END TERM EVALUATION OF THE WATER, SANITATION AND HYGIENE PROJECT IN KILIFI & TAITA TAVETA COUNTIES

FINAL REPORT

BY

FIRSTDATA RESEARCH CONSULTANTS LIMITED
7TH FLOOR, KMA CENTRE, MARA ROAD, UPPER HILL
P.O. BOX 21362 – 00100
NAIROBI GPO
Tel: (+254) 724 256 244 / 721 483 904
E: info@firstdataresearch.com
W: www.firstdataresearch.com

FEBRUARY, 2019

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

Tables

Figures

LIST OF ABBREVIATIONS AND ACRONYMS

ASAL	:	Arid and Semi-Arid Land
BCC	:	Behavior Change Communication
BRC	:	British Red Cross
CEO	:	Chief Executive Officer
CG	:	County Government
CHS	:	Community Health Strategy
CHU	:	Community Health Unit
CHV	:	Community Health Volunteer
CHW	:	Community Health Worker
CIDP	:	County Integrated Development Plan
CLTS	:	Community-Led Total Sanitation
CTP	:	Cash Transfer Program
DfID	:	Department for International Development - UK
DHS	:	Demographic and Household Surveys
DPHO	:	Divisional Public Health Officers
DWO	:	Divisional Water Officers
ECOSAN	:	Ecological Sanitation
ETE	:	End Term Evaluation
FDRC	:	Firstdata Research Consultants Limited
FGDs	:	Focus Group Discussions
GEN	:	General
GPS	:	Global Positioning System
HH	:	Household
HM	:	Household Member
HT	:	Head Teacher
HW	:	Hand Washing
ICT	:	Information, Communication and Technology
IEBC	:	Independent Electoral and Boundaries Commission
IEC	:	Information, Education & Communication
IRS	:	Indicator Reference Sheet
JMP	:	Joint Monitoring Program

KAP	:	Knowledge, Attitude and Practice
KENHA	:	Kenya National Highways Authority
KIIs	:	Key Informant Interviews
KIMAWASCO:		Kilifi Mariakani Water & Sewerage Company
KRC	:	Kenya Railways Corporation
KRCS	:	Kenya Red Cross Society
LFM	:	Logical Framework Matrix
M&E	:	Monitoring and Evaluation
MICS	:	Multiple Indicator Cluster Survey
MoH	:	Ministry of Health
MoU	:	Memorandum of Understanding
MS-Word	:	Microsoft Word Processor Application
MTR	:	Mid Term Review
NRW	:	Non-Revenue Water
NYEWASCO	:	Nyeri Water & Sewerage Company
OD	:	Open Defecation
ODF	:	Open Defecation Free
ODK	:	Open Data Kit (Android™ Mobile Application)
O&M	:	Operations and Maintenance
PHO	:	Public Health Officer
PPS	:	Probability Proportionate to Size Allocation
RC	:	Red Cross
RCV	:	Red Cross Volunteer
RWHS	:	Rain Water Harvesting System
SAN	:	Sanitation
SANMARK	:	Sanitation Marketing
SCWO	:	Sub county Water Officer
SPHO	:	Sub county Public Health Officer
SPSS	:	Statistical package for Social Sciences
TAVEVO	:	Taveta Voi Water & Sewerage Company
TBD	:	To be Determined Later
UNICEF	:	United Nations Emergency Fund

USAN	:	Use of Sanitation
VfM	:	Value for Money
VIP	:	Ventilated Improved Pit
WASH	:	Water, Sanitation and hygiene
WMC	:	Water Management Committee
WMS	:	Water Management Structure
WSPs	:	Water Service Providers

EXECUTIVE SUMMARY

Kenya Red Cross Society undertakes both emergency and development interventions across the country. Under the development section, it has four core thematic areas, with Water and sanitation being one of them. The WASH in Kenya project implemented in Kilifi and Taita Taveta counties was a three-year program aimed at improving hygiene and sanitation practices and increase access to improved water and sanitation for 110,000 people in the Counties.

Qualitative data was collected via Focus Group Discussions (FGDs), direct observations, and key informant interviews (KIIs). Seven FGDs were conducted in each County. KIIs were conducted with the public health officers at the ward level; administrators of the local water & sewerage service providers; and selected school heads for targeted schools. Direct observations were used to assess the state of sanitation and hand washing facilities within the sampled households and schools. Quantitative data was gathered through two approaches namely: household surveys, and desk review (for secondary data). Household surveys targeted household heads and caregivers. The survey's sampling unit for quantitative data were villages and households. The sampling frame consisted of the list of all villages and households that were within an intervention area. The household sample size for each of the two counties was 768 households (with a 5% addition for non-response). The data collection tools were pre-tested jointly by all the teams in Kilifi County. Data was collected using the Open Data Kit (ODK) mobile application. Qualitative data was analyzed using thematic condensing of field notes. This was done using *Nvivo* qualitative analysis program. The results are presented in narratives.

The findings were presented using tables, pie charts and bar charts and indicated that both counties were **on target** (December 2018) in regard achieving the set targets. Based on the project plan, all the project activities were well on schedule despite delay in the start of some activities.

Sanitation marketing activities were initiated in the second half of the project to support uptake of improved sanitation facilities. The major concern from the community was access of the commodities once the project exits. The KRCS committed to having the said commodities available for sale at their branches to ensure continuity.

Sustainability and exit strategies were put in place. This included ensuring proper governance and management of the water supply system through capacity building and empowering the committees to be able to run the water points assigned to them. The initial engagement with both parties saw reduction in cases of vandalism, reduction of illegal connections, protection and protection and proper use of the available water infrastructure.

Bomet WASH Project in Kenya was part of the project funded DFID (Aid-match). Implementation took off in earlier that these 2; 2014. Despite delay in startup, the project was implemented and achieved its target. The lessons in Bomet set pace for the Kilifi and Taita Taveta counties. The findings are included in this report to ensure the bigger picture of implementation is herein presented.

The investments made in the past three years will be beneficial to the residents for many years to come. The project addresses the county priorities on sanitation/hygiene and water intervention both at the community level and schools that were supported. Water companies (KIMAWASCO & TAVEVO) have realized increase in new domestic water connections, reduced NRW, and hence seen an improvement in their revenues.

SUMMARY TABLE OF FINDINGS

The project indicators of focus are highlighted below:

IMPACT	Impact Indicator 1	Evaluation Phase	Findings – Bomet County (By Nov2017)	Findings – Kilifi County	Findings – Taita Taveta	Project's Target (By Dec 2018)	Remarks on End line targets	
Improved health as a consequence of accessing safe and sustainable WASH in Kenya	Proportion of children under five years (U5) affected by diarrheal diseases (reported in the previous two weeks)	Baseline	14.7% ***95% CI = (10.4%, 19.0%)***	17.9% ***95% CI = (15.8%, 20.0%)***	12.1% ***95% CI = (9.4%, 14.8%)***	Kilifi = 15.3% Taita Taveta = 10.1%	Kilifi	Surpassed target
		Midline	10.5% ***95% CI = (8.8%, 12.3%)***	10.9% ***95% CI = (9.1%, 12.7%)***	4.2% ***95% CI = (2.5%, 5.9%)***		Taita Taveta	Surpassed target
		End term	6.7% ***95% CI = (5.3%, 8.5%)***	6.6% ***95% CI = (4.9%, 8.4%)***	3.8% ***95% CI = (2.5%, 5.1%)***			
OUTCOME 1	**Outcome Indicator 1.1**		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
100,000 women, men, girls and boys in Taita Taveta, and Kilifi Counties (Kenya) increase access to improved and sustainable water and basic sanitation	Number of people accessing an improved drinking water source less than 1km and 2km away disaggregated by gender (men, boys, women and girls)	Baseline	0	Between 1.1 - 2kms ***5,160 [2,421 Male, 2,739 Female]*** Within 1km ***10,168 [4,770 Male, 5,398 Female]***	Between 1.1 - 2kms ***5,085 [2,471 M, 2,614 F]*** Within 1km ***28,764 [13,798 M, 14,786 F]***	Kilifi: +2,806 (1Km), and +6,516 (2Km) Taita Taveta: + 2,015(1Km), and +4,010 (2Km)	Kilifi	Surpassed target
		Midline	0	Between 1.1 - 2kms ***1,138 [534 Male, 604 Female]*** Within 1km ***5,919 [2,776 M, 3,143 F]***	Between 1.1 - 2kms ***6,582 [3,189 Male, 3,373 Female]*** Within 1km ***34,724 [16,876 M, 17,848 F]***			
		End Term	56,260 (M 27,905; F 28,355)	Between 1.1 - 2kms ***7,816 [3,666 Male, 4,150 Female]*** Within 1km ***32,553 [15,267 Male, 17,286 Female]***	Between 1.1 - 2kms **23,453** ***[11,370 Male, 11,083 Female]*** Within 1km **21,502** ***[9,964 M, 11,538F]***		Taita Taveta	Surpassed target
	Outcome Indicator 1.2		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
	Number of functioning water management structure existing at the completion of the project	0	Water management is mandated to the BOMAWASCO Company	Water management is mandated to the KIMAWASCO Company	Water management is mandated to the TAVEVO Company	Kilifi = 1 Taita Taveta = 1	Kilifi	On target
							Taita Taveta	On target
	Outcome Indicator 1.3		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
	Number of people using a basic latrine with a hand washing facility with water and soap (or alternative) disaggregated by gender (men, boys, women and girls)	Baseline	0	0 ***[0 Male, 0 Female]***	2,515 ***[1,222 Male, 1,293 Female]***	Kilifi = +5,378 Taita Taveta = +3,842	Kilifi	Surpassed target
		Midline	11,079	379 ***[178 Male, 201 Female]***	7,382 ***[3,588 Male, 3,794 Female]***			
		End Term	36,954	7,399 ***[2,345 Male, 5,054 Female]***	13,332 ***[4,520 Male, 8,812 Female]***		Taita Taveta	Surpassed target
OUTCOME 2	**Outcome Indicator 2.1**		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
100,000 women, men, girls and boys in Taita Taveta, Bomet, and Kilifi Counties	Percentage of households which have at least one caregiver with knowledge of 3 critical times for hand washing and the	Baseline	**51.40%** [47.8%, 54.9%]	25.2% ***95%CI = (20.6% to 29.8%)***	43.2% ***95%CI = (35.6% to 50.8%)***	Kilifi = 30.5% Taita Taveta = 59.2%	Kilifi	Surpassed target
		Midline	**50.5%** [47.0%, 54.0%]	22.2% ***95%CI = (18.1% to 26.3%)***	61.9% ***95%CI = (55.6% to 68.2%)***		Taita Taveta	Surpassed target

(Kenya) improve their hygiene and sanitation practices.	importance of disposing child feces (under 5 years of age)	End Term	**55.0%** [51.0%, 59.0%]	53.2% ***95%CI = (47.5%, 58.8%]***	64.1% ***95%CI = (58.1%, 69.8%]***			
	Outcome Indicator 2.2		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
	Number of villages/communities that are open defecation free (ODF)	Baseline	0	2 villages ODF certified with 3 claiming to be ODF	1 village ODF certified with 6 claiming to be ODF	Kilifi = +2 villages ODF certified Taita Taveta = +2 villages ODF certified	Kilifi	Surpassed target
		Midline	0	0 villages ODF certified with 3 claiming to be ODF	0 village ODF certified with 5 claiming to be ODF			
		End Term	10	6 villages ODF certified with 2 claiming to be ODF	6 villages ODF certified with 17 claiming to be ODF		Taita Taveta	Surpassed target
OUTPUT 1	**Output Indicator 1.1**		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
Target Schools and Communities have knowledge of good hygiene practices	Number of children in schools that have a safe drinking water supply, clean latrines (separate for boys and girls and disabled access), and hand-washing facilities with soap and water	Baseline	0	0	0	Kilifi = + 2,240 Taita Taveta = +1,260	Kilifi	Surpassed target
		Midline	2,244 (Boys 962 Girls 1, 282)	0	1,355 ***[698 Boys, 657 Girls]***			
		End term	5,157 (Boys 2,527 Girls 2,630)	3,943 (Boys 2,044 Girls 1,899)	6,220 (Boys 3,055 Girls 3,165)		Taita Taveta	Surpassed target
	Output Indicator 1.2		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
	Percentage of people who self-report appropriate hand washing technique with soap/ash/alternative and water	Baseline	**86.6%** [84.3%, 89.1%]	28.3% ***95% CI = (25.2%, 31.4%)***	47.2% ***95% CI = (43.8%, 50.6%)***	Kilifi = 35% Taita Taveta = 55%	Kilifi	Surpassed target
		Midline	**88.1%** [85.7%, 90.3%]	34.2% ***95% CI = (30.9%, 37.5%)***	70.9% ***95% CI = (67.8%, 74.0%)***			
		End Term	**70.6%** [65.1%, 76.1%]	48.9% ***95% CI = (45.4%, 52.4%)***	58.3% ***95% CI = (54.9%, 61.7%)***		Taita Taveta	Surpassed target
	Output Indicator 1.3		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
	Percentage of people with correct knowledge of causes and prevention of diarrheal.	Baseline	**64.0%** [59.1%, 68.5%]	66.3% ***95% CI = (63.0%, 69.6%)***	83.7% ***95% CI = (81.1%, 86.2%)***	Kilifi = 70% Taita Taveta = 86%	Kilifi	Surpassed target
		Midline	**70.3%** [67.1%, 73.4%]	73.8% ***95% CI = (70.8%, 76.8%)***	92.5% ***95% CI = (90.7%, 94.3%)***			
		End Term	**88.7%** [86.6%,90.8%]	79.5% ***95% CI = (76.6%, 82.3%]***	92.6% ***95% CI [90.6%, 94.2%]***		Taita Taveta	Surpassed target
OUTPUT 2	**Output Indicator 2.1**		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
Functional water infrastructure providing safe water for 100,000 people	Number of functional water infrastructure rehabilitated/ constructed	Baseline	0	0	0	Kilifi = 1 Taita Taveta = 2	Kilifi	On target
		Midline	0	0	0		Taita Taveta	Surpassed target
		End Term	1	1	3			
	Output Indicator 2.2		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
	Number of schools with safe drinking water supply	Baseline	0	0 of the 10 schools	3 of the 11 schools	Kilifi = +5 Taita Taveta = +5	Kilifi	Surpassed target
		Midline	6	2 of the 10 schools	7 of the 11 schools			
		End Term	17 (5 RWHS + 12 connect to main supply: the 12 are additional to original plan)	6 of the 10 schools	8 of the 11 schools		Taita Taveta	Surpassed target
OUTPUT 3	**Output Indicator 3.1**		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
Construction/ rehabilitation of latrine facilities in households and schools	Percentage of target households with latrines with hand washing facilities	Baseline	**15.2%** (11.8% to 18.6%)	0.3%	4.6% ***95% CI = (3.2%, 6.0%)***	Kilifi = 8.5% Taita Taveta = 13.3%	Kilifi	Surpassed target
		Midline	**14.5%** [12.1%, 17.1%]	0.5% ***95% CI = (0.01%, 0.99%)***	13.5% ***95% CI = (11.1%, 15.9%)***			
		End Term	**14 %**	9.5% ***95% CI [7.6%, 11.7%]***	18.1% ***95% CI [15.6%, 20.8%]***		Taita Taveta	Surpassed target
	Output Indicator 3.2		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			

	Number of schools with latrines with hand washing facilities (separate for boys and girls and disabled access)	Baseline	0	0 of the 10 schools	0 of the 11 schools	Kilifi = +5 Taita Taveta = +5	Kilifi	On target
		Midline	5	2 of the 10 schools	0 of the 11 schools			
		End Term	5	5 of the 10 schools	7 of the 11 schools		Taita Taveta	Surpassed target
OUTPUT 4	**Output Indicator 4.1**		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
Improved sustainability of water facilities through strengthened governance and management capacities in targeted areas	Number of water points with functional water management structures created or strengthened (e.g. in Kenya water points set up in the water system with associated vendors/kiosks (which are the service delivery part of the water company)	Baseline	0	0	0	Kilifi = +10 Taita Taveta = +20	Kilifi	Surpassed target
		Midline	0	0	0			
		End Term	34	25	43		Taita Taveta	Surpassed target
	Output Indicator 4.2		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
	Number of people who participate in training on governance, and/ or management of physical water structures, and/or advocacy to local government (disaggregated by gender)	Baseline	0	Not measured	Not measured	Kilifi = +49 Taita Taveta = +41	Kilifi	Surpassed target
		Midline	318	15 ***[11 male, 4 female]***	50 ***[27 male, 23 female]***			
		End term	318	54 ***[48 male, 6 female]***	73 ***[40 male, 33 female]***		Taita Taveta	Surpassed target
	Output Indicator 4.3		**Findings – Bomet County**	**Findings – Kilifi County**	**Findings – Taita Taveta**			
	Number of health clubs formed in schools	Baseline	0	0	0	Kilifi = +10 Taita Taveta = +11	Kilifi	On target
		Midline	10	10	11			
		End term	12	10	11		Taita Taveta	On target
OUTPUT 5	**Output Indicator 5.1**		**Kenya Project Area Targets (as per IRS)**			**Findings**		
Documented evidence of learning about WASH interventions	Number of studies undertaken	Baseline	Kenya = 0			Kenya = 4	On Target	
		Midline	Kenya = +3					
		End term	Kenya = +1					
	Output Indicator 5.2							
	Number of publications produced and shared internally and externally	Baseline	Kenya = 0			Kenya = 4	On Target	
		Midline	Kenya = +3					
		End term	Kenya = +1					
	Output Indicator 5.3							
	Number of learning events (internal and external) conducted	Baseline	Kenya = 0			Kenya = 10+	On Target	
		Midline	Kenya = +6					
		End term	Kenya = +4					

SECTION I: INTRODUCTION AND BACKGROUND

1.1. The project Background

Access to sanitation in Kenya continues to be a major challenge. The 2009 census puts the overall access levels at 65% with rural coverage at 56% and Urban at 79%. The Joint Monitoring Program (JMP), which considers those using shared facilities as lacking access, puts the overall coverage at 31% with rural coverage at 32% and urban at 27%. These figures indicate that over 6 million Kenyans still defecate in the open which result in prevalence of diseases such as diarrhea, amoeba, typhoid and cholera. Numerous sanitation and hygiene interventions have been carried out in the past and some common features in these interventions included awareness raising, training on hygiene and external subsidy of sanitation hardware materials. Consequently, in May 2011, the Government and partners launched the Open Defecation Free (ODF) Rural Kenya 2013 campaign aimed at eradicating Open Defecation (OD) in Rural Kenya by 2013. According to the *2013 – 2017 County Integrated Development Plan* (CIDP) for Kilifi County, water remains a problem for domestic use, livestock and Irrigation. The County has 1205 shallow wells, 135 water pans, 90 small earth dams and 50 boreholes. The proportion of households with access to piped water is 48.1 per cent while proportion of households with access to potable water is 63.3 per cent. Most of the households still access water from surface sources and the average distance to the nearest water point is 5 km. Sanitation is a challenge in the county as the latrine/toilet coverage is 50.25 percent and there are no proper systems of managing liquid and solid wastes (Republic of Kenya, 2014a). Similarly, in Taita Taveta County, the *2013 – 2017 County Integrated Development Plan* stipulates that about 35% of household have access to piped water, with 58% having access to portable water. The average distance to the nearest water point is reported to be 1.25 Km. An estimated 86% of the households have access to toilet facilities while about 14% of households do not have any kind of toilet facility (Republic of Kenya, 2014b).

In this regard, this three-year program aims at improving hygiene and sanitation practices and increase access to improved water and sanitation for 110,000 people in Taita Taveta and Kilifi Counties. The anticipated changes over a three-year period include:

There has been increased awareness/understanding of health risks linked to unhygienic practices, resulting in behaviour change e.g. critical times for hand washing, safe disposal child feces; knowledge of the causes/prevention of WASH-related diseases, safe water chain and open defecation (OD) contamination risks.

- Increased use of rehabilitated/new water infrastructure, improved water quality, reduced collection distances; increased demand for/use of latrines, reduced OD and reduced contamination risks.
- Enabled and strengthened communities, able to foster connections, engage and solicit support from local government in arrangements for on-going WASH operation and maintenance (O&M).
- Shared evidence-based experience and coordination between WASH actors

1.2. Purpose and objectives of the study

Purpose

The purpose of the end term evaluation (ETE) was to provide statistically representative end line values against key WASH indicators (including, but not limited to, those in the logical framework matrix (LFM)) and to assess current issues surrounding water facility management in Taita Taveta and Kilifi. The ETE included a review the Bomet end line evaluation report and compare overall project successes and

challenges in all the 3 project sites with an objective of providing a detailed reference document for assessing the project changes in future evaluations and for providing lessons learnt for future WASH programs in similar contexts and recommendations for future program in the movement and wider sector.

Objectives

The ETE study was guided by the following specific objectives:

1. To establish end line statistics against the project log frame indicators at community level compared to the benchmark statistics at baseline to provide levels of achievement/non-achievement for the project.
2. To assess the outcomes and results of the project by evaluating information, services and products generated from the project in terms of its relevance, effectiveness, efficiency, sustainability, partnerships and learnings.
3. To undertake the value for money (VfM) analysis as guided by the KRCS value for money tool.
4. To document community perception of their participation and how KRCS accountability standards have been applied in the project
5. To review the end line report from Bomet county WASH project to reflect on any specific observations or recommendation arising.

1.3. Geographical Coverage for the Study

The study geographical scope covered Kilifi and Taita Taveta Counties of the Kenyan Coastal region. In Kilifi County, the study covered Ganze Sub County. The study was conducted in two divisions namely Bamba and Ganze Divisions. In Taita Taveta, the study covered Voi and Taveta sub counties. The list of targeted locations in each county is provided in the annexes.

1.4. Scope of Work undertaken

The scope of work undertaken entailed the following: gathering statistics for WASH program indicators at household level through collection of primary and secondary data; conducting focus group discussions with the targeted beneficiaries (school pupils and members of the community); conducting focus group discussions with project's change agents namely Kenya Red Cross volunteers and Community Health Workers; conducting key informant interviews with key project stakeholders (Kenya Red Cross project officers; County Government officials; Administrators of Water & Sewerage Companies in Kilifi and Taita Taveta; and heads of the targeted schools. Finally, desk review was conducted to collate data that was useful in assessing the project's value for money trends.

SECTION II: METHODOLOGY

2.1. Conceptual Approach

The approach to the proposed study was tailored to conform to the RC Evaluation framework including evaluation principals and standards (which relate to utility, accuracy and credibility, feasibility, accountability and transparency, ethics and legality). It also involved capacity building of Red Cross volunteers (for example, through inclusion of Red Cross volunteers as enumerators (Household level); and finally, it ensured that the evaluation was carried out in a participatory and transparent manner, making sure that all relevant stakeholders participated (including Men, women, Boys and girls, and those living with disabilities). The review applied mixed Methods design to gather both primary and secondary data. The mixed methods included: desk review of relevant documentation, including the project operational plan, baseline report, monitoring data and Progress reports (monthly reports, midyear reports, annual project reports); Key Informant Interviews with current KRCS and BRC staff and volunteers, 'change agents' and any other key stakeholders deemed relevant (including Government representatives); and field visits to collect quantitative and qualitative data from beneficiary communities - this was to include a quantitative household and school survey covering Key Performance Indicators. The review was conducted using different kinds of methods. The methods and approach can be summarized as in Table 1 below:

Table 1: Conceptual Summary of the End Term Review

Target group	Review theme	Method
KRCS and BRC	• Relevancy and effectiveness of the project up to date • Partnerships • Efficiency: Project's value for money analysis • Organizational learning • Project reporting and budgeting	KII and desk review
Community level: Households heads	• Partnership • Relevancy and effectiveness of the project up to date	Household surveys
County / Sub-County Public Health and Water Services Management Teams	• Relevancy and effectiveness of the project up to date • Partnership / linkages • Project's sustainability	KIIs
CHWs	• Knowledge and understanding of the Kilifi & Taita Taveta WASH project • Roles and responsibilities • Correspondence to the needs of beneficiaries • Support received • Participation and ownership • Satisfaction and motivation • Sustainability • Impact	FGDs
Volunteers	• Knowledge and understanding of the Kilifi & Taita Taveta WASH project • Roles and responsibilities	FGDs

	• Correspondence to the needs of beneficiaries • Support received • Participation and ownership • Satisfaction and motivation • Sustainability • Impact	
Women	• Knowledge and understanding of the project • Correspondence to the needs of beneficiaries • Participation and ownership • Satisfaction	FGDs
Men	• Knowledge and understanding of the project • Correspondence to the needs of beneficiaries • Participation and ownership • Satisfaction	FGDs
School communities	• Knowledge and understanding of the project • Correspondence to the needs of beneficiaries • Participation and ownership • Satisfaction	KIIs and FGDs

Assessing the Value for Money

The VFM conceptual framework was based on a logical 'results chain', which explicitly sets out the results to be achieved by a given program. KRCS provided a pre-designed tool that was used to assess the VFM score for the project. Issues that informed the VfM tool included: involvement of the target groups; management arrangements for delivering and overseeing the work; efficiency in delivery of project's activities; conflicts or disputes resolution; extent of involvement of staff and KRCS volunteers; relevance of costs incurred to achieve each of the outcomes vis-à-vis the budget; variances or savings realized against the budget plan; efficacy of financial controls applied; procurement policy for goods and services; internal and/or external monitoring practices; and timeliness of financial reporting.

2.2. Data collection approaches

2.2.1. Qualitative approaches

Qualitative data was collected via focus group discussions (FGDs), key informants' interviews (KIIs), direct observations, and desk review (for secondary data). Seven FGDs were conducted in each County, two with the members of the community; two with the community health workers / volunteers; two with pupils aged 11 – 14 years from the targeted schools; and one with Kenya Red Cross Volunteers. The selection of FGDs forums participants was purposively done using some pre-determined criterion. The following criterion was applied in selection of FGDs participants (adult men and women from the community level):

- Be a senior member of a household (or head) situated in the sampled village
- Be willing to voluntarily interact and volunteer information without coercion
- Be fully available during the time and sessions as to be designated
- Other special attributes: Natural leadership, prominent business personality, vulnerable groups (at least 30% of each FGD wherever possible)

For the pupils' FGDs, the participants comprised of 5 boys and 5 girls in the ages of 11 – 14 years (mainly from upper primary grades). Each FGD had a minimum of 8 participants and a maximum of 12 participants. Key informants' interviews (KIIs) were conducted in each division with the Divisional Public Health Officers (DPHOs); Chief Executive Officers of the two water & sewerage services companies (namely KIMAWASCO and TAVEVO Companies) and selected school heads from the targeted schools. In addition, KIIs were done at the sub-county level with the Sub County Public Health Officers (SPHOs). The minimum number of KIIs conducted at the school level (with the head teachers) was three (3) for each county (at least 1 in each sub-county). For the FGD forums, the discussions were tape-recorded in local languages and then transcribed into MS-Word™ format and translated to English. Table 2 and Table 3 below respectively provide a summary of the KIIs and FGDs done in each County.

Table 2: Summary of FGDs for Kilifi and Taita Taveta Counties

County	Number of FGDs	Targeted participants	Thematic area to guide their selection, inclusions and exclusion
Kilifi	2	Pupils (5 boys and 5 girls per forum) in the ages 11 – 14 years	As primary consumers of WASH services at the school level; and as agents of sanitation marketing at the community level
	2	Community health volunteers	As gatekeepers of WASH services uptake at the community level; and program's change agents
	2	Members of the community (selected as per above criterion)	As representatives of a water management structures, women as care givers, and men as decision makers on household level matters
	1	Kenya Red Cross Volunteers	As lead program's change agents on behalf of KRCS and BRC
County	**Number of FGDs**	**Targeted participants**	
Taita Taveta	2	Pupils (5 boys and 5 girls per forum) in the ages 11 – 14 years	As primary consumers of WASH services at the school level; and as agents of sanitation marketing at the community level
	2	Community health volunteers	As gatekeepers of WASH services uptake at the community level; and program's change agents
	2	Members of the community (selected as per above criterion)	As representatives of a water management structures, women as care givers, and men as decision makers on household level matters
	1	Kenya Red Cross Volunteers	As lead program's change agents on behalf of KRCS and BRC

Table 3: Summary of KIIs for Kilifi and Taita Taveta Counties

County	Number of KIIs	Targeted respondents
Kilifi	2	Ganze DPHO and Bamba DPHO
	1	CEO / Chief Engineer at KIMAWASCO Company
	1	Ganze SPHO
	3	Heads of targeted schools (to be purposively selected from the list)
County	**Number of KIIs**	**Targeted respondents**
Taita Taveta	2	DPHOs (1 DPHO in each Division)
	1	CEO / Chief Engineer at TAVEVO Company
	2	Taveta and Voi Sub county PHOs
	3	Heads of targeted schools (to be purposively selected from the list)

KIIs with the sub county PHOs helped to ascertain the number of villages that had been verified to be Open Defecation Free (ODF) up to the end line of the project. Data on schools was sourced from the offices of the school principals / administrators.

2.2.2. Quantitative Approaches

Quantitative data was gathered through direct interviewing approach, using a household survey questionnaire; and through desk review for quantifiable descriptive variables, especially on project's cost effectiveness. Household surveys targeted household heads or caregivers for interviewing.[1] Issues that were captured in household surveys sought to validate the observations on WASH; as well as information from the KAP items. Data from the household survey questionnaire largely sought to address the first specific objective that seeks to establish the current WASH coverage for project log frame indicators. Quantitative data from secondary sources was collected using a customized data sheet.

2.3. Data collection instruments and targeted respondents

Household Survey Questionnaire

After the questionnaire was finalized in English, it was translated into *Swahili* for respondents and informants who may have experienced difficulties responding to certain items that are framed in English. These translations were initially made by FIRSTDATA translators, after which they were checked and modified where necessary by language experts. To ensure that no meanings are lost during translations, everyday spoken as opposed to formally grammatical language was used. Further, *Swahili* translations always were back-translated into English for validation purposes. Both the English and the *Swahili* versions were then pre-tested as part of the enumerators training (to also ensure the enumerators practiced as part of the training). The final questionnaire was then designed in ODK Mobile Survey Application to facilitate automated data capture using mobile-based devices (phones and tablets).

Observation Guide (for Households)

The observation guide for households covered issues related to the following: Sanitation Observations; Use of Sanitation; and Hygiene including Hand washing. The observation guide was in English language since it was to be filled in by the enumerator. The finalized guide was designed in ODK Mobile Survey

[1] Whereas the sampling of the households will be simple randomized; a household head (or senior most adult in absence of the head) will be interviewed for sampled HHs that lack children under 5 years while caregivers (mother of the youngest child), will be interviewed for households found to have children aged below 5 years

Application to facilitate automated data capture using mobile-based devices (phones and tablets). The household questionnaire and the household observation guide was executed in the same interview session, by the same interviewer.

Observation Guide (for Schools)

The log frame indicators related to WASH in schools were observed using a structured data sheet. A sample data sheet is provided in the annexes.

Focus Group Discussion Guide

Focus group discussions were held targeting CHWs, KRCS volunteers and community members (see the criteria mentioned above). Open questions were formulated in readiness for discussions in groups of between 8 and 12 participants. To break the cultural norms and to ensure that the participants were free in the group discussions, separate sessions were held for each group. The themes covered in the FGDs include: Knowledge and understanding of the Kilifi & Taita Taveta WASH project; Roles and responsibilities of the beneficiaries, CHWs, and KRCS volunteers; Correspondence of the project outcomes to the needs of beneficiaries; Nature of support received; Extent of participation and ownership at the community level; Satisfaction and motivation issues; Sustainability issues; and Impact from the project since inception.

Key Informants Interview Guide

The Key Informants interviews were used to obtain information that would otherwise not be available from the household surveys but would be critical to the study. The interviews sought to assess issues revolving around: Relevancy and effectiveness of the project up to date; Partnerships and linkages established; Efficiency: Project's value for money analysis; Organizational learning; and Project reporting and budgeting. They also shed light on issues that may need to be addressed to achieve sustainability of water facilities through strengthened governance and management capacities in targeted areas (Output 4). The targeted informants included: The Divisional Public Health Officers (DPHOs); Chief Executive Officers of the two water & sewerage services companies (namely KIMAWASCO and TAVEVO Companies) and selected school heads from the targeted schools. In addition, KIIs were done at the sub-county level with the Sub County Public Health Officers (SPHOs).

2.4. Sampling design

2.4.1. Sampling frame and sample Size determination for household surveys

The target population of the study comprised of approximately 110,000 people in two selected counties Kilifi and Taita Taveta. The survey's primary sampling units were villages while the households were the secondary sampling units. The sampling frame therefore consisted of the list of all villages and households that were within an intervention area. From the constructed sampling frame, simple random sampling procedures was used to select the study sample.

Identification of an optimal sample size for each of the two targeted counties was guided by the desired precision of results as well as cost implications of undertaking the survey. As a rule, the larger the sample size, the smaller the sampling error as measured by the standard deviation. Therefore, the sample drawn should be large enough to provide reliable estimates of the study. To improve precision of estimates we obtained a sample size capable of obtaining an estimated precision of 95% with a margin error of 5% by solving for n in the formulas for the maximum error of the estimates. Equation (1) shows the formula was used in determination of the sample size.

$$n = \left(\frac{Z\frac{\alpha}{2}}{E}\right)^2 \times p \times q \times deff \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where:

n = the desired number of households to be covered in the county
p = is the estimate of the key indicators to be measured in the survey (we shall use 50%)
$q = 1 - p$
ε = is the margin of error to be attained (set at 0.05)
deff = the design effect

A design effect of 2.0 was used to reduce the loss of precision arising from clustering. Substituting the above values in Equation (1) yields Equation (2) below which shows that an optimal sample of 768 households was considered. With the design effect incorporated, the sample stands adjusted for non-response rate of 10%.

$$n = \left(\left(\frac{1.96}{0.05}\right)^2 \times 0.5 \times 0.5\right) * 2 = \textbf{768 Households in each county} \ldots\ldots\ldots (2)$$

An allowance of 5% (40 Households) was added to cover for non-responses.

Sampling Plan for Household Surveys in Kilifi County

The optimal number of clusters (villages) sampled was selected through systematic sampling from a list of 103 villages provided (see annex A-7). To avoid a massive design effect and considering that the cluster (village) sizes were rather small, an optimal sample of 33 clusters was considered, with the cluster sampling happening as close to household level as possible (i.e. selecting clusters at village level). This was factored due to the use of a design effect of 2.0 in selection of sample size as shown in Equation (2) above. Simple random sampling was used to determine the first village to be sampled in the list. The third village was randomly selected as the start village from the list (i.e. Bonea village). Thereafter, to select 33 villages from a list of 103 villages, every 3rd village was thereby selected until the desired sample size was achieved. From the villages sampled, households were randomly sampled based on the number of households in each of the village selected. Probability proportionate to size allocation was used to assign the sampled 768 households to each village based on their household population size. The list of sampled villages is provided in the annexes.

Sampling Plan for Taita Taveta County

The optimal number of clusters (villages) sampled was selected through systematic sampling from a list of 51 villages provided (see Annex A-7). To avoid a massive design effect and considering that the cluster (village) sizes were rather small, an optimal sample of 25 clusters was considered, with the cluster sampling happening as close to household level as possible (i.e. selecting clusters at village level). This was factored due to the use of a design effect of 2.0 in selection of sample size as shown in Equation (2) above. Simple random sampling was used to determine the first village to be sampled in the list. The second village was randomly selected as the start village from the list (i.e. Itinyi village). Thereafter, to select 25 villages from a list of 51 villages, every 2nd village was thereby selected until the desired sample size was achieved. From the villages sampled, households were randomly sampled based on the number of households in each of the village selected. Probability proportionate to size allocation was used to assign the sampled 768 households to each village based on their household population size. The list of sampled villages is provided in the annexes.

Global Positioning System (GPS) was used to capture the precise location/coordinates of the sampled households and hence digital mapping of all the households visited in the survey was easily achieved. The ETE utilized similar sampling approach as the baseline and the midterm evaluations, with the same sample size; while the households were selected randomly; as such the no follow of households was done. At the village level, the household selection grid / the table of random numbers was applied in guiding the randomization of the selected households (See Annex A-6).

2.4.2. Sampling of Key Informants and FGD Participants:

Sampling of key informants and FGD participants was purposively done. DPHOS, administrators of WSPs, School heads, and SPHO were engaged in KIIs. The CHWs and school pupils were engaged in FGDs. At the community level, selected men and women will be engaged in an FGD.

2.5. Team Recruitment, Training and Briefing

2.5.1. Team Recruitment

The field team leadership comprised of an overall supervisor, a supervisor for Kilifi County team, and a supervisor for Taita Taveta County team. The recruitment of these cadres was the first to be finalized. The enumerators were then recruited from a list of Kenya Red Cross volunteers drawn from the study counties. A team of 40 enumerators was constituted, 20 for Kilifi County and 20 for Taita Taveta County. It was estimated that each enumerator would conduct an average of 8 household interviews per day, hence work in the two counties could be finalized by 40 persons each working for 5 days. This also considered that they were to actively participate as rapporteurs for the FGDs in collaboration with the supervisors. Additional 2 enumerators in each county were selected to assist in note taking during FGDs. The enumerators were drawn from persons with a relevant diploma qualification. Those with experience in socio-economic surveys were highly preferred. The enumeration team was a mixed team of enumerators – including men and women; whilst reflecting as far as possible the ethnic makeup of the target areas.

2.5.2. Training and Briefing

Extensive training of the 44 enumerators was conducted at a centralized location in Kilifi County, with two days devoted to discussing and revising of the study tools as well as the mobile data collection software. Training for field supervisors and enumerators was done jointly to ensure that responses were consistent, and that high-quality data was collected.

2.6. Piloting and data collection

2.6.1. Pilot Studies

The questionnaire and FGD guides were pilot-tested jointly by all the teams in Kilifi County at Madevu, Majajani and Mabirikani villages in Jaribuni division. This was done to assess their reliability (i.e., consistency and clarity, in terms of yielding the desired data) and the exercise's planned logistics. The pilot exercise was a one-day exercise. Based on this testing, necessary modifications were made in the questionnaire, the mobile application, and logistic planning. Questions were adjusted in order to avoid lengthy interview time and ensure that the logical skipping is relevant. Before any actual changes in the questionnaire are made, however, a group-feedback session would be held and attended by all members of the fieldwork team. The average interview time per questionnaire was fixed to conform to the stipulated survey calendar. Discussions were held before adoption of the questionnaire in its final form.

2.6.2. Data Collection

Quantitative Survey Data

The data collection simultaneously kicked off in the two counties immediately after finalization of the tools design after piloting. The timing for household visits was from 8.30am to 5.30pm. Each enumerator was designated a cluster of households to cover, with a breakdown of the minimum expected number of households to cover within a cluster/ village/ or administrative unit. A detailed itinerary was also provided to each enumerator to show the day to day movement and avoid a back-and-forth movement within the same geographical area. Upon finalization of data collection in each household, the Samsung devices running the ODK Collect Mobile Application would automatically send the filled e-survey form to a central server. The team leader and the data manager would then simultaneously receive the submitted data for quality review and cleaning.

Qualitative Survey Data

The supervisors organized for seven FGDs per County; two with the CHWs, two with the members of the communities from the project's sites, two with pupils from a sample of 2 targeted schools, and 1 with KRCS volunteers. The participants were hosted at a central location that would conveniently be accessible by all. During the FGDs, the supervisors were responsible for moderation while the data clerks would do the audio recording. At the end of every FGD, a group feedback session would be held to discuss the emerging themes. Key informants' interviews were conducted by the team leader and the team's supervisory delegation.

2.7. Data quality Control

The matrix of Table A11-3 in *Annex A-11* depicts some of the safeguard measures that were employed to ensure that data quality is assured at all levels of the study.

2.8. Data Processing and Analysis

During fieldwork, all the e-forms submitted via the mobile application were adequately checked for accuracy and completeness before analysis, and any inconsistencies noted were promptly addressed by the field teams. After all the data was received, the second step of analysis involved generation of syntax commands to ensure that variables are transformed appropriately for ease of analysis. The data was analyzed using Statistical Package for Social Sciences (SPSS, *Version 24*). Descriptive statistics and Cross-tabulations were the principal data analysis techniques. For qualitative data, the transcribed texts were transferred to NVIVO 10 qualitative analysis software and analyzed. Following coding of the transcripts, a full list of themes was made available for categorization within a hierarchical framework of main and sub-themes. The thematic framework was then systematically applied to all the interview transcripts. Patterns and associations of the themes was identified and compared within and between the different groups of respondents (CHWs, pupils and Community members) to enhance triangulation of data. In addition, content analysis of interviews data to detect key themes related to WASH behavior uptake was used.

SECTION III: PRESENTATION OF FINDINGS

3.1. Introduction

The proposed sample size was 768 HHs from each county making a total of 1536HHs; with an additional 5% from each county hence a sum of 1,608HHs was expected. However, through the daily quota allocations made to the enumerators during data collection (which had rounding off during individual allocations), there was a variance -3.5% for Kilifi County and +2.4% in Taita Taveta County leading to a total response from 1,600HHs. As such, all the 1,600 HHs were included in the survey across the two counties, with 777 HHs from Kilifi County and 823 HHs from Taita Taveta County. The variances from each county did not significant affect the inference of findings considering the design effect applied. Overall, 67.2% of the respondents were female with male standing at 32.8%. This section gives an in-depth description of the findings of the evaluation. The community basic information is presented here and helps in in-depth description of the initiatives and some of the factors that promoted their attainment and/or hindered the attainment of the project goals.

3.2. Household Characteristics and Demographic Profiles of the Household Members

Demographic Profile of the Respondents

Of the 1600 respondents, 706 of the respondents were spouses to the households' heads, 680 respondents were real households' heads, 140 respondents were female relatives and 74 respondents were male relatives. Majority of the respondents were women (67.2 %.), and 32.8% were men. (Kilifi: M=31.7%, F= 68.3%; Taita Taveta: M=33.9%, F = 66.1%). Regarding the relationship of the respondents to the heads of the households, Table 4 shows that the sample was largely composed of actual households' heads (42.5%); and spouses to the households' heads (44.1%). This was attributed to the focus accorded to interviewing caregivers from households that had children aged below 5 years; or the household heads as alternates to the caregivers.

Table 4: Relationship of the respondents to the head of the households

	Kilifi County		Taita Taveta County		Sample Overall	
	n	%	n	%	n	%
Spouse of the household head	386	49.7	320	38.9	706	44.1
Actual household head	275	35.4	405	49.2	680	42.5
Female relative	71	9.1	69	8.4	140	8.8
Male relative	45	5.8	29	3.5	74	4.6
Total	**777**	**100.0**	**823**	**100.0**	**1,600**	**100.0**

The headship type for the sampled households was largely male-dominated, with 71.3% of the HHs being male-headed (MH) and 28.7% being female-headed [FH] (Kilifi: MH = 78.0%, FH = 22.0%; Taita Taveta: MH = 65.0%; FH = 35.0%)

Household Composition and Size

Table 5 below indicate the distribution of the household sizes, disaggregated by overall study area and by counties. The findings show that the sample average for household size was 6 persons, with Kilifi county's households reporting the highest average of 7 persons per household indicating. For rural communities, the number of members of a household determines to a large extent the demand for goods and services the household purchases. The larger the household, the more strain is put on the resources available for the household's disposal. This in turn affects the general welfare of household members in terms of

demand for water, as well as demand and strain sanitation facilities at the household level, poverty/wealth index, etc. Economic resources are often more limited in large households than in small households, especially in rural areas. Moreover, where the size of the household is large, crowding can also lead to health problems; including ease in spread of diseases during an outbreak. (UN water & WHO, 2014).

Table 5: Household Composition and Size

Percent distribution of sampled households by household size (mean size of household), according to the county of residence. Note: Table is based on *de jure* household members, i.e., usual residents.						
	Kilifi (N=5,596)		**Taita Taveta (N=4,670)**		**Overall (N=10,266)**	
HH size (members)	**Number of HHs**	**% of the total**	**Number of HHs**	**% of the total**	**Number of HHs**	**% of the total**
1	1	0.1	2	00.2	3	0.2
2	26	3.3	43	5.2	69	4.3
3	29	3.7	70	8.5	99	6.2
4	45	5.8	88	10.7	133	8.3
5	75	9.7	118	14.3	193	12.1
6	83	10.7	125	15.2	208	13.0
7	116	14.9	139	16.9	255	15.9
8	98	12.6	85	10.3	183	11.4
9+	93	12.0	40	4.9	133	8.3
Mean Size	7 ***95% CI = [6.93, 7.47]***		5 ***95% CI = [5.43, 5.91]***		6 ***95% CI = [6.23, 6.59]***	

Percentage of Households with Persons with Disabilities

Table 6 shows the distribution of responses on the presence of persons with disabilities in the sampled households. The results show that overall, 6.5% of the households had persons with disabilities (Kilifi: 7.2%; Taita Taveta, 5.8%). Therefore, effective WASH programs need to promote inclusive toilet design. Toilets and hand washing facilities need to be customized to meet the wide range of needs of people living with disabilities.

Table 6: Percentage of Households with Persons with Disabilities

		Kilifi County		**Taita Taveta**		**Overall Sample**	
		n	***%***	***n***	***%***	***n***	***%***
Are there persons in your household with disabilities?	Yes	56	7.2	48	5.8	104	6.5
	No	721	92.8	775	94.2	1496	93.5
	Total	777	100.0	823	100.0	1600	100.0

Level of Education of the Household Head

Education is a key determinant of the lifestyle and status an individual enjoys in a society. Studies have consistently shown that educational attainment has a strong effect on health behavior and attitudes towards sanitation adoption and use. Results from the study are tabulated in Table 7 below. The results show that most of the household heads (43.3%) had attained primary level as the highest education level while 28.5% had no formal education. In addition, 21.9% had attained secondary education. The remainder of the households (6.3%) had heads who have attained post-secondary education. A significantly higher proportion of respondents in Kilifi County (39.1%) reported that the heads of the

households have no formal education, compared to the proportion reported in Taita Taveta County (18.5%).

Table 7: Level of Education of the Household Heads

What is the highest Level of education of the household head?	Kilifi County		Taita Taveta County		Sample Overall	
	Number	% of total	Number	% of total	Number	% of total
No formal education	304	39.1	152	18.5	456	28.5
Primary level	292	37.6	401	48.7	693	43.3
Secondary level	135	17.4	215	26.1	350	21.9
Tertiary college	35	4.5	39	4.7	74	4.6
University degree	11	1.4	16	1.9	27	1.7
Total	**777**	**100.0**	**823**	**100.0**	**1,600**	**100.0**

Level of the Household Monthly Income

Household income level is a background characteristic used as a proxy for the long-term standard of living of the household. The respondents were asked to state the level of income realized at the household by all its members from all possible sources (e.g. employment, farming, businesses, trade etc.). The results are presented in Table 8 below. The findings indicate that none of the sampled households in both counties had no defined source of household income. In both regions (and sample overall), most of the sampled households have monthly income levels not exceeding Shillings 10,000 (Approximately USD 100). The average household monthly income for Taita Taveta County (Kshs. 7,631) was found to be nearly equal to the average household monthly income for Kilifi County (Kshs7, 523). The overall sample average household monthly income was found to be Kshs. 7,579 (Approximately USD 76). At baseline, the average household monthly income for Taita Taveta County (Kshs. 8,508) was found to be nearly twice the average household monthly income for Kilifi County (Kshs. 4,907) and the overall sample average household monthly income was found to be Kshs. 6,708 (Approximately USD 67). This indicates a higher improvement in living standards in Kilifi County than in Taita Taveta County.

Table 8: Household Income Levels

	Kilifi County		Taita Taveta County		Overall	
HH Income Levels	**HHs**	**%**	**HHs**	**%**	**HHs**	**%**
No income sources	0	0.0	0	0.0	0	0.0
Up to Kshs 10,000	650	83.7	654	79.5	1304	81.5
Kshs 10,001 - 20,000	85	10.9	113	13.7	198	12.4
Kshs 20,001 - 30,000	23	3.0	36	4.4	59	3.7
Over Kshs 30,000	19	2.4	20	2.4	39	2.4
Total	777	100.0	823	100.0	1600	100.0
Average / Mean	Mean = Kshs. 7,523.89 ***95% CI = [5854.91, 9192.87]***		Mean = Kshs. 7,631.24 ***95% CI = [6,962.81, 8,299.67]***		Mean = Kshs. 7,579.11 ***95% CI = [6,699.88, 8,458.34]***	

Percentage of HHs with Children Aged below 5 years

Table 9 presents findings on the proportion of sample households that had children aged 5 years and below. The results show that a majority of the sampled households (50.4%) had children aged below 5 years. In Kilifi study area, more than half of the sample HHs (60.7%) had children aged below 5 years;

with Taita Taveta reporting a value of 40.6%. The total sample population of under 5s was 1,567 children (771 boys and 796 girls).

Table 9: Percentage of Households with Children Aged 5 years and below

		Does the household have children under 5 years of age?	
		Number of HHs	**% of the total HHs**
Kilifi County	Under 5-year-old present	472	60.7
	No under 5-year-old	305	39.3
	Total HHs	777	**100.0%**
	Number of children U5s	**Total = 994 (503 Boys, 491 Girls)**	
Taita Taveta County	Under 5-year-old present	334	40.6
	No under 5-year-old	489	59.4
	Total HHs	823	**100.0%**
	Number of children U5s	**Total = 573 (268 Boys, 305 Girls)**	
Sample Overall	Under 5-year-old present	806	50.4
	No under 5-year-old	794	49.6
	Total HHs	1600	**100.0%**
	Number of children U5s	**Total = 1,567 (771 Boys, 796 Girls)**	

3.3. Results of the End Term Review

3.3.1. Relevance to the Needs and Priorities of the Beneficiaries

Relevance of the project was analyzed from two angles. First, whether the project's objectives were in line with the needs and priorities of the beneficiaries i.e. people living in Taita Taveta and Kilifi Counties, and if the activities were likely to support achieving these needs. Second, the relevance in line with the county governments' priorities. The FGDs with the Red Cross Volunteers (RCVs), women and men showed that the interventions had significantly addressed the key challenges faced by the community members in the target areas. Some areas which previously experienced huge shortages of water benefited from the water supply and access was access for safe water within a distance of 2Km. Due to the availability of water, the community members were able to use the hand washing facilities they had put in place hence addressing the health needs of the community.

Community FGD at Bamba Town, Kilifi County

One of the participants in FGD at Bamba town in Kilifi County cited that, "Following increased toilet coverage and behavioral change in the community, diarrhea cases have reduced. The data from the dispensary proves that the cases of diarrhea have significantly dropped in this area. Secondly, water pipeline project has reduced by half the water costs incurred from Kshs. 10 to Ksh. 5 per 20 litre-jerican."

Taita Taveta County Communities

According to the communities in Taita Taveta, the project had improved the community's sanitation hygiene practices and safe water access. This was achieved through sensitization on the use of hand washing facilities, consistent use of latrines and water treatment. It also emphasized on personal hygiene and grooming.

One of the FGD participant said: "YES. Through the sensitization and training of community members, the community has understood the importance of sanitation and hygiene and in some areas, they have consolidated funds to construct toilets for few members who were not able to construct their own latrines due to financial problems, old age and disabilities.""

Another participant added to this by saying: "YES - the community has realized the need for the project. Some areas such as Buguta have benefited from Maungu-Buguta water pipeline. There were huge shortages of water in the area and the project has reduced the distance for accessing safe water. Also, due to the availability of water, the community along the water pipeline are able to use handwashing facilities."

The respondents affirmed that most of the community members were not treating their drinking water before the interventions of the project. After numerous sessions of health education and completion of the water supply system, people took up treating their drinking water through boiling and chlorination. There was increased toilet coverage, adequate supply of safe water, availability of water treatment chemicals and uptake of hand washing. This had significantly contributed to reduced diarrhea cases as reportedly seen in the household survey and evidenced by data on diarrhea cases reported at the health facilities.

The PHOs affirmed the same in the discussion as quoted *"The distances travelled to access safe water had reduced through the project's interventions. Latrine coverage has increased within the county and most people can link latrine, diarrheal disease use and hand washing to the reduced disease transmission. In areas where water interventions were put in place there is a significant decrease of diarrhea prevalence. Also, the aesthetic value of the environment has improved as most villages within the county are ODF,"* Voi SC-PHO KII. The same resonated in Taveta sub-county. "*Since 1990s, there has been water related outbreaks such as cholera and diarrhea within Taveta Sub county especially Challa ward. However, due to the WASH interventions, people are now able to understand the causes of diarrhea and have improved their hygiene leading to decreased diarrhea prevalence levels. More information on diarrhea prevalence trend will be shown in the data shared,"* Taveta S-PHO KII.

Due to limited resources that resulted to Nakuruto water supply not being constructed, in Taveta Sub County, there was a feeling of "unmet needs" amongst the beneficiaries. Based on the information gathered through FGDs with community members and KIIs with the county health department, community members were sensitized at the inception stage on the project's objectives; specifically, on water supplies in the respective villages.

Despite this setback, community education on construction and utilization of latrines, handwashing practices and water treatent were enhanced. The initial phase saw the project support the distribution of the water

"Purr" brand of water treatment tablets that were distributed by the KRCS volunteers during the hygiene and water treatment sensitization campaigns. They are now readily available for purchase by communities from local shops and primary healthcare facilities (FGD participants)

treatment chemicals and later encouraging the community members to buy and ensure consistent use of the same.

Relevance to the Taita Taveta County Government Priorities

Discussions with officials from the County health department confirmed that the project was well aligned with the County priorities. According to the one Public Health Officer, the project contributed towards reduction of disease burden in the county especially those diseases that initial reported high morbidity rates. Besides, it had contributed to strengthening of the community health units in the county. He said: *"Water, hygiene and sanitation are always a priority for Taita Taveta County government. It's only that the county has limited funds to carry out such project hence relying on partners for implementation."* Through the Community Led Total Sanitation (CLTS) approach, Taita Taveta triggered 24 villages and by the close of the project, 18 had been declared ODF. The other six were deferred and handed to the County government for further follow up.

In regard to increasing access to clean, quality and potable water which was a priority for the County Government of Taita Taveta, schools, health facilities and household water supply was enhanced through the various interventions. The project supported construction of latrine blocks in schools and ensured that water reservoirs were also in place. The schools were Mwanyambo Primary School, Gimba Primary School and Msharinyi Primary School.

TAVEVO; the Water Service Provider, affirmed that the project was aligned to the company's strategic plan, policies and orientations regarding efficient and reliable supply of quality and safe drinking water; and in reducing non-revenue water losses. According to the informant, *"the project focused on all key areas within our mandate of improving distribution of safe water. We have rehabilitated the old 1996 pipe line which had become obsolete. We have moved the line from the bushy areas to near access paths so that vandals and pipe bursts can easily be spotted by members of the public e.g. bursts were not easily identified, and illegal connections was a common practice."*

Recommendations for relevancy in relation to Priorities for the Taita Taveta County Government

Recommendation
Continuous engagement by the KRCS with the County government of Taita Taveta and the Water Service Provider TAVEVO, to allocate more resources for completion of NaKuruto and further reach more community members with water supply. The Ministry of health should also ensure that continuous follow ups are enhanced to retain the already ODF villages in both Sub Counties.

Kilifi County Communities

According to the communities in Bamba and Ganze in Kilifi County, the use of toilet has been well embraced by the community. The community clearly understood the need for promotion of latrine utilization as some of the villages were able to take up the good hygiene practices and used them to change their lives. At the time of the evaluation, most of the villages were using the toilets and 4 villages which included (Jila, Tsangalaweni Mission, Tsangalaweni Central, and Kaari) had been certified as ODF. The community members acted against those who still practiced open defecation. Continuous sensitization was undertaken by the rest of the villages where the concept on hand washing and latrine utilization wasn't initiated. During the oral interviews, community members reported that they had observed fewer cases of diarrhea in the household in the past two weeks.

In an FGD with Volunteers, one of the respondents said that, *"Most of the cultural barriers towards toilet use have been eliminated through continuous efforts through health promotion and education. This led to the improvement of the general sanitation in the community. Latrine construction has resulted into the improvement of their economic life since money that was used in treatment of diarrheal diseases can now be put in other areas."* The construction of toilets in schools has led to the reduction in congestion in the existing toilets significantly; massive awareness has been created about hand washing in schools. Regarding water access, the overhaul of the old pipeline has been significantly useful to members of the communities since they can now get water within a short distance. However, the impact is yet to be felt across all the areas due to frequent water rationing.

One of the FGD with Bamba Community members eluded that the project had solved the water shortage problem however not to their expectations. They used to walk long distances to fetch water. This has improved with water kiosks constructed along the pipeline where a significant proportion of the residents get water at least twice in a week. One of the respondents reported that, *"Since the inception of the project, we have a better network of pipeline, but the water supply is inadequate. The cost per 20 litre Jerrycan has gone down from Kshs 10 to Kshs 3 per 20 litre Jerrycan.*

The Bamba SPHO reported that prior to the interventions, there used to be so many cases but since the initiation of the project, where training of various cadres who would later support health talks to the communities on water sanitation and hygiene. The community had been well sensitized on hand washing importance with the recent verification exercises affirming a near 100% hand washing coverage.

In the school communities, they have also realized various benefits. For instance, the head-teacher of Bahero Primary school reported that the various interventions came at a time that they were in crisis and lacking toilet facilities and water for use in the school. "*It is like KRCS was heaven sent, we were facing serious challenges due to lack of vital facilities in the school for smooth running of our activities. We really appreciate what KRCS has done for us and doing to the communities*." In Jeshi primary school, the deputy head teacher cited that students no longer carry water from home. The construction the water tank in the school has ensured

that the school has enough storage for use during the dry season. Construction of school toilets has reduced the congestion at the toilet, and no more cases of students going to the nearby bush. The same applies to water storage in Muungano Primary school. "*In addition, the water that we get from the water collection tank helps in maintaining high hygiene status for the school by using it for hand washing and sometimes cleaning toilets,"* as reported by Muungano primary school head teacher (School Head teacher KII). The same scenario is replicated in Ndigiria Primary School where pupils can access drinking water conveniently. Moreover, the taps at the drinking point are easy to open for all the ages of pupils in the school. On the contrary, the pupils did not seem to have seen any treatment being done to the water they drink.

One of the main challenges witnessed during the project period was drought which resulted to attention being shifted to community members taking more of their time in search of food and water as opposed to taking up the hygiene and sanitation practices that were being disseminated in the community. The first phase therefore saw project activities being implemented late.

Recommendations for relevancy in relation to beneficiary needs in Kilifi County

Recommendation
The residents requested KRCS to extend the time for the project to ensure that all is running well and there are proper policies to manage the project once the project comes to a close. In addition, the residents requested that they ensure the sections of the pipeline that had leakages (e.g. the Bamba to Midoini pipeline) are repaired and ensure they help streamline the issues with the county water bodies who always give an excuse for water outage. They could also further advocate on behalf of the populace, with the county government to lower the price of water to enable access to everyone and push for compliance from KIMAWASCO to provide sufficient water. A better exit strategy should be put in place to ensure that the follow up and continued education on hygiene and sanitation is taken up and continued by the various Ministry in the county. Periodic follow up on the milestones achieved could also be done to ensure that there are no setbacks.

Relevance to the Kilifi County Government Priorities

KIIs with officials from the County health department at Ganze and Bamba confirmed that the project is well aligned with the County Government's priorities and the community health strategy in general. The project interventions are relevant to county government priorities as mentioned by Ganze SC-PHO. The DPHO Bamba Division also confirmed this saying that, *"sanitation is one of the key priorities & provision of the latrines has led to improved access to sanitation access amongst communities that were previously defecating in the bushes or open fields."*

The interventions made in schools were relevant as reported by the head teachers. For instance, in Ndigiria primary school, the head teacher reported that the students understood hand washing and practice and the critical times for hand washing. This was also replicated at home in their practice. *"Being WASH ambassadors, the pupils after they are taught about hygiene and sanitation in school, they transfer the knowledge to their parents back at home. The parents in turn practice what their children tell them. The pupils have taught their parents how to make a simple tippy tap and they now all have tippy taps at home which their families use whenever there is water,"* Ndigiria primary school head teacher.

The key informant at KIMAWASCO confirmed that the project was well aligned with the KIMAWASCO's strategic plan; and the company's strategic plan borrows heavily from the Kilifi's CIDP 2013 – 2017 (To: "*redesign and construct new major water supply, storage and sewerage systems; Enhance water harvesting*

by ensuring each sub location has a borehole or dam or water pan; Investment in desalination technology so as to ensure the sea water is used for productive purpose; Rehabilitation and extension of the existing pipeline and water supplies; Protection of water catchments areas; Encourage use of modern water harvesting techniques" Kilifi CIDP Page 57).

According to KIMAWASCO's CEO, the project has also helped to boost water revenue collection for the Ganze-Bamba territory due to predictable availability of water in the pipeline; and upsurge of applications for new domestic water connections from the residents. He said:

- *"For sure, there is great improvement. We used to have zero billing from Bamba before the onset of the KRCS WASH project. We are now billing over Kshs. 500,000/= per month from Bamba project area alone. Bamba as a station used to realize less than Kshs. 500,000/= per month in sales but currently we are realizing water sales in excess of Kshs. 2,000,000/= (two million) per month.*
- *We have also noted increased demand for new connection. Previously, customers used to come to request the company to "uproot" their idle meters so that they could stop being charged for the fixed monthly maintenance charges. However, currently we are experiencing an outburst of clients seeking new connections as there is fresh water. This is irrespective of the continued existence of other alternative water sources e.g. water pans and dams. The community members believe that the tap water is safe, and this has been realized through the project.*
- *We have 1,500 cubic metres (1.5 Million litres) water tank at Bamba that never used to fill up but with support from the project by way of installing modern pumping stations, we are now able to fill it up in 8 hours."*

Recommendations for relevancy in relation to Priorities for the Kilifi County Government

Recommendation
Further engagement beyond the project period to support the County Government handle the issues around Non-Revenue water. This will go a long way in ensuring that wastage is minimized, and the County raises more revenue from the water.

Bomet County Communities

According to the end line evaluation report of the WASH project in Bomet County, the project's relevance was anchored on a mix of activities conducted during the design and implementation phases of the project. The consultative nature of the project in the design phase (and implementation) ensured that the project activities were aligned to the needs and priorities of the county government thus making the project relevant. The design relied on KRCS previous experience of working with communities in Bomet County and previous assessments which highlighted water and sanitation vulnerabilities. The consultation included: review of secondary data and county needs, continuous consultations with the County Government of Bomet, International Federation of the Red Cross (IFRC), and British Red Cross Society (BRC) technical staff. Sector-specific needs were prioritized in collaboration with the County Executive Committee Members for Environment, Water and Natural Resources and Health Ministries. The project was flexible in responding to changing contexts. For example, its software activities supported in Chepalungu during Cholera outbreak in 2015. The outbreak gave impetus for construction and use of household latrines. It also provided rational for intensified hygiene and sanitation promotion. All interviewed groups and individuals termed the water supply intervention appropriate. The decision to concentrate the supply in Chepalungu and Bomet East sub-counties was particularly relevant, as these parts of the sub-counties lacked reliable water sources. Despite the high access to sanitation facilities at baseline, most households still shared latrines and diarrhea disease prevalence was high, including an outbreak of cholera. The CLTS approach was intended to propel ownership of latrines for better access and to promote behavior change models for proper and consistent use of latrines.

3.3.2. Effectiveness

Effectiveness refers to the extent the project has achieved its intended expected results and activities. Also, which changes can be attributed to the project, are the activities likely to bring out the expected results and objectives and were the activities carried out as originally planned. Others include: changes that can be attributed to the project (positive, negative, expected and unexpected); extent to which the expected project results have been achieved (at both output and outcomes levels); effectiveness (or lack of it) of current strategies being utilized by the project; and gender equity issues. Lastly, if there is any need to adjust the project response to the changes in the project environment to ensure sustainability. Assessment of the progress made is based on the logical framework and the annual work plans linked to expected results.

Impacts and Changes Attributable to the Project

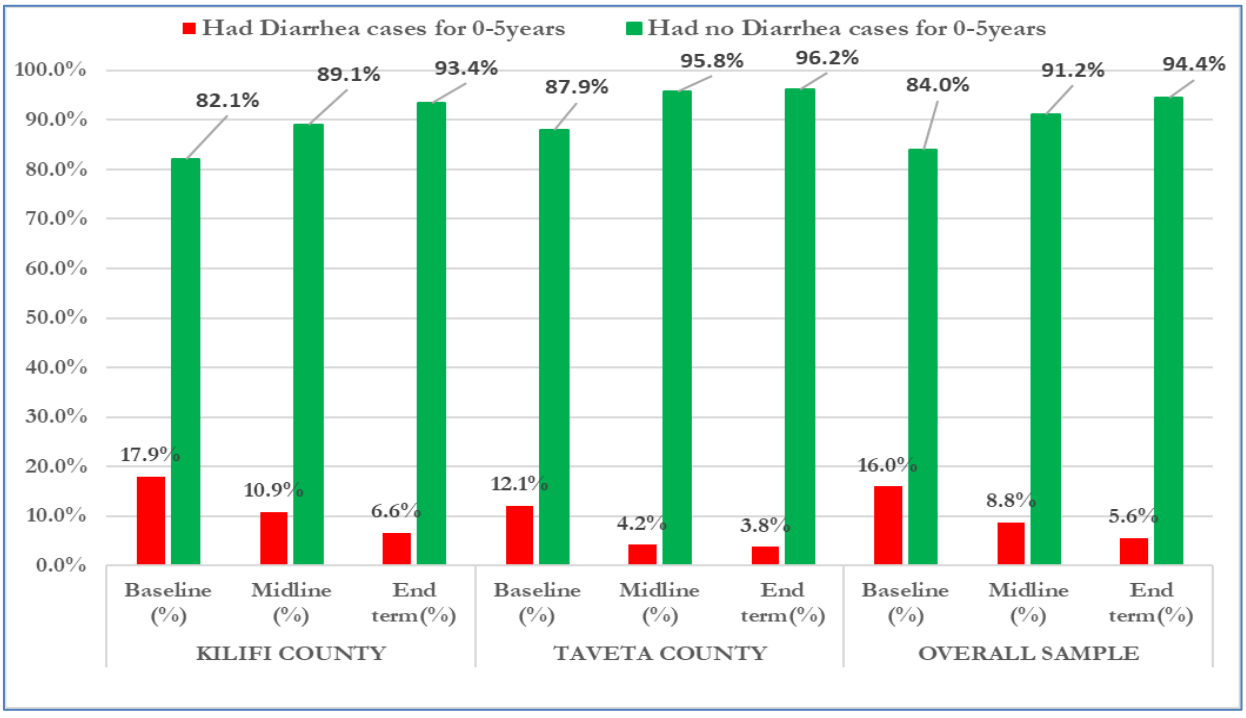
One of the objectives of the ETE study was to establish current WASH coverage for project log frame indicators. These are presented below, for both counties and overall project area. In the body text, comparisons to the Bomet County project results is also made as appropriate. The results are compared to the baseline and mid-term evaluation values.

Impact Indicator 1

Proportion of children under five years (U5) affected by diarrhea diseases (reported in the previous two weeks)

Figure 1 shows the distributed proportions of children aged below 5 years that were affected by diarrhea disease for the period of 14 days preceding the study.

Figure 1: Percentage of Under 5s Affected by Diarrhea



The findings indicated that the proportion of under 5 years children in Kilifi County who had episodes of diarrhea (2 weeks to the survey) dropped from 17.9% at baseline to 10.9% at the mid-term review; then

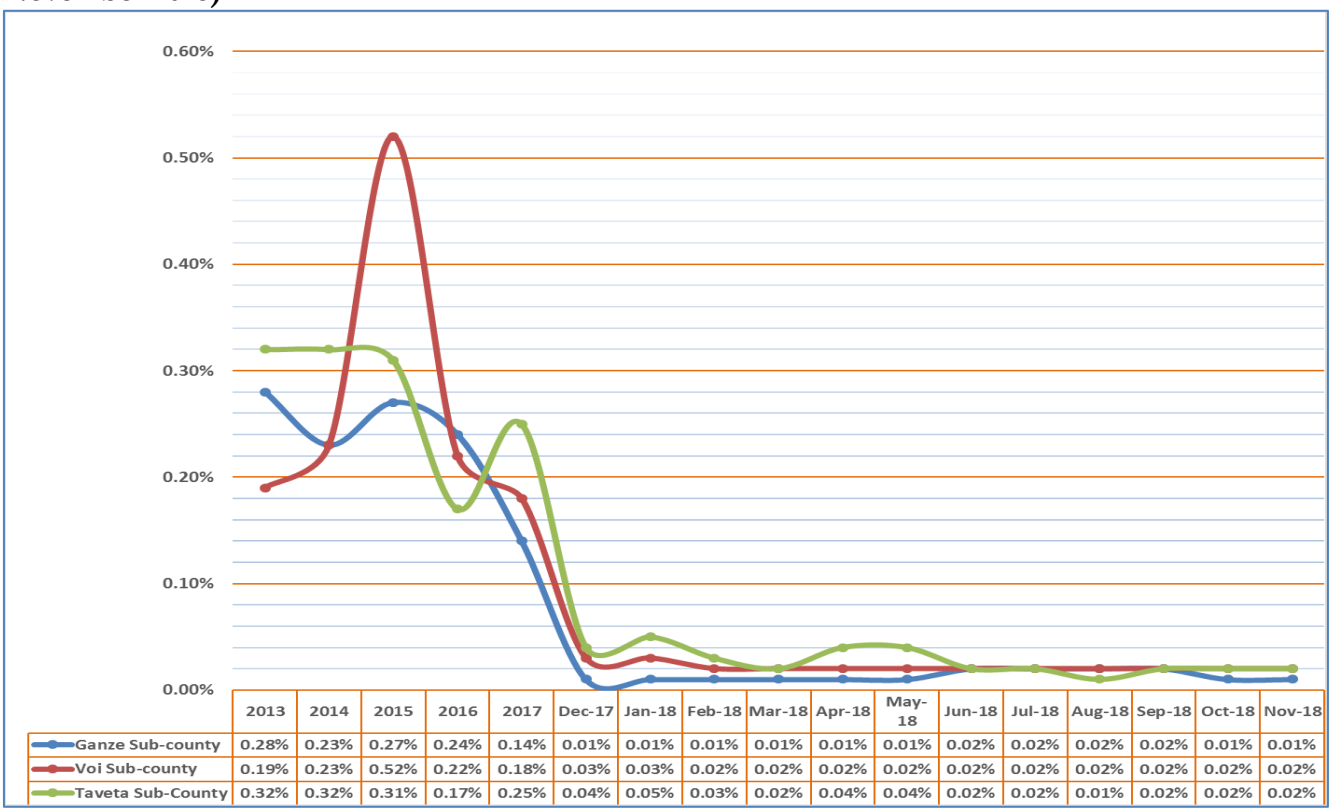
to 6.6% at the ETE. This was way above the ETE target of 15.3%. The project played a significant role in reducing these proportions through the massive hygiene and sanitation campaigns.

In Taita Taveta County the proportion of household members aged below 5years who were reported to have had episodes of diarrhea dropped from 12.1% at baseline to 4.2% at mid-term review and then to 3.8% at the ETE. This was also way above the ETE target of 10.1%.

Likewise, in Bomet the intervention contributed to the reduction of diarrheal cases from 14.9% at baseline to 6.6% during the end term evaluation.
Generally, the proportion of 16.0% reported at baseline dropped by more than half to 5.6%. Other contributing factors were other projects that were implemented by KRCS and the various stakeholders in the county.

The findings of Figure 1 also resonate with the outpatient diarrhea morbidity data sourced from primary care health facilities available from the District Health Information System (DHS, See: https://hiskenya.org/dhis-web-pivot/). Figure 2 below shows the trend data for the Voi, Taveta and Ganze sub counties between 2013 and November 2018. The results show that the trend curve for the 3 sub counties was on the downward trajectory. This was further echoed by FGD participants and KIIs with the public health officers across the 2 counties.

Figure 2: Percentage of Children Treated for Diarrhea in Primary Health Facilities – Voi & Taveta sub counties in Taita Taveta County and Ganze Sub County in Kilifi County (2013 – November 2018)



	2013	2014	2015	2016	2017	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18
Ganze Sub-county	0.28%	0.23%	0.27%	0.24%	0.14%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	0.02%	0.01%	0.01%
Voi Sub-county	0.19%	0.23%	0.52%	0.22%	0.18%	0.03%	0.03%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
Taveta Sub-County	0.32%	0.32%	0.31%	0.17%	0.25%	0.04%	0.05%	0.03%	0.02%	0.04%	0.04%	0.02%	0.02%	0.01%	0.02%	0.02%	0.02%

Source: DHIS records (Updated to November 2018) see: https://hiskenya.org/dhis-web-pivot/

Outcome Indicator 1

Outcome Indicator 1.1: Number of people accessing an improved drinking water source less than 1km and 2km away disaggregated by gender

Table 10 includes several indicators that are useful in monitoring household access to improved drinking water (WHO and UNICEF, 2015). The source of drinking water is an indicator of whether it is suitable for drinking. Sources that are likely to provide water suitable for drinking are identified as improved sources while those considered as unimproved include unprotected dug wells, unprotected springs, cart with small tank or drum, tanker truck, all surface water sources (river, dam, lake, pond, stream, canal, and irrigation channel) and bottled water.

The findings of Table 10 indicate that the proportion of sampled households in Kilifi County that accessed water from unimproved sources had increased from 76.5% at baseline to 87.6% at mid-term review; but dropped significantly to 44.4% at the end term review. This was attributable to finalization and commissioning of the water supply system and the various intervention in Bamba and Ganze divisions during the 2017 – 2018 calendar years. The proportion of households reporting access of drinking water from public taps or standpipes increased from 18.2% at baseline to 35.1% at the end-line; while those accessing from piped lines to compounds or plots increased from 4.6% to 9.0%. Generally, there has been significant growth in access to improved drinking water sources for households in Kilifi County from 23.5% at baseline to 55.6% at the end term review. There was also a drop-in preference for water from open water sources (rivers, ponds, streams, and dams) in Kilifi County has dropped over the project's life span from 69.4% to 39.9%.

In Taita Taveta County, 88.3% were accessing water from improved sources, with piped water source being the most popular. This was an improvement of 13.4% from the value of 74.9% recorded at the baseline which was attributed to an increase in the proportion of households accessing drinking water from public taps or stand pipes from 33.3% at baseline to 52.4% at project's end line. In the 2017/2018 calendar years, the pipelines in Maungu-Buguta and Kaloleni were completed and commissioned for use by the communities. As at the time of the survey, the Maungu-Buguta Water Supply Project had over 15 functional communal water points while the Kaloleni Water Supply Project had all its 11 communal water kiosks operating optimally and delivering water to all the targeted communities.

Overall, from the two sites, the results indicated that proportion of the households accessing water from improved sources grew from 49.2% at the project's baseline to 72.4% at the project's end line with much of the results being realized from the newly installed and the rehabilitated water systems across the project's sites.

Table 10: Percentage of Households Accessing Water from Improved / Unimproved Sources

	Kilifi County			Taita Taveta County			Sample Overall		
Household MAIN water source	**Baseline**	**Mid-term Review**	**End-term Review**	**Baseline**	**Mid-term Review**	**End-term Review**	**Baseline**	**Mid-term Review**	**End-term Review**
Improved Sources (%)	**23.5%**	**12.4%**	**55.6%**	**74.9%**	**81.2%**	**88.3%**	**49.2%**	**46.8%**	**72.4%**
Public tap or standpipe	147	66	273	269	332	431	416	398	744
Piped to compound or plot	37	15	70	191	219	147	228	234	217
Piped into dwelling	1	14	9	91	65	77	92	79	86
Tube well or borehole	1	3	61	21	30	8	22	33	69
Covered dug well in compound	1	0	0	15	0	1	16	0	1
Protected spring	0	1	10	11	10	10	11	11	20
Rainwater	3	1	9	7	0	53	10	1	62
Total HHs accessing Improved	**190**	**100**	**432**	**605**	**656**	**727**	**795**	**756**	**1,159**
Unimproved Sources (%)	**76.5%**	**87.6%**	**44.4%**	**25.1%**	**18.8%**	**11.7%**	**50.8%**	**53.2%**	**27.6%**
Surface water (River or stream; Pond or lake; and Dam)	561	694	310	69	50	67	630	744	377
Cart with small tank or drum	0	0	0	104	89	26	104	89	26
Open public well	27	10	13	5	6	1	32	16	14
Unprotected spring	1	0	1	21	7	0	22	7	1
Uncovered dug public well	17	2	6	1	0	0	18	2	6
Open well in compound or plot	12	1	14	2	0	2	14	1	16
Bottled water	0	1	1	1	0	0	1	1	1
Total HHs accessing unimproved	**618**	**708**	**345**	**203**	**152**	**96**	**821**	**860**	**441**
Overall Total	808	808	777	808	808	823	1,616	1,616	1,600

Lack or limited access to a water source may limit the quantity of suitable drinking water that is available to a household. In some cases, even with an improved water source, contamination may happen from the water containers or during transportation to the point of use. Outcome indicator 1.1 assesses the distance of the water source from the household. The findings are presented in Figure 3 below. The results show that in Kilifi County, the proportion of households accessing an improved water source near the household yard had increased. Despite the drop witnessed during the mid-term review due to harsh weather conditions at the time, the findings show that the proportion of households accessing an improved water source within 1km to the yard rose to 42.9% from 13.4% at baseline; with those within 1.1 – 2km of reach also rising to 13.2%. Therefore, as at the end-term review, 53.2% of the sampled households in Kilifi County were accessing water from an improved water source that was within a distance of 2km from the yard.

Table 11: Percentage of Households Accessing Improved Water Source within 2Kms from Yard in Kilifi County

COUNTY	KILIFI COUNTY			TAVETA COUNTY		
Distance	Baseline (%)	Midline (%)	End term (%)	Baseline (%)	Midline (%)	End term (%)
Improved water Source						
0-1 Km	13.4%	7.8%	42.9%	52.6%	63.5%	67.1%
1.1-2Km	6.8%	1.5%	10.3%	9.3%	12.0%	13.2%
Over 2Km	3.2%	3.1%	2.4%	12.9%	5.7%	8.0%
Percentage of HHS accessing improved water source within 2km	**20.2%**	**9.3%**	**53.2%**	**61.9%**	**75.5%**	**80.3%**
Unimproved water Source						
0-1 Km	30.2%	37.3%	24.7%	12.0%	11.0%	4.7%
1.1-2Km	19.8%	27.2%	12.8%	6.4%	5.8%	3.5%
Over 2Km	26.6%	23.1%	6.9%	6.8%	2.0%	3.5%
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

In Taita Taveta County, the findings indicated, that the proportion of households accessing improved water source within 2km from the yard rose from 61.9% recorded at the baseline review (52.6% within 1km & 9.3% within 1.1-2km) to 80.3% at the end-term review (67.1% within 1km & 13.2% within 1.1-2km).

Unlike the impressive results posted in Kilifi County and Taita Taveta project sites, a comparison with the Bomet County project sites showed that Bomet posted marginal gains on this indicator (45.0% as at the baseline to 47.2 % as at the end term review). This was attributed to the unfinished four water points as at the time of the end term review based on the Key informant interviews and the feedback received from FGD discussants. Upon completion of the pending water points in Kilifi and Taita Taveta sites, it is also expected that the proportions would increase further.

Table 12 below shows absolute numbers of people reached by the water points developed by the project during the project life for each County. As indicated in Table 12 below, a total of 46,186 people (19,092 male and 27,094 female) had access to project water point within a radius of 0 to 2km by the time of end term evaluation in Kilifi County. This was 58% achievement against the set project target of 80,000 people.

Similarly, in Taita Taveta County, a total of 44,955 people (21,334 male and 23,621 female) had access to project water point within a radius of 0 to 2km by the time of end term evaluation. This was 82% achievement against the set project target of 54,684 people.

Increased number of people accessing safe drinking water was majorly being contributed by newly constructed or rehabilitated water supply systems. In Taita Taveta County, the three operational water supply systems were Kaloleni; the Maungu-Buguta; and the Kisambinyi-Konenyi water supply system. In total, 43 water points (new and existing) were in use by the time the end of project evaluation was being undertaken. In Kilifi, the Bamba-Midoina line was completed before end of November. Water supply infrastructures were supported in the 11 schools in form of the rainwater harvesting systems. (7 in Taita Taveta County and 4 in Kilifi County).

Table 12: Number of People Accessing Safe Drinking Water within 2km from the Yard

Category (Kilifi County)	**Population**
Total population accessing water from the water points (34 water points)	20,394
Population accessing water from boarding schools and health facilities	3,942
Populations in the villages which have individual connection on a flat rate and are not within the water points' catchment villages	19,975
Population in schools reached with Rain Water harvesting systems	1,875
Total Population	**46,186**
Category (Taita Taveta)	**Population**
Total population accessing water from the water points (33 WP) Kaloleni & Maungu Buguta	14,725
Population accessing water from boarding schools and health facilities	22,750
Populations in the villages which have individual connection on a flat rate and are not within the water points' catchment villages	6,777
Population in schools reached with Rain Water harvesting systems	703
Total Population	**44,955**

Outcome Indicator 1.2: Number of functioning water management structures existing at the completion of the project

Functional water management structures are prerequisites to the operations, maintenance and long-term sustainability of the water facilities set up under a project. In Taveta County, water management is mandated to the TAVEVO Company. The company was operationalized in April 2006; and serves both the rural and urban areas. According to the KII with the managing director (MD), the company has a legal registration certificate; operational bank accounts; water use by-laws; and 140 trained WMS members. The company holds regular meetings. According to the MD, to improve the company's operation, they have procured an ICT based software that will provide listing. It is envisioned that it will generate bills which will be distributed manually. This system is currently being operationalized. It can do SMS billing, but this is yet to be activated. The company does complete regular maintenance of the water supply and distribution systems / infrastructure under their care. Maintenance of water infrastructure is divided into 6 zones each led by a zonal manager who does O&M (handling complaints, water bursts, new connections etc.). There is a standing schedule for attending to each pump even if there are no technical issues / defects to remedy (just surveillance).

At the community level management, as reported by the project team, the project has established Water Management Committees (WMCs) for both Maungu – Buguta and Kaloleni water systems. The WMCs

have been oriented on the water reforms in Kenya brought about by the Water Act (2002 and revised in 2013) and their role in the entire water management at the local level. More training on O&E, bookkeeping, Environmental management and sustainability have been lined up in the coming future. The project supported training of TAVEVO staff on various thematic to enhance operation at the company. These included meters reading, O&M, proper connectivity and an exchange visit to Nyeri Water Company for learning purposes.

In Kilifi County, water management is mandated to the KIMAWASCO Company. The company is fully registered; it has several operational bank accounts; and it has water use by laws. According to the CEO, the by-laws guide on water usage and management of connections. They also guide on the issue of water kiosks and the vendors operating them; including how to handle issues related to illegal connections and NRW. The project supported training of WMS members. The company holds regular meetings with the staff from both the field and management teams. The company has in place a system for regular billing and fee collection, though plans are underway to make it more effective. The CEO asserted that "…*We have a manual system for billing, but it is not accurate. Plans are underway to shift to digital billing system which will minimize errors in the bills."* Regarding maintenance procedures, the CEO said that they have not had this in place, but with the help of the Kenya Red Cross, they have been able to introduce maintenance works in their routines and schedules. He said "…*for the old pipeline, we have not been able to do regular maintenance but when Red Cross came in with this project they did repairs on the existing pipeline as they lay down a new one.*"

According to WASH officer in Kilifi County, the project had supported formation of 2 water user committees (Ganze & Bamba) which worked closely with KIMAWASCO in ensuring maintenance of water infrastructure and consistent supply of water to the beneficiaries. Like their counterparts in Taita Taveta, they were able to visit Nyeri and derived learnings from them.

Outcome Indicator 1.3: Number of people using a basic latrine with a hand washing facility with water and soap (or alternative) disaggregated by gender (men, boys, women and girls)

Table 12 shows the distribution of overall access to sanitation facilities in the study regions. The results show that (overall) the proportion of sampled households that are using own household toilet increased from 37.3% at baseline to 50.0% at the end-term review.

Table 13: Overall Access to Sanitation Facilities (by project area)

County	Kilifi County			Taita Taveta County			Overall Sample		
	Baseline (%)	Midline (%)	End term (%)	Baseline (%)	Midline (%)	End term (%)	Baseline (%)	Midline (%)	End term (%)
No toilet, Practice OD	591 (73.1%)	489 (60.5%)	271 (34.9%)	97 (12.0%)	21 (2.6%)	28 (3.4%)	688 (42.6%)	511 (31.6%)	299 (18.75)
No own toilet, use a shared toilet	108 (13.4%)	150 (18.6%)	258 (33.2%)	218 (27.0%)	234 (29.0%)	242 (29.4%)	325 (20.1%)	385 (23.8%)	501 (31.3%)
Yes, use own household toilet	109 (13.5%)	169 (20.9%)	247 (31.9%)	493 (61.0%)	553 (68.4%)	553 (67.2%)	603 (37.3%)	721 (44.6%)	800 (50.0%)

The proportion of households without a toilet facility dropped significantly from 42.6% at baseline to 18.7% at the end term review. In Kilifi County, open defecation decreased by more than half over the project period (73.1% at baseline to 34.9% at the end term review); with latrine ownership also increasing two and half times (13.5% at baseline to 31.9% at end term review). Similarly, in Taita Taveta County, the proportion of households without a toilet facility dropped from 12.0% at baseline to 3.4% at the project's end term. Latrine ownership in Taita Taveta increased from 61.0% at baseline to 67.2% at the end term review. Sharing of toilet facilities continues to feature across the two counties; at an overall rate of 31.3%.

Table 14: Types of Sanitation Facilities Available (By County and Overall Study Area)

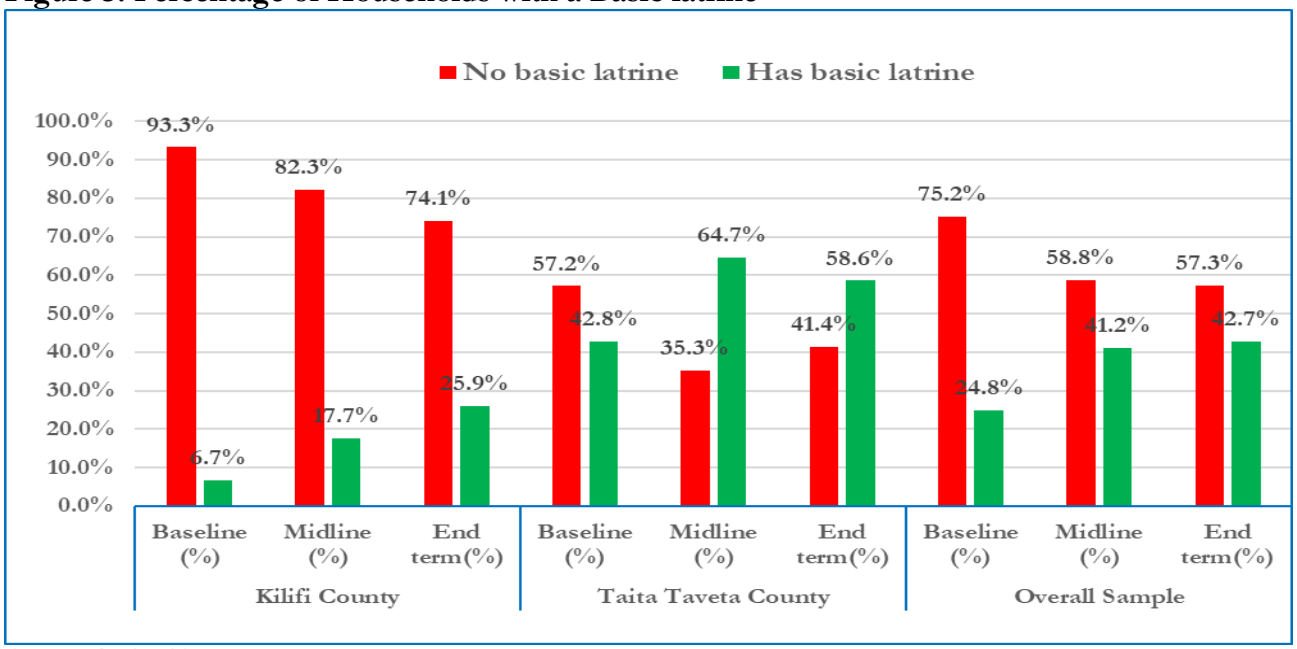
	Kilifi			Taita Taveta			Sample Overall		
	Base line %	Mid line %	End line %	Base line %	Mid line %	End line %	Base line %	Mid line %	End line %
Basic sanitation facility	54 (6.7%)	143 (17.7%)	152 (19.6%)	346 (42.8%)	523 (64.7%)	458 (55.7%)	401 (24.8%)	666 (41.2%)	683 (42.7%)
Limited sanitation facility (shared)	108 (13.4%)	150 (18.6%)	307 (39.5%)	218 (27.0%)	234 (29.0%)	266 (32.3%)	325 (20.1%)	385 (23.8%)	501 (31.3%)
Unimproved sanitation facility	55 (6.8%)	26 (3.2%)	47 (6.0%)	147 (18.2%)	30 (3.7%)	71 (8.6%)	202 (12.5%)	57 (3.5%)	118 (7.4%)
OD	591 (73.1%)	489 (60.5%)	271 (34.9%)	97 (12.0%)	21 (2.6%)	28 (3.4%)	688 (42.6%)	511 (31.6%)	299 (18.7%)
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
N	**808**	**808**	**777**	**808**	**808**	**823**	**1,616**	**1,616**	**1,600**

*** **Basic** = Pit latrine with slab; Ventilated improved pit latrine (VIP); Flush/pour flush to septic; Flush/pour flush to pit latrine; Flush/pour flush to piped sewer; Composting toilet where all not shared. ** **Limited** = Pit latrine with slab; Ventilated improved pit latrine (VIP); Flush/pour flush to septic; Flush/pour flush to pit latrine; Flush/pour flush to piped sewer; Composting toilet where all are shared. *** **Unimproved sanitation** = Pit latrine without slab and Hanging toilet*

The findings on Table 13 indicate that the proportion of sampled households with basic sanitation facilities increased from the baseline level of 24.8% to 42.7% at the end term review (Kilifi: 6.7% to 25.9%; and Taita Taveta: 42.8% to 58.6%). Use of shared facilities increased in both Counties (Kilifi: 13.4% to 33.2%; Taita Taveta: 27% to 29.4%). However, open defecation decreased in both Counties (Kilifi: 73.1% to 12.0%; Taita Taveta: 12% to 3.4). Taita Taveta project area recorded the highest drop in the proportion of households using unimproved facilities from 18.2% at baseline to 8.6% at the end term review. None of the households had a safely managed sanitation facility.

The project log frame defined a basic latrine as all those basic or improved latrines (safely managed and basic) which safely contains excreta; while meeting the following criteria: the squat hole should be covered; there is a slab; the floor is free of faeces and urine; and the superstructure provides privacy. Where the latrine is of improved type, then it includes the flush/pour flush (to piped sewer system; to septic tank; to pit latrine); or Ventilated Improved Pit (VIP) latrine; or pit latrine with slab; or a composting toilet. Unacceptable latrine designs for this definition included pit latrines without a slab or platform, hanging latrines and bucket latrines. Besides qualifying the definition, the latrine ought to have been active use at the time of the study.

Figure 3: Percentage of Households with a Basic latrine



Source: FDRC WASH End term evaluation data (2018)

The findings of Figure 5 indicate, the overall proportion of sampled households that lacked a basic latrine dropped from 75.2% at baseline to 57.3% at the end term review (Kilifi: from 93.3% to 74.1%; and Taita Taveta: from 57.2% to 41.4%). In Taita Taveta County, 58.6% of the sampled households had basic latrines in place during the end term review while in Kilifi County, 25.9% of the sampled households had a basic latrine in place; which reflected a 19% points improvement from the 6.7% value reported at the baseline level. Taita Taveta County recorded a drop-in percentage of households with a basic latrine due to floods experienced in area in March 2018 which led to collapse of several toilets.

Table 14 shows the proportion of the sampled households (that had own toilet facility), which had a hand wash station inside or near the toilet (within 10 meters to the toilet). This shows that overall, the proportion of households owning a toilet facility with a hand washing facility doubled from 25.7% at baseline to 52.5% at the end term review. Both counties recorded a significant leap; with Kilifi County shifting from 11.0% at baseline to 54.0% and Taita Taveta County from 28.8% to 51.9% during the project's life span. These can be attributed to the intense campaigns on best practices, consistent and regular utilization of latrines by the community members. In both Kilifi and Taita, the Community Led Total Sanitation (CLTS) approach was used to ensure community member embraced the practice.

Table 15: Proportion of HHs with a Hand Wash Station near the Toilet

Does the household have hand washing facilities inside or outside the toilet (within 10 metres to the toilet)?	Kilifi County			Taita Taveta County			Sample Overall		
	Base line (%)	Mid line (%)	End line (%)	Base line (%)	Mid line (%)	End line (%)	Base line (%)	Mid line (%)	End line (%)
Yes	12 (11.0%)	38 (22.5%)	134 (54.0%)	142 (28.8%)	258 (46.7%)	287 (51.9%)	155 (25.7%)	296 (41.0%)	421 (52.5%)
No	97 (89.0%)	131 (77.5%)	114 (46.0%)	351 (71.2%)	295 (53.3%)	266 (48.1%)	448 (74.3%)	426 (59.0%)	381 (47.5%)
Total	**109**	**169**	**248**	**493**	**553**	**553**	**603**	**722**	**802**
Overall Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

The findings (overall and by county of study) are presented in Table 15. Hand-washing facility was defined as a permanent or an improved device (tap, leaky tin or tippy tap) that holds water for washing hands that is located near latrines. Availability of soap/ash/alternative was not included as a prerequisite in calculating the findings for this indicator. As observed in Kilifi, the percentage of those who had hand washing facilities within 10 meters to the toilet had increased from 11% during baseline to 54% at the end of project evaluation and the same trend observed in Taita Taveta which had moved from 28.8% to 51.9%. Continuous follow up by the Community Health volunteers, project staff and the Ministry of health ensured that communities understood the essence of hand washing and they were encouraged to take it up.

Table 16: Toilet Use and Hand Wash with Soap (Ladder Analysis)

Availability of a Basic Toilet Facility with a Functional Hand wash Station with Soap and Water	Kilifi County			Taita Taveta County			Sample Overall		
	Baseline %	Mid line %	End line %	Baseline %	Mid line %	End line %	Baseline %	Mid line %	End line %
Level 0: Has no own improved latrine	**699** (86.5%)	**643** (79.6%)	**576** (74.1%)	**315** (39.0%)	**30** (3.7%)	**341** (41.4%)	**1,013** (62.7%)	**894** (55.3%)	**917** (57.3%)
Level 1: Has own improved latrine	**55** (6.8%)	**26** (3.2%)	**131** (16.9%)	**147** (18.2%)	**30** (3.7%)	**319** (38.8%)	**202** (12.5%)	**57** (3.5%)	**450** (28.1%)
Level 2: Has own improved latrine, with HW facility	**54** (6.7%)	**135** (16.7%)	**2** (0.3%)	**291** (36.0%)	**393** (48.6%)	**13** (1.6%)	**344** (21.3%)	**532** (32.9%)	**15** (0.9%)
Level 3: Has own improved latrine, with HW facility with water	**0** (0.0%)	**0** (0.0%)	**4** (0.5%)	**18** (2.2%)	**21** (2.6%)	**27** (3.3%)	**18** (1.1%)	**21** (1.3%)	**31** (1.9%)
Level 4: Has own improved latrine + HW facility + water + soap	**0** (0.0%) ***[0.0, 0.0]***	**4** (0.5%) ***[0.01, 0.99]***	**64** (8.2%) ***[6.3, 10.1]***	**37** (4.6%) ***[3.2, 6.0]***	**334** (13.5%) ***[11.1, 15.9]***	**123** (14.9%) ***[12.5, 17.3]***	**37** (2.3%) ***[1.6, 3.0]***	**113** (7.0%) ***[5.8, 8.2]***	**187** (11.7%) ***[12.3, 15.7]***
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
N	**808**	**808**	**777**	**808**	**808**	**823**	**1,616**	**1,616**	**1,600**

***** Values in brackets are the 95% CIs***

The results in Table 15 indicate that overall (for the 2 counties), the proportion of sampled households that were found to be accessing a basic latrine with a hand washing facility with water and soap (or alternative) significantly increased from 2.3% at baseline to 11.7% at the end term review; with both counties recording commendable progress (Kilifi from 0.0% at baseline to 8.2% at end term; and Taita Taveta from 4.6% at the baseline to 14.9% at the end term review. Kilifi County was able to show progress due to intensive behavior change campaigns held by the project team supported community-health volunteers and the Ministry of health. This was also made possible with accessibility of water due to the completion of the 3 water supply systems. Besides, the project managed to promote hand washing using tippy taps that are mad using locally available material and economical in terms of the amount of water used.

As opposed to the midterm review where, water scarcity posed a major challenge hindering adoption of hand washing at school and community level in Taita Taveta, the completion of the water supply system had enhanced hand washing practices. Much of the hand washing promotion activities in the county were targeted on schools, through the health clubs. At the school level the project had sensitized school management boards and parent on the importance of providing water for hand washing. This was found to bear fruits as the boards were ensuring provision of soap during periodic budgeting. In summary, the results in Table 16 shows that in Kilifi County, 7,209 of the project's targeted 75,882 people had access to a basic toilet facility with a hand wash station (with soap and water); up from a value of zero at baseline. In Taita Taveta County, the results show that 7,383 more people (2,515 at baseline to 9,898 at the project's end term review) were reported to have access to a toilet facility with a hand wash station with soap and water.

Number of people using a basic latrine with a hand washing facility with water and soap (or alternative) disaggregated by gender (men, boys, women and girls)

Through its sensitization effort, the project aimed at increasing the number of people using a basic latrine with a hand-washing facility with water and soap (or alternative) among men and women, boys and girls in targeted sites in Kilifi and Taita Taveta Counties.

The outcome indicator 1.3 covered the routine data of the project based on the achievements through the CLTs process. The households were visited by the project team and the volunteers, with sampled verifications by the consultant. At the time of the ETE, the project had documented to have physically observed 7,399 (2,345 male and 5,054 female) people within households with latrines, hand-washing facilities and soap/ash in Kilifi County. This was about 46 percent of the project target of 15,996 people. In Taita Taveta County, the target population within the project area was 16,565 people. At the time of the ETE, the project had documented to have physically observed 13,332 (4,520 male and 8,812 female) people within households with latrines, hand-washing facilities and soap/ash in Taita Taveta County. This was about 80 percent of the project target of 16,565 people.

However, despite the achievement of the program, keeping soap next to the latrine was challenging in most instances in many households – domestic animals and rains tended to destroy the soap. Use of ash (56%) was more prevalent in the villages where intense hygiene promotion had been done. Due to the challenges faced with the use of soap, some households preferred to use ash as it did not have any cost implications.

"Now we understand the importance of washing hands after visiting the toilet. And the practice has become part of us. In the past, water and soap was a big challenge. Having water in place has made it easy to change people's mind-set. Even though we still have a number of us that don't wash hands with soap due to cost implications."

The project supported construction modern latrine blocks in 11 public primary schools (4 in Kilifi County and 7 in Taita Taveta County). The project provided a hand-washing facility for each of the latrine block. Both interventions benefited a total of 7,091 pupils (3,724 boys, 3,367 girls). The evaluation found that the latrine blocks were separate for boys and girls, and that each block had one latrine fitted to support use by the physically challenged pupils. It was reported that the special latrines required more space and cost more money. While the number of the physically challenged pupils was negligible or non-existent in some school, provision of such units is globally considered a good practice globally. Boys' urinals were also provided.

Outcome Indicator 2

Outcome Indicator 2.1: Percentage of households which have at least one caregiver with knowledge of 3 critical times for hand washing and the Importance of disposing child feces(under 5 years of age) in a hygienic manner.

A care giver (often women) with the correct knowledge on the critical times for hand washing and the importance of disposing child feces(under 5 years of age) has a high likelihood of ensuring practice good hygiene and sanitation. This could help prevent the occurrence of diarrheal diseases. The study managed to interview 806 caregivers (Kilifi, 472; Taita Taveta, 334) drawn from households that had children aged below 5 years. Table 16 shows that in both counties, significant changes had been reported in regard to this indicator when comparing the baseline and midterm values. In Kilifi, (from 25.2% at baseline to 53.2% at end term review) and in Taita Taveta County, from 43.2%, to the end line value at 64.1%. This was attributed to increased sensitization by the project teams on the CLTS activities coupled with onset of sanitation marketing activities done during the second half of the project. Intense campaigns in sanitation and hygiene were undertaken to enhance knowledge and encourage communities to take up practices.

Table 17: Critical Times Knowledge County by Caregivers (by County and Overall)

	Kilifi			Taita Taveta			Sample Overall		
Number of critical times known	**Baseline %**	**Mid line %**	**End Term%**	**Baseline %**	**Mid line %**	**End Term%**	**Baseline %**	**Mid line %**	**End Term %**
No critical time known	8 (2.3%)	16 (4.1%)	0 (0.0%)	4 (2.5%)	2 (0.9%)	0 (0.0%)	12 (2.4%)	18 (2.9%)	0 (0.0%)
One critical time known	93 (27.3%)	102 (26.0%)	61 (13.0%)	20 (12.3%)	21 (9.3%)	67 (20.1%)	113 (22.4%)	123 (19.9%)	131 (16.3 %)
Two critical times known	158 (46.2%)	187 (47.7%)	160 (33.8%)	68 (42.0%)	63 (27.9%)	53 15.8%	222 (44.1%)	250 (40.5%)	205 (25.4 %)
Three or more critical times known	86 (25.2%) ***[20.6, 29.8]***	87 (22.2%0 ***[18.1, 26.3]***	251 (53.2%) ***[47.5, 58.8]***	70 (43.2%) ***[35.6, 50.8]***	140 (61.9%) ***[55.6, 68.2]***	214 (64.1%) ***[58.1, 69.8]***	156 (31.1%) ***[27.1, 35.2]***	227 (36.7%) ***[32.9, 40.5]***	469 (58.2 %) ***[54.1, 62.3]***
Number of responding caregivers	**341**	**392**	**472**	**162**	**226**	**334**	**503**	**618**	**806**
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0 %**

Unsafe child feces disposal has been associated with risk of diarrhea. Additionally, reported practices can underestimate socially undesirable unhygienic behaviors. Unsafe disposal was defined as faeces put/rinsed into a drain, ditch, bush or garbage heap or left on the ground. On the other hand, safe disposal was defined as use of disposable diapers put in a pit latrine/ buried, feces put/rinsed into latrine or specific pit or buried. Overall, safe disposal of child feces was reported by 93.3% of the sampled households (Kilifi County 90.6%, Taita Taveta County 96.8%). The mostly unsafe methods of child feces disposal used included; picking up and depositing in the garbage and leaving where it drops.

Outcome Indicator 2.2: Number of villages/ communities that are open defecation free (ODF)

Based on the information from Voi and Taveta SPHOs and from the project's fact sheet; a total of 23 villages in Taita Taveta County were under project's coverage. Out of the 23, 18 were declared Open Defecation Free (ODF) after meeting all the requirements. He said: "…*Through capacity building of the community members through the CHVs and natural leaders, the community members have changed their behavior and 18 villages within Taveta Sub county have raised been certified as ODF".* He however mentioned that there is a threat to sustainability of ODF status from the adjacent villages. The Project staff have been working closely with Ministry of Health and Community units to ensure follow ups continue and encourage the adjacent villages to enhance their sanitation to reduce the risk of the villages sliding back to becoming zones for open defecation again. This will safeguard the villages already declared as ODF and provide room for more villages to improve their hygiene and sanitation. The triggering in CLTS is intended to ignite community interest in open defecation, usually through building simple toilets. CLTS involves action leading to increased self-respect and pride in one's own community. Follow ups for sanitation uptake sensitized community members both at the household and community level to adopt and continue the proper health and hygiene practices like hand washing with soap/ash, proper food handling, safe household water treatment and storage together with personal hygiene has contributed to aimed at prevention of diarrhea and water related diseases.

In Kilifi County according to the Ganze SCPHO (and supported by the project's fact sheet), "…. *4 villages are now certified ODF and the have been conducted in two, two are still pending and will hopefully be done before the closure of the project. We also got one new claim in December 2018."* This was contributed by frequent sanitation and hygiene promotion activities (BCC Campaigns); the CLTS activities; and hygiene sessions that were held across all the sub locations. Most of the villages supported had 0 latrine coverage at the start of the project. The project recently introduced the plastic pans that are meant to help households to improve the status of their latrines as per the SDG ladder. From the findings, a majority the households in the targeted villages had embraced use of fecal disposal facilities (owned or shared) and had gone ahead to install the hand wash stations. With use of locally available material, tippy taps were preferred. The community through the Community Health Volunteers were well sensitized with the recent verification exercises affirming a near 100% hand washing coverage.

Output Indicator 1

Output Indicator 1.1: Number of children in schools that have a safe drinking water supply, clean latrines (separate for boys and girls and disabled access), and hand-washing facilities with soap and water

Taita Taveta County

In Taita Taveta County, 6,220 children from 11 primary schools were beneficiaries (3,055 Boys; 3,165 Girls)[2] of safe, clean and accessible drinking water supply, clean disability friendly latrines for both boys and girls and hand-washing facilities. As at the tie of end term review, school WASH observation data was collected from a sample of 6 primary schools out of the 11 schools within the project area. These were: Gimba; Ikanga, Kidong; Msharinyi, Mwanyambo and St Joseph Kivukoni primary schools. Table 17 below presents the indicator profile for each of the school, as observed. It indicates that 80.5% of the targeted school WASH beneficiaries in Taita Taveta County had been reached as at the time of the project's end term review (Boys, 80.8%; Girls, 80.2%). This represents a significant improvement from 309 pupils (156 Boys, 153 Girls) at baseline (from only Kidong Primary School) that had access to safe drinking water supply, clean latrines (separate for boys and girls and disabled access), and hand-washing facilities with soap and water. It also shows that Ikanga primary schools scored positively on all the parameters assessed for this indicator, save for lack of soap (or alternatives) and water at the hand wash stations. This was because as at the time of the evaluation, schools were on recess. The rest of the sampled schools had also been successfully connected to the existing water supply system. The schools BoM facilitated the connection to water supply lines after sensitizations and follow-up made by the project team while the VIP latrines were constructed through the WASH Project.

[2] As per Taita Taveta School Database Updated November 2018 (Source: Project Data Files)

Table 18: Taita Taveta County schools that have a safe drinking water supply, clean latrines (separate for boys and girls and disabled access), and hand-washing facilities with soap and water

	Enrolled Boys	Enrolled Girls	Total enrolled	Water source for drinking	School has latrines?	Disability friendly	Are they clean?	Separate for Boys & Girls?	Hand wash near toilets?	Do they have soap + water?
Gimba primary school	186	124	310	Piped to school compound	Yes	Yes	Yes	Yes	Yes	Yes
Ikanga primary school	356	326	682	Piped to school compound/plot	Yes	Yes	Yes	Yes	Yes	No
Kindong' primary school	197	147	344	Piped to school compound/plot	Yes	Yes	Yes	Yes	Yes	Yes
Msharinyi primary school	177	146	323	Piped to school compound/plot	Yes	Yes	Yes	Yes	Yes	Yes
Mwanyambo primary school	779	727	1,506	Piped to school compound/plot	Yes	Yes	Yes	Yes	Yes	Yes
St Joseph Kivukoni primary school	156	179	335	Piped to school compound/plot	Yes	Yes	Yes	Yes	Yes	Yes
Totals	**1,851**	**1,649**	**3,500**							
Total with access as per log frame definition	**1,495**	**1,323**	**2,818**							
% of total sample	**80.8%**	**80.2%**	**80.5%**							

Kilifi County

As at the time of the evaluation, 3,943 children (2,044 Boys; 1,899 Girls)[3] from 10 primary schools had access to safe, clean and accessible drinking water, clean disability friendly latrines for both boys and girls and have hand-washing facilities. School WASH observation data was collected from a sample of 7 primary schools out of the 10 schools within the project area. All the sampled 7 schools had both infrastructure and interventions on uptake of sanitation activities undertaken. The 7 schools were: Shaka; Ndigiria; Jeshi; Muungano; Bahero School; Kirimani and Midodoni primary schools. Table 18 below presents the indicator profile for each of the school, as observed.

[3] As per Kilifi County Project's School Database Updated November 2018 (Source: Project Data Files)

Table 19: Kilifi County schools that have a safe drinking water supply, clean latrines (separate for boys and girls and disabled access), and hand-washing facilities with soap and water

	Enrolled Boys	Enrolled Girls	Total enrolled	Water source for drinking	School has latrines?	Are they clean?	Disability Friendly	Separate for Boys & Girls?	Hand wash near toilets?	Do they have soap + water?
Shaka primary school	299	264	563	Rain water	Yes	Yes	Yes	Yes	Yes	No
Ndigiria primary school	321	310	631	Rain water	Yes	Yes	Yes	Yes	No	No
Jeshi primary school	149	124	273	Rain water	Yes	Yes	Yes	Yes	Yes	Yes
Muungano primary school	145	139	284	Rain water	Yes	Yes	Yes	Yes	No	No
Bahero primary school	193	205	398	Piped to school compound	Yes	Yes	Yes	Yes	Yes	No
Kirimani primary school	203	213	416	Rain water	Yes	Yes	Yes	Yes	No	No
Midodoni primary school	121	89	210	None – children bring from home	Yes	Yes	Yes	Yes	No	No
Totals	**1,873**	**1,718**	**3,591**							
Total with access as per log frame definition	**111**	**92**	**203**							
% of total sample	**5.9%**	**5.4%**	**5.6%**							

The findings of Table 18 show a great improvement in regard to access to clean latrines and safe drinking water sources by pupils when at school. At 5 of the 7 sampled schools, the RWHS were fully functional while at Bahero primary schools the pupils accessed drinking water from a standpipe in the school's compound. This was a significant improvement from the baseline and mid-term review findings where the school communities would access drinking water from the nearby dams and other unsafe open sources. At Midodoni Primary School, the RWHS reservoir / tank had developed cracks and therefore could not retain the harvested rainwater; hence pupils bring water from home.

Output Indicator 1.2: Percentage of people who self-report appropriate hand washing technique with soap and water

Appropriate hand wash entails: making hands wet; lathering with soap; rubbing hands together under running water; and air drying or using a dry cloth to dry. The respondents were requested to self-report on this process. The results shown in Table 19 indicate that across the two counties, 53.8% of the sampled respondents could fully explain the effective approach; up from 37.7% at the baseline level. In Kilifi County, 48.9% could explain the effective hand washing approach, up from 28.3% reported at the baseline; in Taita Taveta County the proportion that could explain effective hand washing rose from 47.2% reported at the baseline to 58.3% reported at the end term review. However, the results of Taita Taveta County show a sharp drop from the value of 70.9% reported at the midterm review.

Table 20: Percentage of Respondents Self-reporting on effective hand washing with soap

	Kilifi			Taita Taveta			Sample Overall		
	Baseline %	Mid line %	End line %	Baseline %	Mid line %	End line %	Baseline %	Mid line %	End line %
Effective approach: hands are made wet -> soap lathered -> hands rubbed together under running water -> Air dry or use a dry cloth to dry	**28.3%** *[25.19, 31.41]* (229)	**34.2%** *[30.93, 37.47]* (276)	**48.9%** *[45.39, 52.41]* (380)	**47.2%** *[43.76, 50.64]* (381)	**70.9%** *[67.77, 74.03]* (573)	**58.3%** *[54.93, 61.67]* (480)	**37.7%** *[35.34, 40.06]* (609)	**52.5%** *[50.07, 54.93]* (848)	**53.8%** *[51.36, 56.24]* (861)
Ineffective approach explained	**71.7%** *[68.59,74.81]* (579)	**65.8%** *[62.53, 69.07]* (532)	**51.1%** *[47.59, 54.61]* (397)	**52.8%** *[49.36, 56.24]* (427)	**29.1%** *[25.97, 32.23]* (235)	**41.7%** *[38.33, 4507]* (343)	**62.3%** *[59.94, 64.66]* (1,007)	**47.5%** *[45.07, 49.93]* (768)	**46.3%** *[43.86, 48.74]* (739)
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
N	**808**	**808**	**777**	**808**	**808**	**823**	**1,616**	**1,616**	**1,600**

To determine the link between the reported knowledge of effective hand washing and actual practice at the household level, a Cross tabulation was computed based on the results in Table 19. The results presented in Table 21 disaggregates the respondents who could explain effective hand washing by the hand washing profile of the household. The results reveal that the proportion of household with knowledge of effective approach (and possessed hand washing stations with soap, running water and were in use at the time of end term survey) increased across the two counties over the project's life span. Overall, proportion of households with a HW station with soap and water and capacity to explain effective at the project's end term was 9.3%. The results exhibit that community members in the targeted villages went ahead to install the hand wash stations so that they could practice the knowledge they had acquired from the hygiene promoters. This was also accelerated by the introduction of the tippy taps (formerly leaky tins) which are more water efficient and easily sustainable.

Table 21: Percentage of Respondents Self-reporting on effective hand washing with soap; disaggregated by household's hand washing profile

	Has no own improved latrine	Has own improved latrine	Has own improved latrine, with HW facility without water	Has own improved latrine with HW facility with water	Has own improved latrine with HWWS	Total
N	917	450	15	31	187	1600
Percentage of total	**57.3%**	**28.1%**	**0.9%**	**2.0%**	**11.7%**	**100%**
Effective approach explained,	428 (26.8%)	256 (16.0%)	7 (0.4%)	20 (1.3%)	149 (9.3%)	860 (53.8%)
Ineffective approach explained	489 (30.5%)	194 (12.1%)	8 (0.5%)	11 (0.7%)	38 (2.4%)	740 (46.3%)

Output Indicator 1.3: Percentage of people with correct knowledge of causes and prevention of diarrheal.

Diarrhea infection is mostly spread through contaminated food, drinking water or from person to person because of poor hygiene. Individuals with the correct knowledge on the causes and prevention of diarrhea are more likely to adopt good WASH behaviors to prevent diarrhea. Safe drinking-water and adequate hygiene significantly prevent a range of diarrheal diseases. The respondents (household head or caregiver) at household level answered to this indicator by one or more correct causes namely: Fecal oral transmission routes: (1) fluids (2) food (3) fingers (4) flies (5) fields; and correct prevention methods namely: (1) access to safe drinking-water; (2) use of improved sanitation (3) hand washing with soap (4) good personal and food hygiene. A Cross tabulation was then performed to ascertain the percentage of people who could name one correct cause involving fecal-oral contamination (1, 2, or 3) AND one correct prevention approach. The results shown in Table 21 indicate that overall (and at the county level), there were significant changes in the proportions reported at mid-term review and those reported at the end term review since when assessed at 95% level of confidence, the confidence bands for the two-time periods are significantly different.

Table 22: Knowledge on Causes of Diarrhoea (by County and Sample Overall)

What do you think causes diarrhoea?	Kilifi County			Taita Taveta County			Sample Overall		
	Baseline %	Mid line %	End line %	Baseline %	Mid line %	End line %	Baseline %	Mid line %	End line %
Faeces as a causative agent (fluids, food, fingers, fields, flies)	(621) 76.9% ***[74.0, 79.8]***	(579) 71.7% ***[68.6, 74.8]***	(632) 81.3% **[78.5, 84.0]**	(721) 89.2% ***[87.0, 91.3]***	(731) 90.5% ***[88.5, 92.5]***	(771) 93.7 **[91.9, 95.2]**	(1,341) 83.0% ***[81.2, 84.8]***	(1,311) 81.1% ***[79.2, 83.0]***	(1,403) 87.7 **[86.0, 89.2]**
Do not know the causes	(187) 23.1% ***[20.2, 26.0]***	(229) 28..3% ***[25.2, 31.4]***	(145) 18.7 ***[16.0, 21.5]***	(87) 10.8% ***[8.7, 12.9]***	(77) 9.5% ***[7.5, 11.5]***	(52) 6.3 ***[4.8, 8.1]***	(275) 17.0% ***[15.2, 18.8]***	(305) 18.9% ***[17.0, 20.8]***	(197) 12.3 ***[10.8, 14.0]***
Totals	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
N	**808**	**808**	**777**	**808**	**808**	**823**	**1,616**	**1,616**	**1,600**

***** Values in brackets are 95% lower and upper CI values***

In Table 21, knowledge level on causes of diarrhea was tabulated. The findings indicate that overall for the two counties, there were significant changes in the proportions reported at the baseline level and those reported at the end term review since when assessed at 95% level of confidence, the confidence bands for the two-time periods are significantly different. However, the findings show insignificant improvements in Taita Taveta County (89.2% at baseline to 93.7% at end term review) at 95% confidence level.

Further on, based on the combined analysis of Table 21 and Table 22, Table 23 shows the percentage of people with correct knowledge on causes of diarrhea (feces as causative agent) and measures to prevent diarrhea (blocking feces from entering the mouth). The results of Table 23 show that overall, the proportion of sampled respondents that reported correct knowledge on the causes and at least one prevention approach improved marginally from 75% at the baseline to 86.3% (66.3% to 79.5% in Kilifi County; and 83.7% to 92.6% in Taita Taveta County).

Table 23: Knowledge on Ways to Prevent Diarrhoea (by County and Sample Overall)

How can we prevent diarrhoea?	Kilifi County			Taita Taveta County			Sample Overall		
	Base line %	Mid line %	End line %	Baseline %	Mid line %	End line %	Base line %	Mid line %	End line %
Blocking faeces from entering the mouth as the preventive measure for diarrhea*	*(563)* 69.7% ***[66.5, 72.9]***	*(539)* 66.7% ***[63.5, 70.0]***	*(653)* 84.0% ***[81.3, 86.5]***	*(693)* 85.8% ***[83.4, 88.2]***	*(732)* 90.6% ***[88.6, 92.6]***	*(772)* 93.8% ***[92.0, 95.3]***	*(1,256)* 77.7% ***[75.7, 79.7]***	*(1,272)* 78.7% ***[75.9, 81.5]***	*(1426)* 89.1% ***[87.5, 90.5]***
Do not know of oral preventive means	*(245)* 30.3% ***[27.1, 33.5]***	(269) 33.3% ***[30.0, 36.6]***	*(124)* 16.0% ***[13.5, 18.7]***	*(115)* 14.2% ***[11.8, 16.6]***	*(76)* 9.4% ***[7.4, 11.4]***	*(51)* 6.2% ***[4.7, 8.0]***	*(360)* 22.3% ***[20.3, 24.3]***	*(344)* 21.3% ***[18.5, 24.1]***	*(174)* 10.9% ***[9.5, 12.5]***
Totals	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
N	**808**	**808**	**777**	**808**	**808**	**823**	**1,616**	**1,616**	**1600**

**** By access to safe drinking-water; use of improved sanitation (3) hand washing with soap; and good personal and food hygiene***
**** Values in brackets are 95% lower and upper CI values**

Table 24: Percentage of People with Correct Knowledge on Causes and Prevention of diarrhoea

Knowledge of correct causes and ways to prevent diarrhoea	Kilifi County			Taita Taveta			Total		
	Baseline %	Mid line %	End Line %	Base line %	Mid line %	End line %	Base line %	Mid line %	End line %
Knows of correct cause, and ways to prevent	*(536)* 66.3% ***[63.0, 69.5]***	*(596)* 73.8% ***[70.8, 76.8]***	*(618)* 79.5% ***[76.6, 82.3]***	*(676)* 83.7% ***[81.2, 86.2]***	*(747)* 92.5% ***[90.7, 94.3]***	*(762)* 92.6% ***[90.6, 94.2]***	*(1,212)* 75.0% ***[72.9, 77.0]***	*(1,343)* 83.1% ***[81.3, 84.9]***	*(1,380)* 86.3% ***[84.5, 87.9]***
Lacks knowledge on causes or prevention	*(272)* 33.7% ***[30.4, 37.0]***	*(212)* 26.2% ***[23.2, 29.2]***	*(159)* 20.5% ***[17.7, 23.4]***	*(132)* 16.9% ***[14.3, 19.5]***	*(61)* 7.5% ***[5.7, 9.3]***	*(61)* 7.4% ***[5.8, 9.4]***	*(404)* 25.0% ***[23.0, 27.1]***	*(273)* 16.9% ***[15.1, 18.7]***	*(220)* 13.8% ***[12.1, 15.5]***
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100%**
N	**808**	**808**	**777**	**808**	**808**	**823**	**1,616**	**1,616**	**1,600**

***** Values in brackets are 95% lower and upper CI values***

Output Indicator 2

Output Indicator 2.1: Number of functional water infrastructure rehabilitated/constructed

Access to safe water for domestic use is ensured through the construction or rehabilitation of water facilities. In the long term, their continued functionality will be crucial in ensuring that the accrued benefits are sustained over time. A functional water infrastructure was defined as one which was found operational at the time of the survey - reliably producing water of the required quality and quantity. Required Quality was assessed through odor, color and smell (Information collected through use of the common senses of seeing, smelling and tasting and from ender users' perceptions.) The infrastructure also ought to have more than 12 hours as minimum service in a day. As at the time of end term survey, rehabilitation works had been finalized at both community and school project sites in both Kilifi and Taita Taveta Counties.

Taita Taveta County

The project targeted to provide safe water for 55,000 people in Voi and Taveta sub-counties of Taita Taveta County. This output entailed construction/rehabilitation of four water systems (inclusive of 2 water systems subject to county government funding) and the construction of five (5) rain water harvesting systems in the selected schools within the proposed project sites. According to the project manager (hardware components), three of the four systems had been finalized and commissioned for water access by the communities as at the end term review. These are: the Kaloleni Water Supply Project; the Maungu-Buguta Water supply project; and the Kisambinyi-Konenyi water project. The Maungu-Buguta project brought along 9 new water access points in addition to the 10 water accessing points that were existing earlier. This brings the total to 19 water points that should be operational when the line is operating under full capacity. The Kaloleni water supply project brought about 11 communal water kiosks which were operating optimally as the time of the end term review. The Kisambinyi-Konenyi water project realized 13 water points. In total, 43 water points (new and existing) were realized across the 3 operational project sites during the lifetime of the KRCS WASH project. The fourth project (Nakuruto water supply project) in Taveta sub-county had not kicked off due to lack of funding promised by the County government. The only notable activity on this site was a rehabilitated borehole. The borehole was not operational at the time of end term survey. According to the project officer, the water sample from the borehole was taken away for testing and results indicated the water is fit for human consumption.

Topline finding:
In Taita Taveta project area, 3 of the 4 selected water infrastructure projects were finalized and commissioned

In regard to school communities; 5 primary schools were to benefit with rehabilitated / newly constructed rain water harvesting systems. However, after needs assessment, 2 schools that were found to be adjacent to the proposed new pipeline were dropped and hence the RWHSs were constructed in 3 schools. These were: St. Joseph Kivukoni, Msharinyi, and Kalambe Primary school. This was meant to contribute to sustainable access to improved water in the 2 schools and offer value for money to the project as it is less costly to connect the school to piped water than to set up a RWHS. Upon completion of the water supply system, the two additional schools were connected to water.

Kilifi County

The project had envisioned construction and rehabilitation the Ganze Bamba water supply line to increase communities' access to clean, reliable and safe water for domestic consumption. This would involve construction of Ganze-Bamba water pipeline that is 15.8kms long. The project also aspired to increase water sources in 5 schools in the region by installing Rain water harvesting systems (RWHS) as well as connecting the schools to the main water supply system within Ganze Sub-County. As at the time of the end term survey, works on the proposed pipeline project had been finalized. The civil works for the project had been grouped into three lots, which included Lot1 (pipe laying civil work), Lot 2 (pump stations constructions) and lot 3 (pipe supplies); and were all allocated to different contractors to hasten following the procurement delays which were experienced during the first half of the project. The construction of mid height pump station was done at *Mulungu wa Mawe* site. The captions in the Table below depict the situation as observed across the project sites. The mid height station was solarized and delivers 180m3/h at 100m head making it the largest solar pumping system so far done in the country. Further savings were used to improve the water mains (Silala liner) to Ganze and rehabilitations of the line serving Kaloleni which is beyond the initial scope of the project. This was made possible by additional funding from the county government

Topline finding:
In Kilifi County project area, water supply system selected for rehabilitation was finalized and commissioned

A: Civil works signage

B: Mid-height reservoir at the *Mulungu wa Mawe* Pump Station

C: Mid-height (solar / diesel powered) pump station

D: A tee junction along the new pipeline at Bamba

Construction works for the Rain Water harvesting Systems (RWHS) in the five targeted schools were also finalized. These are: Ndigiria; Muungano; Bahero; Mbonga; and Midodoni primary schools. At the time of the survey, the RWHSs were fully operational as expected with the water tanks being full to the brim with rain water.

Output Indicator 2.2: Number of schools with safe drinking water supply

To succeed, WASH in Schools programs require a strong focus on operation, use and maintenance of water facilities in the school. Safe drinking water is necessary in schools since it would prevent transmission of water related diseases like diarrhea. This indicator refers to the schools selected as part of this program and not all schools in the target areas.

In Taita Taveta County, there were 11 selected primary schools in the project area; out of which 3 schools were targeted for water systems improvement by installation of a RWHS. These were: St Joseph Kivukoni; Msharinyi; and Kalambe primary schools. The RWHSs in these schools are in use. The findings showed that Msharinyi primary school, St Joseph Kivukoni primary school, Mwanyambo primary school and Kidong primary school had benefited from access to safe and clean drinking water supply having been successfully connected to piped water supply (from the old pipeline). The schools' BoM facilitated the connection to water supply lines after sensitizations and follow-up made by the project team.

Topline finding:
In Taita Taveta project area, 8 of the 11 selected primary schools had access to safe drinking water supply

In Kilifi County, 5 of the 10 schools were targeted for RWHS. Construction works in these schools were finalized towards the end of the first phase of the project. These are: Ndigiria primary school; Muungano primary school; Bahero primary school; Mbonga primary school; and Midodoni primary school. At the time of the end term survey, all the RWHS were fully operational and the tanks were full of water. Data from the school observation tools (*see Table 24*) showed that it was only at Midodoni primary school where the main source of water for drinking was an unimproved source type.

Topline finding:
In Kilifi project area, 6 of the 10 selected primary schools had access to safe drinking water supply

Table 25: Drinking water supply profile in the targeted schools – Kilifi County

	Enrolled Boys	Enrolled Girls	Total enrolled	Water source for drinking
Shaka primary school	299	264	563	Rain water
Ndigiria primary school	321	310	631	Rain water
Jeshi primary school	149	124	273	Rain water
Muungano primary school	145	139	284	Rain water
Bahero primary school	193	205	398	Piped to compound
Kirimani primary school	203	213	416	Rain water
Midodoni primary school	121	89	210	Rain water
Mbonga Primary School	171	181	352	Rain water
Totals	**2,044**	**1,899**	**3,943**	
Total with access as per log frame definition	**0**	**0**	**0**	
% of total sample	**0.0%**	**0.0%**	**0.0%**	

Output Indicator 3

Output Indicator 3.1: Percentage of target households with latrines with hand washing facilities

To profile output indicator 3.1 based on log frame definition, the sample households were grouped into a ladder based on availability of a basic latrine/toilet versus hand wash levels as follows: Level 0: household has no own latrine (OD or shared access, hence no hand wash profile); Level 1: Household has own unimproved latrine; Level 2: household has own improved latrine, with no functional hand wash facility at the time of the survey; Level 3: household has own improved latrine, with hand wash facility with water; and Level 4: household has own improved latrine, with hand wash facility, with water and soap. The findings (overall and by county of study) are presented in Table 25. The results in Table 25 shows that overall, the proportion of sampled households that were found to be accessing a basic latrine with a hand washing facility with water and soap (or alternative) significantly increased from 2.3% at baseline to 13.9% at the end line survey; with both counties showing significant improvement.

Output Indicator 3.2: Number of schools with latrines with hand washing facilities (separate for boys and girls and disabled access)

Consistent and proper use of latrines for safe disposal of human excreta coupled with appropriate hand washing practices at all critical times is an effective barrier against the transmission of fecal oral diseases such as diarrhea. Sanitation facilities for young school going children and those that are disabled require special considerations such as: inclusive design, adaptation, modification or provision of assistive equipment to improve access to and utilization of these facilities. Schools profiled for this indicator were those with latrines that met the definition for a basic latrine, were separate for boys and girls, and were disability friendly. Latrines were considered to be disability friendly if they had the following: 1) adequate space inside the latrine for easy movement (Kenya: for a wheel chair to make 360 degrees turn to and out of the latrine); had hand rails or rope; and two way closing door; access ramp not more than 10 degrees steep; and a seating pedestal. This indicator referred to the schools selected as part of the program and not all schools in the target areas.

Topline finding:

In Taita Taveta project area, 7 of the 10 selected primary schools had latrines with hand washing facilities (separate for boys and girls and disabled access).

In Taita Taveta County, 9 of the 11 targeted primary schools were considered for latrine-based interventions. The results in Table 30 indicate that out of the 6 sampled schools, all had complete latrine blocked with gender sensitive and disability friendly latrine units. In addition, the 7th school (Kambito primary school, not sampled) also had a gender sensitive and disability friendly block that was constructed under the project. In total therefore, 7 of

the 10 targeted schools in Taita Taveta project area had latrines with hand washing facilities (separate for boys and girls and disabled access).

Table 27: Taita Taveta schools that have latrines with hand washing facilities (separate for boys and girls and disabled access)

	School has latrines?	Do they satisfy definition for "Basic"?	Separate for Boys & Girls?	Are there toilets that are disabled friendly?	Hand wash near toilets?
Gimba primary school	Yes	Yes	Yes	Yes	Yes
Ikanga primary school	Yes	Yes	Yes	Yes	Yes
Kindong' primary school	Yes	Yes	Yes	Yes	Yes
Msharinyi primary school	Yes	Yes	Yes	Yes	Yes
Mwanyambo primary school**	Yes	Yes	Yes	Yes	Yes
St Joseph Kivukoni primary school	Yes	Yes	Yes	Yes	Yes
Totals	6	6	6	6	6

** Integrated primary school. The only out of the 6 sampled schools that had enrolled disabled pupils

In Kilifi County, the project was targeting 10 primary schools. For the end term review, school WASH observation data was collected from a sample of 7 primary schools out of the 10 schools within the project area. The 7 sampled schools were: Shaka; Ndigiria; Jeshi; Muungano; Bahero; Kirimani and Midodoni primary schools. Table 31 below presents the indicator profile for each of the school, as observed. According to the project officer, 5 schools were selected to benefit from latrine constructions. These were: Shaka, Bahero, Mbonga, Jeshi, and Kirimani primary schools. However, 3 of the 5 schools which were found to have disability friendly toilets were Shaka, Jeshi and Bahero primary schools. Mbonga primary school was not observed during the end term survey but the project officer confirmed that it also had latrines with hand washing facilities (separate for boys and girls and disabled access). Therefore, in Kilifi County project area, 4 of the 10 targeted schools had latrines with hand washing facilities (separate for boys and girls and disabled access). Kirimani primary lacked hand wash stations.

Topline finding:
In Kilifi County project area, 4 of the 10 selected primary schools had latrines with hand washing facilities (separate for boys and girls and disabled access).

Table 28: Kilifi County schools that have latrines with hand washing facilities (separate for boys and girls and disabled access)

	School has latrines?	Do they satisfy definition for "Basic"?	Separate for B/G?	Are there toilets that are disabled friendly?	Hand wash near toilets?
Shaka primary school	Yes	Yes	Yes	Yes	Yes
Ndigiria primary school	Yes	Yes	Yes	No	No
Jeshi primary school	Yes	Yes	Yes	Yes	Yes
Muungano primary school	Yes	Yes	Yes	No	No

Bahero primary school	Yes	Yes	Yes	Yes	Yes
Kirimani primary school	Yes	Yes	Yes	Yes	No
Midodoni primary school	Yes	Yes	Yes	No	Yes
Totals	**3**	**3**	**3**	**3**	**3**

Output Indicator 4

Output Indicator 4.1: Number of water points with functional water management structures created or strengthened (e.g. kiosks and taps)

Functional water points with management structures are prerequisites to the operations, maintenance and long-term sustainability of the water facilities set up under a project. This indicator counts number of water management structures that are supported (newly created or existing) to become more in line with definition of 'functional' and perform their role better. In Taita Taveta county, according to the project manager (hardware components), three of the four systems had been finalized and commissioned for water access by the communities as at the end term review. These are: the Kaloleni Water Supply Project; the Maungu-Buguta Water supply project; and the Kisambinyi-Konenyi water project. The Maungu-Buguta project brought along 9 new water access points in addition to the 10 water accessing points that were existing earlier. This brings the total to 19 water points that should be operational when the line is operating under full capacity. The Kaloleni water supply project brought about 11 communal water kiosks which were operating optimally as the time of the end term review. The Kisambinyi-Konenyi water project realized 13 water points. In total, 43 water points (new and existing) were realized across the 3 operational project sites during the lifetime of the KRCS WASH project. The fourth project (Nakuruto water supply project) in Taveta sub-county had not kicked off due to lack of funding. The only notable activity on this project was a rehabilitated borehole. The borehole was not operational at the time of end term survey. According to the project officer, the water sample from the borehole was taken away for testing and results indicated the water was fit for human consumption.

Topline finding:
In Taita Taveta project area, 43 water points (new and existing) were realized across the 3 operational project sites

A slab for a proposed new water point at Mtsara wa Tsatu village undergoing curing

In Kilifi County, the project target was to construct a total of 10 new water points in the Ganze-Bamba project area; including rehabilitation of 15 existing water points. Through collaboration of KIMAWASCO and Ministry of Water teams, Bamba-Midoina line was completed before end of November, as part of the preparations for commissioning and handing over. At the time of the end term review, the slabs for the new water points had been laid out. Laying of the tanks, plumbing works and commissioning were expected to take place in the months of December 2018 and January 2019. All functional water points constructed or rehabilitated in both counties (25 in Kilifi County and 43 in Taita Taveta County) have village water management committees which oversees the water revenue collection used for maintenance costs.

Topline finding:
In Kilifi County project area, 25 water points (10 new and 15 rehabilitated) were realized across the project sites

Output Indicator 4.2: Number of people who participate in training on governance, and/or management of physical water structures, and or advocacy to local government (disaggregated by gender)

Capacity enhancement of people who are engaged in governance and management of water facilities is prerequisite for the long-term sustainability of the water infrastructure. The trainings targeted Water Management Structures (WMS) which may be community Water Management Committees or formal Water Service Providers, Technicians & Local Artisans attached to these WMS and *Ex-Officio* Water Management Structures committee members. This indicator measures the number of people trained in relevant specific water governance or management issues. Issues relating to advocacy works to local governments by the local communities were not yet documented as at the time of the end term review in both counties.

Taita Taveta County

The water management structure for the Taita Taveta County project sites is the TAVEVO Company. In early 2017, a training needs assessment was conducted by KRCS. This identified training gaps focused on reduction of NRW. As a result, a capacity building training workshop for meter readers and plumbers was undertaken. A reading and installations training targeting all TAVEVO meter readers (30) and 3 customer care officers working in all areas of its operation within the entire county was held. A total of 13 (4 female and 9 male) TAVEVO senior management and zonal managers were supported by the KRCS WASH project to participate in 2 benchmarking visits; one to Nyeri Water Company and another to Embu Water Company in 2017. The visit provided TAVEVO team with insight on water treatment, meter testing, non-revenue water, operational maintenance, fundraising, customer care, billing and meter reading. The interaction with the management teams from the two water companies and the physical site visit of facilities gave the TAVEVO team a huge challenge by seeing where the company is in terms of performance and what they need to do differently. Besides, five KRCS project staff (3 male and 2 female) also took part as a way of learning and exploring opportunities for partnership and capacity building of TAVEVO. The benchmarking visit was a great eye opener for both KRCS and TAVEVO. Observations made by KRCS team included; operational efficiency; customer care; management of zones in reducing NRW; water quality; connection of new customers; meter reading culture and management of organizational change. Some of the changes in these areas can be effected immediately by TAVEVO and others with the support of KRCS. According to TAVEVO, the trainings would in the long-term impact highly in enhancement of reduced NRW losses; and improved service delivery to the residents of Taita Taveta County. In 2018, the project also conducted training sessions for elected representatives of the water management committee drawn from the County. Table 28 provides a summary of the trained personnel.

Table 29: Taita Taveta County – Number of Staff Trained Staff

	Number participating in trainings		Total
	Male	Female	
Meter readers and customer care staff	15	18	33
TAVEVO senior management and zonal managers	9	4	13
KRCS project staff	3	2	5
Water Management Committees' representatives	13	9	22

Kilifi County

The water management structure for the Kilifi County project sites is the KIMAWASCO Company. Through the WASH in Kenya project, KRCS supported KIMAWASCO in conducting an exchange visit to Nyeri water Company with the main agendas being bench marking on reduction of non-revenue water, collection of revenues and community and water service provider feedback mechanisms in place. The exchange visit was conducted in 2017 where 15 participants (11 male & 4 female) were inducted. It was noted that non-revenue water for NYEWASCO was 18% compared to 68% for Ganze-Bamba. Further to this, the main strategies for reducing non-revenue water for NYEWASCO included formation of a vibrant Non-revenue water team which ensures accurate measurement of water billed, management of water pressures throughout the system by using reducing valves, use of a proactive leakage control/detectors and detection of illegal connections. Both on site and off sites trainings were undertaken. Among them Operation & maintenance, sustainability of the water supply project, Sustainability of community projects, customer care management, revenue generation and financial sustainability, debt management in water utilities, personnel management, management of non-revenue water, effective metering, performance monitoring & evaluation, water consumption, customer meter policy, non-revenue water, pipes and fittings and meter reading. There was a total of 54(48 male/6 female) participants. The participants included representatives from Ministry of Water, Kenya Water Institute (KEWI), Embu Water Company and IRRICCO. Key to note was also presentations on the RSI system in Mulungu wa Mawe which controls power from solar, electricity and Generator. The participants were also taken through the hydraulics of the Ganze-Bamba water supply system. Sessions on accountability to communities was also conducted. The company also has routine feedback mechanism from the customers with a 24-hour operating hotline where they can report any complaints and be attended to in the shortest time possible. Table 29 provides a summary of the trained personnel.

Table 30: Kilifi County – Number of Staff Trained Staff

	Number participating in trainings		Total
	Male	Female	
KIMAWASCO senior management and zonal managers	48	6	54

Output Indicator 4.3: Number of health clubs formed in schools

School health clubs are essential platforms for cascading knowledge on sanitation and hygiene as well as menstrual hygiene management among school going children. A school health club is a group comprising of students led by a patron that is used to promote health behaviors and creating awareness about health issues. A group is considered 'formed' based on the following: 1) awareness creation among staff and pupils; 2) interested pupils are registered; 3) initial meetings with the group (or elected leaders) is held; and 4) some evidence that the group has undertaken some activity on their own.

Taita Taveta County

According to the KII with the project officer in-charge of BCC in Taita Taveta project sites, all the 11 targeted primary schools had formed (and operationalized) health clubs by end of 2017. (5 School health clubs were formed in 2016, 6 school health clubs in 2017). The project had managed to set up 7 new clubs and revive 4 previously existing clubs which were non-functional at the inception of the project. He said: "*…In schools, we have health clubs in all the schools we are working in. These health clubs were not there at the project's inception. At the end of the last quarter (ending June 2017), efficacy assessments on the health clubs' members were done. The clubs now have structures where two teachers (a male teacher and a female teacher) are trained on WASH aspects. We also trained members of the BoM on their role in the WASH initiation and on operations and maintenance of WASH facilities*".

The School Health Clubs (SHCs) are fully functional and have been supported to conduct WASH activities in the period under review, four were nonfunctional. The project staff and the KRCS youth leaders at the branch designed a way to strengthen school health clubs using the KRCS youth *4-part program* design which includes membership, first aid and related activities. The project team had been visiting all the 11 implementing schools with the aim of strengthening these clubs and reviving those that were dormant. The schools were advised to merge Red Cross club and SHC since both clubs were being supported by one agency. The project has also been holding quarterly review meetings for the School Health Club Patrons and area PHOs for all the implementing 11 primary schools.

Topline finding:
11 school health clubs were formed and operationalized in all the 11 targeted primary schools

Kilifi County

According to the KII with the project officer in-charge of BCC in Kilifi project sites, 10 health clubs had been formed and operationalized, one in each of the 10 targeted schools. As at the end term review, the total number of pupils in the health clubs for the 10 schools was 507 (173 boys & 334 girls). Besides, all the 10 schools had developed action plans for year 2017 and 2018, which were aimed at elevating the respective schools to "*WASH friendly schools*" status. Dissemination of the guidelines and criteria for conducting school competitions were done to the school health patrons of the 10 schools.

Topline finding:
10 school health clubs were formed and operationalized in all the 10 targeted primary schools

Output Indicator 5

Output Indicator 5.1: Number of studies undertaken

The project was designed to include a reflective and evidence-based programming approach. This inbuilt operational research component of the program provided key information that was used on an ongoing basis to inform decision making and provide a basis for adaptation as lessons are learned. Various studies were undertaken to gauge the status before interventions, during project implementation and after the project period to track changes brought about by the intervention. This has always been done in close collaboration with the International Centre for Humanitarian Affairs (ICHA). The project has been big on identifying and documenting learning and carrying out research. These informed new areas of programming which were shared with other interested partners.

The target for Kenya was to conduct 4 studies across the project sites of Bomet, Kilifi and Taita Taveta. This was on target as four publications were done. A survey was undertaken in each county on "*The Influence of Community Beliefs, Traditions, Cultural, Social & Religious Norms on The Use of Latrines and Impact of the Government's Non-Subsidy Sanitation Policy on Achieving Open Defecation Free Status*". The survey was conducted by an external consultant contracted by ICHA. The findings and recommendations were shared to the national office and project staffs for incorporation in project implementation. In total, 4 major studies were undertaken within the project area for Kenya during the project's implementation period. In addition, the baseline helped in setting the target that were SMART for the project. The Mid-term supported in looking at what was working and adjusting the work plan to ensure the target would still be met by the end of the project period. The end line was conducted to establish the achievements attained by the project after the three-year period.

Output Indicator 5.2: Number of publications produced and shared internally and externally

The project also addressed research by identifying and documenting learning and carrying out research through-out the project cycle. This helped in informing new areas of programming which were shared internally and to external partners. These included: a study on "*The Influence of Community Beliefs, Traditions, Cultural, and Social & Religious Norms on The Use of Latrines and Impact of the Government's Non-Subsidy Sanitation Policy on Achieving Open Defecation Free Status*" in each of the 3 counties. In addition, a separate joint study on accountability of water service providers to communities in Bomet, Kilifi and Taita Taveta counties was also finalized and published. In total, 4 publications were produced and shared internally and externally during the project's implementation period.

Output Indicator 5.3: Number of learning events (internal and external) conducted

BRC and KRCS HQ team conducted regular monitoring and supervision visits to the WASH in Kenya Kilifi Project sites in Bomet, Kilifi and Taita Taveta, throughout the project period. The visits aided in offering technical support and monitoring progress of the project. Internal and external audits were conducted throughout the project period without having major issues utilization of the resources that were allocated for the project. Several trainings and meetings were held with staff and volunteer to enhance their capacity of documentation through the Most significant change story approach and had the team involve the communities more and let them tell their stories. Training of KRCS staff on Community Engagement and Accountability was done in two phases where the first one looked at introducing the concept and setting up the system. The second phase looked at enhancing community participation and transparency in the project. A document published together with the federation covered the project areas with communities feeling that they were part of the project. Collectively across the 3 counties, more than 10 learning events were held which was way above the target of 10 events.

3.3.3. Efficiency

Efficiency refers to timeliness and cost-effectiveness of the activities – i.e. how well the various activities have been transformed into planned results and can the implementation costs be justified.

Taita Taveta County

In Taita Taveta County, the project is well on track in implementing the planned activities regarding behavior change communication (CLTS and School WASH); but lagging in regard to hardware components of the project (Water pipeline and school sanitation blocks constructions). The efficiency matrix based on KII with project team and an analysis of the project progress reports are provided in the annexes (*See Annex A-9*). Specific financial data on the actual amounts used for each activity against the budget was not provided to the evaluation team. Therefore, a qualitative approach was applied in analysis of project efficiency (through KIIs with the project team). The findings indicated that the following activities (in Taita Taveta County) are yet to be actualized, initiated, or are lagging in terms of delivery of results:

- Construction (completion and operationalization) of rain water harvesting systems in some of the targeted schools
- Full rehabilitation of the current water supply systems (community boreholes and old water pipeline)
- Triggering of all the targeted villages for CLTS
- Achievement and sustenance of newly constructed latrines in the targeted villages
- Procurement of a third-party certifier of already verified ODF villages

- Construction (completion and operationalization) of gender and disability appropriate latrine facilities with hand washing facilities in some of the targeted schools
- Conducting of community mobilization and selection of water management representatives, including O& M technicians

Kilifi County

In Kilifi County, the project is on track in implementing the planned activities regarding behavior change communication (CLTS and School WASH); but lagging in regard to hardware components of the project (Water pipeline and school sanitation blocks constructions). According to the DPHO Bamba*, "the water project has taken a lot of time and Red Cross should move fast and finish the pipeline."* This has affected the anticipated time when the community would have received the water. This has also an impact on the achievements / milestones realized regarding software activities as reported in the earlier sections. Specific financial data on the actual amounts used for each activity against the budget was not provided to the evaluation team. Therefore, a qualitative approach was applied in analysis of project efficiency (through KIIs with the project team). A matrix based on KII with project team and an analysis of the project progress reports has been provided in the annexes (*See Annex A-9*). The findings indicated that the following activities (in Kilifi County) are yet to be actualized, initiated, or are lagging in terms of delivery of results:

- Hygiene promotion, including menstrual hygiene management, cascading through health clubs in 10 schools and communities
- Conducting of annual school competitions
- Rehabilitation of the Ganze Bamba water supply system
- Follow-up on latrine construction by HHs after CLTS triggering; especially considering that 100% triggering of villages has been achieved
- Setting up county or sub-county ODF verification teams to fast-track the verification of the 3 claims already raised
- Feeding of CLTS monitoring information into the National health reporting system on an ongoing basis
- Training of meter readers and customer care from KIMAWASCO on meter reading; besides enhancing the capacity of plumbers.
- Training of county government staff on water management regulation, design of water facilities, water quality surveillance.
- Training of KRCS staff on project management, quality assurance & construction supervision or other relevant fields

Project's Value for Money (VfM)

Using the KRCS Value for Money Matrix (Excel) tool (*See Annex A-8*), the project's value for money was assessed based on 13-point items. The items were scored at three levels namely: "0", if attribute was not achieved at all; "2.5", if attribute was partially achieved; and "5", if attribute was fully achieved. The score for each of the 13 items was then used to compute an aggregate percentage score based on a maximum possible total of 65 (100%). The project was rated as having achieved VfM if the total percentage score was above 67%; partially achieved VfM if the score was between 34% and 66%; and not achieved VfM if the score was below 34%. As shown in the attached file, the computed VfM score was 88%, which was an improvement of 34% from the value of 54% reported during the midterm review; hence the project was able to elevate from having "partially achieved value for money" to "fully achieved value for

money" over the second half of implementation. The summary table below outlines the project VfM scoring on the dashboard tool.

Key thematic areas of the VfM assessment that led to improved scoring included: management arrangements for delivering and overseeing work; resolution of issues that were delaying project's implementation; competency of staff; delivery within budgetary framework; quantification of savings plans; timeliness of internal and/or external monitoring and reporting; and timely preparation of accurate and complete financial reports against budgets. According to the project officers who participated in the VfM assessment, the VfM measurement dashboard had not yet been set up but instead there is available a tool that was used to track expenditure per outcome. The achieved improvement on all other parameters was attributable to a rigorous process of checks and balances that was instituted by the project management team at the KRCS head offices to monitor the execution of each component.

Table 31: The Value for Money Scoring & RGA ratings

VfM Attribute	Score & RGA colour rating (Midterm review)	Score & RGA colour rating (End term review)
The target group of people assisted so far is in line with the group identified in the assessment and targeted in the plan (the people reached are the targeted group)	5.0	5.0
The management arrangements for delivering and overseeing the work have been operating effectively	2.5	5.0
There have been no substantial problems or delays in delivering the activities (if problems or delays have occurred, have these been caused by delayed or unclear decision-making authority?)	0.0	2.5
Problems or conflicts which have arisen to date have been dealt with efficiently and adequately	5.0	5.0
The staff and volunteers involved to date have delivered the work competently	0.0	5.0
The costs incurred to achieve each of the outcomes are in line with the budget for the period to date	0.0	5.0
If there is a variance (positive or negative) against budget to date, the reasons for this are understood and acceptable, and there is a plan to deal with the variance appropriately if this is necessary	5.0	5.0
Savings against plan have been quantified	0.0	5.0
There have been no breakdowns in financial control over the project in the period to date	5.0	5.0
The applicable procurement policy for goods and services has been implemented in the period to date	5.0	5.0
The data collected has enabled the VfM assessment questions and criteria to be addressed and the VfM measurement dashboard to be set up	0.0	0.0
The internal and/or external monitoring reports required to date were received on time and were of adequate quality	2.5	5.0
The financial reports against budget were produced on time and were complete and accurate	0.0	5.0
Overall rating	**54%**	**88%**

In regard to whether or not the project offers value for money, the SPHO Ganze pointed out that "*there is value for money. Though behavior change in people takes time, the impact can be felt. We have been able to mark the menstrual hygiene day something that was not there.*" Through the KII with KIMAWASCO informant, *"the county government is realizing value for money through the benefits that the project will bring to the disposal of the residents and livelihood of the community members is going to change positively once the project is commissioned."* The views of the two KIIs notwithstanding, it was noted that the unforeseen delays in completion of the pipelines in both counties has affected the realization of the key intended benefits from the project since water is a major component in this project. Save for fast tracking of the delayed activities, the project management team may consider the following aspects in order to enhance VfM: First, improve on the internal staff and volunteer appraisal processes so as to tag individual's performance to specific outputs assessed. Second, there is need to hold frequent progress review meetings (at both the office and field levels) with the civil contractors to get updates and assess progress made against their specific deliverables / outputs against the set timelines. During these sessions, emerging issues should be properly documented, and remedies sought at the earliest opportunity. Thirdly, there ought to be a system of proper documentation of project's expenditure against each output with the view of aiding analysis to determine specific project activities that led to cost savings vis-à-vis those activities that led to budget overshot.

Topline finding:
A VfM score of 88% was realized from the VfM Dashboard hence the project is rated as having fully achieved VfM.

3.3.4. Sustainability

Sustainability looks at whether the project will be able maintained in the long term more especially after the project is handed over to the county by Red Cross. The following measures have been put in place to ensure institutional sustainability of the project after ultimate hand over to the county governments of Kilifi and Taita Taveta:

Kilifi County

Financial Sustainability: According to Kilifi Project Officer, KRCS has been engaging with KIMAWASCO to ensure the institution remains internally strengthened in readiness for takeover and further continuity of project's initiative after handover. The benchmarking visits to NYEWASCO was meant to sensitize the staff on among other aspects: reduction of non-revenue water, collection of revenues, and community and water service provider feedback mechanisms. These are critical aspects that would be required to ensure continuity of project activities beyond 2018. The company, with support of the Kenya Red Cross has been engaging the water vendors and the local communities on how they can form partnerships geared towards reducing non-revenue water losses (e.g. through early reporting or leakages; reporting of illegal connections and much more). He further added that *"we have done capacity building to the community to bridge the gap between the community and the water vendors. This is geared at reducing the non-revenue water. In the old pipeline we have done rehabilitation which has reduced the non-revenue water too. In the new pipeline KIMAWASCO will ensure that there is no leakages or illegal connections along the pipeline to curb the issue of non-revenue water. If this is done the water company will be able to sell the water to community at an affordable rate and be able to sustain itself financially.*" During the second phase the project, additional water points and kiosks were set up across the pipeline corridor to ensure more people get the water. The water

Proposed water point location to deter vandalism by cattle herders

system travelled along the main road hence limited access to those deep in the village. Besides, to deter vandalism of the pipeline by the herders along the bushy sections of the pipeline corridor, KRCS in collaboration with the County Government of Kilifi have set up water points at strategic locations which will be owned and managed by community members and will be within the reach of the cattle herders *(see caption)*.

According to the CEO of KIMAWASCO, in Ganze/ Bamba, the company used to experience a NRW loss rate of more than 80% before the onset of the KRCS WASH project. However, they have managed to reduce this to below 40% through various interventions that were introduced under the project. These include:

- Mobile phone app-based meter reading using smartphones to ensure that they get reliable, accurate, and verifiable meter readings
- Procurement of modern meters to replace the non-functional ones and thus nearly eliminated issues of estimate-based billing
- Regular / periodic servicing of the meters across all the levels of water supply

On the concept of water kiosks using pre-paid billing; KIMAWASCO had initiated the concepts of one-stop WASH shops in partnership with the RC in parts of Jaribuni Division (under a separate WASH project) where they had installed pre-paid water dispensers. Following the lessons learnt from this pilot setup, the CEO report that they are exploring ways of introducing the same concept within the Ganze/Bamba pipeline corridor subject to availability of funds. This will help reduce conflicts that usually arise with the community members due to disputed bills.

Willingness to pay for water amongst the community will ascertain a constant customer base for the water service provider (KIMAWASCO) and hence financial and institutional sustainability for the company. Table 31 shows the analysis of perceptions amongst the households that paid for water and those that did not pay; regarding whether payment for the service is a noble idea or not. For Kilifi County respondents, the findings indicate that a majority of those who were paying for water as at the end term review (68.5%) reported that they view payment as a "good idea". Some of the reasons provided in support of the responses included: to support in operations and maintenance; to guarantee quality of service and the water itself; and to ensure proximity of access to safe water (considering that free water sources are at times far off from the households). Besides, a majority of those who access water without payment opposed the idea of paying for water (72.8%). Some of the reasons cited to support their disconfirmation included: water being a natural resource that should be accessed free of charge; lack of sustainable sources of livelihood for household members (poverty); the concept that the project belongs to the community, funded by donors and the county government. According to the CEO of KIMAWASCO, the company has been aware of these perceptions by the community members and they have hence conducted various sensitizations forums to educate them on the fact that "*water is free, by the service to deliver water to your door step may not be free*"; an idea which has been embraced and opposed in equal measure across the communities.

Table 32: Kilifi County – Willingness to Pay for Water

Do you pay for water?	Do you think it's a good idea to pay for water services?					
	No		Yes		Total	
	n	%	n	%	n	%
No	281	72.8%	105	27.2%	386	100.0%
Yes	123	31.5%	268	68.5%	391	100.0%
Total	**404**	**52.0%**	**373**	**48.0%**	**777**	**100.0%**

Institutional Sustainability & Governance: At KIMAWASCO, they have sensitized the communities on the need to protect infrastructure for sustainability and to reduce operational costs. The new pipeline is the main trunk servicing Ganze-Bamba and Kaloleni sub counties. According to the CEO, the main reason for installing a full station at Ganze-Bamba was to bring a closer eye on the main water infrastructure. The company has also designated an area / zonal manager who has a complete team of support staff on the ground. They are encouraged to apply a more proactive approach towards preventive maintenance than reactive approach. The company has also put in place measures that enable the technical teams to achieve early detection of areas that have weaknesses and prone or susceptible to failure.

Sanitation Scale-up: The Project Officer reported that on the side of sanitation the county government has given each sub-county a *Makiga* Brick making machine (*see caption*). This will help in improving the stable super structures for the toilets. Follow up in the community is a major key to ensuring sustainability which he mentioned that this might be a challenge to the county once the project is handed over to them looking at the resources they have. According to the SCPHO (Ganze), priority in allocation of the Makiga brick-making machines would be accorded to the villages which had already been ODF certified so as to help them scale up their super structures up the SDG sanitation ladder (e.g. those with unimproved facilities to upgrade to improved status). Besides, the county government of Kilifi has set aside Shs.5 Million that would be prioritized for CLTS activities in the financial year 2018/2019; including school WASH. *"In addition, the county has bought Makiga (clay-cement brick) making machines which are meant to support the communities to scale up the strengthening of super structures*" He added.

Makiga brick-making machine

Community follow-up activities: Some of the villages are in remote set up and access is a problem. To enhance the follow ups, Ganze SPHO mentioned that they will be doing capacity building through training of staffs and administrators who help in doing follow ups together with community-based promoters (CBPs) and CHVs. On the other hand, Bamba DPHO reported that they do frequent visiting of schools to check the status of the toilets in case there is any damage they recommend immediate remedies. In the community, the health department personnel visits before the onset of rains to create awareness about the effect of heavy rains and possible outcomes towards the toilet super structures since in some areas they experience toilets collapsing after the rains. However, to ensure sustainability, there is need for the health department personnel to extend focus towards stable pits through lining or any other technology to ensure the structure constructed are stable even after the rains. KIMAWASCO CEO mentioned that they have put various measures to ensure the project runs smoothly once it's handed to them. They have done so by gathering knowledge of the whole project, lobbying for correct billing using digital methods so that we raise money to run the operations of the project and equipping our staff with skills on effective operation of the project.

In the schools the head teachers have put various measures to ensure the projects initiatives runs smoothly. In Muungano Primary the head teacher reported that *"We have a plan of involving the parents who have the technical know-how to always assist us in doing the repairs and maintenance."* In Mbonga primary the head teacher reported that *"…we will set aside money to cater for maintenance of the facilities going forward and we shall put in place punitive measures on individuals who may misuse or vandalize the facilities."* The head teacher in Jeshi Primary reported *"… we have plans to involve the parents those skilled in different areas can always assist us with the repairs and*

maintenance of the project's intervention. We have also started vegetable farming in the school that will raise funds that can be used in case of major repairs of the project."

Sanitation Marketing: Sanitation marketing activities were initiated during the second phase of the project. This was reported by the Project officer Kilifi. The sanitation marketing activities are geared towards improving sanitation practices through the Community Led Total Sanitation approach, currently being promoted by the Ministry of Health. All the villages that have been ODF certified (2) and those that have raised ODF claims have received intensified sanitation marketing to improve and strengthen the status of the super structures. To support sustainability, sanitation marketing (supported by post ODF follow-up activities) will limit likely reversals in ODF practices due to culture and beliefs and also due to weak social norms especially where the rise from triggering to ODF certification is rapid.

Social norms: At the community level, the communities had started enforcing social norms to ensure ODF sustainability especially in the ODF certified villages. For instance, in Mwanganga & Kwa Ndhungu villages, community members had reviewed their village policies that would ensure the sustainability of the achieved status. They agreed that anyone found defecating in the open would be reported to the chief and further action will be taken against them. The village policy would then be printed and shared with the village elder, area chief and the Deputy County commissioner to ensure that their offices displayed this information on their notice boards for anyone to be aware and equip people with information of CLTS. It was also a way of ensuring that the community had its own structures that would ensuring community ownership and consequently, sustainability after the exit of the project. On socio-cultural factors that affect the uptake of the intervention, community FGD participants reported that *"we used to have a culture that a daughter in law cannot share a latrine with her father in law and this slowed down the attempts to have everyone construct a toilet, but that notion has already been overtaken by time after education and sensitization."* The CHWs, volunteers and the school heads echoed the same sentiments noting that there are no socio-cultural factors that affect uptake of project intervention.

Taita Taveta County

Collaboration in Sanitation and Hygiene Promotion: During the last phase of the project, door-to-door hygiene promotion education sessions were continued by the project team in partnership with the county's department of health aimed at on adoption and linkages of proper health and hygiene practices such as fixed-point defecation, regular hand washing with soap at key times, and household water treatment and safe storage (HHWTSS) with diarrheal diseases causation and prevention. The sessions were meant to reinforce hygiene and health practices and ensure sustainability of the interventions. During these visits, the one-stop-shop products were also carried along as this provided the best opportunity to encourage community members to improve their sanitation structures. These included the SATO slabs, disposable slabs and reusable MHM pads which were directly sold to community members during the sessions, with more community members committing to purchasing more of such products through the CHVs and PHOs who act as sale agent and a link to the one-stop-shop concept.

Community follow-up activities: According to the Voi SC-PHO, the main challenge lies in sustaining the CHVs. *"…As a government, no sustainable direction exists (even at the national level) for sustaining the CHVs. What holds the CHVS in their work is motivation and supervision. Occasionally, they need motivation on working tools, training, incentives, etc. (both financial and non-financial incentives) are required. The truth is that there are no set strategies by the counties to sustain the CHVs. Partner like JICA, CARE, World Vision and KRCS have kept them moving."* he added. There are also plans to have a water stall or kiosk in every village which will be manned by the community, and which they will be paying a small fee to draw the water from.

According to the project officer, during the last phase of the project, several consultative meetings had been held with the County Health Management Team (CHMT) for sustainability of the ODF status achieved in the villages. The team proposed that continuous follow ups be undertaken in the villages and that the County needs to think of empowering community health volunteers through income generating activities (IGAs). There was also echoed by participants of the FGD held with the Kenya Red Cross volunteers of Taita Taveta branch. Such IGAs proposals entailed goat rearing, soap making and water vending for the CHVs in the project sites to ensure that their services are retained in the communities and relapse prevented.

Project Governance: It is envisaged that the management of water project will ultimately be handed over to TAVEVO. Over the years, TAVEVO has been scored poorly by WASREB hence clear that their current operation is not highly sustainable. However, a comparison of the 2016/2017 WASREB impact report's scores against the 2017/2018 scores will be able to reveal the actual impact that the project has towards the improvement of TAVEVO's governance and sustainability mechanisms (Voi Sub-County PHO). The technical manager at TAVEVO added the following aspects:

- Water will not be availed for free, but at a fee. Revenue will be generated to ensure that electricity bills are paid, and operations and maintenance are actualized
- The company is in co-operation with the community to ensure that cases of vandalism do not resurface again after completion of the rehabilitation of the current pipeline
- The company does customer clinics to share the importance of conserving water, protecting infrastructure, and avoid illegal connections
- The company has trained staff who are closer to beneficiaries most of the times. They are facilitated with motor bikes to enable them handle complaints in a timely manner.
- TAVEVO is also fully owned by the County Government hence if there are any major breakdowns, the repair costs can be shared with the county government.
- The company does customer clinics from time to time to share the impacts of NRW with communities;
- Internally, the company has made changes to the types of meters being used by its customers. "*Communities are being made aware of why the meters are being changed.*"
- The company is encouraging (through local CBOs) to have communities sensitized more on the need to timely report on new issues

At the school levels, BoMs in some of the schools to set aside funds from the national free primary education fund allocations for use in maintenance of WASH facilities. *"There is a review of school budget to set aside funds for maintenance of WASH facilities that KRCS has constructed"* (Gimba primary Head teacher, KII). "*The school administration and the BOM have approved setting aside funds for maintenance of the latrines and rain water harvesting system that were installed by the KRCS*" (Msharinyi Primary school, HT-KII). The school administrators are also engaging local communities to have them take part in sustainability initiatives. Several schools do not have perimeter fences hence the non-school community members are also engaged in usage of the facilities, which has led to incidences of vandalism in some schools e.g. Mshariniyi primary school. The head teacher reported "… *the BoM has called for a meeting with the community to address vandalism and sabotage of the facilities initiated by the KRCS that is currently a challenge*".

Willingness to pay for water amongst the community will ascertain a constant customer base for the water service provider (TAVEVO) and hence financial and institutional sustainability for the company. Table 32 shows the analysis of perceptions amongst the households that paid for water and those that did not pay; regarding whether payment for the service is a noble idea or not. For Taita Taveta County

respondents, the findings indicate that a majority of those who were paying for water as at the end term review (63.4%) reported that they view payment as a "good idea". The reasons provided in support of the responses are like those provided by respondents from Kilifi County as outlined above. Besides, a majority of those who access water without payment opposed the idea of paying for water (64.7%). Just as stated by the CEO of KIMAWASCO, the burden lays on the management of TAVEVO to ensure that communities can embrace the concept of paying for the water supply service.

Table 33: Taita Taveta County – Willingness to Pay for Water

Do you pay for water?	Do you think it's a good idea to pay for water services?					
	No		Yes		Total	
	n	%	n	%	n	%
No	66	64.7%	36	35.3%	102	100.0%
Yes	264	36.6%	457	63.4%	721	100.0%
Total	330	40.1%	493	59.9%	823	100.0%

In comparison to Kilifi and Taita Taveta Counties, Bomet's county willingness to pay score was low at only 27.0% (n=237). It was found that 73 percent (n=636) did not pay for water, partly because they used natural sources. For those who paid, the price varied from Ksh 2 to Ksh. 10 per 20 litre Jerrycan – an average of Ksh 4.9 (USD 0.049)/20 litre Jerrycan. This was above the national government's recommended retail price of Ksh.2 per 20l container. Payments were done in cash. In Bomet, resistance to pay for water was partly attributable to political promises that the project water would be free water (something that the county government intervened on). Because of a combination of factors, such as cost and distance, the per capita water consumption was 21.5 litres per person per day, against the national aspiration of 30 litres per person per day. The amount of water used per person per day has a direct relation with the resulting health benefits (Bomet WASH Project ETE report, 2018).

Project Exit Strategy Options

As at end term survey, there is no clearly documented project exit plan that was available/drafted. The KRCS, the beneficiaries, the County Health Departments, and the Water Service Companies of the two counties were the key stakeholders of the WASH in Kenya project. The counties and the beneficiaries would transition to be the key stakeholders after KRCS's exit; considering that the water companies are subsidiaries of county governments. Regarding the counties, the willingness to take over both the software and hardware related activities is there, but so far concrete actions have not taken place so far. The KRCS project management team (both at national and regional levels) should hold continuous talks with the counties on how to move forward post December 2018 and consider drafting an exit and sustainability strategy plan altogether. Project management should discuss with the counties on how to integrate activities such as the outreaches and support to CHUs into the annual operation plan and make them part of the budget of the counties.

There is also need for continuous strengthening of the capacity of water management structures personnel (i.e. meter readers, zonal managers, plumbers and customer care staff at both TAVEVO and KIMAWASCO companies). Significant institutional strengthening of TAVEVO and KIMAWASCO is still needed to make sure that the water supply schemes are sustainable. The need for continued monitoring and support after the end of the DfID funded elements of the project is also critical. The project needs to ensure that it works closely with the relevant county departments as it contributes to their strategic plan. This will also go a long way in enhancing sustainability of implemented activities. Incorporation of an operation research component in the project will contribute a lot in project

implementation/learning especially to the water companies. Lastly, the project team will need to discuss with the counties regarding activity level sustainability, but the Table 33 below lists some of the activities that need to be undertaken, their likely impact on sustainability and the lead role / responsibility assignment:

Table 34: Likelihood of the sustainability of some of project's activities and outcomes

Activity	Sustainability after the project: likely not likely	Lead role
Knowledge / capacity of staff	Likely, if CHVs continue to be engaged and CHS is supported by the counties	County health departments
CHVs	Likely, by engaging them in key health promotion campaigns and providing them with both financial and non-financial incentives (e.g. IGAs)	County health departments
RCVs	Likely, through integrating them in other programs and activities that are promoted within the county by the local branch offices	KRCS
Water management committees	Likely, likely through continuous training programs	TAVEVO and KIMAWASCO
School Health Clubs	Unlikely, needs continuous engagement from the KRCS and County health / Education departments. Extra curricula activities at school levels required to sustain initiatives. High rate of turnover of health club patrons due to teacher transfers may make some clubs inactive	County health & education departments and schools' BoMs
CLTS Outreach and follow-ups	Likely, if included into annual budget and CHVs are offered stipends by the county governments	County health departments
The rehabilitated water supply systems	Likely, if the two water companies deliver as they have promised	TAVEVO and KIMAWASCO
Newly constructed school hardware WASH facilities	Likely, if included into schools' annual budget. Need also to sensitize communities on use.	Schools BoMs
Community one-stop WASH shops	Likely, if PHOs and CHVs continue to play active roles as focal persons; and also, if private sector players are encouraged to stock the products and retail at minimal profit markup	KRCS branch offices; County health & education departments and schools' BoMs

The concept of one-stop WASH shop will help the community health units and private sector players to further on the sanitation marketing initiatives that were kicked off during the last phase of the project. The main objective of inclusion of the one stop shop products was to enable the community access items that they can use to improve their sanitation facilities at affordable prices. It is also a sustainability mechanism for the branch to retain when the project exits. The project has continued to add more linkages to the products in the communities through village elders in addition to the PHOs and CHVs who have continued to play active roles as focal persons providing communities with the sanitation products wherever required.

3.3.5. Community Participation and Accountability

Accountability refers to what extent the beneficiaries, community groups and volunteers have been involved in the project activities including monitoring, and flow of information from beneficiaries or from

the volunteers to the project implementer. The community understood 'participation' in terms of paid-casual labor for physical works during the construction of the pipeline. There were many young people who wished to be engaged this way, but the project absorbed only a small number. Direct community participation was also evident in the community-led total sanitation (CLTS) process, where communities were directly involved in construction or upgrading of their household latrines.

After sensitization of the community members across all project sites at inception stage, CHVs from the targeted communities, were trained on matters of hygiene and sanitation who in turn trained and educated people at the grass root level on good hygiene and sanitation practices. One of the participants in an FGD with RCVs reported that *"…through the community sensitization the community realized the need for the project since they were willing to construct toilets and use them despite the cultural factors surrounding the use of toilets. There was willingness to participate in any WASH related activity during the project implementation such as hand washing training and community sensitization on sanitation issues. The information was taken in very fast and there was ownership of the program."*

In Taita Taveta County, community was fully involved through regular barazas and community review meetings since the initiation of the project. During the introduction of the contractor and monitoring activities, the community members were invited. In Maungu-Buguta, community members have been involved in excavation works of trenches, joining of the pipelines and in decisions on site allocation for various water points. During the project implementation community participation cut across all members of the community from the school going children to the old folks in the society. Men provided labor needed for the construction of improved toilets at Kivukoni Primary school. Some women groups were used by KRCS to create more awareness during the project implementation. Women are involved in the maintenance of the toilet cleanliness and educating the girls on menstrual hygiene management. The school going children have been made hand washing ambassadors, they ensured that the knowledge they got in school was passed down to the community members while the CHVS were actively involved in the ensuring that there is community ownership of the project.

Project volunteers are an important part of project monitoring. The Red Cross volunteers were involved in creating awareness on the importance of hygiene and sanitation, frequent follow ups and since the volunteers and CHVs were continuously empowered to continue training community members on the importance of hygiene and sanitation. The RCVs reported that they have direct contact with project team, and that the team is easily approachable and helpful if the RCVs/CHWs have any issues. At the community level, it emerged from the FGD with community members that community groups and volunteers are the ones used to channel communication and complaints from the community to the Kenya Red Cross office and give the feedback. So far, this has made communication between KRCS and the communities easy.

Taita Taveta project team reported that it involved TAVEVO staff in its community sessions at the local level and in WASH stakeholders meeting where the community directly engage and ask questions directly to water company. The project and TAVEVO also intend to conduct clinics at the local level to provide more information on the role of both community and company going forward. In Kilifi County, the community also reported that the beneficiaries really appreciate the project. *"Through the awareness created, the community is aware of the project and various activities involved. This is validated by the stories streaming in from the community health volunteers who are at the heart of the beneficiary communities. In December 2018, quality assurance visits were done across the villages claiming ODF or those ODF certified and we were asking them about their current experiences compared to the past. They said that the diarrhea or other diseases amongst the little children are not as prevalent as they*

used to be in the past," SC-PHO Ganze. Community FGD also reported the same saying *"We understand the project so well because of the good involvement that was done before the project was started.*"

The Red Cross Volunteers reported that the during the project the community was consulted on where the pipes were to be put, where to locate the kiosks and who would run them. The community chose their own volunteers for CLTS and the proposed by the community. The Red Cross Volunteers were involved in a mirage of activities during the project implementation. Some of the activities which the volunteers took part in included; triggering processes in the villages, sanitation marketing at the community levels, Follow up on the pipeline construction, training schools and communities on sanitation and hygiene, inspection of WASH facilities, certification of villages and training health patrons from various schools.

Community contribution to the intervention as reported by the CHWs is on the provision of cheap labour, donation of land and educating other members of the community about the project interventions. *"We have donated land for the construction of water points."* For instance, the land that used to construct the mid-height reservoir tank at Mulungu wa Mawe village in Kilifi County was donated by the community. The corridor that the pipeline runs through from Mtsara wa Tsatu all the way to Bamba tank station was donated by the community, surveyed, and handed over to the county government of Kilifi. In addition, after the training of the CHVs, rules were made where every community member was required to have a toilet and if found without one, was to be reported to the chief. The community FGD reported that they helped in the mobilization of the villagers to construct latrines and educate them on the importance of using latrines.

The community groups and the volunteers have been involved in the project as reported by the RCVs. The community groups have been going around checking those who do not have latrines and educating them on the importance of the project while our volunteers have been sensitizing community members on good hand washing practices and maintenance of the latrines. Through the community FGD they reported that *"our community groups and volunteers move all over the village teaching people the importance of this project and why they should own it.*" The Volunteers and the community members reported that the communication and feedback mechanism used is through chiefs' *barazas* and in some areas '*wazee wa vijiji'* (village elders) are used. In addition, the CHWs also noted that *"The CHEWs take the greatest initiatives in communication."* The volunteers also added that communication is done *"through the CLTS committee that are responsible for each village."*

However, on water component intervention, the community felt was not significantly involved in decision making. A participant in FGD at Bamba in Kilifi County claimed that they were not involved. Another participant said that it was possibly communicated to the village elders and leaders. Further enquiry from the software project officer from KRCS admitted that there has been an existing problem with community members' participation. For instance, initially, there were only two volunteers from two villages each who oversaw monitoring. To boost community participation local leaders such as *wazee wa nyumba kumi*, religious leaders, chiefs and vocal personalities to support the initial CHVs in follow up activities.
Accountability requires those in charge of providing access to water supply and sanitation services account for their actions and answer to those they serve. Transparency enables citizens to scrutinize the work of a service provider and make officials to be accountable and perform better. Active participation provides the possibility for citizens to make informed, timely and meaningful input and influence decisions at various levels (Water Integrity Network, 2016).

On accountability, the respondents had varied views on how accountable the service providers were to their consumers. Inadequate water supply was mentioned as one of the major issues affecting connected

people and making the WSPs not accountable. Majority experiencing water rationing where they only receive water on very specific days. Lack of proper communication and absence of water rationing timetable and adequate water storage tanks was reported as contributing factor to the inadequate water experienced. Piped water was reported to never be enough for the majority due to inconsistent and inadequate supply.

"I am not satisfied with the frequent water rationing by TAVEVO Water Company…. The water is supplied for a short time and then it goes dry. But there are some places where they get water very well" (FGD, Household Head, Women, R3, Taveta, Taita Taveta).

The delay in response by the WSP to repair the leakages and busted water pipes was also seen as causing some areas not to receive water and making them not accountable. It was established that the water companies took longer time to address the issues especially the water leaks once reported to them.

Inaccurate water bills and estimation of the meter readings giving an impression of lack of trust to the WSPs was raised as a major issue by the participants in all the Counties. Some beneficiaries complained that they would pay a flat rate of KES 500 per month and yet did not receive water at all for the whole month. This was being expensive and unfair to the consumers hence discouraging other people from getting connected to water. The customers also complained that sometimes the meters were never read as required which led to lack of trust between the consumers and the WSPs.

"I can say that the challenge is that the meter readers make people pay for wrong bills as they just estimate the cost… Those complaints have been there. Where people don't get water for the whole month and later receive a huge bill and even you wonder how you got huge water bill and you didn't have water for the whole month" (KII, Ganze, Kilifi).

3.3.6. Organizational Learning and Best Practices

Strategies Utilized by the Project that Worked (Bore results)

Use of Volunteers: The project had teams of trained volunteers (from both the community and the local Red Cross branch offices) who were tasked with conducting household visits and conducting sanitation and hygiene promotions. They were trained in MHM, SANMARK, and hygiene promotion. They were regarded as the foot soldiers of the project and they lived within or in the neighborhoods of the targeted villages.

Teams Leadership: At the local Red Cross branch office, there was a designated team to deal with software issues; one targeted at school health and another targeted at community health. For the community teams, they were mainly involved in establishing linkages with the chiefs for organizing community meetings (barazas) from where the BCC messages were relayed. Occasionally, a team from the local office was sent to the communities to go and support the CHVs because when the community members saw new faces they would change their perceptions rather fast.

School health clubs: In schools, health clubs were constituted and operationalized in all the schools the project was working in. These health clubs were not there at the project's inception (or if they existed they were hardly ever active or structured). Towards the project's midterm, efficacy assessments on the health clubs' members were done. The clubs were established with clear structures where two teachers (a male teacher and a female teacher) were trained on WASH aspects. They had also trained members of the BoM on their role in the WASH initiation and on O&M of WASH facilities.

Use of Local Opinion leaders as WASH Champions: In Kilifi County for instance, the early days of the project were marred with mobilization challenges since the project team had only nominated two volunteers from each village for mobilizations and sensitization. However, they realized that when they went into forums where opinion leaders were present, protocol would dictate that they could not be allowed to address members of the community as they had "no say" in the village per se; and if they had anything to tell them, they could as well channel the same through religious leaders or the chief. To boost community participation local leaders such as *wazee wa nyumba kumi* (community policing elders) religious leaders, chiefs and vocal personalities were brought on board and trained to support the initial CHVs in follow up activities. In Taita Taveta County, the same was replicated where they engaged the religious leaders across the county and sensitized them on their role in sensitizing their communities on sanitation and hygiene.

Multi-stakeholder CLTS Verification Approach: besides training the volunteers on CLTS, the local KRCS branch offices in Taita Taveta and Kilifi Counties formed structured teams comprising of the County WASH focal person; Sub County WASH focal person; and members of the CHUs so that once a community raised an ODF claim, swift verification would be done to avoid delays which may lead to relapse. The team was referred to as the County and Sub county verification teams.

Sanitation Marketing (SANMARK) and Concept of One-Stop WASH Shop: The project introduced the marketing of sanitation and hygiene products (plastic slabs, water treatment tabs, and MHM products) during the last phase of implementation. The local branch offices have enrolled the CHVs, Red Cross volunteers on the ground, and public health officials as the primary marketing agents. The One-stop shop was an intervention meant to compliment other SANMARK approaches. It was meant to ease accessibility of sanitary products (latrine slabs and re-usable sanitary pads) by the consumer and at affordable price. Other approaches being used in SANMARK included roadshows, hygiene campaigns and education, production, dissemination and distribution of IEC materials, door to door campaigns, use of crowd pullers and public *barazas*. All these have yielded varying results as documented in the earlier sections of this report.

Performance contracting for volunteers: Performance Based Contracting was introduced to all the project team (Project Volunteers and area PHOs). The volunteers signed a contract each committing to deliver 15 latrines fulfilling the latrine standards as stipulated in the project document starting on the 3rd March 2017. The latrine standards as per the project document entailed: privacy (have walls, door and roof); floor without cracks; availability of a squat hole cover; availability of a functional hand washing facility; and presence of soap/ ash or alternative for hand washing. This probably explains the high coverage rates reported in Taita Taveta project sites. Performance contracting for volunteers was introduced as a means of enhancing accountability and measure progress by the volunteers. Volunteers were to promote construction of new latrines and improvement of those that did not meet the set standards. This approach had increased a sense of ownership particularly for those households with latrines meeting the set standards.

Benchmarking Visits for WSPS Linkages: On the water intervention, the project conducted capacity building trainings for KIMAWASCO and TAVEVO personnel; besides taking them for an exchange program with Nyeri Water Company where they visited to learn on how they operate and manage their water. As a result, both companies developed modern methods of billing to minimize non-revenue water and reduced the number of illegal connections along the systems.

Challenges in Project Implementation

In both Kilifi and Taita Taveta project sites, the following challenges were faced in project implementation:

- **Change of government during Project implementation:** In Taita Taveta County, there was change of county government hence the need to rebuild relation with the new government since all projects done by the previous county government was criticized.
- **Bureaucracies from KENHA** (Kenya National Highways Authority) **and Kenya Railways Corporation:** Some of the water projects had to Cross through Standard Gauge Railway (SGR) which needed long approval process hence delaying water project interventions in those areas.
- **Slow uptake of hand washing:** due to lack of water /insufficient supply/ priorities in water-use, the progress realized in terms of having and maintaining hand washing facilities was not as envisaged had the project stuck to the timelines conceived at the inception. There was a common perception from a Cross section of community members that any little available water should be prioritized for domestic use and not for hand washing, unless there is abundance.
- **Poverty levels at household levels:** data from the households shows that the levels of household incomes are rather low. This leaves no adequate income at the disposal of the household for use in CLTS related activities e.g. purchasing a durable slab / hand washing; purchasing sanitary pads for girls; purchasing soap for hand washing; constructing an improved latrine facility, among others. This also explains why the proportion of households reported to be sharing latrines as at the end term review remained as high (33.2% in Kilifi County & 29.4% in Taita Taveta County)
- **Facilitated joint supervision between KRCS and County health departments:** Supervision involves transport and movement. There was a concern by the SCPHOs that the transportation and supervision infrastructure was not reliable e.g. during verification, KRCS sometimes would offer to fuel the vehicle but not provide the vehicle. On the county side, the officers also found themselves with no official allocated vehicle for the same. In such instances, each party was often left with the responsibility to look for alternative means. There was a suggestion that partners may facilitate supervision at the MoH level by e.g. giving modes of "collabo-transport" that could be used even if they were motor bikes. This was mainly to enhance mobility.
- **Delays on hardware components:** The hardware components were scheduled to kick off in December 2016 / January 2017 months. However, due to delays which were occasioned by factors that were external to the project, some activities started up to 12 months late. The causes of delay included: lack of homogeneity in project sites hence approval processes varied from one project site to the next (omnibus approvals were not possible); procurement of consultants took time since it was through competitive tendering; delay in release of apportioned funds by the county governments of Kilifi and Taita Taveta; lack of approvals for way leaves (road and railway reserves) from both KENHA and KRC respectively; and sporadic conflicts between the project team, civil works consultants, and the beneficiary communities.

- **Vandalism of newly constructed toilet facilities and RWHS in some schools:** Vandalism of newly constructed school sanitation blocks was noticed and is rampant where the blocks are constructed adjacent to communities that are practicing open defecation. Most of the taps were broken and parts of the piping systems tampered with for ease of drawing water from the tanks (RWHS) during the rain seasons. On the other hand, some of the toilets were misused by the community members and the ceramic tiles being broken and others stolen.

- **Inadequate capacity of few contractors leading to poor workmanship / Poor contracts management:** Construction of school latrines was done on case by case basis. The completion timelines and quality of workmanship varied from one contractor to the next. The contractors were a mix of both "indigenous" (locally-based, source by local project office) and the "non-indigenous" (non-locals, sourced by the national office due to project value threshold allowable to local office). Problems were experienced in some project sites (e.g. Msharinyi primary school where the contractor was assigned to construct latrine blocks in the school). There were various quality issues raised with the contractor which he verbally committed to address but eventually he did not.

Storage tank at Msharinyi Primary school alleged to have been speared by a member of the local community after realizing it had no water

- **Vandalism of newly constructed water pipeline / infrastructure:** In both counties, vandals have been attacking various parts of the newly installed systems ranging from water tanks; pipelines; plumbing works (e.g. removal of stand pipes).

- **Domestic water Shortages due to Water rationing:** In both counties, the water companies are constantly being subjected to water rationing form their main water supplier, the Coast Water Services Board. For instance, according to the CEO of KIMAWASCO: "… *As a company, we do not produce water. We buy water from the Coast Water Services Board. The optimal daily production capacity at the source is 92 cubic meters of water against the daily demand of 100 cubic meters for Kilifi and Malindi regions alone (excluding the supply demand downstream to Mombasa city and its environs). As such, the project only receives water 3 days in a week. Therefore, the shortages experienced are not due to equipment breakdowns but due to shortages in supply up the supply chain. We have formulated weekly ration schedules which are promptly communicated to our customers.*"

3.3.7. Partnerships, stakeholder management and Integration

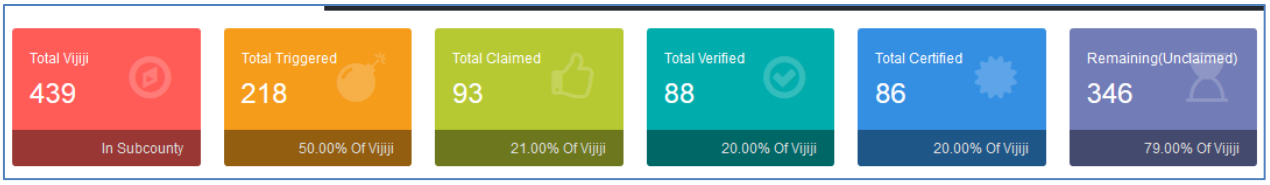
For partnership, the ETE assessed how well the partners (KRCS, BRC) were coordinating the work, and to what extent the different stakeholders (County governments and water companies) were aware of the project and its activities. The KIIs within partners showed that the collaboration between the three partners was positive. There was close collaboration, continuous engagement, consultation and consensus in the activities that were done. This should be fostered and continued. KIIs with other stakeholders within the county were positive. As has been earlier stated, the two county administrations, KIMAWASCO, and TAVEVO were very supportive with the project. The KIIs with county staff and representatives of the two water companies showed that they are well aware of the project's activities and had experienced positive results. Partners on the ground appreciate the project's collaboration in very concrete terms: data and learnings were shared on a regular basis.

In Kilifi County, the Project Officer noted that, initially there were issues of partners' competition and duplication of interventions. This was solved by developing a CLTS technical working group at county level which met once a month for partners to share experiences. *'We have a bigger Kilifi County WASH stakeholders' forum which brought on board partners engaging in WASH such as MNCH and nutrition. Internally,*

KRCS did a stakeholder mapping to detect which partner is on ground and the intervention carried out," (KII, Project Officer Kilifi County). The county government of Kilifi had supported the program with distribution of sanitary pads to various schools within the County. However, the disposable sanitary pads distributed by the county government were inadequate and the KRCS established a one-stop- WASH shop which sold disposable pads at the prevailing market prices for both the disposable and re-usable pads. Due to affordability challenge other partners such as World Vision, Moving the Goal Port and Samaritan were mobilized to provide sanitary pads to schools. The reusable pads retailed at Kshs. 250 a pair which can last for at least 6months.

The project was well integrated into county policies as reported by KIMAWASCO CEO *"The project is in the company's strategic plan; and the company's strategic plan borrows heavily from the Kilifi's CIDP 2013 – 2017 (To: "redesign and construct new major water supply, storage and sewerage systems; Enhance water harvesting by ensuring each sub location has a borehole or dam or water pan; Investment in desalination technology so as to ensure the sea water is used for productive purpose; Rehabilitation and extension of the existing pipeline and water supplies; Protection of water catchments areas; Encourage use of modern water harvesting techniques" Kilifi CIDP Page 57)."* The intervention fitted well into county policies since WASH is one major component dealt with by the health department. Before the intervention were done the county government had a meeting with KRCS and identified areas which were in great need. This was reported by SCPHO Ganze. In Taita Taveta County, the county government as a partner had a stake in the project in terms of budget. The MoU terms stated that the County was to contribute Kshs. 25 Million towards the project. This represented about one third of the projected budget.

In both counties, personnel from the county health departments were involved in a range of supportive activities which included: capacity building of CHVs, the health promoters, and community members on matters of sanitation and hygiene; follow-up activities together with the community-based WASH committee members and members of the local administration (chiefs and sub-chiefs); and continuous monitoring of the community sanitation and hygiene activities and gathering data which was uploaded into the WASH hub portal at the national level (see http://wash.health.go.ke/clts).[4]



Snapshot of the Ganze Sub county status from the national CLTS portal as at 21st December 2018,

In both counties, the County government, water companies and KRCS conducted joint monitoring of project's activities. For example, at TAVEVO, they were involved in the following activities: Project supervision since conceptualization / inception; partnering with KRCS in selling the concept to the communities; joint supervision of the quality of workmanship by the contractors; and accountability to communities. "*TAVEVO was actively involved Supervision of the project during the construction process the project. Major role will be operation, maintenance and billing of water systems after they are handed over. The company has executed its roles perfectly despite a few complaints from the community members,*" Technical Manager TAVEVO. In both counties, the County health teams were involved in the following: SANMARK activities which entail educating the community alongside the KRCS volunteers on the need to upgrade their sanitation facilities as well as adopt hand washing practice with soap / alternatives; engaging the local administration to ensure that those who are not adhering to the new practices / norms are compelled to so e.g. eradication of the open defecation practice at the household level; and project supervision at least once a week (but through

[4] http://wash.health.go.ke/clts/user/loadUnitDashboard?id=11186 as at Dec 21 2018)

the CHUs) and is done mostly on Wednesdays. Other roles include provision of technical support and advisory to both partners and other project implementers. The role of KRCS and BRC has been to provide funding and overall project implementation oversight.

SECTION IV: CONCLUSIONS AND RECOMMENDATIONS

4.1. Conclusions

From the findings in the preceding section, the following conclusions are raised:

Thematic Area	Key conclusions
Relevance	As per the project plan, all the software activities were well on schedule except for water aspects where the pipeline rehabilitation works are yet to be finalized and water management committees (WMC) are yet to be formed. However, communities in Taveta Sub county remain hopeful that one day clean water supply will be realized as promised at inception. The county government stakeholders to the projects; namely the county health department and the water companies both acknowledge that the project was of utmost importance to the beneficiaries and was for public good. The investments made in the past three years addressing water, sanitation and hygiene will have a long-term benefit to the residents. The communities have realized the benefit of good sanitation/hygiene especially where the latrine coverage has gone up and practice of hand washing embraced by the households. The major challenge remains on the water related interventions since the community is yet to start realizing the benefits. The project addresses the county priorities on sanitation/hygiene and water intervention both at the community level and schools that were supported. Water companies (KIMAWASCO & TAVEVO) have realized increase in new domestic water connections, reduced NRW, and hence seen an improvement in their revenues.
Effectiveness	The findings showed that Taita Taveta County was **on target** (December 2018) in regard to all the log frame indicators. Kilifi County was also **on target** (December 2018) in regard to all the log frame indicators. The three-year program aimed at improving hygiene and sanitation practices and increase access to improved water and sanitation for people in Taita Taveta and Kilifi Counties. The anticipated changes over a three-year period were fully achieved with targets being surpassed on some of the indicators. **In Taita Taveta County:** • Two water supply systems (Kaloleni and Maungu-Buguta) were completed and currently fully functional. The third water supply system Kisambinyi-Konenyi was 60% complete as the close of the project despite being launched in the last quarter of 2018. • The project was able to support and capacity build Tavevo Water and Sewerage Company, which is the main water service provider (WSP) with a board and top-level management. • Intensified CLTS follow ups and sanitation marketing increased demand and uptake of sanitation products and proper health and hygiene practices at the community levels that led to more people constructing and using latrines with hand washing facilities. SHEPP contributed to increased awareness of hygiene and health practices at the schools. Twelve primary schools were supported by KRCS, with 8 of which benefiting from construction of latrines. • With the introduction of the *One Stop Shop* to compliment hygiene and sanitation promotion in the targeted villages, intensified door-to-door follow ups were made to ensure more people had information and the sanitation products were provided to quench the demand created

- A total of 18 villages were certified and declared as ODF. Six villages were declared in year 2 and 12 villages in year 3. This was due to the protracted household follow-ups, close partnership meetings with the Department of Health Services and capacity building of the PHOs and project volunteers. KRCS also trained the verification and certification teams in all the four sub-counties hence expediting the process.
- School Health Clubs were formed in 12 primary schools in Voi and Taveta Sub-Counties. The school health clubs were the entry point for SHEPP activities making it more possible to reach more pupils. Additionally, more latrines constructed based on needs as opposed to initial plan
- Sanitation marketing scaled up incorporating mass hygiene promotion campaigns reaching more than the 24 villages targeted with CLTS approach
- Three water management committees were formed for Kaloleni, Maungu-Buguta and Kisambinyi-Konenyi projects each with 11 members; with 50% of the committee positions being reserved for women.
- Training on governance, and/or management of physical water structures, and or advocacy to local government: 74 plumbers, 33-meter readers and 13 senior Tavevo management and zonal management were taken through a refresher course on customer care, billing, meter reading and operation and maintenance. Besides, 19 WMCs members from Kaloleni and Maungu-Buguta were taken through leadership and governance on water resource management, M&E and policies governing water sector in Kenya.
- Gender sensitive and disability friendly latrines were designed, constructed and handed over to all the schools by Education and County Health Officials.

In Kilifi County:

- Construction of the first phase of the project was 100% completed from Ganze to Bamba. The second phase (which entailed installation of solar panels at Mid Height Pump station, rehabilitation of distribution lines, construction of distribution tank at Mtsara Wa Tsatsu, construction of 10 water points, and rehabilitation of Silala line) was also 100% completed.
- The project was able to support and capacity build KIMAWASCO, which is the main water service provider (WSP) with a board and top-level management. The key areas of learning identified were reduction of non-revenue water, collection of revenues and community and water service provider feedback mechanisms.
- The impact of CLTS interventions was significant with six villages having been declared ODF with two more being verified as ODF.
- There was a significant growth in people accessing improved drinking water sources for households in Kilifi County from 23.5% at baseline to 55.6% at the end term review; with the preference for open water sources / surface water dropping over the project's life span from 69.4% to 39.9% despite these options still being available to the community.
- School Health Clubs were re-activated in 10 primary schools with the school health patrons also being training in hygiene promotion. Besides, eight schools benefitted from hardware interventions where water tanks were either constructed or rehabilitated; and gender sensitive and disability friendly latrines were designed and constructed. The project supported construction of Rain Water harvesting Systems (RWHS) in 5 schools.

	• Ten new water points with functional water management committees were created along the Ganza-Bamba pipeline corridor Based on the above summary for each county, it is worthy concluding that the project was able to effectively achieve its key objectives. Specifically: there has been increased awareness/understanding of health risks linked to unhygienic practices, resulting in behavior change e.g. critical times for hand washing, safe disposal child feces; knowledge of the causes/prevention of WASH-related diseases, safe water chain and open defecation (OD) contamination risks; there has been increased use of rehabilitated/new water infrastructure, improved water quality, reduced collection distances; increased demand for/use of latrines, reduced OD and reduced contamination risks; the project has enabled and strengthened communities, able to foster connections, engage and solicit support from local government in arrangements for WASH operation and maintenance (O&M); and there are notable evidence-based experiences which can be utilized by other WASH actors to advance similar interventions in the coastal region and beyond.
Efficiency	In Taita Taveta County, the project was well on track in implementing the planned activities regarding behavior change communication (CLTS and School WASH); but lagged behind in regard to hardware components of the project (Water pipeline and school sanitation blocks constructions). Specifically, the following were the affected project activities: Construction (completion and operationalization) of rain water harvesting systems in some of the targeted schools; Full rehabilitation of the current water supply systems (community boreholes and old water pipeline); Achievement and sustenance of newly constructed latrines in the targeted villages; Procurement of a third-party certifier of already verified ODF villages; Construction (completion and operationalization) of gender and disability appropriate latrine facilities with hand washing facilities in some of the targeted schools; and Conducting of community mobilization and selection of water management representatives, including O& M technicians. As at the end term review, the Nakuruto water-based interventions (in Taveta sub county) had not commenced as earlier planned. However, the other 3 project sites in Voi sub county had been finalized as per the project plan, though the timings were not as earlier scheduled. Similarly, in Kilifi County, the project was well on track in implementing the planned activities regarding behavior change communication (CLTS and School WASH); but lagged behind in regard to hardware components of the project (Water pipeline and school sanitation blocks constructions). Specifically, the following were the affected project activities: Hygiene promotion, including menstrual hygiene management, cascading through health clubs in 10 schools and communities; Conducting of annual school competitions; Rehabilitation of the Ganze Bamba water supply system; Follow-up on latrine construction by HHs after CLTS triggering; especially considering that 100% triggering of villages has been achieved; Setting up county or sub-county ODF verification teams to fast-track the verification of the claims already raised and Feeding of CLTS monitoring information into the National health reporting system on an ongoing basis. In both counties, sanitation marketing activities were kicked off in the last months of the project's second phase, and this was raised as a key point of concerns during key informants' interviews with the project officers, the public health officers and FGDs with the volunteers. The concern was that the activities had started gaining momentum nearly the same time when

	the project was coming to an end and hence the future of these activities remained uncertain after the project ends. All key informants interviewed were affirmative that the project offers value for money to the donors and other implementing partners.
Sustainability	In both counties, various sustainability measures were proposed. They include: supply of water to households at a reasonable fee; co-operation between the water companies and the beneficiary communities to ensure that cases of vandalism do not resurface again after completion of the rehabilitation of the current pipelines; sensitizing communities on the importance of conserving water, protecting infrastructure, and avoid illegal connections; sensitizing the communities on the impacts of NRW; and upgrading of the water metering and billing infrastructure. On CLTS, there are proposals to negotiate with the county governments to continue offering both financial and non-financial incentives to the CHVs to ensure their continued participation in the project activities. At school level, members of the school health clubs and their patrons shall continue to be the agents of change post project closure. The BoMs of various assisted schools are prepared to formulate a mechanism to finance repair and maintenance of WASH facilities.
Community participation and accountability	KIIs with various informants, the FGD with RCVs, and members of the communities demonstrated that the project's objectives and main activities are well known. Across all project sites, the community members were sensitized at the inception stage on the project's objectives; specifically, on water supplies and sanitation/ hygiene initiatives in the respective villages. At the community level, it emerged from the FGD with community members that community groups and volunteers were the ones used to channel communication and complaints from the community to the Kenya Red Cross office and give the feedback. This made communication between KRCS and the communities easy. The local project offices have in the past demonstrated ability and capacity to intervene in resolving conflicts that arise between the community members and various project actors e.g. the contractors. On accountability, the respondents had varied views on how accountable the service providers were to their consumers. Inadequate water supply was mentioned as one of the major issues affecting connected people and making the WSPs not accountable. Majority experiencing water rationing where they only receive water on very specific days. Lack of proper communication and absence of water rationing timetable and adequate water storage tanks was reported as contributing factor to the inadequate water experienced.

4.2. Recommendations

Besides the significant achievements attained by the project in the past three years the following recommendations are made in regard to project implementation in the phase out stage:

- It is important for KRCS to meet with water companies (TAVEVO and KIMAWASCO) and County government to institute and document adequate project sustainability measures; that can withstand changes in county governance structures after a general election. For instance, in Taita Taveta County, change of county administration after the 2017 elections led to changes in the WSP as well as the county health department. As such, the teams that were engaged during the first phase of the project were unavailable to see the project through the second phase to completion.

- All the partners involved in the implementation need to take responsibility to ensure that the achievements are maintained or scaled up. This being the end term evaluation, KRCS need to share the achievements and setbacks to other organization who may implement similar project in the areas so that they pick from where KRCS will have left behind. The government also needs access to the reports for development of lasting solutions to WASH problems in the schools.
- Flexible work plan to cater for unforeseen delays due to bureaucracies especially from the County government or National government to avoid rush in execution of activities. During the project design of programs of such magnitude, provisions in the timeline should be allocated in the event of lag from the partners or key stakeholders.
- From KIMAWASCO, it was realized that most of the interventions by the KRCS have been in the rural areas of Kilifi County. However, a big proportion of the NRW losses is derived from the urban centres and this is what is causing serious cash flow strains to the water service providers. The high revenues realized from sales to the urban populace is what makes it possible for the companies to offer subsidized domestic rates for the rural communities. There is need also to synchronize rural water interventions with the urban water interventions for NRW to be at negligible levels.
- There is need for KRCS and project office to hand over the pipeline repair kits to the water companies (TAVEVO and KIMAWASCO) as a way of reducing repair costs and ensuring expedited repairs.
- The BoMs of the hardware intervened schools may consider setting up of a protective perimeter fence / lockable steel barrier as part of the school toilet designs so as to deter unauthorized access by outsiders after the schools goes into recess. This will contribute towards sustainability of the interventions after the project ends.
- The water companies also need to take up the responsibility of securing the key water installations of the project (e.g. pump stations and mid-height water reservoirs) by employing full time security guards. Besides, they could also offer monetary incentives to selected members of the communities to be tasked with carrying out daily patrols along the water infrastructure corridors and alert immediately on issues that would require immediate attention. This will go a long way to deter vandalism, reduce maintenance costs and NRW.
- The county governments of Kilifi and Taita Taveta had financial obligations towards the project which remained unmet as at the time of the ETE survey. Short term plans for projects should be done so as to avoid interference by the changes in county government leadership after every election. Every county government come in with a different structure and different priorities and this contribute to stalling of projects which had been launched by the previous County government.
- Even after handing over the project to various stakeholders (County government and water companies) KRCS should set aside a multi-stakeholder team (and supported by the county governments & other partners) to carry out post-project monitoring and evaluation at least for the 1st year (i.e. year 2019). This will help to solidify the gains already realized in both the water and CLTS components of the project.
- KRCS should formulate a mechanism to follow up on the school management and ensure that the commitments they made on O&M of RWHs, sanitation facilities and health clubs are followed through by the schools. Else, without this the structures provided the project will not be sustainable after the phase out stage.
- There is also the need to strengthen the CHUs: CHUs are held by incentives and motivation. There should be stakeholder wide involvement at all levels for community ownership to be

realized. There is need to put in place measures to engage the volunteers in the post-project era through incentives / allowances. There is need to continue to offer them priority in consideration for internal job opportunities wherever they arise both within KRCS and the County Government. Besides, the idea of starting off IGAs for the CHVs may be explored further. This will keep them engaged and available for furthering the project's initiatives.

- The stakeholders observed the need to extend the project coverage to more areas in the sub-counties of the two counties e.g. as reported by SC-PHO in Voi, *"…there are other areas which were worse in terms of hygiene and sanitation but were not covered in the KRCS project due to its inflexibility."*
- For the project to fully impact and reach all the targeted beneficiaries on the hardware side, there is need to prioritize completion of project works that are already in progress before starting off or commissioning new sites. Otherwise, there would be need to strike out some proposed projects from the current phase and initiate a second phase of the project from where they would be given adequate attention. For instance, 3 years later, hardware aspects of rehabilitating / constructing new water supply systems are yet to be initiated in Taveta sub-county.
- On organizational learning; KRCS may consider initiating Cross-comparative studies to assess the limiting / enabling factors to latrine usage and sustenance of ODF behavior amongst the communities; more so in Kilifi County. This will likely explain the sluggish performance of CLTS indicators in Kilifi County when compared to neighboring Taita Taveta County. Besides, an impact evaluation of the project may be considered 2 – 3 years after project's closure.

SECTION V: REFERENCES

Black K. (2005) *Business Statistics for Contemporary Decision Making*. 4th Edition. Wiley.

Cochran, W. G. (1977). *Sampling techniques* (3rd ed.). New York: John Wiley & Sons.

County Government of Taita Taveta (2015) "County Profile of Taita Taveta" [Online] Retrieved 19 February 2016, at http://taitaTaveta.go.ke/about_government

Republic of Kenya (2014a) *Kilifi County: The First County Integrated Development Plan 2013-2017*; Nairobi: Government Press

Republic of Kenya (2014b) *Taita Taveta County Government "Supporting Quality Life for the People of Taita Taveta" The First Taita Taveta County Integrated Development Plan 2013-2017*; Nairobi: Government Press

Republic of Kenya, UNICEF, & Water and Sanitation Program. (2009). *Are Your Hands Clean Enough? Study findings on hand washing with soap behaviour in Kenya* (pp. 46). Nairobi: WSP-Africa Region Office.

UN Water, & World Health Organization. (2014). Global Analysis and Assessment of Sanitation and Drinking-Water Geneva: World Health Organization & UN-Water

United Nations, (2005), *Designing Household Survey Samples: Practical Guidelines*: Series F No.98 http://unstats.un.org/unsd/demographic/sources/surveys/Handbook23June05.pdf

Water Integrity Network. (2016). *Water integrity global outlook*. https://doi.org/10.1017/CBO9781107415324.004

World Health Organization, & UNICEF. (2012). Joint Monitoring Program for Water Supply and Sanitation. Retrieved 19 February, 2016, from http://www.wssinfo.org/fileadmin/user_upload/resources/JMP-Update-report-2012_English.pdf

ANNEXES

A-0. Consultants and task allocation

The core team of consultants from FDRC consists of a team leader with a background in WASH analysis and reporting; complemented by a data manager with experience in qualitative and quantitative research methods and data management; a WASH expert with a background in public health, and a team of three supervisors. Detailed Terms of Reference are given below.

a) The Team Leader – Mr. Riungu Pascal

Mr. Pascal is a seasoned statistician and a social researcher. As a team leader, he will be responsible for overall coordination of the study team. He will work under the direction of the Task Manager from KRCS. The Team Leader will be primarily responsible for production of the Inception Report, the Draft Report, and the Final Report, including considering the comments thereon from KRCS. The project director will:

- Prepare and submit an Inception Report outlining the overall conceptualization of the study, proposed approach, methodology, proposed selection of the informants for interviewing, work plan and schedule, detailed terms of reference for team members, and management and coordination arrangements;
- Provide guidance in reviewing existing literature, data and studies
- Constitute, commission and supervise the team of field enumerators and supervisors
- Plan and organize training session for all field personnel
- Liaise with the data manager to ensure quality in data management and reporting approaches
- Attend all consultative meetings with the client

b) The WASH Expert – Mr. Titus Kioko Nzuki

A seasoned WASH practitioner with a public health background, Mr. Kioko will support the team leader in ensuring that all the study tools are reports have satisfied the WASH programming and surveying standards. This is a quality control measure employed by FDRC in such studies. Besides, other key tasks include:

- Review the indicator reference sheets and project log frames to ascertain the correctness in indicator definitions
- Formulation of tools and
- training of field teams
- Help in preparation of the inception and final report and recommendations as per the set guidelines
- Any other task as may be assigned by the project director

c) The Data Manager – Mr. Charles Mbatha

A statistician and a seasoned demographer, the Mr. Charles will support the team leader in ensuring quality in data management and reporting. This is a quality control measure employed by FDRC in such studies. Reporting to the project director, the data manager will ensure that all the research protocols documented for the study are adhered to by all the team members. The data manager will, in consultation with the project director:

- Participate in sample size determination and formulation of data analysis plan
- Perform Statistical data analysis and presentation of findings using SPSS
- Help in preparation of final report and recommendations as per the set guidelines

- Any other task as may be assigned by the project

c) The Field Enumerators - KRCS to Provide

The field enumerators are primarily tasked with field enumeration and clerical services relating to the ongoing study. The enumerators are required to:

- Attend the enumerators training and participate in pilot surveys as will be required.
- Timely travelling, setting up at designated sites, and possible reconnaissance visits on or before the fieldwork kick-off dates.
- Recruit household heads/caregivers and conduct for approximately 30 minutes one-on-one interview sessions using the designed approaches and methodologies and working closely with the supervisors to ensure that the desired sample size is realized in a timely manner.
- Accurately capture and transmit the data using the SAMSUNG device provided and, in the manner, advised during induction training
- Promptly share feedback with supervisors/ team mates whenever a matter requiring urgent attention arises
- Be responsible for personal and team safety and health and avoid engaging in acts that could compromise the same
- Take good care of the data collection devices assigned throughout the study period
- Conduct self with utmost professionalism at all times

e) The Field Supervisors (2 pax)

The field supervisors are primarily tasked with ensuring that field enumeration and clerical services relating to the ongoing study are up to standards and run without logistical or technical hitches. Besides, they will also oversee proper execution of FGDs as guided. Other specific tasks include:

- Attend the supervisors' induction training and participate in pilot surveys as required.
- Ensure that their designated times arrive at designated sites and carry out reconnaissance visits as advised.
- Ensure that the sampling criterion being applied by each team is consistent with the study's design as submitted to KRCS
- Assist the teams in identifying innovative and practical approaches to entering the study considering the diversities envisaged.
- Promptly share feedback with the team whenever a matter requiring urgent attention arises
- Regularly liaise with KRCS regional staff and team leader for updates
- Prepare daily summary reports for their teams and share with the team leader
- Conduct self with utmost professionalism always

A-1. Questionnaire for Household Heads and Caregivers

Annex 1 - Questionnaire for H

(Double-click icon to open)

A-2. Data Collection Work Plan

Annex 2 - Data Collection work plar

(Double-click icon to open)

A-3. School Observation Guide

Annex 3 - School Observation Guide.(

(Double-click icon to open)

A-4. Key informants and FGD Guides

Annex 4 - Key informants and FGD

(Double-click icon to open)

A-5. Sampling Frame

Annex 5 - Sampling frame.docx

(Double-click icon to open)

A-6. The Value for Money Calculator and Data Sheet

KRCS Value for Money matrix tool F

(Double-click icon to open)

A-7. Efficiency Matrix Tables

Annex 7 - Efficiency Matrix Tables.docx

(Double-click icon to open)

A-8. The Terms of Reference

TENDER NO. KRCS-795- 2017- MIL

(Double-click icon to open)

A-9. Collection of Key Tables

Annex 9 - Collection of Key Tal

(Double-click icon to open)

A-10. Schools which formed Health Clubs and their Counties

Kilifi County	Mbonga Primary School
	Mabathani Primary School
	Shaka Primary School
	Ndigiria primary school
	Jeshi Primary School
	Muungano Primary School
	Bahero Primary school
	Kirimani Primary school
	Maseno Primary School
	Midodoni Primary School
Taita Taveta County	Buguta Primary School
	Challa Primary School
	Ikhanga Primary School
	St. Joseph Kivukoni
	Masharinyi Primary School
	Mwanyambo Primary School
	Gimba Primary school
	Kalamabe Primary school
	Kambito Primary School
	Mkamenyi Primary School
	Kidong Primary School

A-11. Household Selection Grid

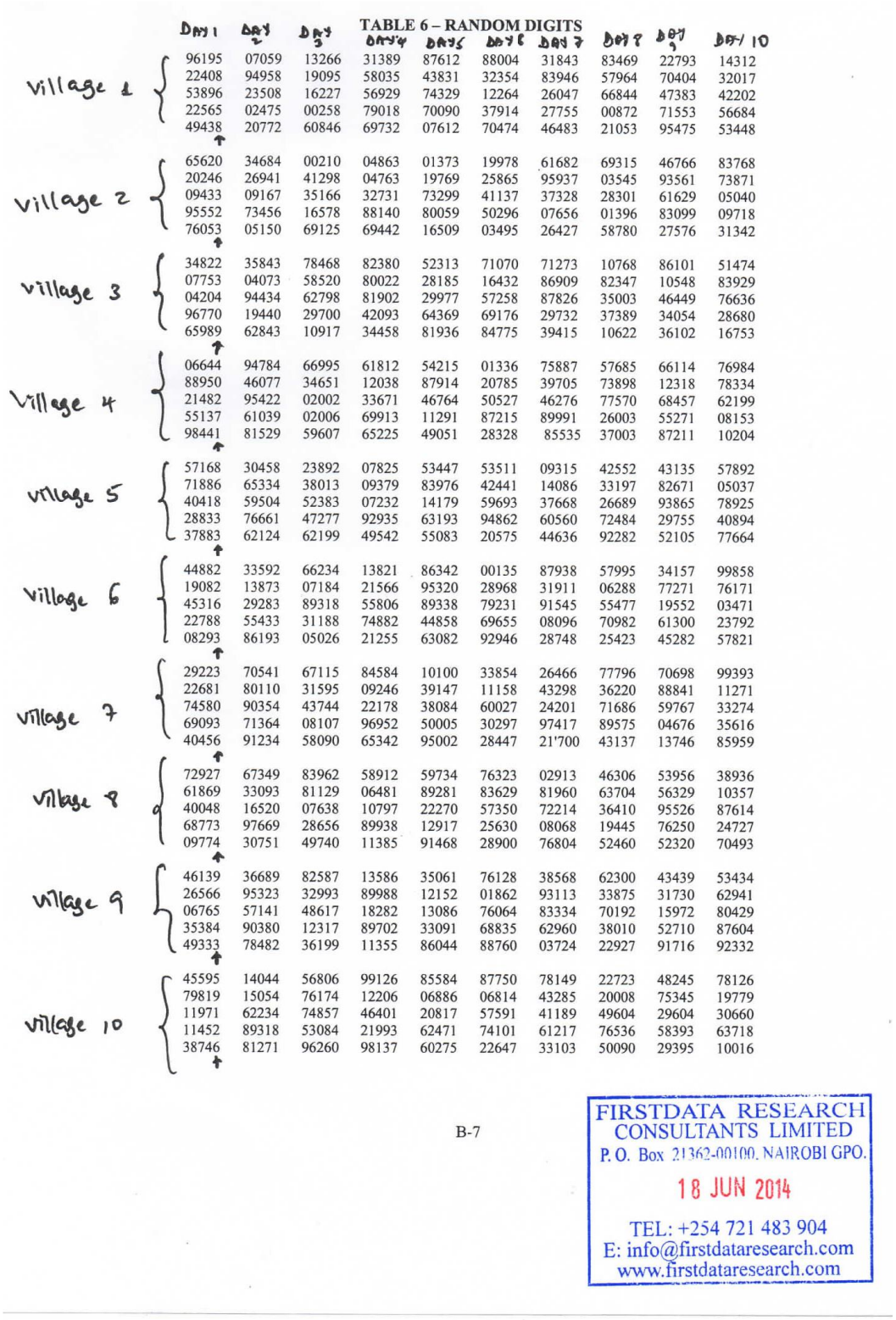


TABLE 6 – RANDOM DIGITS

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
Village 1	96195	07059	13266	31389	87612	88004	31843	83469	22793	14312
	22408	94958	19095	58035	43831	32354	83946	57964	70404	32017
	53896	23508	16227	56929	74329	12264	26047	66844	47383	42202
	22565	02475	00258	79018	70090	37914	27755	00872	71553	56684
	49438	20772	60846	69732	07612	70474	46483	21053	95475	53448
Village 2	65620	34684	00210	04863	01373	19978	61682	69315	46766	83768
	20246	26941	41298	04763	19769	25865	95937	03545	93561	73871
	09433	09167	35166	32731	73299	41137	37328	28301	61629	05040
	95552	73456	16578	88140	80059	50296	07656	01396	83099	09718
	76053	05150	69125	69442	16509	03495	26427	58780	27576	31342
Village 3	34822	35843	78468	82380	52313	71070	71273	10768	86101	51474
	07753	04073	58520	80022	28185	16432	86909	82347	10548	83929
	04204	94434	62798	81902	29977	57258	87826	35003	46449	76636
	96770	19440	29700	42093	64369	69176	29732	37389	34054	28680
	65989	62843	10917	34458	81936	84775	39415	10622	36102	16753
Village 4	06644	94784	66995	61812	54215	01336	75887	57685	66114	76984
	88950	46077	34651	12038	87914	20785	39705	73898	12318	78334
	21482	95422	02002	33671	46764	50527	46276	77570	68457	62199
	55137	61039	02006	69913	11291	87215	89991	26003	55271	08153
	98441	81529	59607	65225	49051	28328	85535	37003	87211	10204
Village 5	57168	30458	23892	07825	53447	53511	09315	42552	43135	57892
	71886	65334	38013	09379	83976	42441	14086	33197	82671	05037
	40418	59504	52383	07232	14179	59693	37668	26689	93865	78925
	28833	76661	47277	92935	63193	94862	60560	72484	29755	40894
	37883	62124	62199	49542	55083	20575	44636	92282	52105	77664
Village 6	44882	33592	66234	13821	86342	00135	87938	57995	34157	99858
	19082	13873	07184	21566	95320	28968	31911	06288	77271	76171
	45316	29283	89318	55806	89338	79231	91545	55477	19552	03471
	22788	55433	31188	74882	44858	69655	08096	70982	61300	23792
	08293	86193	05026	21255	63082	92946	28748	25423	45282	57821
Village 7	29223	70541	67115	84584	10100	33854	26466	77796	70698	99393
	22681	80110	31595	09246	39147	11158	43298	36220	88841	11271
	74580	90354	43744	22178	38084	60027	24201	71686	59767	33274
	69093	71364	08107	96952	50005	30297	97417	89575	04676	35616
	40456	91234	58090	65342	95002	28447	21'700	43137	13746	85959
Village 8	72927	67349	83962	58912	59734	76323	02913	46306	53956	38936
	61869	33093	81129	06481	89281	83629	81960	63704	56329	10357
	40048	16520	07638	10797	22270	57350	72214	36410	95526	87614
	68773	97669	28656	89938	12917	25630	08068	19445	76250	24727
	09774	30751	49740	11385	91468	28900	76804	52460	52320	70493
Village 9	46139	36689	82587	13586	35061	76128	38568	62300	43439	53434
	26566	95323	32993	89988	12152	01862	93113	33875	31730	62941
	06765	57141	48617	18282	13086	76064	83334	70192	15972	80429
	35384	90380	12317	89702	33091	68835	62960	38010	52710	87604
	49333	78482	36199	11355	86044	88760	03724	22927	91716	92332
Village 10	45595	14044	56806	99126	85584	87750	78149	22723	48245	78126
	79819	15054	76174	12206	06886	06814	43285	20008	75345	19779
	11971	62234	74857	46401	20817	57591	41189	49604	29604	30660
	11452	89318	53084	21993	62471	74101	61217	76536	58393	63718
	38746	81271	96260	98137	60275	22647	33103	50090	29395	10016

B-7

FIRSTDATA RESEARCH CONSULTANTS LIMITED
P. O. Box 21362-00100, NAIROBI GPO.
18 JUN 2014
TEL: +254 721 483 904
E: info@firstdataresearch.com
www.firstdataresearch.com

Figure 4: Household Selection Grid (Table of Random Numbers)