

Sustainable WASH Systems Learning Partnership

KABAROLE DISTRICT PAY-AS-YOU-FETCH RESEARCH REPORT

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Front cover: A water user at Burungu borehole in Karambi Kabarole District, Uganda. Photo credit: IRC.

About the Sustainable WASH Systems Learning Partnership: The Sustainable WASH Systems Learning Partnership is a global United States Agency for International Development (USAID) cooperative agreement to identify locally-driven solutions to the challenge of developing robust local systems capable of sustaining water, sanitation, and hygiene (WASH) service delivery. This report is made possible by the generous support of the American people through USAID under the terms of the Cooperative Agreement AID-OAA-A-16-00075. The contents are the responsibility of the Sustainable WASH Systems Learning Partnership and do not necessarily reflect the views of USAID or the United States Government. For more information, visit www.globalwaters.org/SWS, or contact Elizabeth Jordan (EJordan@usaid.gov).

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Acronyms

BH	Borehole
CDO	Community Development Officer
DWO	District Water Office
DWTT	District WASH Task Team
FGD	Focus Group Discussion
HA	Health Assistant
HH	Household
HPMA	Hand Pump Mechanic Association
MWE	Ministry of Water and Environment
PAYF	Pay-As-You-Fetch
SWS	Sustainable WASH Systems Learning Partnership
UGX	Ugandan shilling
USAID	United States Agency for International Development
VSLA	Village Savings and Loan Association
WSC	Water and Sanitation Committee

Executive Summary

IRC Uganda commissioned a research study to investigate whether the Pay-As-You-Fetch (PAYF) model incentivizes preventive maintenance of hand pumps in Kabarole¹ and Bunyangabu Districts in Uganda. The study investigated the factors leading to success or failure of the PAYF tariff collection model in the 16 communities where it was introduced in 2016 by IRC Uganda and Kabarole district local government. It also assessed if the PAYF model leads to any exclusion from water services in communities where the PAYF model is implemented. The study was conducted in 2019 under the Sustainable WASH Systems (SWS) Learning Partnership that IRC is implementing in partnership with the University of Colorado at Boulder with funding from the United States Agency for International Development (USAID). The hypothesis is that increasing community-level contributions through improved tariff collection and use of the funds for preventive maintenance of hand pumps can create more sustainable water services.

The study consisted of both quantitative and qualitative data collection techniques. The qualitative techniques included document review, focus group discussions with Water and Sanitation Committees (WSCs), and key informant interviews with local government staff at the district and sub-county level and caretakers at 16 PAYF pilot hand pumps. The quantitative techniques included a survey of 486 households in both PAYF and non-PAYF communities. A comparative analysis was then conducted on the following parameters: water supply, payment for water, affordability, exclusion, and preventive maintenance. The study also examined institutional support mechanism for PAYF.

PAYF is a method for pre-payment of water where a caretaker or an operator of a hand pump collects money from users per unit² of water they collect. The revenue collected is used to maintain water systems and ensure water supply is reliable. The tariff set in the target communities ranged from 50 to 100 Ugandan shillings (UGX) (less than \$0.1) per 20-liter container. The motivation for piloting the PAYF model was to adapt an effective tariff collection system that enables WSCs to maintain a cash flow to ensure preventive and corrective maintenance to improve reliability of water services. The main difference between PAYF and traditional community-based management was the addition of the tariff collection system and routine preventive maintenance services provided by the Hand Pump Mechanic Association (HPMA). The process of introducing the model was guided by:

- securing buy-in from the District WASH Task Team (DWTT)³ on value addition of the model,
- conducting feasibility and technical assessments for hand pumps in target communities,

¹ At the time of the PAYF pilot in 2015–2016, Bunyangabu District was still a county in Kabarole District.

² The unit of measure used is normally a 20-liter jerry can of water.

³ The DWTT steers implementation of the Kabarole District WASH Master Plan for Kabarole District.

- mobilizing communities and re-orientating relevant actors (WSCs, caretakers, water users, and political leaders) on their roles in implementing the model,
- tariff setting with target communities,
- rehabilitating and modifying hand pumps,
- training WSCs in basic financial management and supporting them to establish recordkeeping and accountability mechanisms,
- and orienting the HPMA on their preventive maintenance role.

Key Findings

Implementation of PAYF — Only 5 out of the 16 communities where the PAYF model was introduced have subsequently implemented the approach. In these communities, users have continued to pay for water and receive support from WSCs and the HPMA to ensure that their water point remains functional. Sub-county technical staff have also been proactive in conducting monitoring visits to provide technical support to these communities.

The implementation of the PAYF model did not incentivize preventive maintenance as had been envisaged during design of the pilot. WSCs and HPMA had not (yet) adopted a system for ensuring that preventive maintenance is consistently performed. Of the five communities that have continued to pay for water, only three have an ongoing relationship with the HPMA for preventive maintenance. The others receive support only when a breakdown occurs. However, there is no mechanism for monitoring response time of hand pump mechanics, tracking preventive maintenance visits, or alerting them.

The implementation of the PAYF model was negatively affected by challenges with the community-based management approach, including: political influence discouraging users from paying, lack of transparency of WSCs, and dissatisfaction of water users with the performance of WSCs. Further, a lack of accountability in handling water user fees affected users' willingness to pay. WSCs identified several incidents where water user funds could not be accounted for after the transition of caretakers. Safe custody of funds was also a major concern that demotivated users whose committees had no bank accounts.

While the district council was committed to supporting implementation of the model, this did not extend to political structures at the local level. The willingness of water users to pay continues to be easily influenced by politicians at the local and national level.

Set up of PAYF — The community mobilization and set up of the relevant structures when introducing the PAYF model followed a consultative and participatory process that involved all relevant actors. The process focused on ensuring that target communities were sensitized on management of their hand pumps using PAYF. Local leaders, including area councilors and sub-county political and technical leaders, embraced the model from the start. On the

community side, WSCs were reoriented to their roles and new committees were selected for hand pumps that had been out of service. Extension staff, mainly Community Development Officers (CDOs) and Health Assistants (HAs), carried out the community mobilization and sensitization process on management, including: introduction to the model, tariff setting, and roles of the WSC, caretaker, and HPMA, among other topics.

Financial management, routine repairs, servicing, and post-rehabilitation support to communities faced a number of challenges. Payment per jerry can of water was completely new in some areas. Entry and engagement processes were not adequate to get communities fully onboard. Though post-rehabilitation support had been planned for, it was left to the CDOs and there was no mechanism for accountability to ensure it happened.

The district and sub-county staff felt that the meters installed at the hand pumps were not appropriate. There was also no drive at the water point level (for WSCs and caretakers) to put the meters to effective use. The meters were the first line of accountability at the hand pumps, so the failure to appropriately use them compromised the approach. Lessons from other pre-payment models for water show that the functionality of pre-paid meters is a critical factor in the success of the model.

Review of similar pre-payment models shows that upgrading the technology to include pre-paid water meters with an automated water dispensing system and a monitoring dashboard is effective in addressing some of the challenges. Strong political buy-in and a continuous community engagement process are also critical to enabling uptake of the pre-payment system.

Recommendations

Options to strengthen implementation of the PAYF model in Kabarole include:

- The district local government should develop accountability mechanisms that track preventive maintenance visits and response time by the HPMA to requests from the WSCs. These should be tracked by extension staff and corrective actions followed up by the DWTT.
- Extension staff should conduct water quality monitoring at the PAYF hand pumps to verify quality of water delivered, follow up on satisfaction of the users with the service, and report corrective actions to the DWTT since these factors have a significant impact on the willingness to pay. This can be integrated in the biannual monitoring process financed through the conditional grant.
- Extension staff should improve tracking of revenue and expenses by caretakers and the WSC as they conduct quarterly monitoring visits.
- The PAYF guidelines should be revised to include how vulnerable households can access water at PAYF hand pumps to ensure they are not excluded.

- The district local government and development partners should explore upgrading the technology to include pre-paid water meters with an automated water dispensing system, along with a monitoring dashboard. This will be more effective in addressing prevailing challenges such as managing finances, scheduling maintenance, and ensuring that users pay for water.
- The District Council should consider local legislation through bylaws on water user payment. This will enable the district to operationalize the revised national guidelines for operation and maintenance (O&M) (2019) that require households to pay either a flat monthly tariff or per volume of water they use.

1. Introduction

The Sustainable WASH Systems (SWS) Learning Partnership in Uganda focuses on improving rural decentralized water supply service delivery through better understanding and influencing local WASH systems. By working collaboratively with national, district, and sub-district governments, as well as with local Hand Pump Mechanics Associations (HPMAs), SWS strengthens the water service delivery system in Kabarole District through systems approaches that include components of collective action and network strengthening, innovations in rural water maintenance, capacity building, and support to district and national government and other relevant stakeholders.

IRC has worked in Uganda since 2005. This long-term engagement in Uganda and in Kabarole District has been influential in establishing the Kabarole District WASH Task Team (DWTT). IRC has also been influential in their support for and capacity building of the Kabarole HPMA and the development of the Kabarole District WASH Master Plan 2018–2030. The DWTT provides a platform for learning and coordination of WASH issues and is steering the implementation of the Master Plan. Based on these roles, the DWTT was critical in prioritizing the learning agenda for Kabarole District WASH stakeholders. Priority areas for SWS from 2018 to 2019 were political engagement, strengthening local government capacity, and community engagement. In line with this mandate, the DWTT identified Pay-As-You-Fetch (PAYF) as a potential strategy for improving maintenance of water systems after the model had shown promising results in Kamwenge District and a few communities in Kabarole District where it was piloted by IRC Uganda and the District Water Office, with support from Water Loo Foundation, in 2016. However, a comprehensive assessment on implementation of the model had not yet been conducted to document experiences and lessons. Based on this need, IRC Uganda commissioned an action research study to generate evidence and lessons on the PAYF model.

1.1 Purpose of the Study

The study sought to answer the learning question: How can the PAYF model be strengthened to improve preventive maintenance and mitigate exclusion to rural WASH services?

In line with this learning question, the primary objectives of the research were to:

1. Determine whether the PAYF model, as implemented in Kabarole District, incentivizes preventive maintenance services and the capacity of operators to generate, manage, and apply revenue from sales toward operation and maintenance (O&M) costs, with a focus on cost recovery and tariff systems.
2. Identify what worked and did not work in implementation of the PAYF model.
3. Identify who is excluded from accessing water services and how such impacts might be mitigated.

1.2 Background to the Study

Access to reliable water services in Kabarole District remains a daunting challenge. Many households and institutions lack any access to safe water, and the supply is often below required levels of service regarding quality, quantity, and reliability. Twelve percent of the population can access safely managed services, 33 percent has access to basic water services,⁴ 26 percent has limited services, and 29 percent has no service (Anobe 2019).

Like other districts in the country, limited finance available for WASH service provision is a critical issue. Service levels provided by newly-constructed hand pumps often “slip back” to lower levels due to poor maintenance of hand pumps. This is especially the case in rural areas where mechanisms for collection of user tariffs for communally-managed water sources continue to fail. Only 62 percent of water supply facilities were functional at the time of the study and 45 percent had reliable⁵ water supply.

PAYF is one approach that was adopted in the district to ensure collection of fees for O&M and thus sustainability of water sources. PAYF is a method for pre-payment of water where a caretaker or an operator of a hand pump collects money from users per unit⁶ of water they collect. This revenue is used to maintain water systems and ensure water supply is reliable.

The DWTT decided to adopt the model after a series of learning and exchange events with Water for People. The concept was largely based on Water for People’s successful use of PAYF under their “Water as a Business” model. The decision to pilot PAYF in the district was largely a capacity-building effort for the Kabarole HPMA that sought to stimulate the market for preventive maintenance services to enable the association members (i.e., the mechanics) to provide a service, generate income, and improve reliability of water services in the district. IRC was instrumental in developing the HPMA’s capacity to provide O&M services to Water and Sanitation Committees (WSCs) and O&M services on behalf of the district local government.

The model was piloted⁷ with 16 hand pumps in Kabarole District⁸ in 2016. Figure 1 presents the critical steps that were developed to support adoption of the model.

⁴ The WHO/UNICEF Joint Monitoring Programme “basic” means a person has access to an improved water source within 30-minutes roundtrip of their home.

⁵ These are facilities that provide water 95 percent of the time and are in use for at least 345 days a year.

⁶ The unit of measure used is normally a 20-liter jerry can of water.

⁷ The pilot was funded by Water Loo Foundation, who financed rehabilitation and start-up training costs.

⁸ The hand pumps are now in both Kabarole and Bunyangabu districts, after Kabarole was split into two districts in 2016.

Figure 1: Critical steps to adopt the PAYF model⁹



Box 1: How PAYF Works

- Water users pay for each 20-liter jerry can of water they fetch.
- The caretaker collects user fees and hands them over to the WSC for safe custody.
- The HPMA conducts preventive maintenance quarterly and corrective maintenance on demand to keep water flowing.
- The WSC pays for maintenance services from the revenue collected.
- Breakdowns are fixed within 48 hours.
- Extension workers at the sub-county level monitor whether different actors perform their roles.

⁹ Adapted from <https://www.ircwash.org/blog/guide-effective-adoption-and-implementation-pay-you-fetch-model-sustainability-approach-hand>

2. Methodology

The design of this study included both quantitative and qualitative techniques. Qualitative techniques included documentation review, focus group discussions with water point management staff and water users, and key informant interviews with sub-county extension workers and members of district local government staff. A household survey was also conducted with both PAYF households and non-PAYF households to collect quantitative data on satisfaction with the service and willingness and ability to pay for water.

2.1 Sampling Techniques

Purposive sampling was used to identify five sub-counties and eight parishes where the PAYF model was introduced. All of the 16 PAYF hand pumps in these sub-counties and parishes were included in the study. The sample size calculation for the households that access water from these hand pumps was based on a study population of 640 households at a confidence level of 95 percent and confidence interval of five. Based on this calculation,¹⁰ 244 households were randomly selected for the household survey. Fifteen households were selected for each of the 16 hand pumps to participate in the household survey.

According to the randomization procedure, every fifth household on the water point register was selected. However, the interval varied from 3 to 5 households due to the close proximity of households in the PAYF communities. The same procedure was used to select 242 households from 16 non-PAYF hand pumps. The same parishes were targeted for both PAYF and non-PAYF hand pumps. Annex 1 presents a list of all the hand pumps selected and their location.

Table 1: Description of survey respondents and data collection methods

Subject population(s)	Number enrolled in each group	Data collection method	Purpose
Households living in the vicinity of one of the 16 PAYF hand pumps, considered to be within the access group for that specific water point	244 households	Household survey	Customer satisfaction with PAYF sources; identification of pathways resulting in exclusion
Households not living in the vicinity of a PAYF water point, using different sources	242 households	Household survey	Customer satisfaction with non-PAYF sources; identification of pathways resulting in exclusion

¹⁰ Based on <https://www.surveysystem.com/sscalc.htm> sample size calculator.

Subject population(s)	Number enrolled in each group	Data collection method	Purpose
Water point caretakers	16 (one at each PAYF water point)	Key informant interview	Identification of pathways resulting in exclusion; provide information on maintenance of hand pumps
WSCs (for focus groups)	3-5 members per committee	Focus group discussion	Challenges faced by water consumers and follow up to previously identified factors affecting PAYF implementation
Sub-county extension staff and district government employees	Four interviews, including: 2 sub-county staff, 1 District Water Officer, 1 politician (Secretary of Works and Technical Services)	Key informant interview	Insight on government support for and perceptions of PAYF in Kabarole District

2.2 Data Collection and Management

The household survey data was collected using AKVO flow,¹¹ a mobile phone-enabled platform for data collection. Eight enumerators were trained on ethical research methods as outlined in approved IRB Protocol 19-0405, interpretation of the data collection tools, and the use of the AKVO flow mobile platform for data collection. The enumerators collected data from 486 households (244 PAYF and 242 non-PAYF households). The household data was submitted to the AKVO platform and downloaded in Excel for cleaning and analysis.

In total, 16 focus group discussions were conducted with users of each of the PAYF hand pumps. The enumerators interacted with 2 to 4 members of the WSCs. In some instances, only one member of the WSC was available, posing a challenge within the data collection effort, especially at the PAYF points that were not functional at the time of the study. All the focus group discussions were conducted in the local language (i.e., Rutooro) and were transcribed and translated by the enumerators. Verbal consent was sought from all the respondents.

Key informant interviews (four) were conducted with two sub-county staff, the District Water Engineer, and a political representative (i.e., the Secretary of Works and Technical Services). Three of the interviews were recorded after seeking consent from the respondents. The recordings were then transcribed and made available to the research team.

¹¹ <https://akvo.org/flow-caddisfly-lumen/>

The data collection tools that were used to conduct the household surveys and guide the key informant interviews and focus group discussions are included as Annexes 2 to 4.

3. Research Findings

This section highlights findings from the study. It starts with an overview of the demographic and socio-economic characteristics of the respondents to illustrate the context in which they live. The findings are then presented under two main overarching objectives:

1. Determine whether the PAYF model incentivizes preventive maintenance services and the capacity of operators to generate, manage, and apply revenue from sales toward O&M costs, with a focus on cost recovery and tariff systems.
2. Identify who is excluded from accessing water services and how such impacts might be mitigated.

Characteristics of the Respondents

A total of 486 households were visited for the household survey. These included 244 households that were in the vicinity of a PAYF water point and 242 households in communities where PAYF had never been used at their hand pumps.

The average number of people in the households was six, of which an average of three people were younger than 18 years old. There was no significant difference between the number of male and female members of the households. Thirty-six percent of the households were involved in subsistence farming in both PAYF and non-PAYF communities. Other economic activities included business or off-farm activities (25 percent PAYF, 16 percent non-PAYF), specifically *boda boda* riders or motorcycle transport operators, hairdressers, tailors, and small restaurant operators.

All the households surveyed accessed water from PAYF hand pumps, other improved sources, and vendors. Some households in both PAYF (18 percent) and non-PAYF (3 percent) communities also reported accessing water from unprotected sources.

Table 2 shows that 49 percent of the households surveyed in PAYF communities were using the PAYF water point as their primary source of water, 28 percent were using other protected sources, and 18 percent were using unprotected sources. Not all households categorized under the PAYF model actually use PAYF hand pumps as the primary source of water. Some of the households resort to other protected and unprotected water sources due to either breakdown of hand pumps or dissatisfaction with the water quality. Two of the hand pumps in Harugongo Sub-County had broken down by the time of this study and one in Kasenda Sub-County had been out of service for more than 4 months before the study. These had previously been in good working condition since they were rehabilitated in 2016. Given the low level of basic access to

safe water in these sub-counties (51 percent in Harugongo and 69 percent in Kasenda)¹² some households resorted to using unprotected sources while the hand pumps were out of service. Section 3.1.3 presents reasons for the long down time. Households, especially in Kabonero Sub-County, also reported dissatisfaction with water quality during the rainy season.

Table 2 Overview of the primary source of water supply

Water source	Primary source		Primary source in dry season	
	PAYF households	Non-PAYF households	PAYF households	Non-PAYF households
PAYF protected water source	49%	0%	46%	0%
Other protected water source	28%	95%	33%	94%
Unprotected water source	18%	4%	16%	4%
Rainwater harvesting	0%	0%	1%	0.4%
Purchase from vendor	5%	1%	4%	2%
Purchase bottles	0%	0%	0%	0%
Total	100%	100%	100%	100%

The survey also showed that the proportion of households that use PAYF hand pumps as their primary source in the dry season drops to 46 percent from 49 percent, while those that use other protected sources increase to 33 percent from 28 percent. However, the 3 percent change for PAYF households was not statistically significant given it only represented five households. This implies that seasonal availability of water during the dry season was an issue affecting water supply at some of the hand pumps, as reported in Section 3.1.3.

3.1 Does PAYF Incentivize Preventive Maintenance?

Data collected from households, caretakers, and WSCs was analyzed to examine whether PAYF leads to timely repairs and capacity of operators to generate and apply revenues from sales toward O&M costs. This involved analysis of data on payment for water, timeliness and frequency of repair, and organization and support of preventive maintenance.

¹² Ministry of Water and Environment Water Supply Database <http://wsdb.mwe.go.ug/index.php/reports/district/5> (accessed May 5, 2020).

3.1.1 Payment for Water

The main motivation for piloting the PAYF model was to adapt an effective water user fee collection system (i.e., tariff collection) that enables WSCs to maintain a cash flow to ensure preventive and corrective maintenance are conducted to improve reliability of water services.

The caretaker survey revealed that users were only paying for water per volume at 5 of the 16 PAYF hand pumps, and on average only 54 percent of the PAYF households at these five hand pumps were paying for water. However, most of the caretakers (nine) reported that payment was inconsistent. This made most of them redundant since meters had been removed and users were no longer paying. Table 3 presents responses from PAYF households on the last time they paid for water. Most households (67 percent) that are paying for water paid 50 UGX (less than \$0.1) per jerry can.

Table 3: The last time a household paid for water

Response	Percentage of PAYF households
Less than a week ago	56%
More than a week ago, but within the last month	31%
More than a month ago	12%
Total	100%

Influence from political leaders was identified as one of the major reasons why households do not pay for water. Thirty-nine percent of the PAYF households reported that they had been influenced by a politician such as a Cabinet Minister who pledged to meet the costs when their water systems would break down. The reports from the WSC interviews showed that the Minister financed repair of a number of hand pumps. She advised communities through different meetings and through her agents not to pay for water and pledged to repair hand pumps that break down. Based on her remarks, water users challenged the WSCs and caretakers, and vandalized meters that had been placed at some hand pumps.

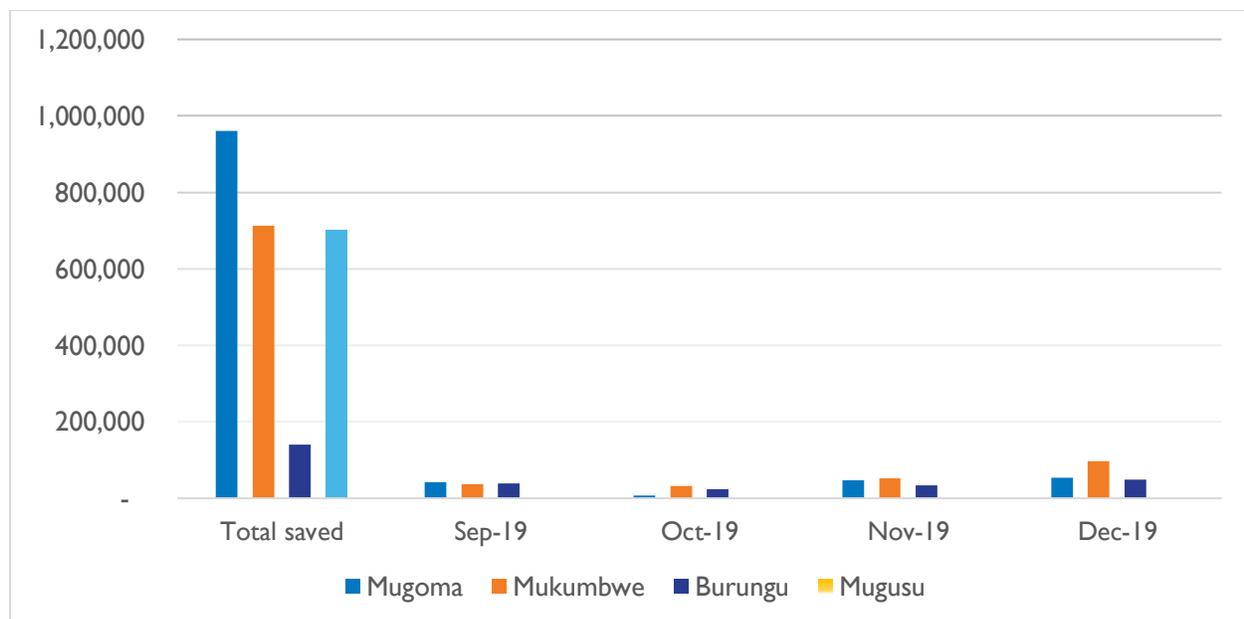
Further analysis of data showed that households influenced by a politician were mainly from Bunyangabu District, a new district recently formed from Kabarole District. In this district, there was no payment for water at any of the seven hand pumps under the PAYF model. Political interference was also more common in the district due to involvement of the Cabinet Minister referred to above. The other reported reasons for non-payment for water included water being expensive (13 percent), users feeling that water should be free of charge (42 percent), and a lack of trust in the WSC or caretaker (6 percent).

3.1.2 Capacity of Operators to Generate Revenue

Figure 2 shows the water revenue collections for the period of September to December 2019 and the overall savings resulting from the 4 of the 5 hand pumps where users were paying for water. Mugoma had the highest saving (960,000 UGX or \$262.74) while Burungu had the lowest (140,000 shillings or \$38.32). Monthly collections range from 36,000 to 54,000 UGX (\$9.85 to \$14.78) per month, with the exception of Mugusu where no payments were made during the period of September to December 2019 since the National Water and Sewerage Corporation (NWSC) had expanded to the area and a number of households were opting for household connections to guarantee a higher level of service.

The caretakers of Mugoma, Mukumbwe, and Burungu indicated that the main expenses incurred were on maintenance of the hand pumps, payment to the source caretakers, and payment to the Kabarole HPMA for servicing the hand pumps. The expenditure ranged from 15,000 to 200,000 UGX (\$4.11 to \$54.74) over the 4-month period. However, financial data accessed from the WSC was inconsistent and not adequate to analyze trends.

Figure 2: Water revenue collections from September to December 2019 and overall savings



The data collected on revenue and maintenance expenditure was not adequate to make meaningful deductions on whether the funds available were enough to meet the full costs for O&M of the hand pumps. Data from a previous IRC study on costing maintenance services was used to estimate the full costs of O&M. Table 4 shows a breakdown of the full costs for maintaining hand pumps in Kabarole (Magara et al. 2014).

Analysis of the available savings of revenue from PAYF collections shows that the funds for Mugoma, Mukumbwe, and Mugusu were adequate to meet the ideal annual minor and major maintenance costs including the salaries of the caretakers but were not adequate to meet

rehabilitation and replacement costs. In case a hand pump broke down and required rehabilitation, only Mugoma would be able to meet the full costs of repair without external support.

Table 4: Ideal annual costs for maintaining hand pumps in Kabarole District

Type of maintenance ¹³	Expenditure (UGX)	
Minor maintenance	Minimum	200,000
	Maximum	300,000
Routine maintenance	Minimum	350,000
	Maximum	400,000
Major maintenance	Minimum	300,000
	Maximum	680,000
Rehabilitation	Minimum	400,000
	Maximum	680,000
Total recurrent cost and financing	Minimum	1,250,000
	Maximum	2,060,000

3.1.3 Interruption in Water Supply

Fourteen percent of the PAYF households reported experiencing interruptions in water supply in the last 6 months. The caretaker interviews also revealed that 6 of the 16 PAYF hand pumps had experienced interruptions in water supply. The main reasons for the interruptions were seasonal variations in the dry season that led to drying of the well (one water point) and technical breakdown (five hand pumps). The household survey showed that the average number of days of the previous breakdown was 27 days, while the data collected from the caretakers showed that duration of the last breakdown varied from 2 to 4 days to more than one week. Further analysis of the household data showed that one hand pump (Rweraza Borehole) had been out of service for 5 months, which increased the average down time of the hand pumps. The caretaker interviewed for Rweraza was newly appointed and had no information on the previous breakdown. The main reason for all hand pumps that were out of service for more than 48 hours was lack funds for the repairs.

¹³ The costs captured under type of maintenance include the labor costs for caretaker materials and spare parts required.

Table 5: Duration of breakdown based on household survey

Duration of break down	Number of hand pumps
2-4 days	1
5-7 days	1
Over a week	2
Other (5 months)	1
Total	5

3.1.4 Preventive Maintenance

The design of the PAYF model recommends that preventive maintenance is done every 3 months by a hand pump mechanic. Data collected on the last mechanic visit shows a correlation with payment for water. The PAYF hand pumps where users were not paying for water received the least number of visits from mechanics. At most of the hand pumps that have not been visited in more than 3 months (seven), users were not paying for water.

The number of visits by mechanics to the hand pumps included five for repair of hand pumps that had broken down and three for preventive maintenance. However, two hand pumps (Rweraza and Mugusu Boreholes), in the Kasenda and Mugusu sub-counties respectively, had not had a mechanic visit within the last year. This was attributed to inadequate appreciation of relevance of preventive maintenance by the WSCs. The WSCs reported that they did not see any reason why they would contact the mechanics when their hand pumps were still functioning.

Table 6: Technical and support supervision visits at active PAYF hand pumps

Name of water source	Sub-county	Last mechanic visit	Last sub-county visit
Rweraza Borehole	Kasenda	Within last year	Within last month
Mugusu Borehole	Mugusu TC	Within last year	Within last month
Birungu Borehole	Karambi	Within last month	Within last week
Mugoma Borehole	Karambi	Within last month	Within last week
Mukumbwe Borehole	Karambi	Within last week	Within last week

3.2 Service Quality Assessment

Service quality assessments were conducted at both PAYF and non-PAYF hand pumps. The different parameters of service quality assessed included: accessibility (duration of a round trip

to fetch water), satisfaction with water quality, interruption in water supply, distance, and management of the water point.

Accessibility

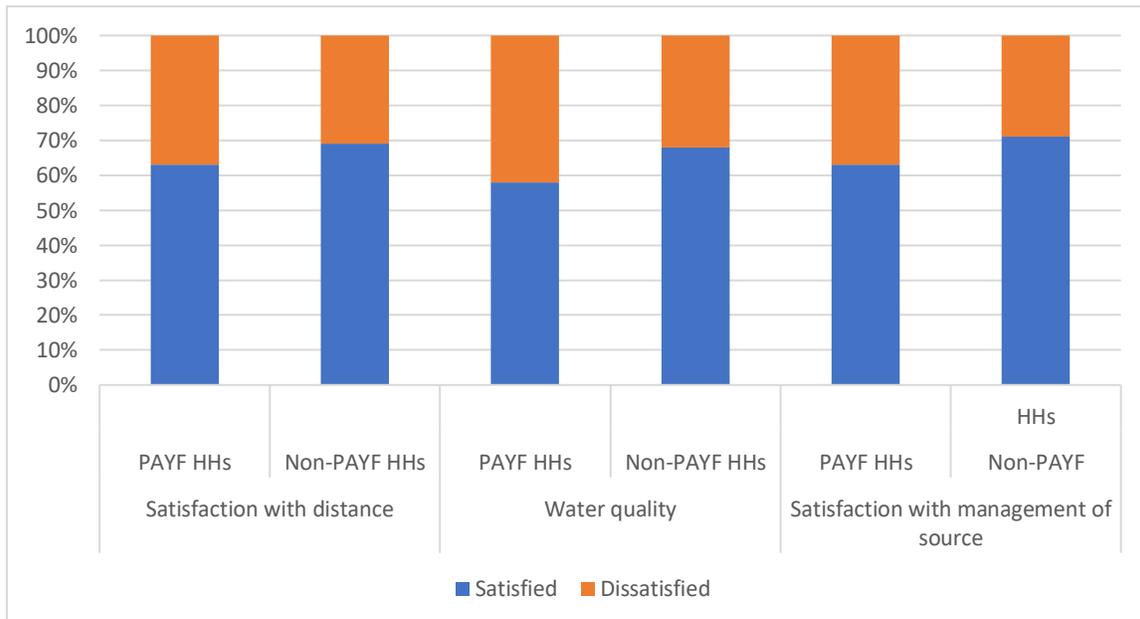
According to the Ministry of Water and Environment (MWE) Strategic Sector Investment Plan 2018–2030, a water point is considered to be accessible when the duration of time spent by users collecting water (round trip) is not more than 30 minutes. The study revealed that non-PAYF households spent more time collecting water compared to PAYF households. Forty-seven percent of the non-PAYF households spent more than 30 minutes compared to 36 percent of the PAYF households as shown in Table 7. This implies that the PAYF hand pumps were more accessible to water users.

Table 7: Time spent collecting water

	PAYF households	Non-PAYF households
Less than 30 minutes	64%	53%
More than 30 minutes	36%	47%
Total	100%	100%

Satisfaction with Water Service Parameters

Figure 3: Satisfaction of households with water service parameters



Overall the non-PAYF households were more satisfied with the different parameters of the water service: distance to the source (69 percent for non-PAYF to 63 percent for PAYF households),

water quality¹⁴ (68 percent for non-PAYF to 58 percent for PAYF households), and management of the source (71 percent for non-PAYF to 63 percent for PAYF households). Table 2 shows that 18 percent of households in PAYF communities were accessing water from unprotected sources, compared to 3.7 percent in non-PAYF communities.

The quality of water accessed by PAYF households could not be verified at the time of the study as no scientific water quality tests were conducted. However, a separate study on water service level asset analysis conducted by IRC Uganda in 2019 identified water quality as a critical issue in Kabarole. The study showed that 47 percent of hand pumps surveyed were unsafe with *E. coli* contamination above 30 mpn/100 mls. According to the District Water Office (DWO), water quality was an issue of concern in the district, and a collaboration had been developed with Aquaya to improve capacity of the district to test and manage water quality.

On the other hand, PAYF households spend less time fetching water. Table 7 shows that 64 percent of the PAYF households are within the national benchmark of not traveling more than 30 minutes for water round trip. However, non-PAYF households that spent more time fetching water were more satisfied with the distance to the water point. This was surprising, but the findings were consistent with those of an earlier study conducted by IRC Uganda in 2013 in eight districts including Kabarole. The study found that water users are generally satisfied with the very low level of service they receive, since they were not aware of the standards that their rural water service is expected to meet. They were also not paying for water, hence had no basis for demanding for accountability (Magara 2014).

3.3 Who is Excluded from Accessing Water Services?

This study sought to investigate whether the PAYF model resulted in exclusion of households that were not able to pay from accessing water services. Both PAYF and non-PAYF households were asked whether they felt isolated from accessing water and other services in their communities. All PAYF households reported that they did not feel any sense of isolation; only 4 percent of non-PAYF households felt isolated. The main reasons were disability and old age that hinder mobility to access services, failure to pay repair fees, and discrimination in accessing services. However, the possibility of bias among the households while reacting to whether they felt excluded could not be ruled out.

Nineteen percent of the caretakers reported that there were households in the community that are not able to access water because they could not pay. However, when they were asked about households from their specific community that are excluded from fetching water at the PAYF water point, all caretakers indicated no households were excluded. The caretakers reported that persons such as the elderly, students, poor households identified by the community, and owners of the land on which the water point is located are not charged for

¹⁴ Satisfaction with water quality was based on color, taste, and odor of water.

water. These categories of people were all identified during the community mobilization process when the PAYF model was being introduced.

3.3.1 Affordability

The majority of the PAYF households (68 percent) reported that they found the water affordable and they were willing to pay at least 50 UGX (less than \$0.1) per jerry can of water, although only 54 percent of them were actually paying for water. This tariff is half of what users in other peri-urban areas within Kabarole pay to access water from NWSC standpipes.¹⁵ These users pay 100 UGX (less than \$0.1) per jerry can. To better understand the ability of households to pay, a proxy indicator on monthly expenditure on a mobile phone was used to compare spending habits. Tables 8 and 9 show this comparison.

Households that do not pay for water spend less on mobile phones per month compared to those that pay. Overall, households in the PAYF communities spend more on water per month than on mobile phones. Thirty percent spend more than 10,000 UGX (\$2.74) per month on water; 16 percent spend more than 10,000 UGX per month on mobile phones. While the use of monthly expenditure on mobile phones as a proxy indicator provided an opportunity for comparison, it was not possible to make conclusive deductions on the ability of households to pay. Based on this comparison the cost of water may be perceived as higher than some other regular expenditures.

Table 8: Monthly expenditure¹⁶ on mobile phones for households that pay and do not pay for water

Expenditure on mobile phone (UGX)	Pay for water	Do not pay for water
Less than 10,000	65%	71%
More than 10,000	21%	9%
N/A	14%	21%
Total	100%	100%

Table 9: Monthly expenditure on mobile phones vs. water

Expenditure (UGX)	Mobile phone	Water
Less than 10,000	84%	69.80%
More than 10,000	16%	30.20%

¹⁵ National Water and Sewerage Corporation is the national utility but also supplies water in gazetted small towns and peri-urban areas.

¹⁶ The expenditure considered was only that of the head of the household.

3.3.2 Willingness to Pay for Water

To find alternative payment systems, households were asked whether any of their members belonged to a Village Savings and Loan Association (VSLA), village-based associations where members deposit weekly savings and access credit. In some communities, VSLAs also set up a hand pump fund from their savings for O&M of their water systems. Both PAYF (62 percent) and non-PAYF (60 percent) communities had household members that belong to the VSLAs. On average, the households deposited 15,000 to 19,000 UGX (\$4.11 to \$5.20) per household every month into a VSLA, with the non-PAYF households saving more money than the PAYF households.

Households were asked whether they were willing to save toward a hand pump fund. All the households reported that they were, as shown in Figure 3. The majority of the households were also willing to pay 1,000 shillings per month toward the hand pump fund, including 81 percent of non-PAYF and 76 percent of PAYF households. Based on these findings, the hand pump fund modality could be an alternative option for tariff collection in communities that have VSLAs but is not insulated against political influence and the transparency issues that are common with similar informal community-based structures.

To investigate willingness to pay, the PAYF households were taken through the modalities of how the PAYF model is expected to function as highlighted in Box 1 and were asked how much they were willing to pay if the model functioned well. Seventy-two percent of the PAYF households felt the model was not working as expected since majority of users were not paying, and preventive maintenance was not being conducted. As a result, the caretakers were not able to collect money and were unable to pay the HPMA for preventive maintenance.

The PAYF households were then asked how much they were willing to pay per jerry can if the model was working well. They were also asked about the maximum they were willing to pay per jerry can. Figure 4 presents the results. Most households (72 percent) were willing to pay 50 UGX (less than \$0.1) per jerry can, in line with what they are currently paying. However, it was interesting to note that 30 percent of the households were willing to pay 200 UGX (less than \$0.1), four times more than what they are currently paying.

Figure 4: Willingness to pay (monthly) toward a hand pump fund

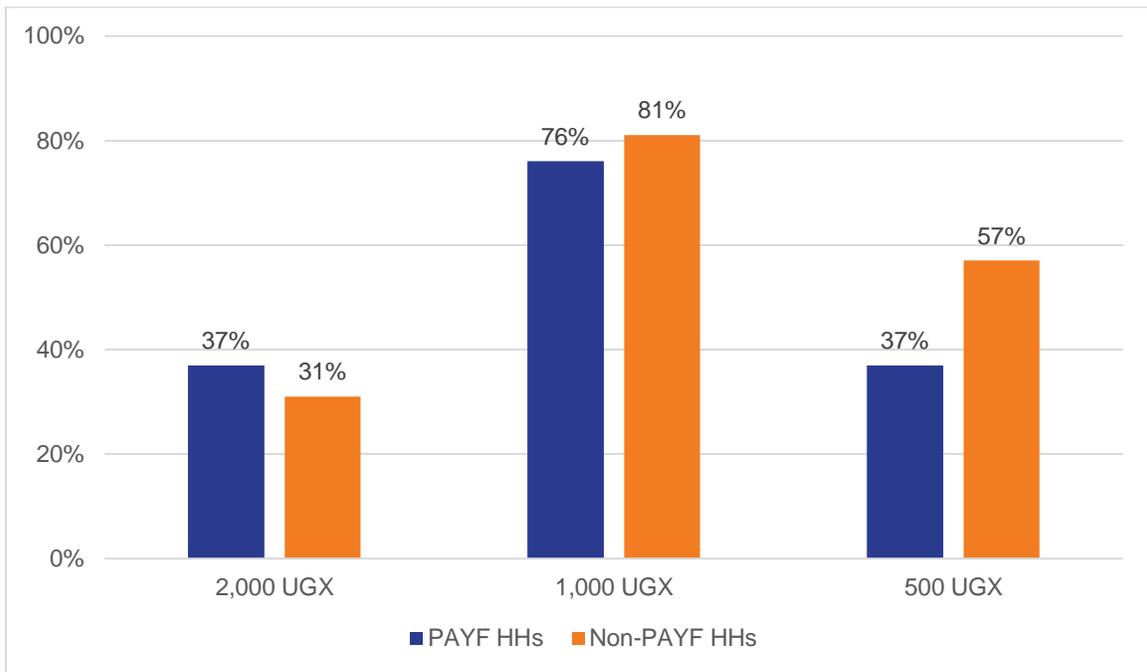
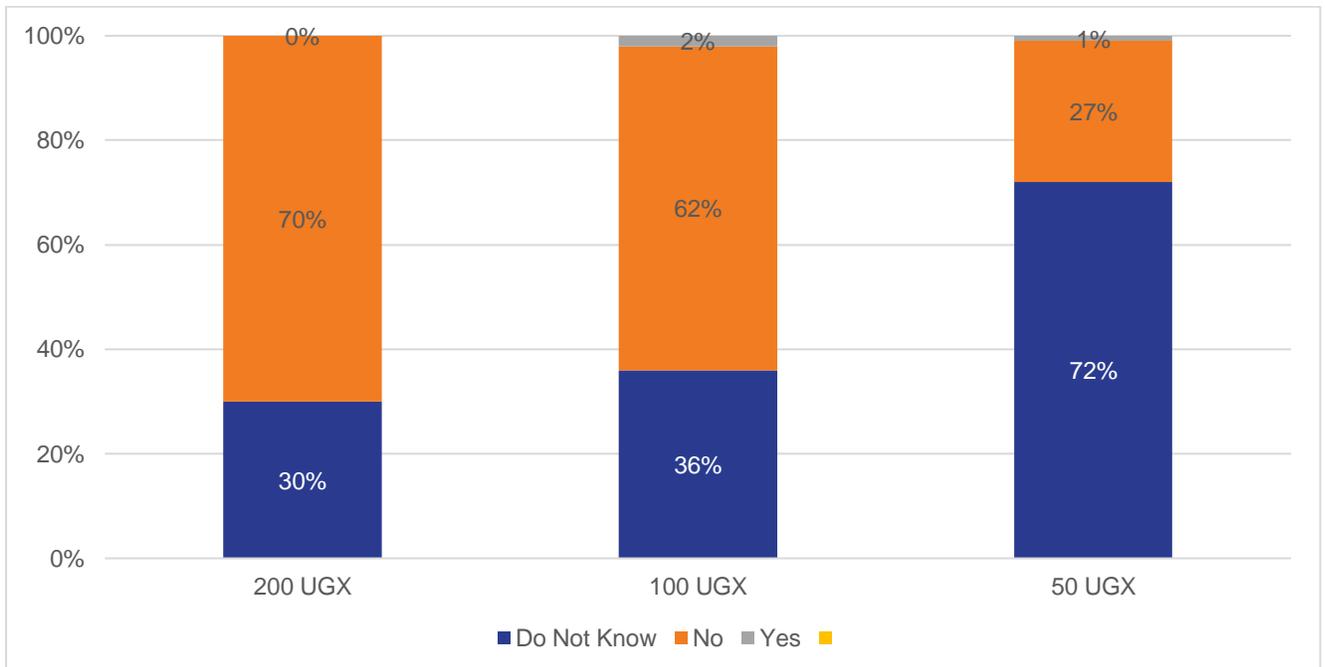


Figure 5: Willingness to pay per jerry can of water for PAYF households in UGX



3.4 Institutional Support Mechanisms for PAYF

The key players that are required to support the implementation of the PAYF model include caretakers, WSCs, HPMAs, and water users, all with oversight from the district local government. A community engagement process highlighted in the introduction section of this report was conducted to secure community buy-in to the model, orient actors on their roles, provide the required training, and establish the financial management and accountability systems (financial records, meter reading records, banking services).

The caretakers identified to manage the PAYF hand pumps were selected from the local communities in 2016 and provided with training in recordkeeping and basic water point maintenance. At the time of the study, 3 of the 16 hand pumps had new caretakers that had not yet been trained. The caretakers expressed need for additional training in community mobilization, and on VSLA models for supporting maintenance to facilitate their work.

Only 37 percent of the WSCs at the PAYF hand pumps were fully active and had a working relationship with the caretakers with whom they should interact at least once a month. Twenty-five percent of them had bank accounts where the money collected is kept. These WSCs also maintained records on the use of water to ensure accountability. However, 50 percent of the WSCs were not active and caretakers were redundant since users do not pay for water. Eighty-one percent of the caretakers felt that they were not properly supported by the WSCs.

The sub-county and the district local government play important roles in community mobilization, and support supervision and monitoring, respectively. At least 67 percent of the hand pumps received a support visit by either a sub-county or district local government staff in the last month.

Table 10: Occurrence of last support visit by sub-county of district local government

Last support visit	Sub-county	District local government
Within last week	31%	27%
Within last month	50%	40%
Within last year	19%	33%
More than 1 year ago	0%	0%

Key informant interviews with the district water officer and secretary of works and technical services show that they believe the PAYF model has potential to improve maintenance of rural water services. They have been supportive in facilitating community processes especially in the Karambi sub-county, which has most of the hand pumps that are still under PAYF. The support supervision provided in other sub-counties has not translated into corrective action. Some of the key drivers for success of PAYF identified by extension staff include:

- Collaboration of CSO partners like IRC Uganda with technical staff at both the district and sub-county level.
- Desire of communities to have good service in cases where there are no alternative options.
- Collaboration of the sub-county and HPMA in implementation of PAYF.
- Exposure to other water tariff pre-payment options like NWSC in Mugusu Town Council and Mugoma C. Water users were more concerned about the quality of service and cost. PAYF hand pumps were preferred as their tariffs (100 UGX, or less than \$0.1, per jerry can) were lower compared to that of NWSC tap stands (200 UGX, or less than \$0.1, per jerry can).

The DWTT in Kabarole was instrumental in securing political commitment and support to delivery of WASH services. The political leadership at the district council level was fully onboard and was considering scaling up the model.

“We have interested the District Council committee of works to implement PAYF on the water sources that are going to be rehabilitated in the financial year 2019/2020.”

Aaron Byakutaga Secretary Works and Technical Services, Kabarole District

The context for Bunyangabu was not captured in this study but feedback from the household survey showed that water users were influenced by a cabinet minister to boycott payment for water.

4. Discussion of Research Findings

4.1 Does PAYF Incentivize Preventive Maintenance?

The context in which PAYF was implemented does not incentivize preventive maintenance. Only 5 of the 16 hand pumps are partially implementing the model, and three communities have an ongoing relationship with the HPMA for routine maintenance. It was not possible to verify whether the quarterly schedule for maintenance and annual servicing are adhered to as no actor was consistently tracking the maintenance schedule prior to the study. The implementation of the model suffered several setbacks that are common in the traditional community-based management approach for rural water services, including compliance with the guidelines for adoption of PAYF, political influence on payment for water, and accountability of water user fees.

Compliance to the Guidelines for Adoption of the PAYF Model

Despite the effort made to comply with critical steps for adoption of the model, the set-up process was affected by several factors, including the weak mechanism for enforcing agreements between WSCs and the HPMA. The WSCs had no incentive to abide by the agreements and did not appreciate preventive maintenance. There was also no strong

accountability mechanism for managing finances as well as the water consumed. The model was piloted in a weak regulatory environment with no clear mechanisms for performance assessment and mitigating political influence. The next section describes some of the shortcomings in the set-up process.

Selection of target hand pumps and communities: The DWO led the process of identifying communities where feasibility and technical assessments were conducted to establish viability of the model in the respective communities. However, for communities that had positive assessments, there was no competitive assessment for them to qualify for the pilot. Hence those that did not comply on some requirements—for example, opening a bank account—were recruited with the hope that requirements would be met.

Community mobilization: Community mobilization and set up of the relevant structures were followed by a consultative and participatory process that involved the relevant actors with roles in implementing the model. The process focused on ensuring that the target communities are sensitized on management of their water sources using PAYF. Local leaders including area councilors, and sub-county political and technical leaders were involved to embrace the model from the start. On the side of the community, WSCs were reoriented on their roles and new committees selected for the hand pumps that had been out of service. Extension staff, mainly Community Development Officers and Health Assistants, carried out a 3-day community mobilization and sensitization process on management that included introduction to the model, tariff setting, and the roles of the committee, caretaker, and HPMA, among other topics. Sanitation improvement campaigns were also conducted in the communities to promote hygiene around the hand pumps. However, in some communities such as Harugongo, payment per jerry can of water was completely new. The caretakers there felt that the start-up entry and engagement process were not adequate to get communities fully onboard.

Financial management: All WSCs were trained in basic recordkeeping and were supported to acquire books for their records. All committees were then expected to open bank accounts for safe custody of collected funds, although this was not considered a prerequisite before rolling out the model to identified sources. All communities that are paying for water have maintained their bank accounts and continue to keep records. Following the pilot, accountability of water user fees continues to affect willingness of users to pay. WSCs identified several incidents where water user funds could not be accounted for after the transition of caretakers. This challenge is still valid. For instance, in a focus group discussion with the WSC for Burungu borehole, the topic was raised that up to 750,000 UGX (\$205.65) had been raised but could not be accounted for and there had been a change in the treasurer position. Safe custody of funds was also a major concern that demotivated users whose committees had no bank accounts. This is a critical issue that requires immediate follow up with extension staff to ensure that communities are accountable to the water users.

Repairs and servicing: The WSCs were expected to sign a memorandum of understanding (MoU) with the HPMA on routine service and repairs. The HPMA was expected to assign

mechanics to support each water point to ensure that routine service is timely. However, the issue of the MoU was left to the WSCs and the HPMA. As a result, agreements remained informal and there was no adequate follow-up by extension staff. This created an accountability vacuum as there was no mechanism to hold either WSCs or the HPMA accountable. There is a need for IRC to support the DWO to reexamine maintenance schedules, costs, and revenue to structure formal agreements, and orient the WSCs and the HPMA on their application.

Technology: The district and sub-county staff felt that the technology used to meter the hand pumps was not appropriate for point water sources. The meters became corroded due to high turbidity of the water and were difficult for caretakers to use. Since the meters were the first line of accountability at the water source, their failure was a big failing for the approach. For communities where the PAYF model is still working, pre-paid meters could be explored to address the issue of accountability.

Expansion of service coverage of the utility: Expansion of the service area of the utility (NWSC) to Mugusu Sub-County was a big milestone in increasing users' access to a higher level of service through household connections and community standpipes. However, this reduced demand for water at Mugusu hand pump since a number of users were able to get a better level of service from the piped water extensions. The PAYF model is designed to thrive in peri-urban areas where people have disposable income. However, the rapid expansion of the utility to peri-urban areas will continue to compromise the viability of the PAYF model since the piped network reaches more people and provides a higher level of service. It is crucial that the DWTT gets an updated 3-5 year expansion plan for the utilities (NWSC and Mid-western Umbrella) to provide guidance on service delivery and maintenance models for the rest of the population.

Political influence: The political commitment at the district council level has not translated to political structures at the local level. The willingness of water users to pay continues to be easily influenced by both local- and national-level politicians. The political leadership represented on the DWTT could take the responsibility of getting buy-in and orienting politicians at the local level on the district's strategies for sustainable water supply.

4.2 How Can Exclusion from Accessing Water Services Under PAYF be Mitigated?

The study found no evidence of exclusion of households due to PAYF tariff collection. Households did not report any cases of exclusion. However, given the low compliance to the model (5 out of 16 communities), exclusion cannot be completely ruled out. The PAYF uptake guidelines also did not provide a concrete strategy for dealing with exclusion.

4.3 Lessons Learned from Other Prepayment Options for Water

There are several other models outside Kabarole that work based on the same principle of users paying for water as they collect it. The main difference between these models and PAYF is that they use pre-paid meters and the payment of water is automated through a chip that

water users use to load credit. The pre-paid water meters are connected to a hand pump or standpipe with an automated water dispenser. Users access water by loading credit on a chip and placing it on a sensor on the water dispenser. These models have been piloted in Namayingo and Nwoya Districts in Uganda by GOAL and WASH Alliance, and in Kenya by Welthungerhilfe and by Maji Milele. According to the World Bank, the most commonly used pre-paid meters for standpipes cost between \$540 and \$616 per unit, excluding the cost of the concrete apron. Pre-paid water meters share some common features:

- The system at the water point is comprised of metering, dispensing, and credit-loading components, which are generally solar-powered and prevent users from accessing water without payment.
- A token or smart card allows users to top up with a bulk amount of money either at kiosks or using mobile money (more common and appropriate in rural areas) and use to pay for water.
- A monitoring database details real-time consumption against pre-paid sales and flags exceptions. This should be linked to maintenance service providers so that it is clear when repairs are required and to service authorities to strengthen their ability to monitor service providers (e.g., voluntary water committees) performance.

In a review of pre-paid water meters in eight sub-Saharan African cities, the World Bank (2014) found that pre-paid meters on standpipes were generally cost-effective and enabled service providers (in this case public utilities) to make a return on the initial investment on the pre-paid water meter (and the other associated costs) as a result of increased revenue. Pre-paid water meters have demonstrated ability to reduce non-revenue water and increase revenue in rural and small-town contexts. For example:

- With support from Oxfam, Wajir Water and Sewerage Company Limited installed 12 Susteq pre-paid water meters and saw a 300 percent increase in revenue in the town of Griftu in Northeastern Kenya.¹⁷
- Welthungerhilfe funded a solar-powered standpipe that serves approximately 500 households in rural Makeuni County, Kenya, and the installation of a Susteq pre-paid meter led to the voluntary water committee saving €3,000 in just a year.
- Maji Milele reports that, in Kenya, their pre-paid water meters have reduced non-revenue water to 10 percent compared to an average of 40 percent in urban areas and 70 percent in rural areas under conventional payment modalities.¹⁸

¹⁷ For information, see <https://kenya.oxfam.org/latest/stories/innovation-increased-water-access-wajir>

¹⁸ Water Forever (2018) pre-paid meters. Accessed at <https://www.water-forever.com/our-work/prepaid-meters/>

Pre-payment also benefits customers, and most seem to like this option. Customers like the fact that pre-paid systems make it possible for them to manage their accounts more directly, with clear information about where they stand. In a 2014 World Bank study, users of pre-paid standpipes noted that they liked being able to afford more water, being able to budget for water because the price always remains the same, being able to get water whenever they wanted to, and being in control of their own token (World Bank, 2014, p. 10). Pre-paid meters also ensure equity because everyone pays for water, and experiences of the WASH Alliance in Nwoya show that the process of vulnerability mapping enables identification of vulnerable households that access water without paying using the caretaker's token.

Additionally, pre-paid water meters strengthen stakeholders' (e.g. community members, DWOs) ability to monitor WSCs' performance and hold them accountable. The monitoring database should provide detailed information on the amount of water consumed and the funds coming in, thereby enabling a precise comparison. Furthermore, the monitoring system should provide a list of the money in and money out of each service provider's (e.g. WSCs) account. Linked to this, by eliminating cash payments, pre-paid water meters reduce service providers' ability to misappropriate funds, and, in many instances, the mobile banking system can be designed to require the agreement of three or four committee members to remove funds.

However, investment in pre-paid meters is not adequate to address social and political issues around payment for water experienced in the PAYF pilot. There is need to strengthen the support system right from buy-in of the political leadership, responsiveness to service interruptions, and customer satisfaction and feedback mechanisms. The World Bank (2014) also highlights several flaws with pre-paid water meters, which need to be addressed if the above-cited benefits are to be achieved. These include:

- The performance of the technology is still inconsistent, with the potential of many pre-payment systems being compromised by unreliable performance, which frustrates customers and can prove costly. Notably, a review of 1,223 pre-paid water meters in Kampala in 2014 found that that 75 percent were working well, while 13 percent of meters were faulty, 10 percent had no water supply, and 3 percent had been removed (World Bank, 2014, p. 29).
- If not quickly rectified, breakdowns can lead to increased levels of vandalism, bypassing, and tampering, with water users understandably angered that they cannot access water for which they had paid. This issue has been somewhat reduced in recent years as pre-paid water meters have been refined. However, it is still necessary to consider the various implications that stem from breakdowns as well as the benefits of purchasing more expensive but reliable meters.
- The required skills and spare parts are often not readily available to deal with faults in urban, let alone rural, areas. Existing service providers or mechanics need to be trained in how to maintain and repair the pre-paid water meters.

- Almost all pre-paid meters rely on the use of some sort of pre-paid token or smart card. These can easily “get lost, damaged, or stolen, and cost customers upward of \$12 to replace” (World Bank, 2014, p. 16). Furthermore, if there are not enough back-up cards, water users do not know how to get new cards, or they are too expensive for water users, then the whole payment modality can be undermined.
- Many pre-paid water meters are dependent on the availability and use of financial services such as mobile money. If such services are not available or users are resistant to their use (because of the percentage of transfers that mobile money providers take), then the implementation of pre-paid meters could face resistance.
- Water users are unlikely to just accept pre-paying for water with minimal consultation and pre-paid meters will not automatically address the underlying reasons that currently cause limited payment for water. Indeed, it is noted that, if anything, “pre-payment requires even greater interaction with customers: building acceptance for paying for water among people who have not previously paid; developing trust in pre-payment; negotiating installation; explaining charges and issuing tokens; showing customers how to use the pre-paid meter; and following through with regular monitoring, maintenance, and interaction” (World Bank, 2014, p. 25).

Additionally, while water users generally support the implementation of pre-paid water meters, it is important to consider the wider context within which the pre-paid water meter is being introduced as this has a significant bearing on water users’ perception of the technology. For example, if a pre-paid water meter is introduced as part of a wider program that is improving service levels, water users are likely to associate pre-payment for water with more water points, the rehabilitation of broken down services, shorter queues, closer access, cleaner water, and more reliable services (World Bank, 2014, p. 4). This will all increase the likelihood of them accepting the technology. Conversely, if a pre-paid water meter is added to an already functional water point that has not experienced maintenance issues, then the probability of water users accepting the technology is reduced.

5. Conclusion

The implementation of the PAYF model in Kabarole was (partly) successful in 5 out of the 16 communities where the model was introduced in 2016. In these five communities, users have continued to pay for water and are receiving support from WSCs and the HPMA to ensure that their hand pumps remain functional. The sub-county technical staff have also been proactive in conducting support supervision in these communities.

However, the current implementation of the PAYF model does not incentivize preventive maintenance as had been anticipated in the design of the approach. The WSCs and HPMA had not (yet) adopted a system for ensuring that preventive maintenance is done consistently.

There was also no mechanism for monitoring response time of the HPMA, tracking preventive maintenance visits, and alerting them.

Overall the WASH system for Kabarole had not been adequately prepared or developed to provide tailor-made support services required for the model to thrive. The system was not able to quickly detect and provide corrective measures to issues that emerged. As a result, the implementation was affected by the challenges of the traditional community-based management approach that included political influencing that discourages users from paying (mainly in Bunyangabu), lack of transparency especially with regards to financial management of WSC, and dissatisfaction of water users with WSC performance. Despite these challenges, the study shows that 70 percent of the users are still willing to pay at least 50 USD (less than \$0.1) per jerry can and 30 percent are willing to pay up to 200 UGX (less than \$0.1) per jerry can if they are guaranteed a reliable service.

Review of similar pre-payment models shows that upgrading the technology to include pre-paid water meters with an automated water dispensing system and a monitoring dashboard can be effective in addressing the prevailing challenges with community-based management including managing finances, scheduling maintenance based on intensity of use, and ensuring that users pay for water.

6. Recommendations

- The district local government should develop an accountability mechanism that tracks preventive maintenance visits and response time by HPMA to requests from the WSCs. These should be tracked by extension staff and corrective actions followed up by the DWTT.
- Extension staff should conduct water quality monitoring at the PAYF hand pumps, follow up on satisfaction of the users with the service, and report corrective actions to the DWTT since these factors have significant impact on willingness to pay. This can be integrated the biannual monitoring process financed through the conditional grant.
- There is need to improve tracking of revenue and expenses by the caretaker and the WSC. This should be an area of emphasis for the extension staff as they conduct quarterly monitoring visits.
- The PAYF guidelines should be revised to include how vulnerable households can access water at the PAYF hand pumps to ensure that they are not excluded.
- District local government and development partners should explore upgrading the technology to include pre-paid water meters with an automated water dispensing system, and an integrated monitoring dashboard. This will be more effective in addressing the prevailing challenges such as managing finances, scheduling

maintenance, and ensuring that users pay for water. However, strong commitment from the political leadership and target communities is required.

- The District Council should consider local legislation through bylaws on water user payment. This will enable the district to operationalize the revised national guidelines for O&M (2019) that require household to pay either a flat monthly tariff or per volume of water they use.

References

- Anobe, F., Huston, P., Watsisi, M. (2019). Water Service Levels and Asset analysis for Kabarole. Un-published Manuscript.
- Cord, C. (2018). Analysis on IRC's use of Pay as You Fetch: Kabarole District, Uganda. Retrieved on 23/01/2020: <https://www.ircwash.org/resources/analysis-ircs-use-pay-you-fetch>
- IRC Uganda (2018). IRC baseline data: Kabarole, Uganda: A district overview. Retrieved on 11/10/2019: <https://www.ircwash.org/resources/irc-baseline-data-kabarole-uganda-district-overview>
- Kabarole District Local Government (2018). Kabarole District WASH Master Plan 2018 – 2030. Fortportal, Uganda. Retrieved on 1/23/2020: <https://www.ircwash.org/resources/kabarole-district-wash-master-plan-2018-2030>
- Magara, P. (2014). Supporting Hand Pump Mechanics to improve operation and maintenance of rural water supply facilities (Issue brief). IRC Uganda.
- Magara, P. (2014). The Paradox of rural water user demand and satisfaction. Retrieved 4/4/2020: <https://www.ircwash.org/resources/paradox-rural-water-user-demand-and-satisfaction>
- Ministry of Water and Environment (2018). Water and Environment Sector Performance Report 2018. Retrieved on 1/23/2020: <https://www.mwe.go.ug/library/sector-performance-report-2018>
- Ministry of Water and Environment, Water Supply Database. Retrieved 5/5/2020: <http://wsdb.mwe.go.ug/index.php/reports/district/5>
- Ministry of Water and Environment (2019). Operation and Maintenance Framework 2019, Kampala, Uganda
- Smits, S., Moriarty, P., Sijbesma, C., (2007). Learning alliances: scaling up innovations in water, sanitation, and hygiene. (Technical paper series / IRC 47). IRC, Delft, The Netherlands.
- Strzepek, K., Boehlert, B., Willwerth, J. (2018). Strategic Investment Plan for Water and Environment Sector, Uganda (2018 -2030) Kampala, Uganda.
- Watsisi, M. (2017). A sustainability approach for hand pumps in rural areas. Retrieved 11/15/2019: <http://www.ircwash.org/blog/guide-effective-adoption-and-implementation-pay-you-fetch-model-sustainabilityapproach-hand>
- World Bank, (2014). The Limits and Possibilities of Prepaid Water in Urban Africa: Lessons from the Field. Retrieved on 1/23/2020: <http://documents.worldbank.org/curated/en/499021468010486033/The-limits-and-possibilities-of-prepaid-water-in-Urban-Africa-lessons-from-the-field>

Annex 1: List of Hand Pumps Selected

District	Sub-county	PAYF	Non-PAYF
Kabarole	Karambi	Burungu	Karambi Shallow Well
		Mugoma	Mugoma B
		Mukumbwe BH	Kikiike Kanyansohera
	Mugusu	Mugusu	Mperre
		Nyabatahi	Kijongo
	Hakibaale	Rusekere	Kyamuhoro
	Kasenda	Rweraza	Iruhura A
	Harugongo	Kanyamyegodi	Kyamahuri
		Kabisokoro	Kikonge A
	Bunyangabu	Rwimi	Kakooga
Kakinga			Kateraberemi
Kisomoro		Kisorile	Kisomoro II Shallow Well
Kabonero		Nsororo	Musagasa Shallow Well
Kibiito		Kasenyi	Kasunganyanja CoU SW
		Bugungu	Kangoma
Kiyombwa		Hapiida	Nyamiseke 1

Annex 2: Household Survey Tool

General Information

1. Name of enumerator _____
2. Location of the household _____
3. Household category
 PAYF Household _____
 Non-PAYF Household _____
4. Household number _____
5. Name of village _____
6. Parish _____
7. Sub-county _____
8. Number of people in the household _____
9. Number of people under 18 years old in the household _____
10. Household Composition-Males _____
11. Household Composition-Females _____
12. Household Occupations
 Non formal employment _____
 Formal employment _____
 Business or off farm activity _____
 Cottage industry _____
 Housewife/husband _____
 I am unemployed _____
 I am a casual laborer _____
 I am a subsistence farmer _____

In full time education _____

Water supply

13. What is the primary source you fetch your water from?

PAYF-protected water source _____

Other protected water source _____

Unprotected water source _____

Rainwater harvesting _____

Purchase from vendor _____

Purchase bottles _____

Only answer if you responded Protected water source to Q13

14. Name of the PAYF protected water point _____

15. Do you fetch water from other sources, as well?

Yes _____

No _____

16. How many water sources do you fetch water from in total?

Only answer if you responded Yes to Q15

17. If yes, which type is your secondary source?

PAYF water point (protected water source) _____

Other protected water source _____

Unprotected water source _____

Rainwater harvesting _____

Purchase from vendor _____

Purchase bottles _____

18. What is the primary source of drinking water in the dry season?

PAYF water point (protected water source) _____

Other protected water source _____

Unprotected water source _____

Rainwater harvesting _____

Purchase from vendor _____

Only answer if you responded PAYF water point (protected water source) to Q18

19. In the last 6 months did you experience an interruption in the water supply?

Yes _____

No _____

Only answer if you responded Yes to Q19

20. What was the cause of the interruption?

Breakdown _____

Seasonal shortages _____

Low water quantity _____

Poor water quality _____

Only answer if you responded Breakdown to Q20

21. How many times did the water point breakdown in the past six months?

Only answer if you responded Breakdown to Q20

22. How many days did the last breakdown last? _____

23. Do you have a private source of water in your yard or household?

Yes _____

No _____

Only answer if you responded Yes to Q23

24. What type of private water source do you have?

In-house tap _____

Yard tap _____

Protected well or borehole _____

Unprotected well _____

Surface water _____

Only answer if you responded Protected well or borehole, Unprotected well, or Surface water to Q24

25. Do you drink the water from your private well?

Yes _____

No _____

Only answer if you responded In house tap or Yard tap to Q24

26. Who is the service provider or manager to the tap (i.e., to whom do you pay the water bills)?

Community Managed Water Board _____

NWSC _____

Private Utility (Umbrella or otherwise?) _____

Don't know _____

Only answer if you responded In-house tap or Yard tap to Q24

27. How often does water flow from the tap?

Always or Almost always when opening the tap _____

About half the time _____

Not very often, less than half the time _____

28. How much time do you spend collecting or fetching water each day?

Less than 30 minutes _____

More than 30 minutes _____

29. How satisfied are you with the water service in your area in terms of distance to water source?

Satisfied _____

Dissatisfied _____

30. How satisfied are you with the water service in your area in terms of quality of the water?

Satisfied _____

Dissatisfied _____

31. How satisfied are you with the water service in your area in terms of management of the water source?

Satisfied _____

Dissatisfied _____

PAYF

Only answer if you responded PAYF-Protected water source to Q13

32. Do you pay for water fetched by household members at the PAYF water point?

Yes _____

No _____

Only answer if you responded PAYF-Protected water source to Q13

33. Do you pay for water fetched by household members at other hand pumps?

Yes _____

No _____

Only answer if you responded Yes to Q33

34. Did you pay for water today or yesterday (the last time you fetched from this point)?

Yes _____

No _____

Only answer if you responded No to Q34

35. When was the last time you paid for water?

Less than a week ago _____

More than a week ago, but within the last month _____

More than a month ago _____

Only answer if you responded Yes to Q32

36. At the PAYF point, how much do you pay for a 20-liter jerry can of water?

50 shillings _____

100 shillings _____

More than 100 shillings _____

Only answer if you responded Yes to Q33

37. At the alternative water point, how much do you pay for a 20-liter jerry can of water?

50 shillings _____

100 shillings _____

More than 100 shillings _____

Only answer if you responded Yes to Q32

38. Approximately how much does water cost you per month?

Less than 10,000 shillings _____

More than 10,000 shillings _____

Only answer if you responded PAYF-Protected water source to Q13

39. If you collect water from the PAYF water point and don't pay for it, please explain the reason

Water is too expensive _____

I should not have to pay for water _____

I don't trust those who collect the money (caretaker or WSC) _____

I was told by a politician/leader not to pay _____

Only answer if you responded PAYF-Protected water source to Q13

40. Do your children ever fetch water for the family?

Yes, often _____

Yes, sometimes _____

Never _____

Only answer if you responded Yes, often or Yes, sometimes to Q40

41. Do you send your children with money when they fetch?

Yes, always _____

Yes, sometimes _____

Never _____

Only answer if you responded PAYF-Protected water source to Q13

42. Do you normally queue for water at any water point?

Yes _____

No _____

Only answer if you responded Yes to Q42

43. At which water sources do you normally have to queue?

PAYF water point _____

Alternative sources _____

Only answer if you responded Yes to Q42

44. In the last one week what was the longest time you queued for water?

Less than 30 minutes _____

Between 30 minutes to 1 hour _____

More than 1 hour _____

Only answer if you responded Less than 30 minutes, Between 30 minutes to 1 hour, or More than 1 hour to Q44

45. At which water point did this take place?

PAYF water point _____

Alternative sources _____

Only answer if you responded PAYF-Protected water source to Q13

46. When did you last experience an interruption in your water supply from the PAYF water point?

Within the last week _____

2–4 weeks ago _____

1–2 months ago _____

3 months or more _____

Affordability

Only answer if you responded PAYF-Protected water source to Q13

47. At the PAYF water point, do you find the water affordable?

Yes _____

No _____

Only answer if you responded Yes or No to Q47

48. Please select how much you are willing to pay per 20-liter jerry can of water

Not willing to pay _____

50 shillings _____

100 shillings _____

More than 100 shillings _____

Only answer if you responded Yes or No to Q47

49. Do you have a mobile phone?

Yes _____

No _____

Only answer if you responded Yes to Q49

50. How much do you spend on the mobile phone (airtime and charging) every month?

Less than 10,000 shillings _____

More than 10,000 shillings _____

Willingness to pay for borehole banking

51. Are you, or any member of your household, currently a member of a VSLA/savings group?

Yes _____

No _____

Don't know _____

Only answer if you responded Yes to Q51

52. How much do you, or does that person, usually give per month or week?

Only answer if you responded Yes, No, or Don't know to Q51

53. Suppose that this system existed in your community. Would your household be willing to contribute 1,000 UGX per month to the hand pump fund of the VSLA?

Yes _____

No _____

Don't know _____

Only answer if you responded Yes to Q53

54. Would your household be willing to contribute 2,000 UGX per month to the hand pump fund of the VSLA?

Higher amount — 2,000 and more _____

No _____

Don't know _____

Only answer if you responded No to Q53

55. Would your household be willing to contribute 500 UGX per month to the hand pump fund of the VSLA?

Yes _____

No _____

Don't know _____

Only answer if you responded Yes or No to Q51

56. What is the maximum amount that your household would be willing to contribute to the hand pump fund of the VSLA per month? _____

Willingness to pay for pay as you fetch

Only answer if you responded PAYF-Protected water source to Q13

57. Do you feel that this reflects the way that the PAYF process works right now in your community?

Yes _____

No _____

Only answer if you responded No to Q57

58. What is different in the existing system compared to PAYF I just described?

Only answer if you responded PAYF-Protected water source to Q13

59. Suppose that this system operated to a good standard in your community. Would your household be willing to contribute 100 UGX per jerry can each time you fetch water?

Yes _____

No _____

Don't know _____

Only answer if you responded Yes to Q59

60. Would your household be willing to contribute 200 UGX per jerry can each time you fetch water?

Yes _____

No _____

Only answer if you responded No to Q59

61. Would your household be willing to contribute 50 UGX per jerry can each time you fetch water?

Yes _____

No _____

Don't know _____

Only answer if you responded Yes|No to Q57

62. What is the maximum amount that your household would be willing to pay each time you fetch water (UGX/jerry can)? _____

Water quantity

63. How many 20-liter jerry cans of water does your household use per day?

Less than 3 jerry cans _____

Between 3–6 jerry cans _____

More than 6 jerry cans _____

64. Is there a time in the last month when you were not able to collect all the water you needed for your household?

Yes _____

No _____

Only answer if you responded Yes to Q64

65. Why not?

"a. Too long of distance to water point _____"

"b. Not able to afford the required amount of water_____ "

"c. Children were away / in school_____ "

"d. Seasonal reasons / dry season / water sources were dry_____ "

Only answer if you responded PAYF-Protected water source to Q13

66. Are the opening hours of the PAYF water point satisfactory for you and your household?

Yes _____

No _____

67. Is there a time in the past when you felt isolated from accessing water or other public services?

Yes _____

No _____

Only answer if you responded Yes to Q67

68. If yes why?

Irregular or expensive services _____

Due to disability _____

Sense of discrimination _____

Water quality

Only answer if you responded PAYF-Protected water source to Q13

69. How do you feel about the quality of the water you drink from the PAYF water point?

Good quality _____

Poor quality _____

Only answer if you responded Poor quality to Q69

70. What components of the water quality are poor?

Bacteria / causes sickness _____

Color _____

Taste _____

Odor _____

Only answer if you responded PAYF-Protected water source to Q13

71. Do you feel that the Water and Sanitation Committee and caretaker managing your PAYF water point is aware of your needs and concerns, as well as the needs and concerns of the community?

Yes _____

No _____

Only answer if you responded PAYF-Protected water source to Q13

72. What recommendations do you have to make it more effective to maintain your water point(s)? _____

73. Do you have any questions or further comments you would like to share?

Annex 3: Caretaker Survey

Introduction

1. Name of caretaker _____
2. Name of water source _____
3. Parish _____
4. Sub-county _____

Costs and Affordability

5. Note for enumerator: When there are multiple option answers to a question, do not read the options to the respondent. Allow them to first make their own responses, and only read the responses afterwards or if they are struggling to understand the question and need examples for clarification.

Understood _____

6. Do users pay for water at this water point?

Yes _____

No _____

7. What is the cost of a 20-liter jerry can of water at this water point?

8. Are you a member of this community?

Yes _____

No _____

9. How were you appointed to be the caretaker here? Who made the decision?

10. Is the cost reduced for certain groups of people in this community?

Yes _____

No _____

Only answer if you responded Yes to Q10

11. Which groups is it reduced for?

All children _____

Only school children _____

Elderly _____

12. Is water given for free to any groups of people in this community?

Yes _____

No _____

Only answer if you responded Yes to Q12

13. Which groups is it given for free to?

All children _____

Only school children _____

Elderly _____

14. Is the cost increased for certain groups of people in this community?

Yes _____

No _____

Only answer if you responded Yes to Q14

15. Which groups is it increased for? (commercial farmers, businesses, etc.)

Commercial farmers _____

Local businesses _____

16. Is payment for water consistent throughout the year?

Yes, always consistent _____

Yes, sometimes consistent _____

Not consistent _____

Only answer if you responded Not consistent to Q16

17. During which periods of time is payment for water inconsistent?

Only answer if you responded Not consistent to Q16

18. If payment is not consistent, why is it not consistent?

Payment is voluntary _____

Our councilors influence provision of clean water in the location _____

Users cannot afford to pay for water during certain periods of time _____

19. Are there households in this community that are not able to access water because they are not able to pay?

Yes _____

No _____

20. Are you aware of any people in your community that are excluded from fetching water at this water point?

Yes _____

No _____

Only answer if you responded Yes to Q20

21. Why are these people excluded from accessing this waterpoint?

Not enough money to pay for the water _____

Elderly with no help to access _____

Child headed household _____

Only answer if you responded Yes to Q19

22. If some are given free water, do you record how many jerry cans are given out for free each day?

Yes _____

No _____

Enabling support: WSC, HPMA, local government

23. What are the main challenges you experience as a caretaker at this water point?

24. Are you paid to be the caretaker of this water source?

Yes _____

No _____

Only answer if you responded Yes to Q24

25. How do you feel about your wages? Are they consistent?

Yes _____

No _____

26. Do you feel you are paid enough for this position?

Yes _____

No _____

27. Did you receive any training prior to becoming a water point caretaker?

Yes _____

No _____

Only answer if you responded Yes to Q27

28. In which areas would you like to receive additional training?

Recordkeeping and accounting _____

Community sensitization _____

29. Please describe the current state of the WSC at this hand pump.

Fully active _____

Somewhat active _____

Not active _____

30. How is your relationship with the WSC?

No relationship _____

Fair, but could be better _____

Great, I have no complaints _____

31. Does the WSC monitor and advise on management of the source?

Yes _____

Sometimes _____

No _____

32. How often do you interact with the WSC?

Once per week _____

Once per month _____

Less than once per week _____

33. Do you feel that the WSC is properly supported?

Yes _____

No _____

34. How is your relationship with the Kabarole HPMA?

Check routinely for preventive maintenance _____

Only check when called by the WSC _____

35. When is the last time a mechanic visited the water point?

Less than a month ago _____

Over a month to 2 months ago _____

More than 3 months ago _____

36. How is your relationship with the district local government?

No relationship _____

Fair, but could be better _____

Great, I have no complaints _____

Only answer if you responded Fair, but could be better or Great, I have no complaints to Q36

37. When is the last time a district local government official visited the water point?

Within the last week _____

Within the last month _____

Within the last year _____

More than 1 year ago _____

38. How is your relationship with the subcounty government?

No relationship _____

Fair, but could be better _____

Great, I have no complaints _____

Only answer if you responded Fair, but could be better or Great, I have no complaints to Q38

39. When is the last time a subcounty government official visited the water point?

Within the last week _____

Within the last month _____

Within the last year _____

More than 1 year ago _____

40. Has there been a change in caretakers at this water point since the last rehabilitation, or has the caretaker always been you?

Yes _____

No _____

Water availability and breakdowns

41. In the last 6 months, have there been any days when the water is not flowing?

Yes _____

No _____

Only answer if you responded Yes to Q41

42. What caused the water point down time(s)?

The dry season _____

Water point breakdown _____

Only answer if you responded Water point breakdown to Q42

43. How long did it take to fix the problem?

Less than 1 day _____

Between 2–4 days _____

Between 5–7 days _____

Over a week _____

Only answer if you responded Between 2–4 days, Between 5–7 days, or Over a week to Q43

44. When a system was down for longer than a day at any point during the collection period, what was the reason for the long down time?

Not enough money to make timely repairs _____

Slow response from the HPMA _____

Limited availability of spare parts _____

Community perceptions and feedback

45. Do community members complain about the services offered at this water point (such as the price for the water, frequency of breakdown, opening hours, etc.)?

Yes _____

No _____

Only answer if you responded Yes to Q45

46. What are the complains presented?

Complaints about the cost of the water being too high _____

Complaints that water should be free _____

Complaints about the hand pump itself _____

Complaints about availability of water _____

Complaints about opening hours or services offered _____

47. What do you use the money for that is collected from water tariffs?

Payment to KAHASA for O&M _____

Payment to other maintenance service provider _____

Payments to Water and Sanitation Committee _____

Payment to the caretaker _____

48. Have you experienced vandalism at this water point in the last 6 months?

Yes _____

No _____

Financial records and accounts

49. Do you keep records of how many people have visited the water point each day, or how many jerry cans have been paid for each day?

Yes _____

No _____

50. Do you keep records of the meter readings at the end of each day?

Yes _____

No _____

51. Is there an official bank account for the funds (such as a Post Bank account)?

Yes, there is a bank account and I deposit tariffs collected regularly _____

Yes, there is a bank account but I only deposit tariffs collection occasionally _____

No, there is no bank account _____

Only answer if you responded No, there is no bank account to Q51

52. Where is the money kept when not in the bank account?

With the treasurer _____

Rotated among the WSC members _____

With the caretaker _____

53. Who makes decisions on how the money collected from water users should be spent?

The chairperson WSC _____

The caretaker _____

The HPMA _____

All WSC members _____

54. Do any commercial or industrial users use this water point, such as local businesses or successful entrepreneurs?

Yes _____

No _____

Only answer if you responded Yes to Q54

55. On a daily basis how much water do they collect each time?

Less than 100 liters (five 20-liter jerry cans) _____

Between 100–400 liters (20 20-liter jerry cans) _____

Above 400 liters (Over 20 jerry cans) _____

56. Do you enjoy being a water point caretaker?

Yes _____

Sometimes _____

No _____

Only answer if you responded Yes or Sometimes to Q56

57. What has changed in your life as a result of obtaining this position?

58. Do you have any other questions or concerns about the PAYF process?

We are part of the research team of IRC that is working with the district water office to investigate the how the Pay as You Fetch Model for collection and management of water user fees in working in ensuring reliability of water supply. We would like to learn from you what has worked and what should be improved. We would like you ask you a few questions to inform the study. Is that Ok? Do you give us permission to record this interview?

Annex 4: Focus Group Discussion Guide: Water and Sanitation Committees

Name of Village:.....

Parish:.....

Sub-county:

Enumerator.....

Introduction: The Pay-As-You-Fetch (PAYF) model was introduced at your water point a year ago to make it easy to mobilize water user fees to guarantee your water supply and ensure that you never have to go for more than a day without water.

1. Tell us about the two things that have excited you about your water supply over the last year? What has worked well?
2. If anyone collects water from alternative sources (other than PAYF), please tell us a few things you like about the services at this source.
(Example of discussion questions) Source 1 (i.e., National Water)
 - a. When did you begin collecting water from this source?
 - b. Why did you begin collecting water from this source?
 - c. Do you pay to collect water from this source? If yes, how much?
 - d. What do you like about fetching water from this source?
 - e. What do you NOT like about fetching water from this source?
3. What can you say about the attitude of the water users in this community about PAYF?
4. How has the money collected in water user fees been used?
5. What is the fate of the water users in the community that are not able to pay per jerry of water they fetch? Tell us about any mechanisms in place to ensure they access safe water?
6. It is common to find both domestic and (semi) commercial users of water in communities? How is it like in this community? Can you share examples of commercial users if any? How is the tariff structured for the different kinds of users?
7. Tell us about what frustrates you with PAYF.
8. What can you say about support from your political leadership? What additional support do you need to improve your experience with the model?
9. What should be done differently to improve the model?

Annex 5: Key Informant Interview Guide

Name of Village:.....

Parish:.....

Sub-county:

Enumerator.....

Introduction: The Pay-As-You-Fetch (PAYF) model was introduced at your water point a year ago to make it easy to mobilize water user fees to guarantee your water supply and ensure that you never have to go for more than a day without water.

1. Looking back at the past year, what do you feel has worked well in implementation of the PAYF model?
2. What have been the main drivers for the success of the model in places where it has worked?
3. Please tell us about your work with and support for the Water and Sanitation Committees.
4. Tell us about a moment when you felt that the model either solved or accelerated a problem you normally deal with in your technical support and extension work?
5. In your opinion, what are the main bottles necks that hindered implementation of the model?
6. What have you learnt about similar models for incentivizing preventive maintenance of rural water systems from actors both within and outside Kabarole?
7. How can the oversight function of the district local government and accountability of the operators be improved?
8. How can the District WASH Task Team help in overcoming the bottles necks and embracing lessons from actors outside Kabarole?
9. What other suggestions would you give on how to improve implementation of the model?
10. What is your typical involvement in decision-making for water, and what factors influence these decisions?
11. Do you believe that communities should pay to sustain their water sources? Why do you feel this way?
12. How do you feel you can best be involved in supporting improved quality of water access in communities, even beyond what you are doing now?

To learn more about the Sustainable WASH Systems Learning Partnership, visit:
www.globalwaters.org/SWS

