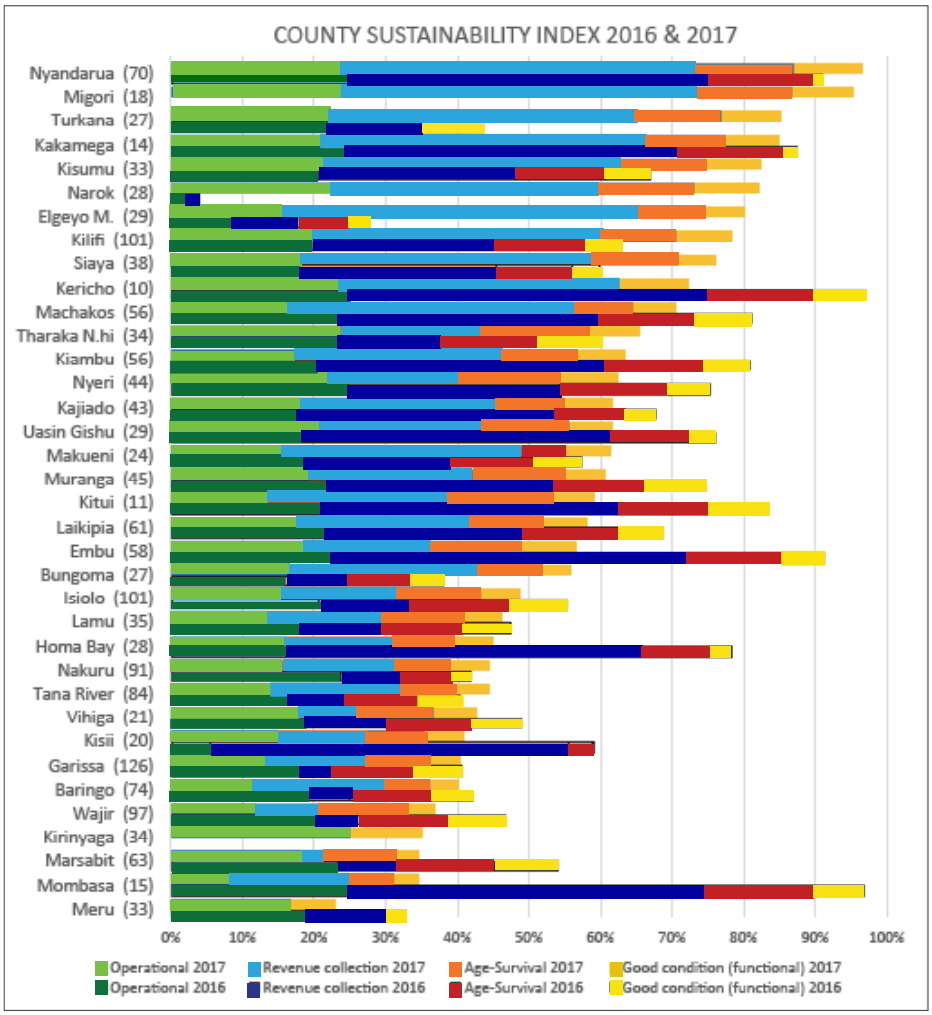


Figure 17. County Sustainability Index (CSI) and related indicators in 2016 and 2017 for counties with a sample size of above 10 investments (number in brackets indicates the number of sampled investments in each county in 2017). The indicators contributing to the CSI are the following: Functionality (=facility is operational at the time of visit) of the investment (25%), Revenue Collection (Weight 50%), Age and Survival (operational) rate of an investment (Weight 15%), Condition of an Investment (that is also operational) (10%).

3.5.2 Sustainability Index for key investment types

If key investment types, namely water kiosks, yard taps, PSFs and rain water harvesting (RWH) tanks are compared for the results of the SI in 2016 and in 2017, it is evident that they follow similar patterns across the two years (Figure 18-21). The water kiosks and yard taps have a slightly lower score for each indicator, but this is most likely as a result of more systematic data cleaning conducted in 2017, where a strict criteria was applied for determining whether or not an investment is operational. The monitored PSFs show a better score in the subsequent year, largely due to a more frequent revenue collection.

Also, many of the newly monitored facilities had been completed in year 2016/2017, which has a positive impact on the recorded overall operational status of the PSFs. For RWH tanks, the indicators for operational status and for condition were significantly lower than in the previous year mostly because the data cleaning carried out in 2017 meant that many of the tanks recorded as operational were changed to non-operational due to the tank not being connected to the gutter, even if they were operating as storage tanks instead of for rainwater harvesting.

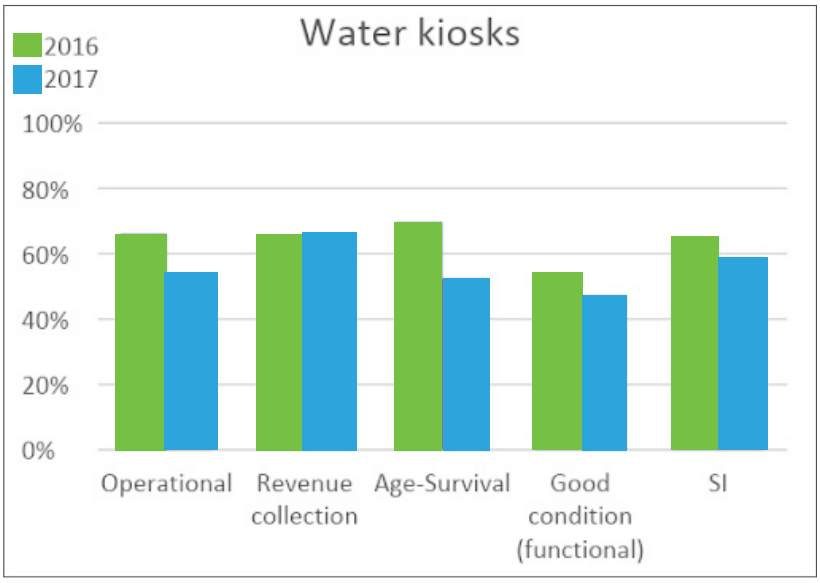


Figure 18. Sustainability Index for water kiosks.

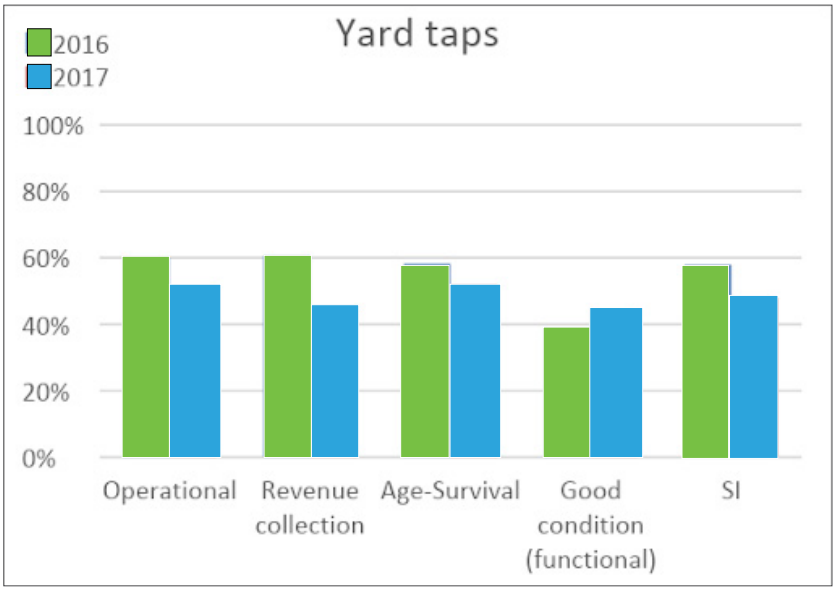


Figure 19. Sustainability Index for yard taps.

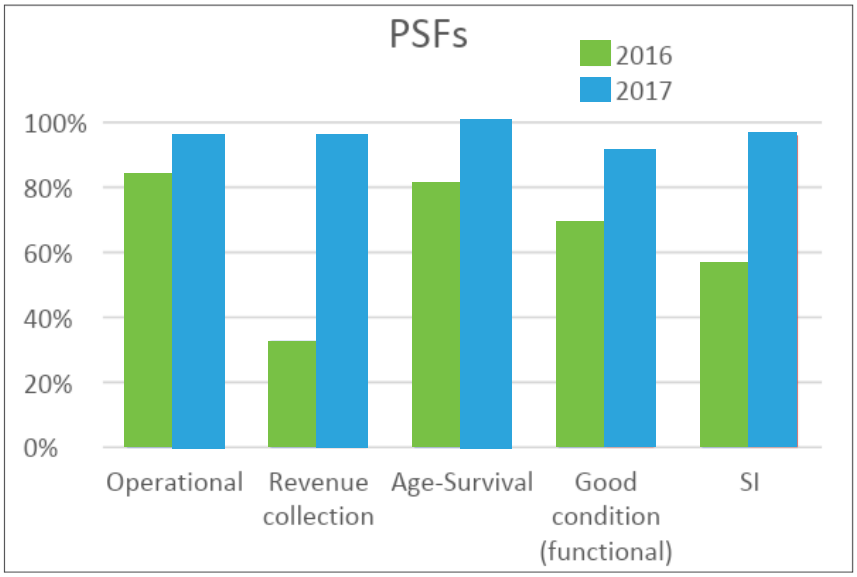


Figure 20. Sustainability Index for PSFs.

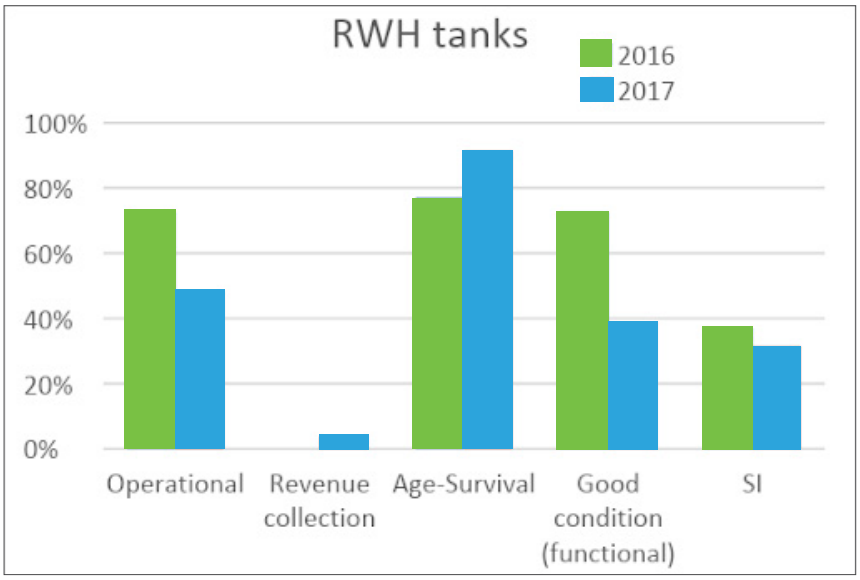


Figure 21. Sustainability Index for RWH tanks.

4

SUSTAINABILITY OF THE PROJECTS

4.1 Technical Verification and Condition of the Schemes

Many aspects contribute to the sustainability of the investments, namely technical condition and quality of works, financial sustainability, governance and management of projects as well as social issues, such as inclusion of women, youth and people with disabilities in the designing and operation of a project. This chapter reviews these aspects in the WSTF-funded investment through the data collected during JAOME 2017.

4.1.1Technical quality of schemes

The JAOME 2017 exercise assessed four parameters for the technical quality of the schemes. These were: (1) Condition; (2) Quality of works; (3) Need of repair, and (4) Reliability (Figure 22). A large majority of investments have been successful in terms of the technical quality, though the biggest challenge has been the reliability of the service provided, as merely 53% of investments were stated to provide a regular service in terms of water provision.

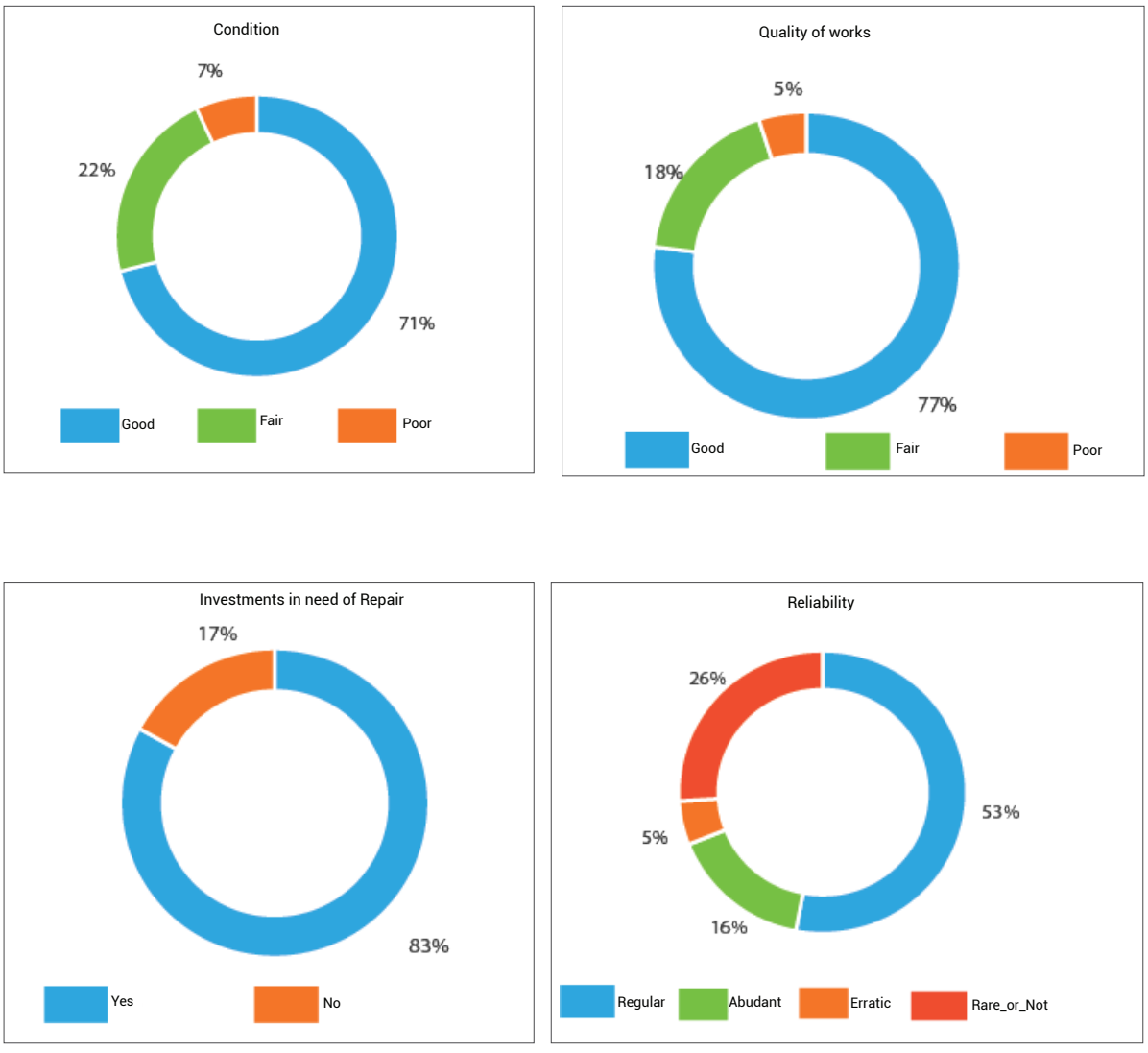


Figure 22. Condition, Quality of works, Need of repair.and Reliability of all mentioned investments 2012

When comparing the different investment programmes (RBF, RIP, UIP, WRI), the Results Based Financing and urban programmes have been the most successful ones in terms of condition and quality of works (Figures 23 and 24). This better success rate in technical quality is linked to the implementation partners being the more established WSPs instead of communities, rural WUs or Water Resources User Associations (WRUAs).

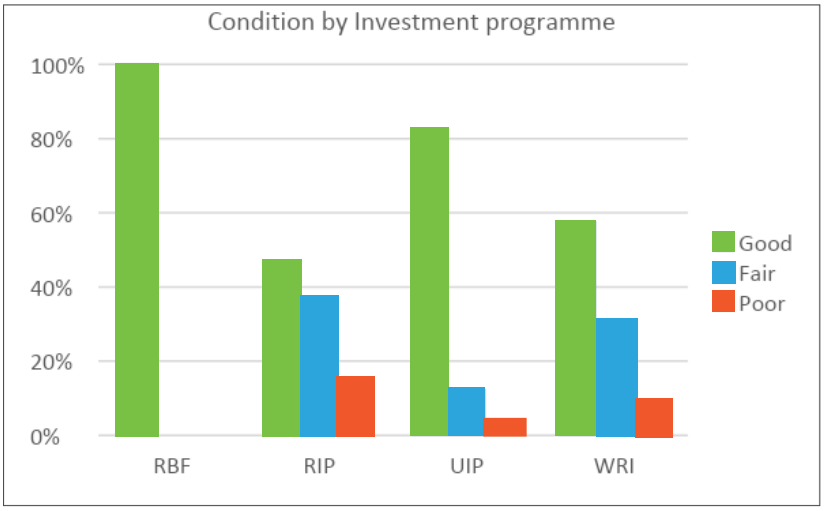


Figure 23. Condition of schemes by investment programme (RBF, RIP, UIP, WRI).

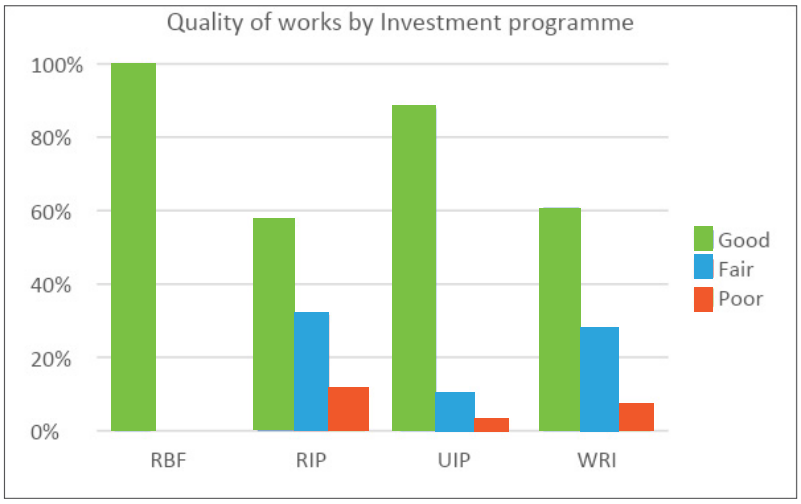


Figure 24. Quality of works by investment programme (RBF, RIP, UIP, WRI).

4.1.2 Water quality and quantity

JAOME 2017 assessed the water quality and quantity for the following investment categories: Intakes / Water sources; Storage tanks; Distribution systems; RWH tanks; Water resources regulation structures; Tree planting; Water resources management structures, and; Livelihoods (See Annex 2 for reference). In 46% of cases the water was either abundant or enough in the facility and in 23% of cases the facility was permanently dry (Figure 25). In 58% of case the quality was also good, while in only 1% the quality was considered poor.

Across Kenya in the WSTF-funded facilities the water quantity and quality seem to follow a recognizable pattern (Figure 26). In the central and south-western Kenya the quantity and quality are generally better, whereas especially in the north-eastern regions the quantity is limited and quality poorer. This is linked to the rainfall patterns, where particularly Northern Kenyan Counties record very low measures of annual precipitation.

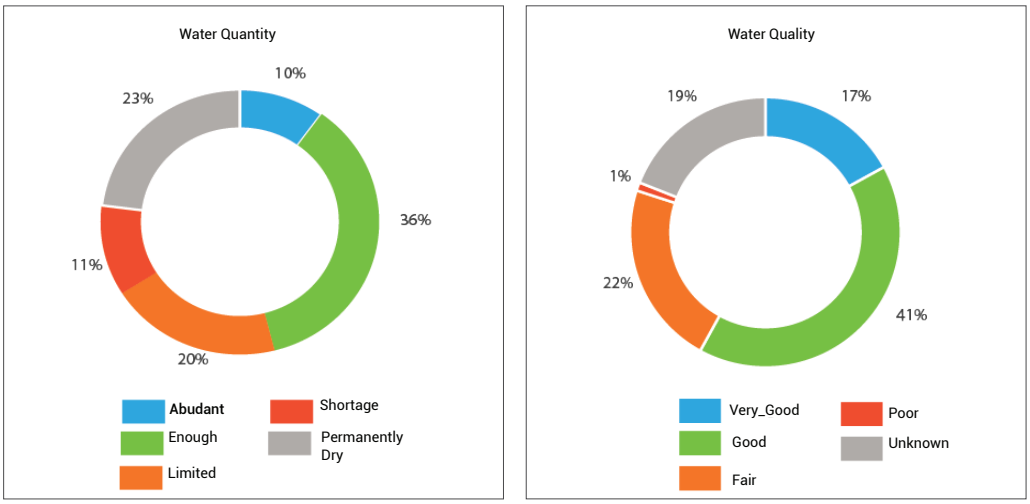


Figure 25. Water quality and quantity in 2017 in WSTF-funded facilities.

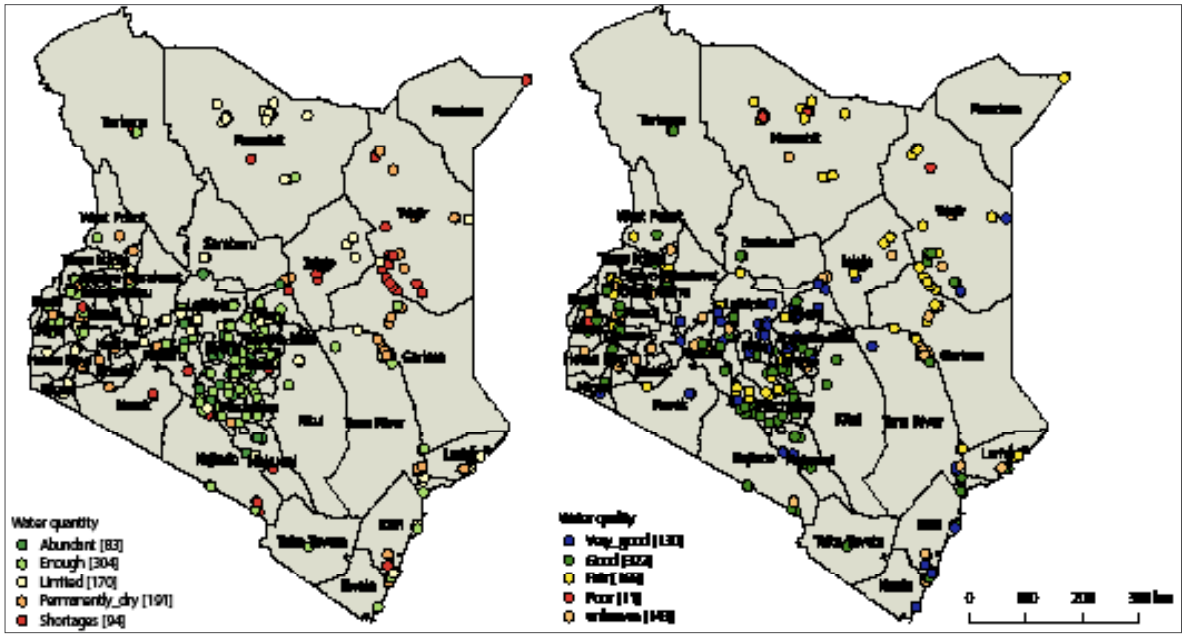


Figure 26. Water quantity and quality in WSTF projects across Kenya.

4.1.3 Water quality and quantity

Three key parameters were observed specifically regarding the quality of the sanitation facilities were: (1) Hygiene levels; (2) Availability of handwashing facilities, and; (3) Distribution of HIV materials (Figure 27). In general, in 92% of the facilities the hygiene levels were considered to be good or fair. A major omission is though that in 76% of the facilities there were no handwashing facilities, and in 87% no HIV materials had been distributed as intended.

When comparing the rural and urban sanitation investments, it is evident that more commonly the urban sanitation facilities had better hygiene levels and more often provided handwashing facilities (Figure 28). This is because the urban sanitation projects are commonly PSFs, which have a clear operation and maintenance structure, with regular revenue collection. The rural facilities are mostly school sanitation facilities, where maintenance is often neglected. However, providing handwashing facilities in schools should be paid much more attention to, as these are key places for promoting public health. In general, as seen in Figures 29 and 30, hygiene levels were found to be better in the PSFs and the household sanitation facilities, where also the handwashing facilities are commonly provided.

Figure 27. The three key parameters for the quality of the sanitation facilities: (1) Hygiene levels; (2) Availability of handwashing facilities, and; (3) Distribution of HIV materials.

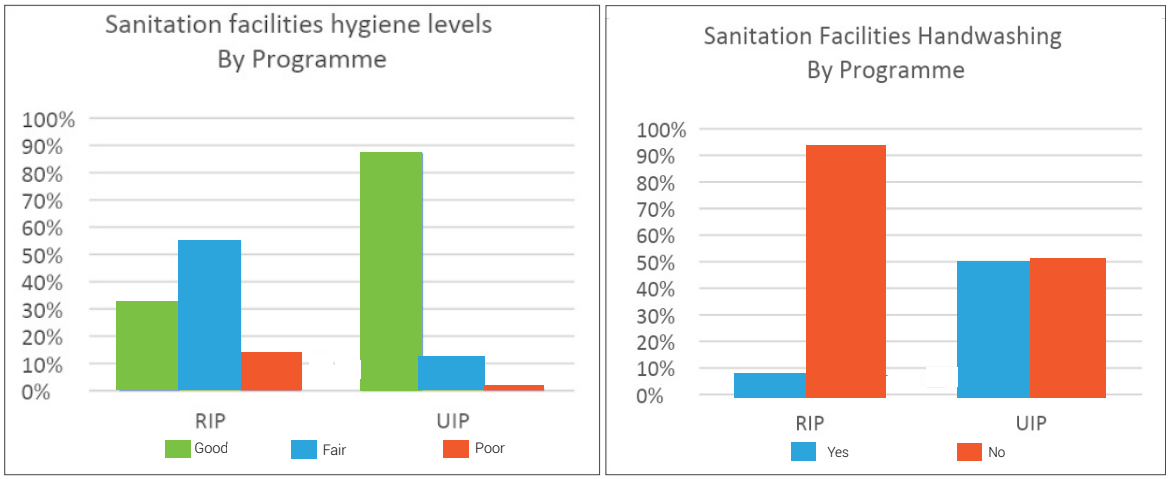


Figure 28. Hygiene levels and handwashing facilities in sanitation facilities of rural and urban programmes..

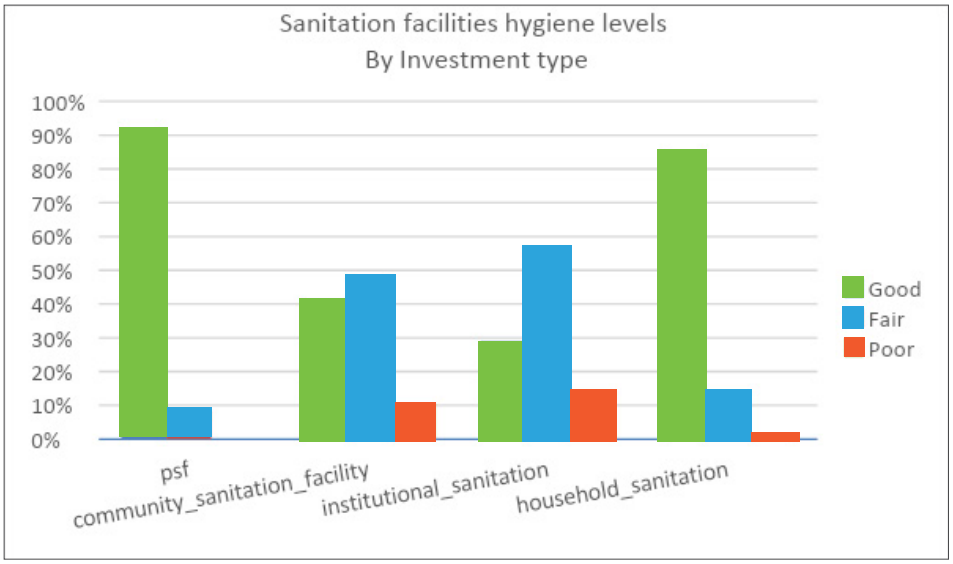


Figure 29 . Hygiene levels of different types of sanitation facilities.

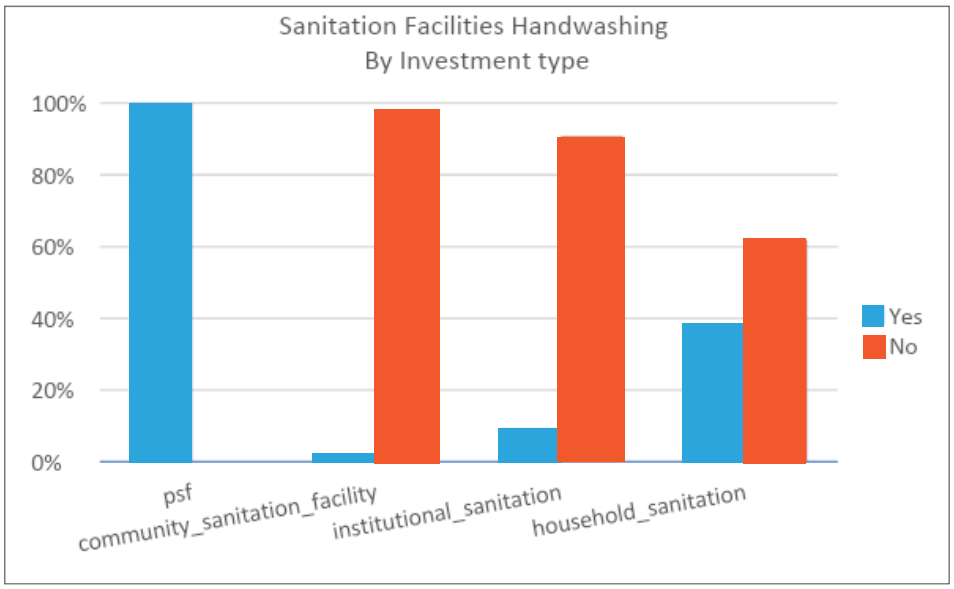


Figure 30. Provision for handwashing in different types of sanitation facilities.

4.1.4 General observations

In addition to the data collected, the following general observations were made by the data collection teams on the most common technical challenges:

1. Water supply components such as hand washing facilities in sanitation projects are commonly not operational.
2. Rainwater harvesting tanks were commonly missing downpipes and gutters and were therefore not installed properly.
3. There were identified design challenges in Northern Kenya sanitation projects (VIP latrines) which require to be sensitive to socio-cultural issues and practices.
4. In the North Eastern region the earth pans were often non-operational due to long-lasting lack of rains and high evaporation rates due to dry weather conditions as well as siltation.

1. WRUA projects have issues with the management structure as commonly the communities handling the projects are lacking capacity.
2. In some cases the workmanship of the structures such as latrines was poor, leading to them being washed away during heavy rains.
3. 90% of the trees planted by WRUAs in North Eastern ASALs are reported to have failed due to floods, droughts, eaten by livestock or attacked by pests.
4. Especially the ASAL areas have a higher proportion of non-operational and 'problem' projects, particularly in the North and East. This is thought to be due to a number of factors:

- NE ASAL counties are generally large with poor infrastructure making technical support and monitoring from WSTF logistically both difficult and expensive.
- There are very few WSPs in these counties and those that are functioning are generally weak and do not have staff or resources for further outreach. For example Isiolo Water and Sewage Company is not in a position to support water services in Madogashe, Merti or Sericho.
- Many of the CBOs that have been supported by WSTF to implement projects on the ground have very little experience of managing projects of such size.
- Many of the project sites in ASALs are remote and 'out of sight' and 'out of mind'.
- CRMs in ASALs have difficulty supervising projects due to their inaccessibility – including poor roads, long distances and lack of public transport.
- Insecurity in the ASALs also causes challenges to the projects, from community ownership of the projects to the accessibility for both users and implementers.

4.2 Financial sustainability

Revenue collection is considered a key aspect for enhancing the sustainability of investments and for reducing non-revenue water. Therefore revenue collection was raised as the main indicator for the SI assessment. Overall, 44% of investments where revenue collection was expected, was actually collecting revenue (Figure 31). The more active revenue collection occurred in the RBF and urban investment windows, while the lowest was found in water resources investments. This result is closely linked with the urban and RBF programmes being operated and managed by established WSPs, while water resources investment are run by WRUAs, community initiatives. A key objective for the sustainability of WRUAs would be to mobilize internal funds through income generating activities, in addition to registration and other membership fees.

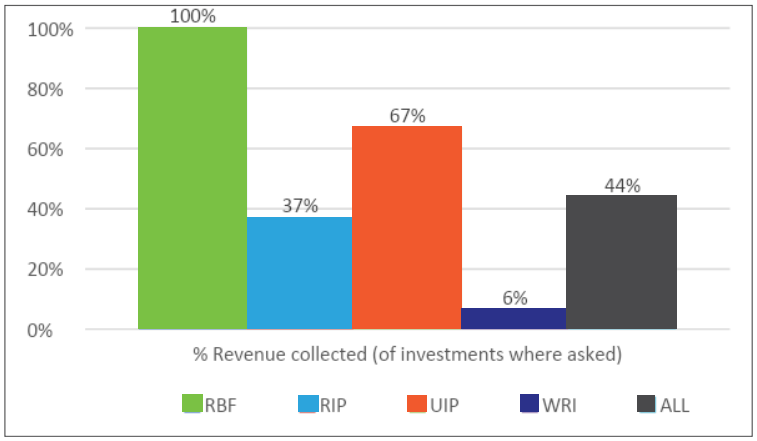


Figure 31. Revenue collection in investment programmes, based on question of whether or not revenue is collected.

Revenue was collected in 81% of sanitation investments (of 36 sanitation facilities), 59% of water supply investments (of 445 water supply facilities) and 7% of water resources investments (of 219 water resources investments) (Figure 32). The percentage is only of the investments where revenue was expected to be collected. This means that for example for sanitation investments, only Decentralised Treatments Facilities (DTFs) and PSFs were expected to collect revenue, while the institutional, household or community sanitation were not, explaining why the percentage of revenue collection is so high. The question on revenue collection was specifically targeted to investment such as boreholes, wells, distribution systems (water kiosks, communal water points, stand pipes, yard taps, connections, and animal troughs), public sanitation, tree planting, energy saving jikos, water resources management structures (RWH pans, dams, djabias, tanks, spring protection and livestock troughs) and livelihood activities.

In sanitation investments the PSFs were actively collecting revenue (96%), while the DTFs collected revenue in 50% of cases (Figure 33). The DTFs are expected to collect revenue on the discharge from the exhausters as they bring the sludge to be treated. Another potential revenue stream for the DTFs would be the by-products for the use of farming, but this has not yet been realized in the 12 DTFs monitored. In water supply investments, most active revenue collection occurred in individual and industrial connections, which often are either metered or have a flat tariff (Figure 34). Other common revenue collection sources for water supply are wells and water kiosks. Of the water kiosks that are not collecting revenue, 84% are non-operational. In water resources, most of the potential income generating activities are not yet collecting revenue (Figure 35). The one common intake that was monitored was collecting some revenue, as well as some 20% of tree planting nurseries and animal troughs. A lot of more capacity building support is required to have the WRUAs to start generating income with the activities listed in Figure 35.

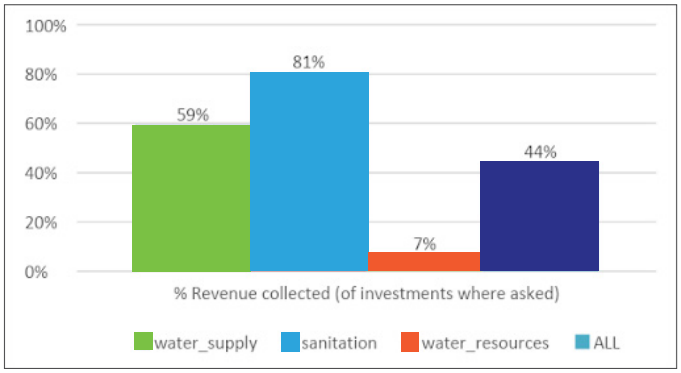


Figure 32. Revenue collection in investment categories.

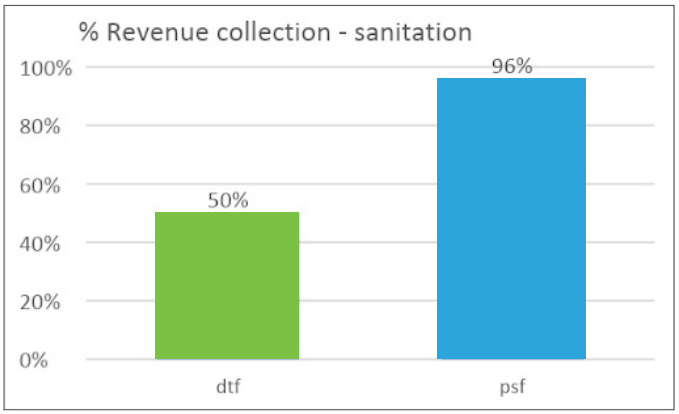


Figure 33. Revenue collection in sanitation investment types.

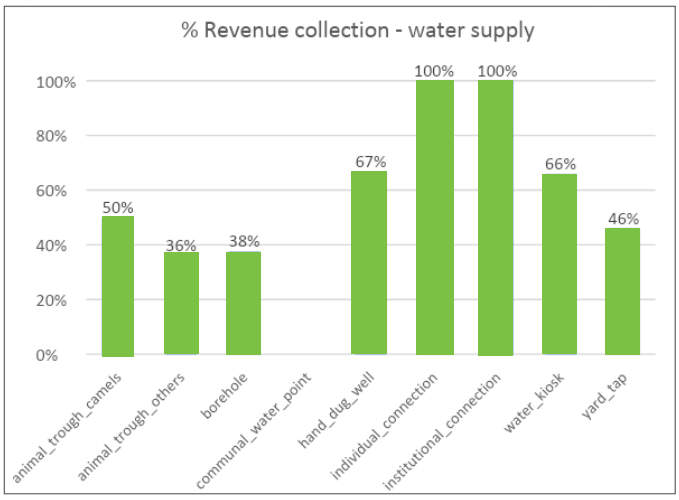


Figure 34. Revenue collection in water supply investment types.

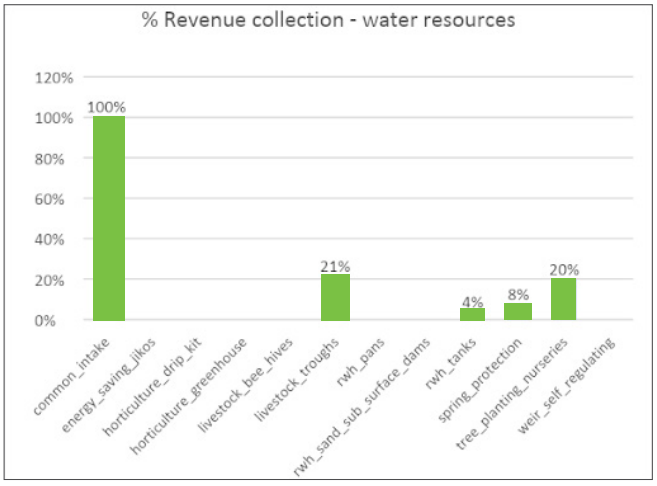


Figure 35. Revenue collection in water resources investment types.

4.3 Cross-cutting issues

As important as good quality technical solutions are in the delivery of water services, the efforts in achieving sustainability will be meaningless if no attention is paid to the cross-cutting issues of governance and social justice. These 'soft' components of the projects include capacity building, governance, management and GESI, amongst others. Recognizing these cross-cutting objectives is vital for the acceptance, fairness and ownership of the project activities. This chapter will look at these themes through the data collected during JAOME 2017.

4.3.1 Sustainability and GESI

The GESI aspects for the investments are captured by three main parameters, namely; (1) Dis-aggregated data for number of beneficiaries (specific to access points and household sanitation); (2) Whether or not the design of the facility is provisional to people with disability / gender / age (specific to water kiosks, yard taps and sanitation facilities), and; (3) Whether or not the operations responsibility of an investment is also allocated for Youth, Men, Women or the Disabled.

When looking at access points and household sanitation facilities, according to the data collected, the percentage of female beneficiaries are approximately 50% across all investments (Figure 36). The generally higher percentage of female beneficiaries for water kiosks can be connected to the fact that women are commonly those that look after the water supply and management in the households, and are thus the ones to collect water from the access points. On household level (individual connections and household sanitation), the whole household is seen as a beneficiary. The percentage of beneficiaries in the category of youth and minors varies generally between 20-40% of total number of beneficiaries.

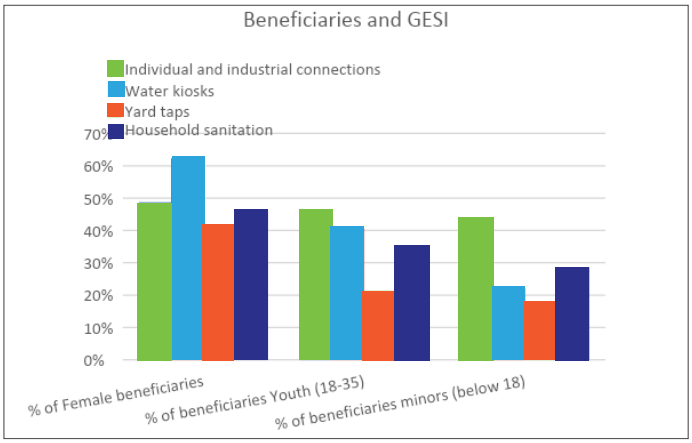


Figure 36. Beneficiaries and GESI.

Ideally the design of facilities facilitates equitable access and use for women, men and those with special needs. The technical designs for sanitation facilities should reflect the needs of women and men and should address their specific needs and concerns. These concerns include siting of facilities, safety and security, health and hygiene, privacy and convenience. The sanitation facility should also respond to female biological needs such as menstrual hygiene management (MHM) that impact health and mobility of women. While poor design can affect everyone, they are groups of people who are more vulnerable and they include persons with physical challenges, pregnant women, children, the elderly and the sick.

Also water collection falls directly on women and children and therefore the technical designs for water kiosks should meet their needs. Any water supply intervention must respond to the need to free up time that those who collect water spend on water collection activities for other productive tasks as well as guarantee security of the women and children. Any sanitation technology or water collection point thus must be assessed from the perspectives of gender equality and inclusivity .

In the light of the data collected during JAOME 2017, 100% of RBF investments, 83% of rural investments

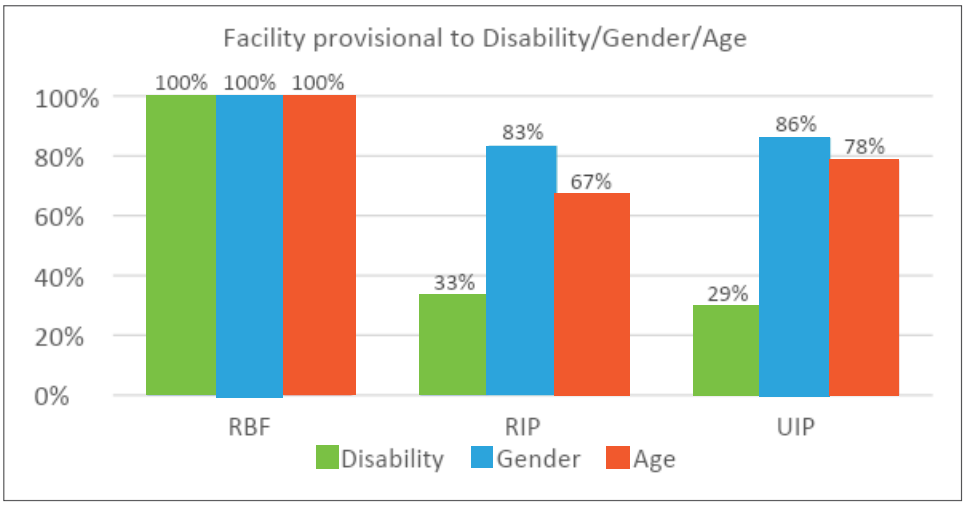


Figure 37. Facility provisional to disability/gender/age by investment programme.

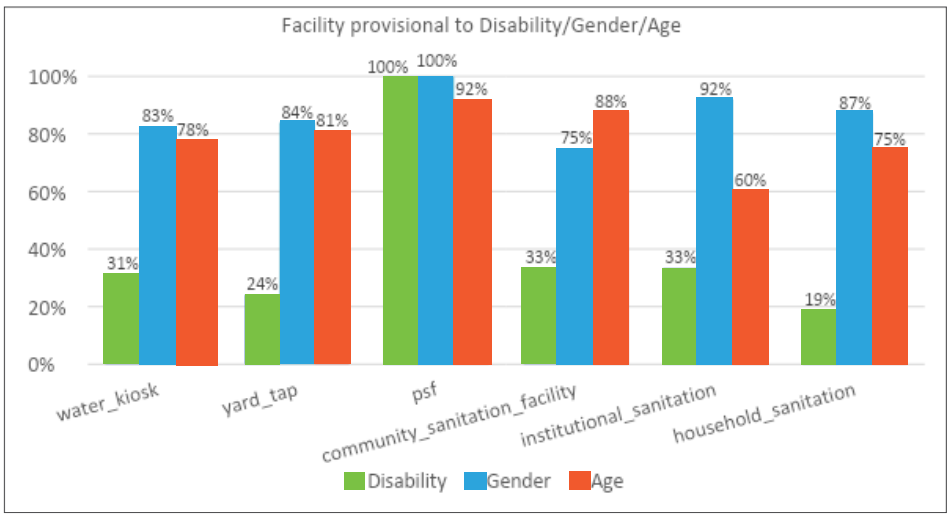


Figure 38. Facility provisional to disability/gender/age by investment type.

The third parameter for assessing the aspects of GESI was the question of primary operations responsibility. Figure 39 shows that generally it is more common for men to have the operations responsibility. Only in urban investments it is slightly more common for females to be primarily operating the facility (39%). It is even more rare to have youth or disabled included in the running of water supply or sanitation investments.

When looking at key investment types, women are more often primarily responsible for the running of yard taps (65%) and PSFs (50%) than men (Figure 40). For water kiosks the percentages are almost even, 41% and 43%, respectively. While it is less common for women or people with disabilities to be primarily responsible for the running of water supply or sanitation facilities, Figure 41 shows that in these cases the facilities are more commonly operational than if primarily run by men or members of youth. The same applies for revenue collection activity (Figure 42). These two parameters are key for the calculation of the SI. The positive impact on the sustainability score from involvement of women in operational tasks goes hand in hand with a common perception that involving women in water and sanitation projects increases their sustainability as the knowledge base increases. As the Fund strives to provide an increased focus on enhancing gender and social equity and human rights based approaches in the overall programme design, there should also be a target to capacitate women, members of youth and people with disabilities in the running and management of the schemes.

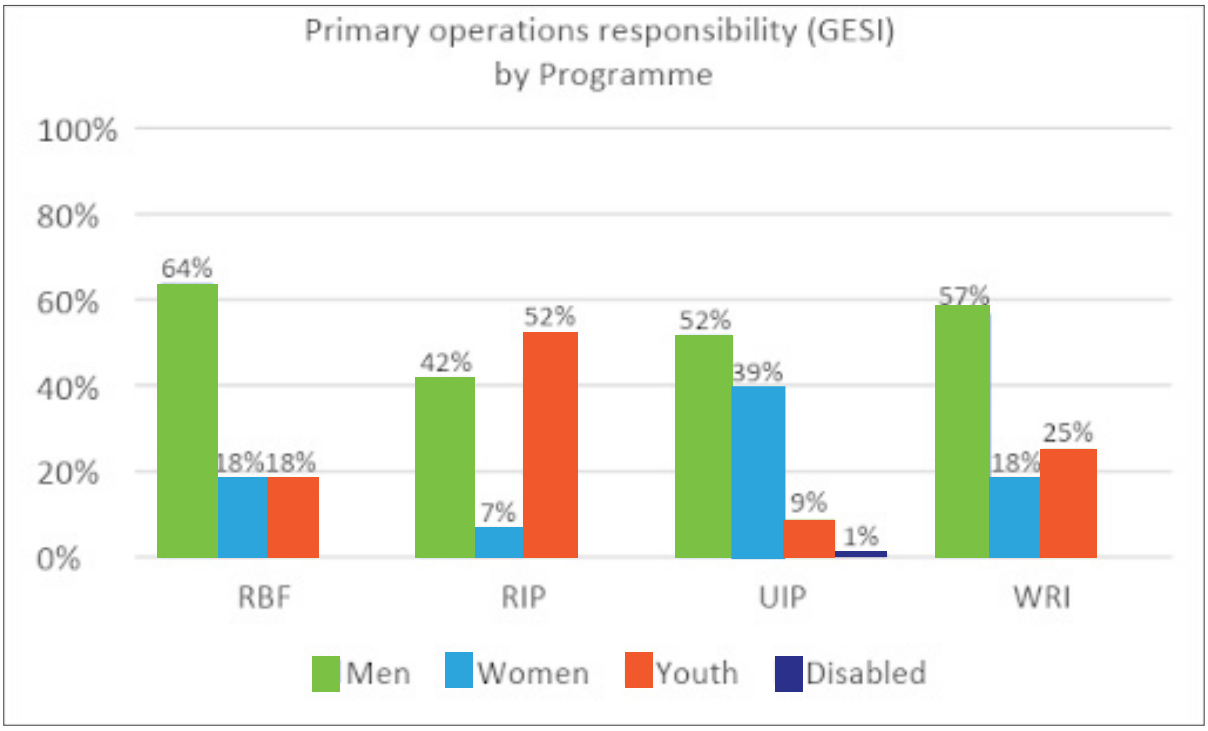


Figure 39. Primary operations responsibility (GESI) by programme.

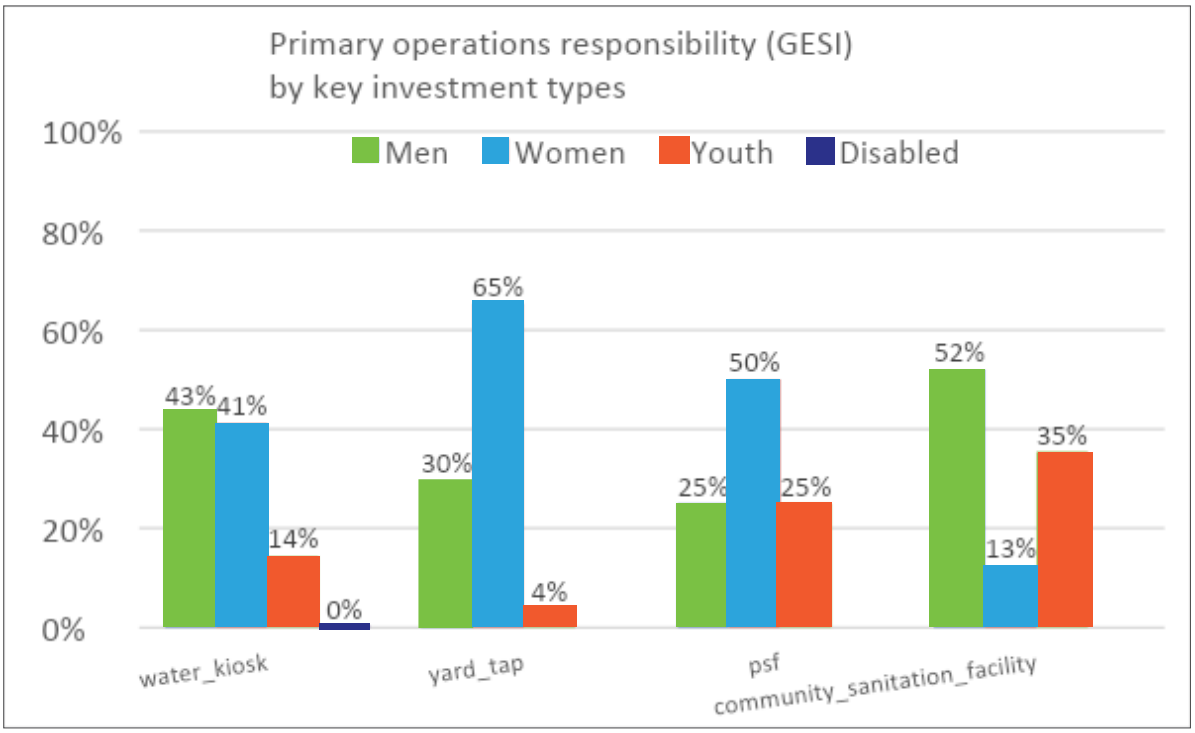


Figure 40. Primary operations responsibility (GESI) by key investment types.

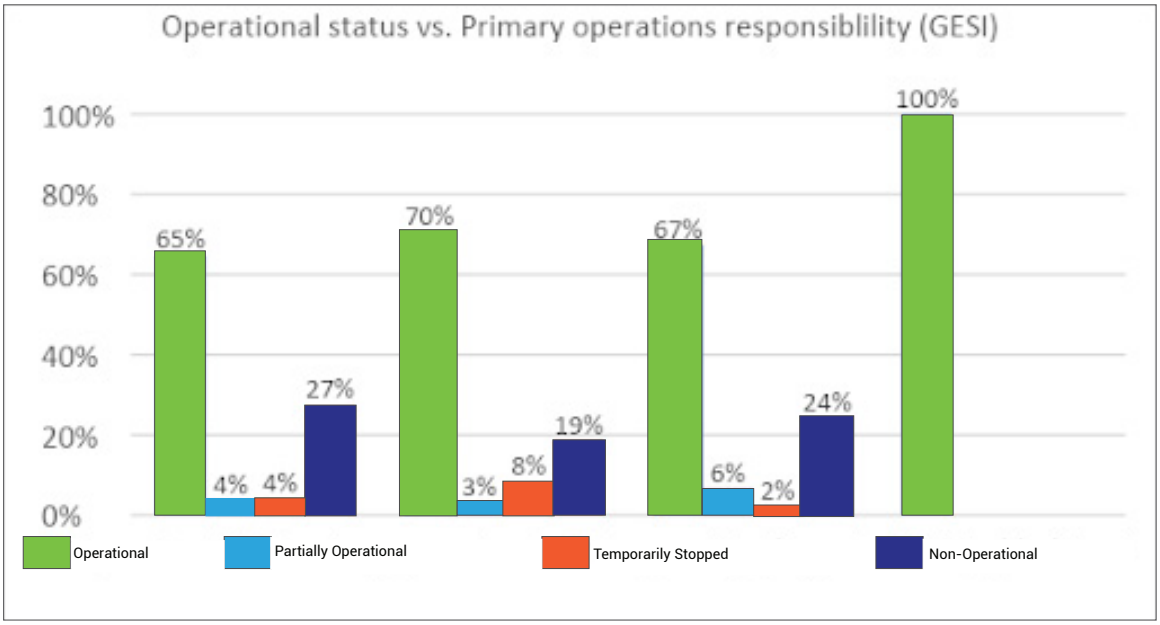


Figure 41. Operational status vs. Primary operations responsibility (GESI).

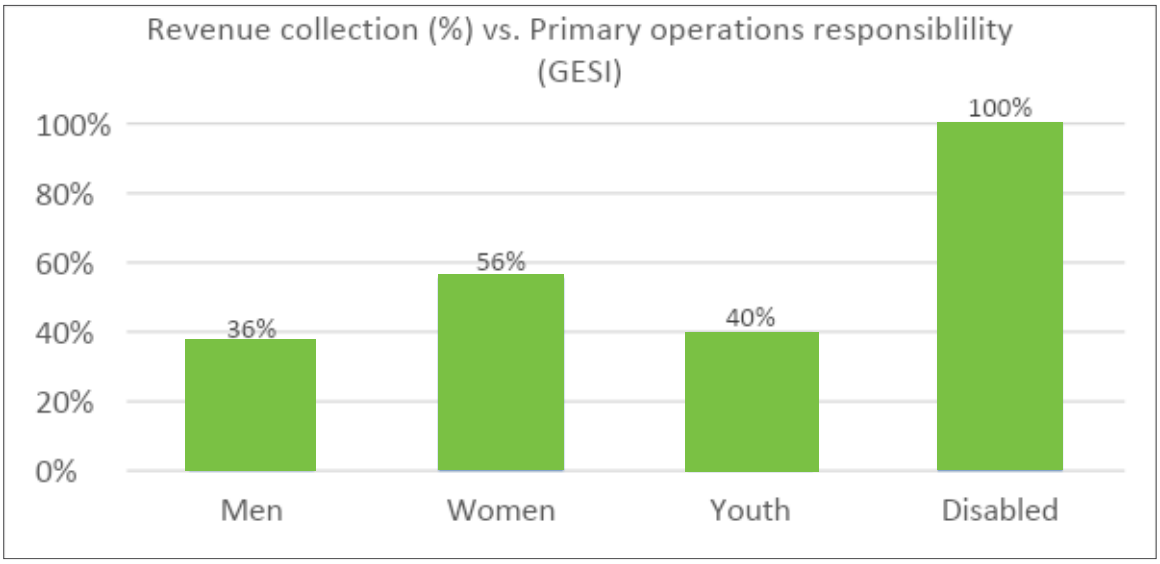


Figure 42. Revenue collection (%) vs. Primary operations responsibility (GESI).

4.3.2 Governance/management of projects

In majority of the investments the committee, the users or the WSP/WU is responsible for the maintenance and operations of the facility (Figures 43 and 44). If comparison is made to the operational status vs. maintenance/operations responsibility of a facility, there seems to be a slightly better success rate with WSPs/WUs/employees running the projects, or other established entities such as government or contractor/operator.

Majority of projects are managed by a board of management or by a committee, with the former giving a slightly higher success rate in terms of operational status (84% operational) (Table 10). Also projects managed by employees seem to contribute to a better operational status.

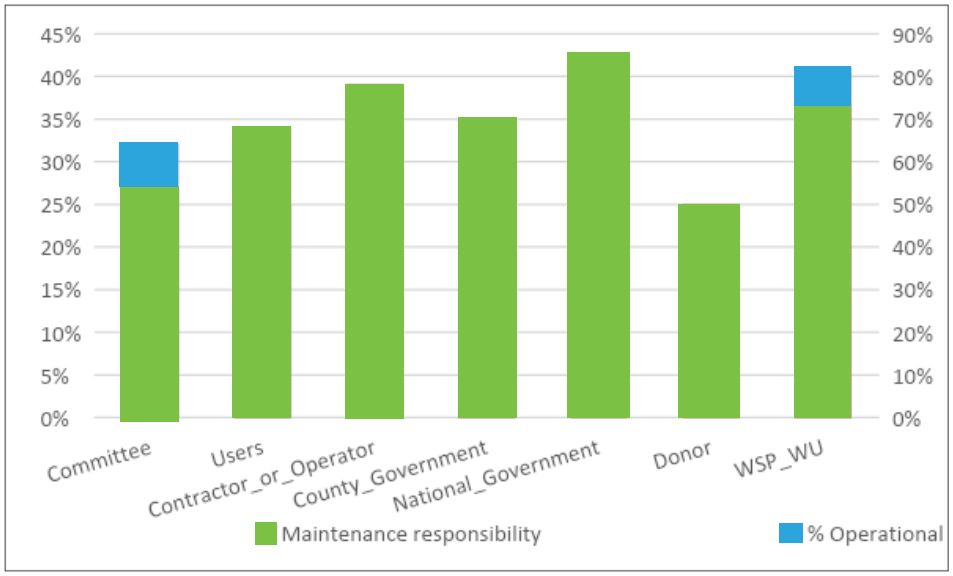


Figure 43. Operational status vs. Maintenance responsibility.

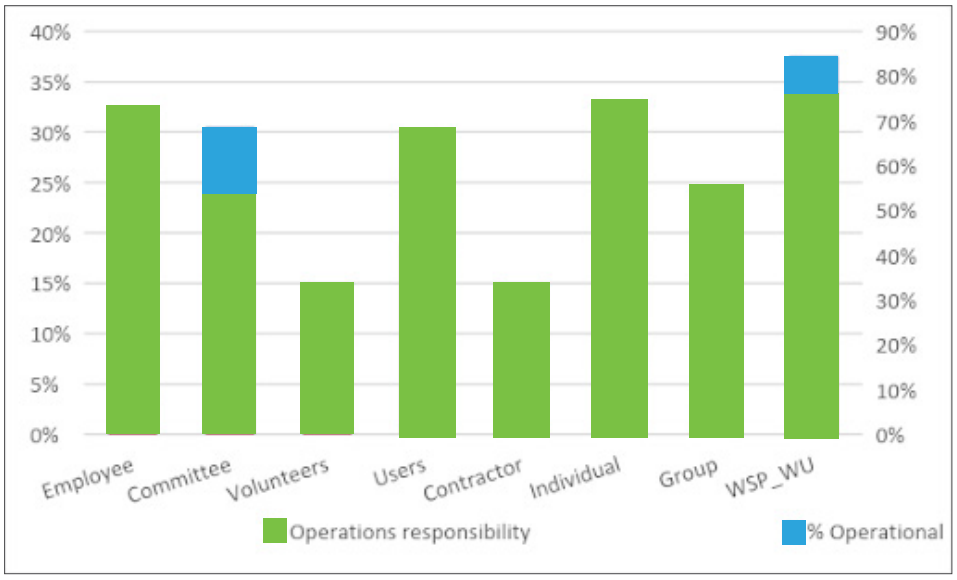


Figure 44. Operational status vs. Operations responsibility.

Table 10. Management status of projects.

	Total	% of total	% Operational
Board OD	101	36%	84%
Committee	129	46%	77%
Contractor	1	0%	100%
Volunteers	4	1%	100%
MD	37	13%	68%
Employees	**11**	**4%**	**82%**
ALL	**283**	**100%**	**79%**

5

CHALLENGES EXPERIENCED DURING THE STUDY

5.1 Locating/Accessing Projects on the ground

A vast majority of the project sites could be located and accessed by the teams. Factors inhibiting the teams from accessing a site varied from difficult terrain, lack of roads, impassable roads, security challenges and inability to locate sites. In some cases, particularly in counties such as Marsabit, Wajir, Isiolo, Garissa and Tana River, the distances were long and accessibility to the sites was so difficult that it could take more than 4 hours to assess one project investments.

5.2 Number of Investments

The number of investments in a project also greatly influenced the time taken to complete a project and in many counties ranged from 4 to 12 components per project. In some cases, investment especially the protected springs and intakes implemented through WRUAs could only be accessed by a motorbike or on foot. Also many of the WRUA projects had sites dispersed across a wide areas. In Lamu, some projects required high speed boats to access them due to time limitation. Consequently, this resulted in teams taking more time than anticipated.

5.3 Insecurity

In some counties (especially those along the Kenya-Somalia border) such as Wajir, Lamu, Garissa and Tana River insecurity hindered the visiting of some sites. Monitoring in West Pokot was also a challenge mainly due to insecurity emanating from inter clan fighting and cattle rustling. During planning, some projects from Lamu County had to be dropped from the sample due to serious insecurity issues due to Al-shabab insurgence. Security escorts were hired to enable the monitoring of some projects. The insecurity challenge hence had implications on the monitoring budget.

5.4 Support on ground

In most cases, CRMs proved to be very useful particularly in the locating of the sampled projects. The CRMs also assisted in arranging meetings with the informants at project level. In cases where the CRMs were not familiar with the locations of the projects, local guides were recruited to assist in accessing the sites. In some cases project committee officials proved useful by positioning committee members at strategic sites for purpose of guiding the monitoring reams to the investments.

6

LESSONS LEARNED

6.1 Process preparation

For the JAOME process to be successful, it is vital to start with a broad and clear consultative process that involves all stakeholders, namely, key WSTF managers and team leaders, developers of the tools, CRMs and Counties. The consultative process should be carefully monitored throughout the JAOME execution.

6.2 Preparations for the JAOME

Thorough preparations are essential ahead of the field activities. These will include:

- Formulation of a clear road map of activities and detailed field plans and budgets;
- Standardised and shared data collection tools;
- Harmonised data sources (rural, urban, water resources, etc.) to be used in the monitoring was essential. This also ensured proper preparation for analysis.
- Consensus on the basis for the Sustainability Index (overall and by investment type and management) and reference for future operations monitoring.

6.3 Data collection and submission

- Team leadership is a vital ingredient towards ensuring accuracy, quality and consistency of the data collected. This includes quality control on the spot to ensure that the data is verified before the team leaves the site.
- Use of a common platform based tools with tested quality, e.g. tablets, GPS, for actual data collection. This would be backed-up with appropriate practical training on their use.
- The presence of appropriately facilitated, committed and knowledgeable CRMs and local guides is central to a cost effective JAOME field work.
- Timely mobilisation of logistical support from WSTF and various other stakeholders on the ground is essential to ensure seamless operations and ownership, given the magnitude of the exercise and limited timelines.
- The Collect App tool generally worked well, and will continue to be used, with minimal adjustments made as appropriate.

6.4 Data Screening and Verification

- This is vital to the reliability of the operations monitoring as a whole. In this regard:
- Comparing data collected with earlier knowledge of the investments from monitoring visits is essential.
- Consistency and accuracy in properly distinguishing water resources, water supply and sanitation categories.
- Feedback mechanism from the system on the submitted data to avoid data gaps.
- The control of duplicate entries by unique and single captures.

6.5 Analysis and reporting

- Quality assurance capacity is central to the success and value of the operations monitoring; this relates to all levels: (a) Field level - accurate observation and interpretation of project investment; (b) Data Entry/Collect including prefilled information; and (c) Correct coding and entry and cleaning of the data into the operations monitoring sheets.

- Whilst the intensive data collection and analysis took an aggregate period of one month, the overall exercise with proper pretesting of tools including field familiarisation trial runs, and full analysis of results as well as production of a summary report, would require a total time line of some three months.
- The procedures developed and the database structures now in place provide a sound basis for future operations monitoring, no doubt with a review of the tools used as a means of enhancing the quality of the data and results. An important issue for the continuation of the operations monitoring will be the ability to continue with CRMs sending regular data, feeding into a uniform, combined and compatible Management Information System (MIS) and Rural database.
- A team leaders reporting template that feeds into overall final report will be used. The overall report would then be compiled through a team exercise.

7
RECOMMENDATIONS

7.1 Design of the operational monitoring exercise

This section makes recommendations based on the lessons learned regarding how JAOME 2016 and 2017 was carried out, what kind of updates the technical components require and how the data quality verification should be done in the future. Furthermore, it draws conclusions based on the collected data on which investments appear to be more successful, in order to inform future investment planning and priorities.

7.1.1 Process

The JAOME process is continuously being refined and minor changes to the approach are applied as challenges are experienced. The future operations monitoring will continue on focusing on capturing whether the investments are still functional or not as well as adding the new ones on a continuous basis. Date of updates and records on previously entered data should be visible to the enumerators to cater for adding new data and to show when the data has been last updated.

Along with a refresher training, a guide note should be provided for the enumerations to help avoid misunderstandings. This for example includes more detailed guidelines on how to determine the operational status, condition or quality of works of a project or how to evaluate whether or not a facility is provisional to GESI aspects. There should also be a briefing on how to take pictures of the investments that are representative.

Finally, a specific person (M&E and Investments) at the WSTF should be responsible for data moderation and checking the quality of the data. This should be based on a master database (cross project and cross investment) held and maintained by the responsible person, and harmonised with a compatible Management Information System (MIS). As previously, it is recommended that in the future, the data verification would be done in two stages: Firstly, there should be an internal check of whether or not the data looks correct, either done at the WSTF or by the CRMs. Secondly there should be a quality check to confirm the compliance of the incoming data to the project brief. The data analysis and reporting should also be carried out with a dedicated team, spearheaded by M&E department. Finally, clear structures for follow-up and feedback on the ground on the functionality of the projects should be built, with close monitoring by the CRMs.

7.1.2 Technical components

The data after being collected should be hosted within the WSTF internal databases to allow continuous access and ownership of the data, with each year saved in a central database. Another key area of development is the dashboard to publically present the data on the WSTF website. The live dashboard will allow easy access to the data though provision of simple queries and in a visually engaging format, such as informative maps, graphs and charts. This will also assist in smoother production of reports.

7.2 Sustainability of the Investments

The tool used only focused on establishing the operational/functional status of the investments and hence a comprehensive documentation on factors affecting or influencing the sustainability of investments under either urban, rural or water resources is beyond the scope of the study. The Fund could consider planning/conducting a more in-depth study on the factors such as the technical content of project proposals, appraisals, appropriate site selection, levels of workmanship and financial, procurement and administrative procedures and processes used in the management and implementation that are influencing the sustainability of its investments.

The future operations monitoring will provide increased opportunities in observing trends and for conducting more detailed comparisons across counties and investment categories in terms of the

operational status and the sustainability of investments. The more established the methodology becomes, the more concrete conclusions and robust findings can be drawn on the performance of different counties as well as on the success rates of various investment types in order to inform future investments.

Based on the collected data it was possible to establish the operational/functional status of the funded investments, however, comprehensive findings on factors affecting or influencing the sustainability of these investments requires a more in-depth study on the management, implementation and operational levels throughout the different stages of the project cycle. Against the WSTF target of 95% of investments being operational after five years of commissioning, merely 56% of rural investments, 56% of water resources investments and 76% of urban investments were found to be fully operational for the period under review. This corresponds to as many as 390 out of the total of 1,736 monitored investments being non-operational, in addition to some being temporarily stopped or only partially functioning.

There is therefore need to investigate the drivers of the high level of failure of rural and water resources investments. Specifically, 34% of the monitored rural water investments and 31% of water resources investments have failed, the fact that they had been successfully completed not withstanding. The three most common and easily identifiable reasons for non-operational status were found to be the water source being unreliable or lacking (41% of non-operational investments), the investment having poor structural integrity (33%), or natural/climatic causes, such as drought (22%). Undoubtedly the persistent drought especially in the northern parts of the country has affected the operational status of many of the investments, especially of the rainwater harvesting structures. The factors identified during the assessment included poor management and governance capacity, inappropriate technologies, poor project and inappropriate designs, poor project implementation and non-adherence to approved designs. Poor or non-existence of proper management and governance systems is a significant contributor to low performance and low sustainability of the projects.

The Fund has made significant strides in addressing some of the identified challenges. However, there is need to review the project design, appraisal and implementation cycle under water services investments especially under the ASAL areas where a high failure rate was recorded. While some of these presented figures may seem discouraging, they highlight how extremely useful the monitoring exercise is in terms of identifying areas of improvement. A key observation based on the conducted operations monitoring exercise, much in line with the previous year's findings, is that an assessment of the less sustainable investment types for their relevance, efficiency and value for money is called for.

Meanwhile, the sanitation investments were again found to be more successful in terms of sustainability, both in rural and in urban contexts. 97% of the household sanitation facilities funded through the UBSUP concept, and first time monitored as part of JAOME, were found to be operational. These investments were demonstrated to have had a significant impact on the improvement of the sanitation levels of the urban poor. 96% of PSFs were operational with high level of demand and active revenue collection. The high success rate of the institutional and public sanitation facilities can be explained by more established O&M structures. A persistent issue with sanitation facilities remains to be the lack of handwashing facilities, especially in schools. In order to ensure the provision of such facilities, the budgets and contracts should ensure that these facilities are implemented as part of the sanitation projects, along with a reliable source of water, as a minimum standard.

For water resources investments the inability to generate revenue streams even through the livelihood components continues to be a factor hindering the sustainability of the WRI funding, an issue which needs to be revisited in the programme design. The operational status of rain water harvesting tanks and pans were also identified as a key implementation challenge with over 40% having been found as being non-operational on the time of the assessment. Notable investment classes that experienced

operational challenges included the sand dams, rain water harvesting tanks, water resources management structures and investments e.g. gabions, tree planting. The study therefore recommends that appropriate technologies and investments should be made for each region. Specifically, tree planting with a very low survival rate, rain water harvesting facilities should not be invested in the ASAL regions unless proper and thorough analysis and justification is made for such investments.

In general, more attention needs to be paid to revenue collection efficiency and reduction of Non-Revenue Water (NRW). It is thus recommended that in the implementation of the new programmes, institutionalisation of revenue collection as a sustainability measure will be required as part of the overall project design. This will ensure that revenue collection measures will be enhanced to improve on the sustainability prospects of such investments.

Cross-cutting issues such as governance and GESI need to be given more close attention to during the capacity building of the implementing partners. The Fund has recently developed a GESI strategy and guidelines, which will be more closely informing the designs and governance structures of the schemes.

Lessons learned and best practices should be documented regarding the successful investment types and programmes for the benefit of future project and programme design. Finally, in addition to reviewing the less successful investment types through a strict appraisal process, improving the sustainability of investments especially in the counties with low SI score requires customized service delivery, operations and maintenance models which should be identified and promoted through the capacity building component.

Below a summary of key findings from JAOME 2016 and 2017.

Table 11. Summary of key findings and recommendations.

KEY AREAS	FINDINGS/ RECOMMENDATIONS
Methodology revisions for JAOME 2017	The Operations Monitoring conducted in 2016 provided a useful baseline for assessing trends in the data collected in the subsequent years. However, revisions in methodology for JAOME 2017 were carried out, limiting some direct comparisons: • JAOME 2017 included a sample of 50% of projects for the period of 2012-2017. • Urban and OBA projects were included in the JAOME 2017, removing the need to use proxy indicators for urban projects. • The quality control for the data was more systematic during JAOME 2017, meaning that it was determined more strictly whether or not a specific investment is considered to be actually operational, affecting the overall sustainability score. • The key question contributing to the SI, revenue collection, was more specifically directed on investments such as distribution systems, intakes, water resources management structures, livelihoods, Public Sanitation Facilities (PSFs) and Decentralized Treatment Facilities (DTFs). The new method of calculating the revenue indicator for SI is more precise but naturally also results in a change in the indicator value in comparison to JAOME 2016.

KEY AREAS	FINDINGS/ RECOMMENDATIONS
County Sustainability Index	• The overall national SI was 56% in 2016 and 55% in 2017, and thus there was no major difference between the two monitoring years. The counties with significant difference in performance between 2016 and 2017 JAOME can be largely explained by the changes in methodology listed above. • The SI can be used as indicative of the sustainability of investments in counties, though it cannot be used as the sole indicator to determine future investments, as more performance indicators are necessary to provide a fully informed and accurate picture of the sustainability of the investments in each county. • The more established the methodology becomes, the more concrete conclusions can be drawn on the performance of different counties as well as on the success rates of various investment types in order to inform future investments. • As more evidence on sustainability of investment is collected, counties performing consistently well or poorly based on the SI helps in the consideration for future WSTF support, but observing this requires a long-term and consistent monitoring.
Sustainability of Rural, Urban and Water resources investments	RURAL: • 94% of the Rural Investments were found completed, out of which 56% of the investments were operational. • There is need to review the project design, appraisal and implementation cycle under water services investments especially under the ASAL areas where a high failure rate was recorded. • Undoubtedly the persisting drought especially in the northern parts of the country has affected the operational status of many of the investments, especially of the rainwater harvesting structures. • When looking at a broader picture, poor or non-existence of proper management and governance systems is most likely a significant contributor of low performance and low sustainability of the rural projects

KEY AREAS	FINDINGS/ RECOMMENDATIONS
Sustainability of Rural, Urban and Water resources investments	URBAN: • 97% of the Urban Investments were found completed, out of which 76% of the investments were operational. • In both JAOME 2016 and 2017, there is no doubt that the urban investments, which because of their connection to the established WSPs, collect revenue across the board, the sustainability index is consistently higher. • 97% of the household sanitation facilities funded through the UBSUP concept, and first time monitored as part of JAOME, were found to be operational. • 96% of PSFs were operational with high level of demand and active revenue collection. • The main drivers of the high level of non-operational investments was the non-functional yard-taps (51%) and water kiosks (57%). Based on this finding, it is therefore recommended that the urban investments programme reviews its future investments in yard taps and water kiosks WATER RESOURCES: • 96% of the Water Resources Investments were found completed, out of which 56% of the investments were operational. • For water resources investments the inability to generate revenue streams even through the livelihood components continues to be a factor hindering the sustainability of the WRI funding, an issue which needs to be revisited in the programme design. • It is imperative that the operational measures should be put in place to ensure that all the programme investments are operational, since by the very nature of Water Resources Investments, a failure on one project component has the effect of escalating this to the other project components. • The implementation of the livelihood components under water resource investments was envisaged to improve the programmes sustainability. Notably, 86% of the total monitored investments under this component were operational as at the period of the study. • Notable investment classes that experienced operational challenges included the sand dams, water pans and rain water harvesting tanks. The study therefore recommends that appropriate technologies and investments should be made for each region, and careful analysis of the suitability of the investment in each region is conducted prior to an investment decision is made. • A critical performance indicator and success factor was the inability of the water resources investments to generate sustainable revenue streams. The redesign of the programme should integrate revenue generation as a key sustainability measures.

KEY AREAS	FINDINGS/ RECOMMENDATIONS
Sustainability of Rural, Urban and Water resources investments	GENERAL: • Against the WSTF target of 95% of investments being operational after five years of commissioning, merely 56% of rural investments, 56% of water resources investments and 76% of urban investments were found to be fully operational for the period under review. • The implementation of the new programmes, institutionalization of revenue collection as a sustainability measure will be required as part of the overall project design. This will ensure that revenue collection measures will be enhanced to improve on the sustainability prospects of such investments. • GESI aspects need to be more closely considered in project design and governance. The new GESI strategy and guidelines have been developed to support the Fund in this process. • Finally, in addition to reviewing the less successful investment types though a stricter appraisal process, in order to improve the sustainability of investments especially in the counties with low SI score requires customized service delivery, operations and maintenance models which should be identified and promoted through the capacity building component. This will ensure that adequate sustainability measures are integrated in the overall project cycle. • sustainable revenue streams. The redesign of the programme should integrate revenue generation as a key sustainability measures.

7.3 Way Forward

The process of the joint operations monitoring has been reviewed and the following suggestions have been made:

1. The monitoring procedures and responsibilities in WSTF need to be clarified and strengthened to have clear responsibilities in terms of data quality checks, data analysis, reporting as well as follow up and feedback.
2. The data should feed into a public dashboard where stakeholders are able to review the status of projects.
3. There is need to expedite the data analysis process and reporting, publishing and provision of feedback to the implementing partners.
4. The WSTF project appraisal tools and County Appraisal tools require to be reviewed to integrate the Sustainability Indices in their assessment.
5. The WSTF Investment Policy should more closely be informed by the monitoring findings in terms of guiding the targeting of investments and formulating mechanisms for addressing issues of sustainability.
6. There is need for continuous communication with the counties on how they should improve on the implementation of their water supply, sanitation and water resources projects based on the results of the monitoring.

The key lessons learned in the inaugural exercise will inform the design and implementation of the JAOME 2018. Furthermore, the important lessons learned from the previous JAOMEs will be mainstreamed into project design and implementation for the future WSTF investments.

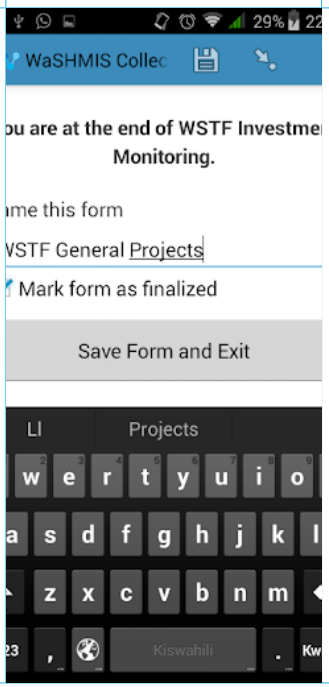
8

ANNEXES

ANNEX 1: GENERAL FORM DATA STRUCTURE

Table 13: The questionnaire on WaSHMIS

	Page	Field Type	Comments
	Filtering Details		**Swipe left for more questions**
1	Name of enumerator	Radio Button	Questions in this section are Mandatory.
2	Select a County	Text field (for search purposes)	Cannot proceed without choosing one.
3	Select Name of Constituency		These are preloaded data.
4	Select Name of Investment window (RIP, UIP, WRI, RBF)		
5	Project name		
6	Project Brief		
7	Category (Water supply, Sanitation, Water resources)		
8	Year of completion		
9	Programme if RIP = (MTAP I, MTAP II, KWSP, J6P) if UIP = (UPC,UBSUP) if WRI = (IFAD, J6P, MTAP) if RBF = (AOD, OBA)		
10	Funding source		
	General Information		**Swipe**
1	Name of Informant (1)	Text field	Question is mandatory
2	Position of Informant (Official, Committee, User, Caretaker, Other) (1) 1)If other, specify.	& Radio buttons	Select one option (1)
3	Phone number of informant (T) System operational at the time of visit	Consider replacing “System” with “Investment”	Select more than one option (M)
4	(Operational, Partially operational, Temporarily stopped, Non-operational) (1) 1. If Non-operational, how long has project been non-operational (months)		Text field (T)
5	Target Beneficiary (of Project) (People, Livestock, Others) (M) No. of people (estimate) (T) No. of livestock (T) Specify other (T)		

	Page	Field Type	Comments
6	In case of WRI: Catchment area (km2)	Text field	Question is mandatory
7	In case of WRI: Does the WRUA have a copy of the SCAMP?	& Radio buttons	Select one option (1)
8	Local Contribution (Labour, Cash, Materials, Land, None) (M)	Consider replacing "System" with "Investment"	Select more than one option (M)
9	Value of local contribution (T		
10	Governance/Management (Board OD, Board of Management, Committee, MD-Overall, Employees, Volunteers, Contractor) (1))		Text field (T)
11	Records are kept: (Regularly,		
12	Irregularly, Not kept) (1)		
	Strategic Plan: (Yes/No) (1)		
13	Registration Status (Self Help Group, CBO, Society, Company, Institutional, Other) (1		
	Photo		**Swipe**
	Take a Photo of project office		Section is mandatory. Please Take a good picture
	GPS Location		
	Take GPS location of project office NB: Wait till it indicates the accuracy is at least 5m, then click on 'Record Location"		Click on 'Record Location' button You can Replace location if it is not accurate by clicking Replace location tab
	Finalise Form		
	Give the particular form entry a name: **Reason:** You will visit several project offices and later on you may need to make some edits on a particular entry. It is easier to get it if you had unique name for the entries. If sure of answers (No edits and ready for online submission), Please check the 'Mark form as finalized' button. **Mark form as finalized button:** Comes in when you want to 'send' the forms to the server, unless a form is marked as 'finalized' it will not appear in the 'Send Finalized Form' list when you need to submit your collected data.		By default if gives the particular entry, the name of the data collection form i.e "WSTF General Project' Please change that to the name of the project you have been collecting data on. Click 'Save Form and exit

ANNEX 2: INVESTMENT FORM DATA STRUCTURE

	Category	Investment class	Type
	A. WATER SUPPLY	Intakes/ Water sources	Weir - River Intake Lake intake Water pan Dam Borehole Hand dug well Sand dam Sub-surface dam Spring Protection
	34	Pumps/ energy sources	Hand pump Solar pumping system Hydram Wind mill Electricity mains Generating set Diesel pump
	35	Treatment works	Chlorination unit Chemical dosing unit Composite filtration unit Conventional treatment works Slow sand filtration Waste water recycling Desalination of salty water

	Category	Investment class	Type
	WATER SUPPLY	Storage tanks	Masonry tank Elevated concrete tank Reinforced concrete tank Sectional steel tank Plastic moulded tank Ferrocement tank Djabia Berkad
		Distribution system	Water kiosk Communal Water Point (open) Stand pipes Yard taps Individual connections Institutional connections Industrial connections Animal Trough (cattle, donkeys, sheep, goats) Animal Trough (camels) Consumer meters Bulk meters
		Rainwater Harvesting (from Roofs)	Roof catchment Gutters Storage tank
		Building	Office Laboratory Pump house Fencing
		Pipeline appurtenances	Valve chambers

	Category		Investment class	Type
	B. SANITATION	Public sanitation	Regular	Pit latrine VIP latrine Pour flush Cistern flush (squatting) Cistern flush (seat) UDDT (dry toilets)
			Mini	Pit latrine VIP latrine Pour flush Cistern flush (squatting) Cistern flush (seat) UDDT (dry toilets)
		Institutional Sanitation	Pit latrine VIP latrine Pour flush Cistern flush (squatting) Cistern flush (seat) UDDT (dry toilets)	
		Community sanitation facility	Pit latrine VIP latrine Pour flush Cistern flush (squatting) Cistern flush (seat) UDDT (dry toilets)	
		Household sanitation	Pit latrine VIP latrine Pour flush Cistern flush (squatting) Cistern flush (seat) UDDT (dry toilets)	
		DTFs	DTF DTF Enpure Hybrid	
		Sewers	Municipal sewer	

	Category		Investment class	Type
	C. WATER RESOURCES	Regulation	Common intake Weir self-regulating Bulk Meter	
		Catchment Management	Check dams Tree planting - Nurseries Tree planting - Transplanted Gabions Fencing of a pan Opening of Malkas Waste disposal pits Riparian pegging Energy saving jikos Fire breaks Installation of early warning systems Pruning Grass strips	
		Water Resources Management Structures	RWH Pans RWH Dams RWH Djabias RWH Sand/sub-surface dams Spring protection RWH Tanks Livestock troughs Water pan rehabilitation	
		Livelihood	Livestock (Bee hives) Livestock (Fish ponds-lined) Livestock (Fish ponds-unlined) Livestock (Dairy goats) Livestock (Poultry) Horticulture (Drip kit) Horticulture (Greenhouse) Horticulture (Greenhouse+drip kit)	

ANNEX 3: DIVISION OF TEAMS FOR THE OPERATIONS MONITORING EXERCISE

WSTF JOINT ANNUAL OPERATIONS MONITORING EXERCISE FIELD PLAN - 2017								
CLUSTERS		**CLUSTER 1**	**CLUSTER 2**	**CLUSTER 3**	**CLUSTER 4**	**CLUSTER 5**	**CLUSTER 6**	**TOTAL**
COUNTIES IN CLUSTER		· Kwale - 1	· Wajir - 36	· Isiolo - 36	· Embu - 9	· Vihiga - 3	· Nakuru - 12	
		· Lamu - 40	· Garissa - 51	· Marsabit - 38	· Kirinyaga - 7	· Siaya - 5	· Narok - 4	
		· Kilifi -8	Tana river - 26	· Samburu -2	· Tharaka Nithi - 4	· Busia - 1	· Nandi - 1	
		· Mombasa -3	· Mandera - 2	· Laikipia -15	· Meru - 11	· Bungoma - 4	· Nyandarua - 5	
		· Taita Taveta -3			· Kiambu -9	· Homa bay-4	· Uasin Gishu - 3	
		· *Machakos - 14*			· Murang'a - 15	· Migori - 3	· West Pokot - 3	
		· *Makueni - 14*			· Nyeri -13	· Kisumu- 4	· Trans Nzioia - 3	
		Kajiado - 6				· Kisii- 3	· Baringo - 6	
		Kitui- 5				· Kakamega - 3	· E.Marakwet - 5	
		Nairobi - 1				· Kericho -2	· Turkana - 3	
						Nyamira - 1, Bomet -1		
PROJECTS TO BE COVERED PER PROGRAMME								
	URBAN	48	7	15	29	30	34	**163**
	RBF	1	0	0	2	0	0	**3**
	WATER RESOURCES	10	6	10	34	4	6	**70**
	RURAL	36	102	66	3	0	5	**212**
TOTAL PROJECTS		*95*	*115*	*91*	*68*	34	*45*	**448**
TIME LINES FOR DATA COLLECTION (DAYS)		14	16	17	17	15	15	

ANNEX 4: SELECTED PICTURES FROM JAOME 2017

Fencing of water pan, Ewaso Habaswein, MTAP II (2016/17), Wajir County

Elevated steel tank, Kotile Community Water Project, MTAP II (2015/16), Garissa County

Rainwater harvesting tank, Kanyang Balich, MTAP I (2015/16), Garissa County

Tree nursery, Buna project, MTAP II (2016/17),Wajir County

Water kiosk, Awendo Jiwdendi Water Project, UPC Program (2014/15), Migori County

Solar pumping system, Kanamkemer Solar Water Project, UPC Programme (2016/17), Turkana County

Yard tap, Langas And Kingongo Water Kiosks Rehabilitation, UPC (2012/13), Uasin Gishu County

Animal trough for camels, Dertu watsan project, MTAP II (2016/17), Garissa County

Energy saving jiko, Castle CFA, IFAD (2016/17), Kirinyaga County

Pour-flush household sanitation, Molo Household Sanitation Project, UBSUP (2015/16), Nakuru

Water kiosk, Upper Oruba Water Project, UPC Programme (2016/17), Migori County

Public Sanitation Facility. Makadara Water Project, UPC Programme (2012/13), Machakos County

Spring protection, Upper Rupingazi WRUA, IFAD (2016/17), Embu County

VIP latrines for school, Heillu Dispensary, MTAP I (2014/15), Marsabit County

Dry water pan, Handaki community watsan project, MTAP II (2016/17), Wajir County

Non-operational VIP Latrine, Saka Primary School, MTAP I (2013/14), Garissa County

GETTING IN TOUCH WITH WATER FUND

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