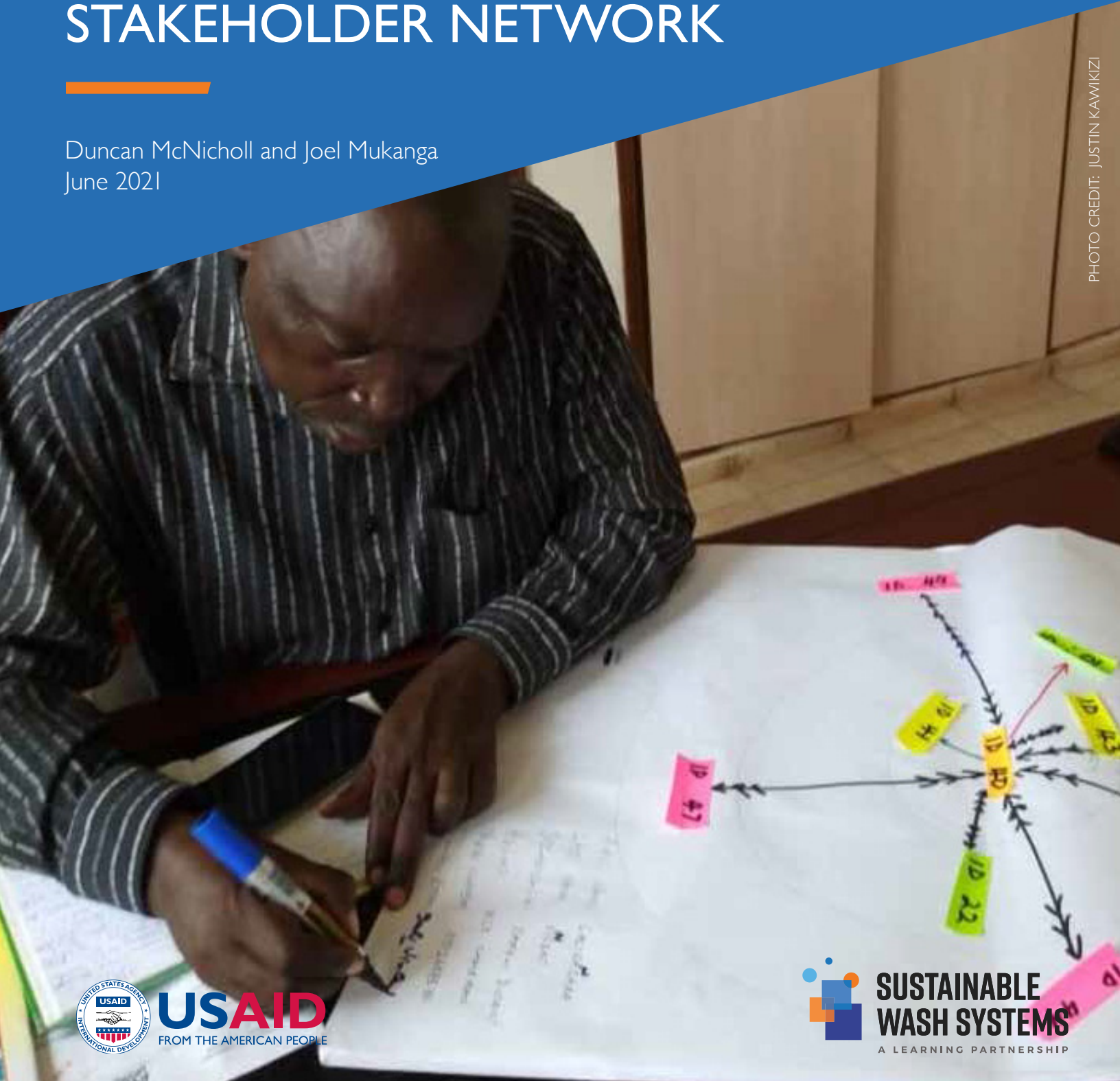


Sustainable WASH Systems Learning Partnership

ENDLINE ORGANIZATIONAL NETWORK ANALYSIS OF THE KAMULI RURAL WATER STAKEHOLDER NETWORK

Duncan McNicholl and Joel Mukanga
June 2021

PHOTO CREDIT: JUSTIN KAWIKIZI



USAID
FROM THE AMERICAN PEOPLE



**SUSTAINABLE
WASH SYSTEMS**
A LEARNING PARTNERSHIP

Prepared by: Duncan McNicholl, Independent Consultant; Joel Mukanga, Whave Solutions Ltd.

Front cover: Interview participant describing network interactions in Kamuli District. Photo by Justin Kawikizi

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 with the University of Colorado Boulder (UCB) to identify locally driven solutions to the challenge of developing robust local systems capable of sustaining water, sanitation, and hygiene (WASH) service delivery. A consortium of partners—Environmental Incentives, IRC, LINC, Oxford University, Tetra Tech, WaterSHED, Whave, and UCB—are demonstrating, learning about, and sharing evidence on systems-based approaches for improving the sustainability of WASH services in four countries.

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 <http://www.globalwaters.org/SWS>, or contact the USAID Center for Water, Sanitation, and Hygiene (waterteam@usaid.gov) or Amy Javernick-Will (amy.javernick@colorado.edu).



Table of Contents

Acronyms.....	iii
Glossary	iii
Executive Summary	1
Introduction	2
Aims, Objectives, and Scope.....	2
Results.....	3
Overall Network Properties.....	3
Network Centrality.....	5
Connected Components.....	6
Community Ego Networks	7
Perceived Network Changes Since 2018	9
Stronger Community Involvement	9
Clarity of Roles Between Stakeholders	10
Improved Stakeholder Coordination	10
More Development Partners Involved.....	11
Effects of COVID-19	11
Conclusions.....	12
Annex A: Kamuli WASH Network Stakeholders.....	13
Annex B: Interview Protocol.....	16
Annex C: Network Tie Types	20

List of Figures

Figure 1: 2020 network of Kamuli rural water actors and all yearly ties arranged by level of hierarchy	4
Figure 2: 2018 network of Kamuli rural water actors and all yearly ties arranged by level of hierarchy	5
Figure 3: Change in betweenness centrality for information ties from baseline to endline	6
Figure 4: Number of isolated network components for each frequency of interaction for all tie types	6
Figure 5: Number of actors by type without any network ties for each frequency of interaction.....	7
Figure 6: Ego network for Bumyuka Zone for all tie types and frequencies.....	7
Figure 7: Stakeholders interacting with communities in Namisambya Parish on a monthly basis (all tie types).....	8
Figure 8: Stakeholders interacting with communities in Ndalike Parish on a monthly basis (all tie types).....	9

List of Tables

Table 1. Interviewed stakeholders by type and level of hierarchy.....	2
Table 2. Network density and diameter for all network ties from 2018 baseline to 2020 endline.....	3
Table 3. Number of network ties for all frequencies of interaction from 2018 baseline to 2020 endline.....	3
Table 4. Ranking of betweenness centrality for information ties at different frequencies of interaction in the 2020 endline.....	5

Acronyms

DWO	District Water Office
HPMA	Hand Pump Mechanics Association
NGO	Non-Governmental Organization
NWSC	National Water and Sewerage Corporation
ONA	Organizational Network Analysis
SWS	Sustainable WASH Systems Learning Partnership
USAID	United States Agency for International Development
WASH	Water, Sanitation, and Hygiene
WSC	Water Source Committee

Glossary

WASH Network	The relationships between stakeholders involved in rural WASH service delivery in Kamuli District
Node	An organization or stakeholder within the Kamuli WASH network
Tie	A relationship between network nodes
Degree	The number of ties that a node has
Betweenness Centrality	A measure of the likelihood that a node is on the shortest path between any other two nodes in the network
Connected Components	The number of distinct groupings of network nodes that have no ties beyond their group

Executive Summary

Since 2013, Whave Solutions Ltd. has been offering full functionality assurance services to rural water sources in Kamuli District, Uganda, under government regulation. Communities pay an annual fee to Whave, and in return Whave offers preventive maintenance services and immediate repair as means to achieve more than 97 percent functionality. The government assesses Whave's performance on a set of key performance indicators, including customer satisfaction, compliance, and reliability (downtime, breakdown incidences, and spot functionality) on a quarterly basis.

The USAID-funded Sustainable WASH Systems Learning Partnership has been supporting Whave's work in Kamuli District to understand how different approaches to systems thinking and analysis might strengthen rural water service delivery. Organizational Network Analysis (ONA) is one such approach. In this application, ONA was first used to identify network gaps or opportunities to strengthen network ties between actors in Kamuli District in 2018. This endline study, conducted in 2020, repeats the network analysis to understand network changes over the 2-year period, with perspectives captured from stakeholders on how or why these changes occurred.

From baseline to endline, the analysis showed more network relationships and fewer degrees of separation, particularly for information and authority relationships. While Busoga Trust has decreased centrality in the network, local stakeholders, such as service providers, hand pump mechanics, and government officials or councillors involved in preventive maintenance, have become increasingly central links in the network since 2018, serving as critical information brokers and playing a prominent role in Kamuli WASH service delivery.

Findings suggest that the Kamuli stakeholder network is converging around a coordinated vision for rural water services focused on preventive maintenance and dedicated service providers. Stakeholders reported service improvements, including better reliability of infrastructure and corresponding reductions in waterborne diseases, as well as increased functionality of hand pumps through preventive maintenance. The challenge remains to see the extent to which services can expand to cover the entire district, given the perceived community reluctance to pay for services, and whether all stakeholders can fully institutionalize and embrace the preventive maintenance approach as the new norm.

Introduction

Since 2013, Whave Solutions Ltd. has worked in Kamuli District to establish a preventive maintenance service model for rural hand pumps. Communities subscribe to the maintenance program for an annual fee and, in return, Whave manages preventive maintenance, spare parts supply, and rapid response in the event of a breakdown. Kamuli is one of the nine districts across Uganda where Whave is developing and working to institutionalize this service model.

Engagement with local government and other stakeholders has been central to the establishment and scaling of the service model in Kamuli. Whave actively engages authorities at the community, sub-county, and district levels simultaneously to facilitate a shift toward community payment for professionalized preventive maintenance services as the new norm in the district. Exploring the extent to which actors are coordinated and mutually reinforcing a coherent vision for rural water service delivery can help to identify opportunities for further intervention and to evaluate progress to date.

Aims, Objectives, and Scope

The USAID-funded Sustainable WASH Systems Learning Partnership (SWS) repeated research methods from the 2018 study for this 2020 endline survey to understand how the network and factors affecting rural water service delivery in Kamuli District have evolved over the past two years. Enumerators asked interviewed stakeholders to comment on how the network has changed during this period (Annex B).

Interviews targeted the same list of network stakeholders from the 2018 study (Annex A) to enable comparison between the baseline and endline networks. SWS identified 51 relevant stakeholders in the original roster used during the baseline. In some cases, these network actors were individuals, such as the district health inspector, however, in larger departments or organizations, such as an NGO, SWS conducted the interview with someone knowledgeable about the roles and relationships of the network actor.

As in the case of the baseline, not all actors could be reached for an interview at the time of the study, but both the baseline and endline studies had a similar response rate. SWS interviewed a total of 46 of the 51 network stakeholders in September 2020, representing a 90.2 percent response rate. As with the baseline study, all 51 actors are included in network analysis, since the 46 respondents answered questions about all 51 actors.

Table 1. Interviewed stakeholders by type and level of hierarchy

Row Labels	Government	NGO	Service Provider	Service User	Total
District	5	1	3		9
Kitayunjwa Sub-County	7		1		8
Namisambya Parish				13	13
Namwendwa Sub-County	8		1		9
Ndalike Parish				7	7
Total	20	1	5	20	46

The use of a consistent stakeholder list in both baseline and endline studies, combined with a response rate greater than 90 percent, allows for robust comparison of whole network quantitative metrics between the baseline and endline studies.

Results

Two types of results are generated from the study: quantitative findings from network properties, and qualitative findings from verbal responses to interview questions. Both are important. Network properties can identify larger systematic changes that are difficult for anyone stakeholder to perceive due to their limited visibility of the whole network. The significance of these network properties, however, requires qualitative description to interpret implications for rural water service delivery. A tightly connected network is not inherently an effective one.

Findings begin with a summary of quantitative network properties and changes from the baseline study. Summaries of qualitative findings then describe how the network has changed since the 2018 baseline study.

Overall Network Properties

Whole network properties, including diameter, density, and number of ties, provide a high-level summary of network characteristics for the 51 stakeholders considered in this study. These metrics indicate that actors in the endline network are more closely connected than in 2018 (Table 2), even though the total number of network ties has slightly reduced (Table 3). Specifically, only two ties are now needed to span the network at its widest point, and the increase in the network density metric implies that new relationships have been established between some actors since the baseline. These properties suggest there are more network relationships between pairs of actors and fewer degrees of separation. Furthermore, the reduction in skill and resource ties might be mostly due to a single NGO, the Busoga Trust, significantly scaling down its activities, such as mobilizing and training of water source committees, rehabilitation, drilling, and installing of water sources, since 2018. Busoga Trust shifted its focus away from Kamuli due to lack of financial resources to sustain its activities there.

Table 2. Network density and diameter for all network ties from 2018 baseline to 2020 endline

		2018	2020
Network Diameter	The number of ties needed to span from one side of the network to the other at its widest point.	3	2
Network Density	The proportion of ties that exist out of the total number of ties possible. A network with a density of 1.0 means that every actor is directly connected to every other actor.	0.498	0.667

Table 3. Number of network ties for all frequencies of interaction from 2018 baseline to 2020 endline

Tie Type	Number of Ties (2018)	Ties (2020)	% Change
Information	675	690	2%
Authority	373	380	2%
Skills	286	249	-13%

Resources	116	101	-13%
Total	1,450	1,420	-2%

Visualizations of networks from 2018 (Figure 1) and 2020 (Figure 2) for all tie types and frequency appear to show that the Busoga Trust's reduction in activity resulted in an increase in relationships held by the District Water Office (AEO Water Kamuli). During this period, the contending candidates, especially the incumbents, increase their demand for service provision in communities. This in turn increases relationships with communities as hand pump mechanics mobilize, repair, rehabilitate, and install water sources with the financial resources provided by candidates. As a result, the endline network in 2020 is more interlinked.

Figure 1: 2020 network of Kamuli rural water actors and all yearly ties arranged by level of hierarchy; node size is proportional to its betweenness centrality

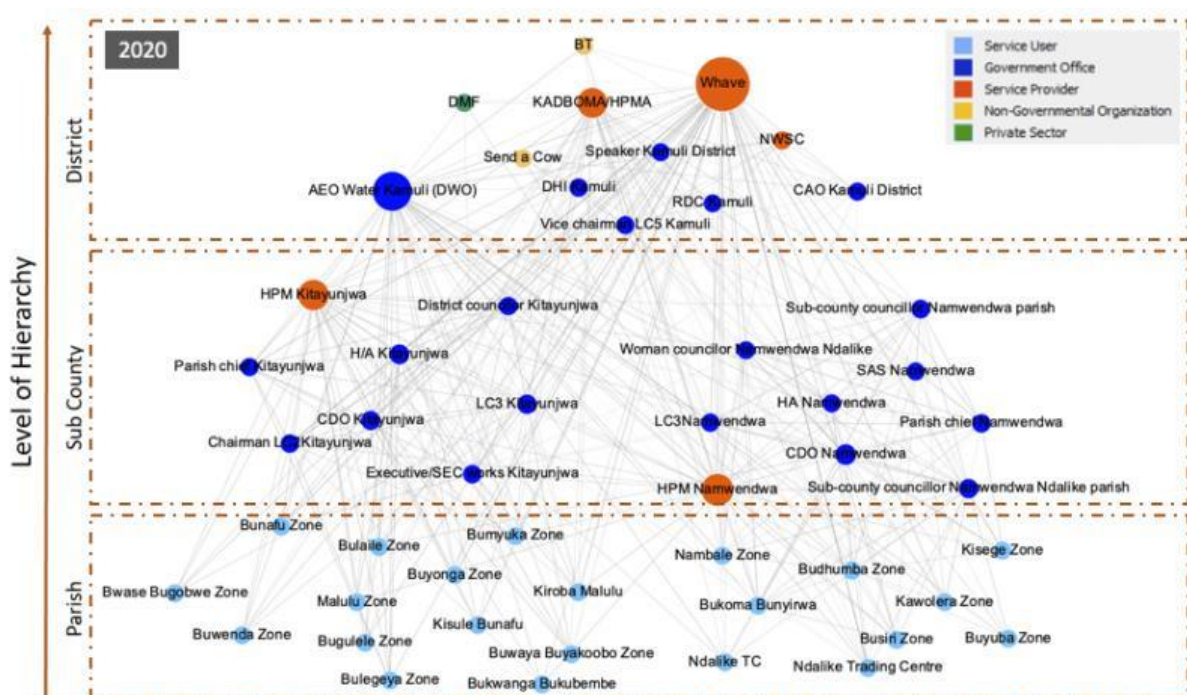
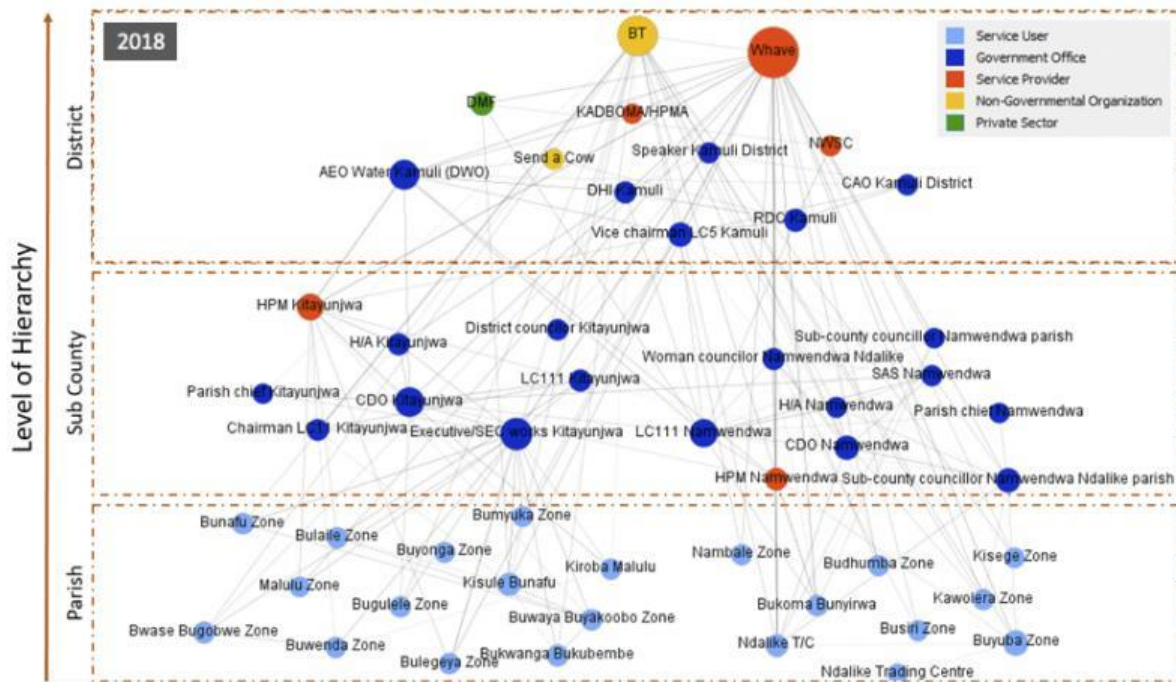


Figure 2: 2018 network of Kamuli rural water actors and all yearly ties arranged by level of hierarchy; node size is proportional to its betweenness centrality



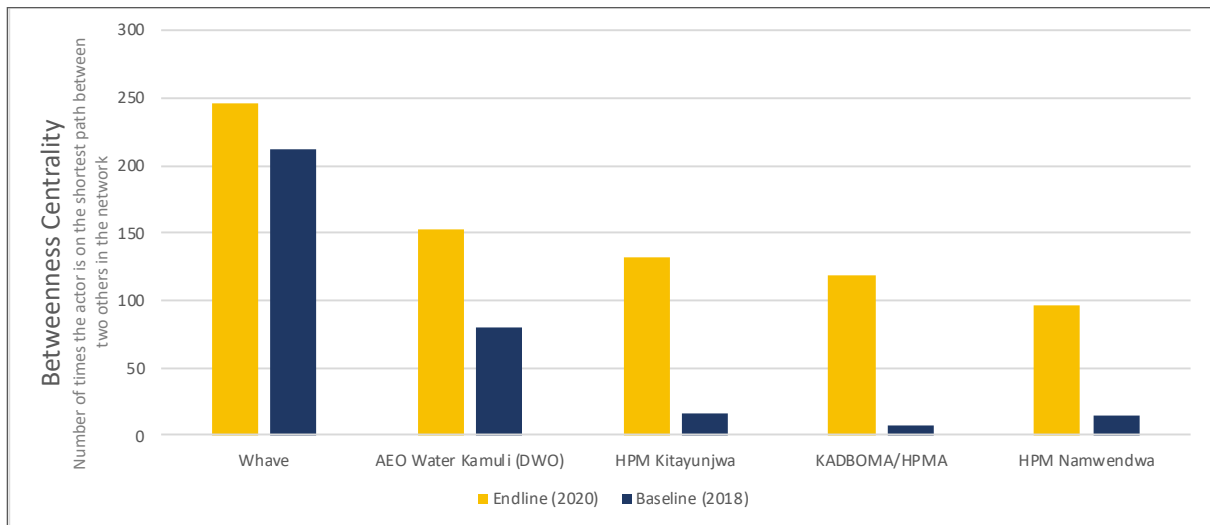
Network Centrality

Betweenness centrality is a measure of how frequently a node lies on the shortest path between any two other network nodes. In a change from the 2018 baseline, the five stakeholders with the highest betweenness centrality for all information ties are those directly involved in maintenance services (Table 4). This suggests that, with the exception of Busoga Trust, actors directly involved in preventive maintenance services have become increasingly critical information brokers in the network. This appears to be particularly true for specific hand pump mechanics and the Hand Pump Mechanics Association (HPMA). Figure 3 illustrates the change in betweenness centrality for these five actors from baseline to endline.

Table 4. Ranking of betweenness centrality for information ties at different frequencies of interaction in the 2020 endline

Rank	Yearly	Quarterly
1	Whave	Whave
2	AEO Water Kamuli (District Water Office, or DWO)	AEO Water Kamuli (DWO)
3	HPM Namwendwa	HPM Kitayunjwa
4	HPM Kitayunjwa	KADBOMA/HPMA
5	KADBOMA/HPMA	HPM Namwendwa

Figure 3: Change in betweenness centrality for information ties from baseline to endline



Connected Components

Connected components quantifies the number of distinct network groups that have no ties between each other. A network with only one connected component means that a pathway exists between all network stakeholders, even if they are not directly connected to each other.

All stakeholders but one, Development Microfinance, remain connected to the network on at least a monthly basis (Figure 4). While there is an apparent increase from 2018 to 2020 in the number of stakeholders without any ties on a weekly basis, this may not be significant if monthly ties are sufficient for achieving service delivery outcomes. For instance, initially Whave service technicians physically visited water sources on a monthly basis, but this proved costly and unnecessary. Instead, physical visits could be made every three months as long as no breakdown occurred during that period. In addition, while Whave holds performance review meetings on a quarterly basis, whether these meetings should instead be held semi-annually or annually is a matter of ongoing debate. The majority of stakeholders without network ties on a weekly basis are communities (N=16) that may not require weekly engagement (Figure 5).

Figure 4: Number of isolated network components for each frequency of interaction for all tie types

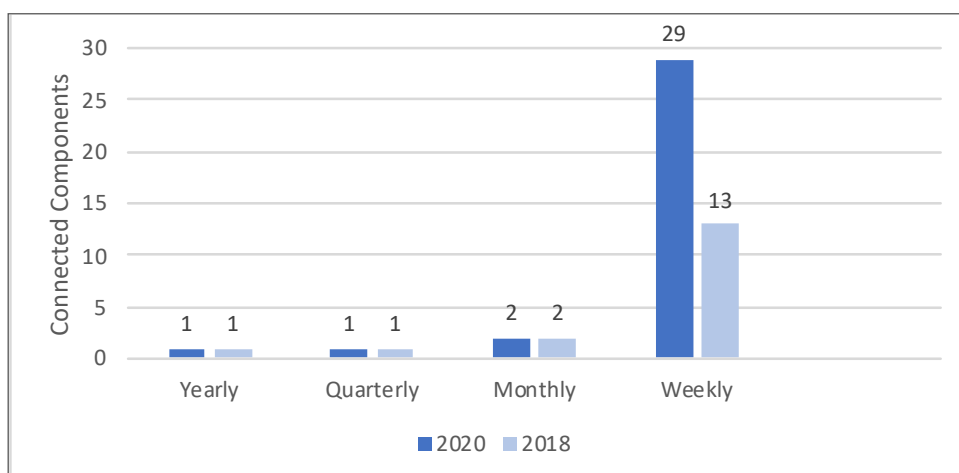
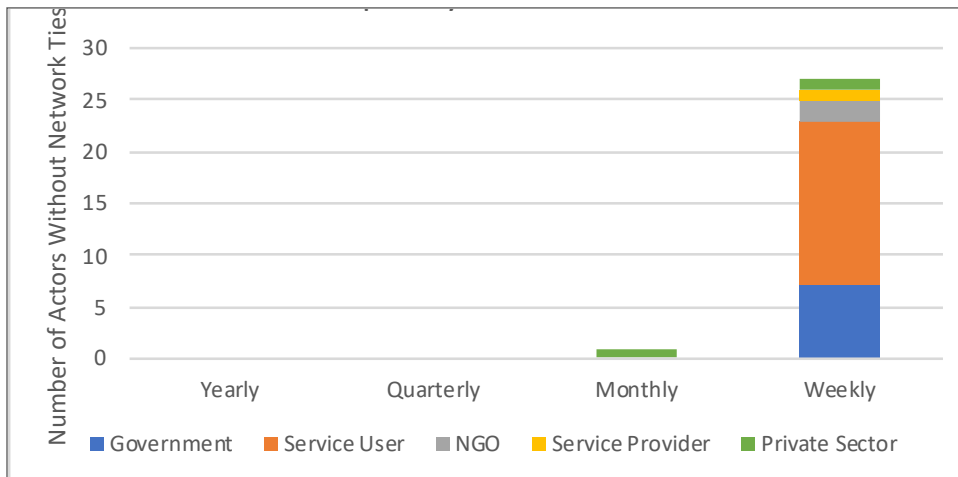


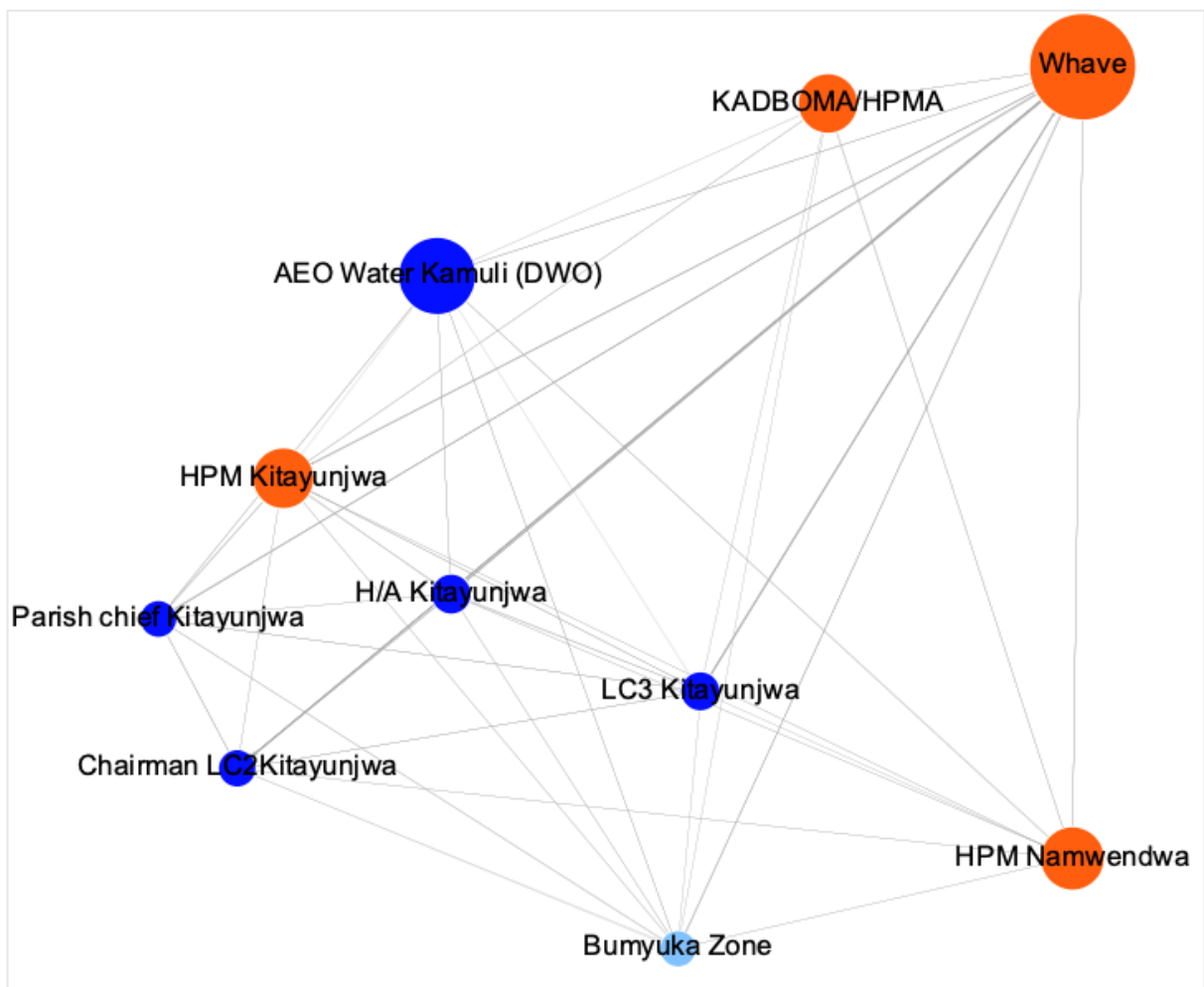
Figure 5: Number of actors by type without any network ties for each frequency of interaction



Community Ego Networks

Ego networks filter the network ties and nodes around a single stakeholder (the “ego”). Figure 6 shows an example of the ego network around the Bumyuka Zone community for all tie types and frequencies.

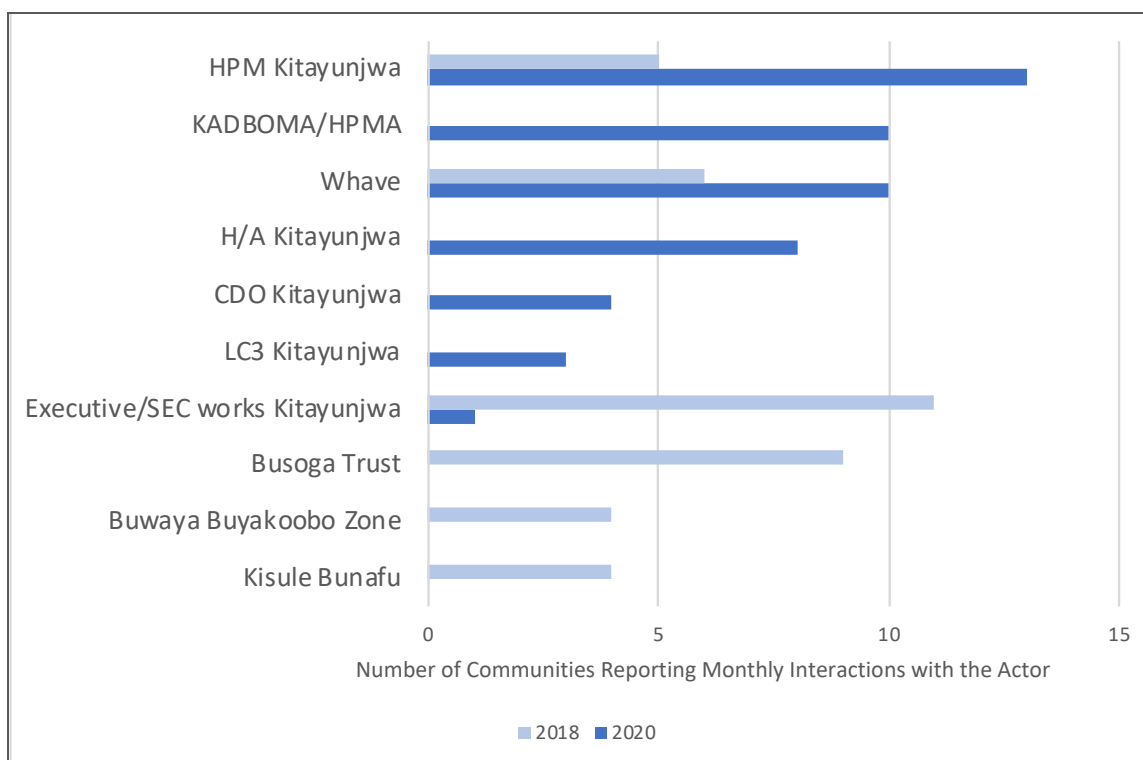
Figure 6: Ego network for Bumyuka Zone for all tie types and frequencies; node size is proportional to betweenness centrality



Consistent with analysis of the 2018 network, ego networks for all tie types on a monthly basis of interaction are analyzed to understand which stakeholders interact with communities most consistently (Figure 7 and 8). Analysis includes all tie types to consider whether or not a relationship of any kind exists between the ego and another stakeholder.

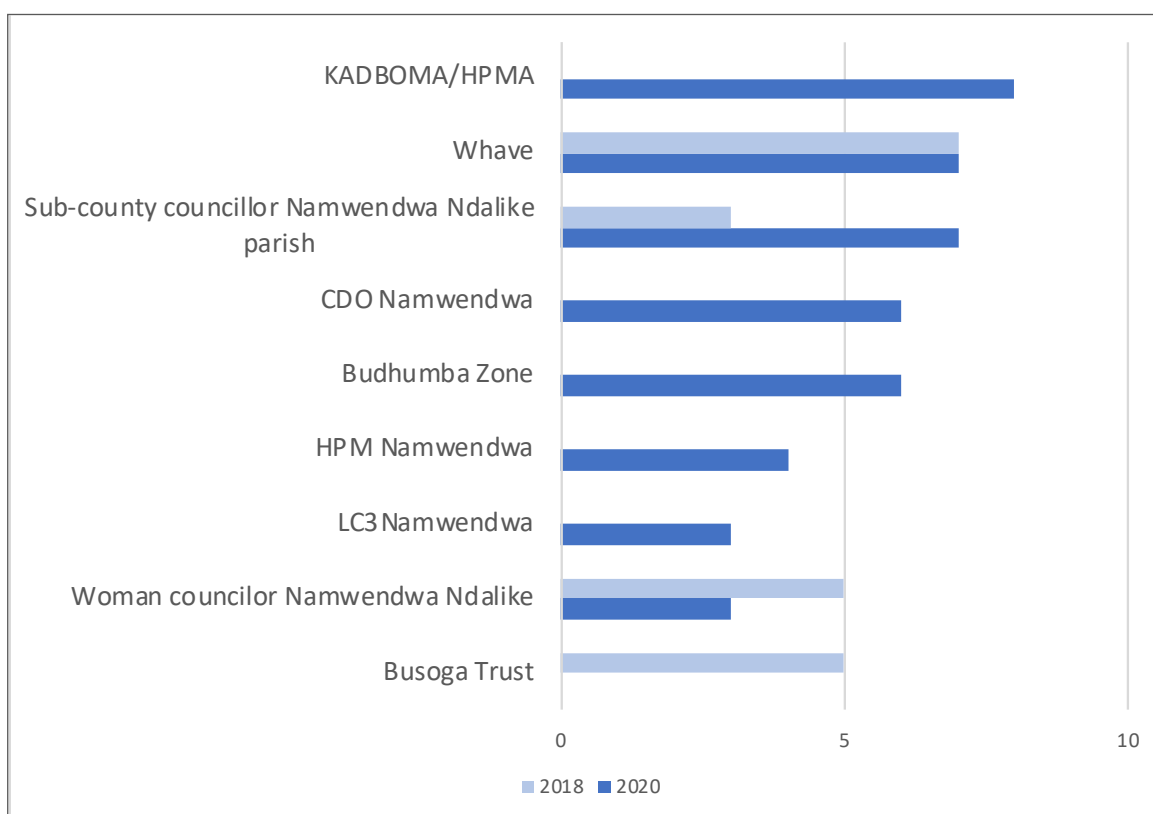
Analysis of community ego networks finds that more stakeholders directly involved in maintenance services are engaging communities in both parishes on at least a monthly basis. These include Whave, the respective area hand pump mechanic, and the HPMA. Busoga Trust, once a stronger presence in these communities, is apparently no longer active in this part of the network due to resource constraints.

Figure 7: Stakeholders interacting with communities in Namisambya Parish on a monthly basis (all tie types)



The gap created by Busoga Trust was filled by the network when the Health Assistant stepped forward. The incumbent sub-county chairperson Kitayunjwa, who was among the candidates vying for the sub-county chairperson seat, used his incumbency to instruct the health assistant to increase his presence in communities so that he could be re-elected.

Figure 8: Stakeholders interacting with communities in Ndalike Parish on a monthly basis (all tie types)



Perceived Network Changes Since 2018

SWS transcribed stakeholder interviews, translated them where necessary, and manually coded them to identify emerging themes. Changes in the network and in Kamuli service delivery are identified by emergent themes from stakeholders responding to the question: “What has changed in this network in the past two years?” Although SWS asked participants explicitly about the network, responses often expanded to encompass perceived changes in the broader Kamuli WASH context to include systemic changes and changes in service levels. This section summarizes key themes that emerged specifically related to changes in network dynamics.

Stronger Community Involvement

“Communities are more aware of their rights as they give reports to [the service provider] in case the [mechanic] falls short of the community expectations.”

– Service User

Some communities are reportedly playing more active roles in service delivery and have strengthened engagement with the broader network. As shown in the network analysis of stakeholders interacting with communities (Figure 7 and 8), communities are now engaging more with both service providers and sub-county government stakeholders. A perceived result of this interaction is that some communities now feel more empowered to vocalize their issues about the

quality of services. There has been increased reporting of breakdowns and of local mechanics that delay their response. Since 2018, the number of calls to the service-provider's toll-free line have increased, with the majority of these calls holding the service provider accountable to the terms of the signed preventive maintenance agreement.

Clarity of Roles Between Stakeholders

“People are owning their water systems as [the service provider] has demystified the thinking that water sources are owned by NGOs and government.”

– Government Office

Another effect of stronger community involvement is an improved understanding of the roles and responsibilities among communities, government, service providers, and NGOs that is benefitting overall service delivery. The clarity of roles has been evidenced by referrals made for particular community needs. For example, if a community is interested in preventive maintenance services, or a community that signed a preventive maintenance service agreement with Whave has an issue, they are referred to Whave for service provision; if, however, the water source is silted, they are referred to the district local government for support. The increased interaction of the network actors has catalyzed the clarity of roles, particularly at the level of community engagement. Network ties from communities to both government and service providers create channels for this communication. In the past, communities blamed government for water source non-functionality, and government could equally blame communities. Currently, if a water source is not functioning, the network actors will investigate logically and identify the right network actor responsible for the issue.

Improved Stakeholder Coordination

“And even our networking as a district with them has improved. You can give a phone call, we can talk to them, we can share in meetings, quarterly meetings. So we have improved. We move as a team.”

– Government Office

Coordination is helping to monitor and supervise service delivery across the district to improve outcomes. One tangible example is a District Water and Sanitation Coordination Committee that meets quarterly. This meeting involves all WASH partners in the district where they report on what they have been doing in the outgoing quarter and plan for the next quarter. The process reduces duplication of services and wasted resources. This change in coordination is quantifiably observable from the increase in betweenness centrality of the DWO (Figure 3).

More Development Partners Involved

“The last two years we have had some, can I say, development partners. Before it was solely Government alone of Uganda or Government of Kamuli to maintain boreholes to sensitize. But for the last two years we have got some development partners.”

– Government Office

The use of the same stakeholder roster for both baseline and endline studies means that new network participants are not captured in the quantitative analysis. Nevertheless, the exit of Busoga Trust from the network since the baseline study provides an example of how organizations can engage and disengage relatively suddenly. The reference to involvement of more development partners includes new service providers as well as funding organizations that have helped to develop infrastructure. A handful of seasonal development partners provided free rehabilitations and construction of new water sources. Unfortunately, many of these organizations, like religious institutions and individual politicians among others, have not conformed to the expectations of government, whereby they sign an agreement that stipulates intent and activities. This lack of coordination frustrates the existing network since the sensitization meetings that development partners carry out do not offer the agreed-upon uniform maintenance content that the network has developed over time.

Effects of COVID-19

The COVID-19 pandemic caused the Government of Uganda to restrict movement and impose a ban on congregating, which made fulfilling the preventive maintenance agreement terms difficult. It proved impossible to hold routine meetings with stakeholders. When the government began to allow smaller meetings, it became necessary to more carefully select the participants. Given this, the service provider emphasized meeting local mechanics more regularly to ensure that preventive maintenance agreement terms are fulfilled. In addition, the service provider offered a six-month payment exemption to all communities that had active contracts. This resulted in an increased number of water sources accessing Whave services, and the mechanics increased their community interactions. COVID-19 also provided the opportunity for the local government of Kamuli District to offer a lockdown exemption to Whave since it offered an essential service and the mechanics needed to travel to all these water sources to ensure that they remained functional even during COVID lockdown.

Conclusions

SWS used Organizational Network Analysis to understand changes in relationships between WASH actors in Kamuli District from 2018–2020. This endline study, conducted in 2020, repeats a 2018 baseline network analysis to understand network changes over the past 2 years, with perspectives captured from stakeholders on how or why these changes occurred. Analysis of the same stakeholder set finds that the number of total network ties remains relatively unchanged since 2018, but analysis of network diameter and density suggests that the network has become more tightly connected over the 2-year period.

Specifically, local stakeholders, such as hand pump mechanics and government officials or councillors involved in preventive maintenance, are increasingly involved in the network and are frequently engaging communities. This relative increase from 2018 suggests a potential shift toward a more sustainable set of relationships that local stakeholders reinforce. In contrast, Busoga Trust, an NGO active in the baseline network, has since exited.

Certain network changes are perceived as having positive effects on service outcomes. At the community level, increased engagement between communities and both service providers and sub-county government stakeholders is described as strengthening participation and accountability from service users. This engagement is also seen as helping to clarify roles between various stakeholders. Now when issues arise, engagement between these actors makes it easier to identify the responsible party to take action more quickly. At the district level, the activity of the District Water and Sanitation Coordination Committee is seen to be improving coordination despite ongoing challenges with new actors entering the district.

Analysis of both network properties and qualitative interviews suggests that the Kamuli stakeholder network is converging around a coordinated vision for rural water services focused on preventive maintenance and dedicated service providers. This approach is having a widely recognized impact on the reliability of rural water services. The challenge remains to see the extent to which services can extend to cover the entire district, and whether all stakeholders can fully institutionalize and embrace the preventive maintenance approach as the new norm.

Kaumuli WASH Network Stakeholders

ID	Label	Level of Hierarchy	Type
1	District Councillor Kitayunjwa	Kitayunjwa Sub-County	Government Office
2	Local Council (LC) 3 Kitayunjwa	Kitayunjwa Sub-County	Government Office
3	Community Development Officer Kitayunjwa	Kitayunjwa Sub-County	Government Office
4	Executive Secretary Works Kitayunjwa	Kitayunjwa Sub-County	Government Office
5	Kisule Bunafu	Namisambya Parish	Service User
6	Kiroba Malulu	Namisambya Parish	Service User
7	Chairman LC2 Kitayunjwa	Kitayunjwa Sub-County	Government Office
8	HPMA Kitayunjwa	Kitayunjwa Sub-County	Service Provider
9	Health Assistant Kitayunjwa	Kitayunjwa Sub-County	Government Office
10	Parish Chief Kitayunjwa	Kitayunjwa Sub-County	Government Office
11	Bunafu Zone	Namisambya Parish	Service User
12	Bulaile Zone	Namisambya Parish	Service User
13	Buwaya Buyakoobo Zone	Namisambya Parish	Service User
14	Bwase Bugobwe Zone	Namisambya Parish	Service User
15	Buwenda Zone	Namisambya Parish	Service User
16	Malulu Zone	Namisambya Parish	Service User
17	Bulegeya Zone	Namisambya Parish	Service User
18	Bukwanga Bukubembe	Namisambya Parish	Service User
19	Buyonga Zone	Namisambya Parish	Service User

ID	Label	Level of Hierarchy	Type
20	Bugulele Zone	Namisambya Parish	Service User
21	Bumyuka Zone	Namisambya Parish	Service User
22	LC3 Namwendwa	Namwendwa Sub-County	Government Office
23	Senior Assistant Secretary Namwendwa	Namwendwa Sub-County	Government Office
24	Community Development Officer Namwendwa	Namwendwa Sub-County	Government Office
25	Female Councillor Namwendwa Ndalike	Namwendwa Sub-County	Government Office
26	Ndalike Trading Centre	Ndalike Parish	Service User
27	Bukoma Bunyirwa	Ndalike Parish	Service User
28	Sub-County Councillor Namwendwa Ndalike Parish	Namwendwa Sub-County	Government Office
29	Sub-County Councillor Namwendwa Parish	Namwendwa Sub-County	Government Office
30	Parish Chief Namwendwa	Namwendwa Sub-County	Government Office
31	Health Assistant Namwendwa	Namwendwa Sub-County	Government Office
32	HPMA Namwendwa	Namwendwa Sub-County	Service Provider
33	Ndalike Trading Center	Ndalike Parish	Service User
34	Busiri Zone	Ndalike Parish	Service User
35	Buyuba Zone	Ndalike Parish	Service User
36	Budhumba Zone	Ndalike Parish	Service User
37	Nambale Zone	Ndalike Parish	Service User
38	Kisege Zone	Ndalike Parish	Service User
39	Kawolera Zone	Ndalike Parish	Service User
40	Vice Chairman LC5 Kamuli	District	Government Office

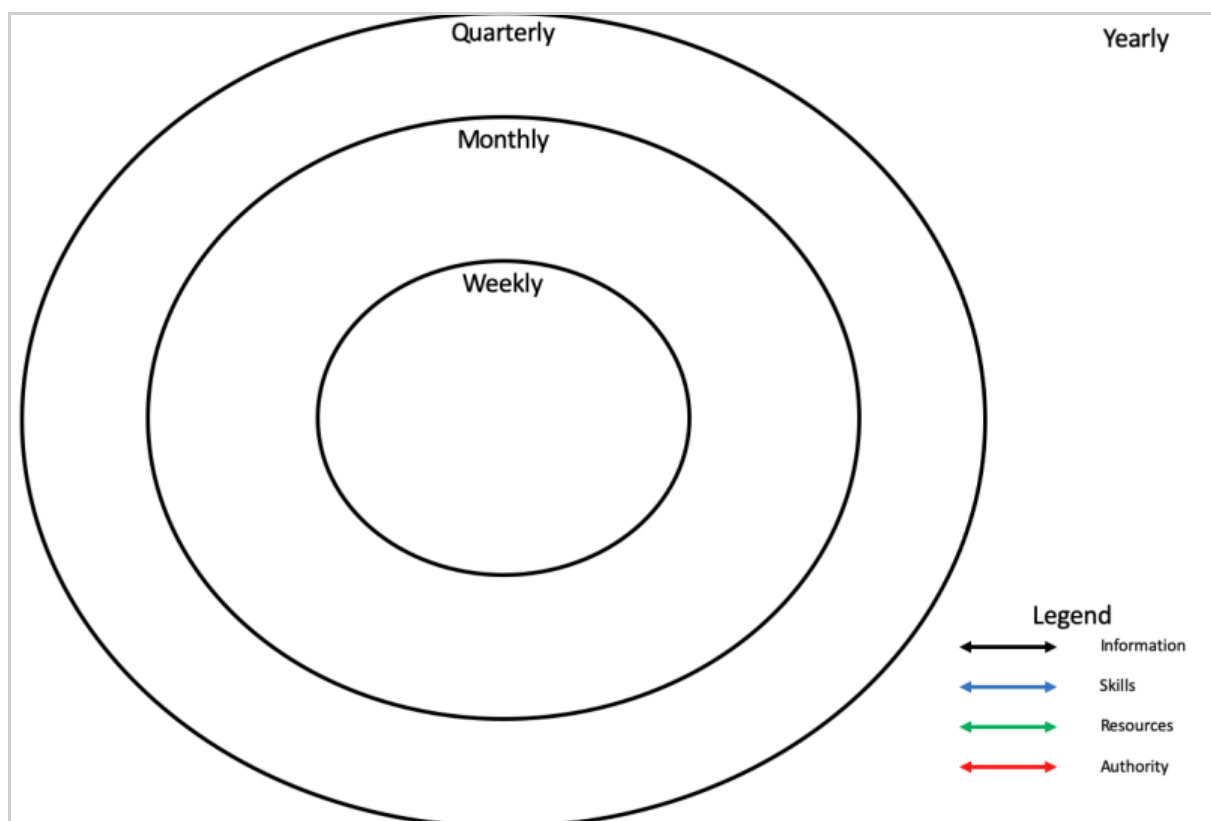
ID	Label	Level of Hierarchy	Type
41	AEO Water Kamuli (DWO)	District	Government Office
42	DHI Kamuli	District	Government Office
43	Speaker Kamuli District	District	Government Office
44	RDC Kamuli	District	Government Office
45	CAO Kamuli District	District	Government Office
46	Development Microfinance	District	Private Sector
47	Whave	District	Service Provider
48	BT	District	Non-Governmental Organization
49	Kadboma/HPMA	District	Service Provider
50	Send a Cow	District	Non-Governmental Organization
51	NWSC	District	Service Provider

Annex B: Interview Protocol

Interview Format

Before the interview, prepare:

- A legend showing different tie colours and descriptions
- A sample image of a completed network (printed or digital)
- A list of actors in the network for participants to select from
- A sheet of flip chart paper with concentric rings labelled Weekly, Monthly, and Yearly



Other needed materials:

- Flip chart paper
- Post-it notes
- Colored markers
- Ballpoint pens
- A notebook
- A digital camera
- An audio recording device

Part 1 – Introduction and Participant Details

The interview begins by introducing the research aims and survey outline. Suggested phrasing:

Whave, in collaboration with Kamuli District Local Government, is conducting a follow-up study on the network of actors involved in water service delivery in Kamuli District and issues affecting the sustainability of services. We are asking you to participate in a brief survey to draw the network of your stakeholder, and to identify both benefits and challenges with this network. The survey should take approximately 30 minutes. The completed network will look like this (show example photo).

Show the example of a complete network, then present the flip chart paper to be used for the interview. Write the name of the stakeholder being interviewed on a Post-it note and place this in the center of the flip chart.

Next, collect the participant's details and, by doing so, confirm their willingness to participate. In a corner of the flip chart, write the participant's:

- First name
- Last name
- Organization
- Position
- Mobile phone number
- Personal email address

Part 2 – Network Mapping

Next, present the list of stakeholders and ask the participant to identify whom they have interacted with over the past year. Relationships can involve any of the four tie types. Suggested phrasing:

From this list of actors, please identify whom you have had a relationship with in the past year. This can be anyone you share information with, give or receive support from, pay or are paid by, or who you influence or control in the water sector.

As the participant identifies each actor, write the name on a Post-it note and place it on the flip chart paper in the appropriate ring to indicate how frequently they interact with the participant.

Next hand the participant the colored markers and present the tie categories, starting with information. For each tie category, the participant is handed the appropriate colored marker and instructed to draw their ties. Describe the tie categories and clarify any questions. Suggested phrasing:

We will now draw the relationships between you and the actors you identified. We will start with information, followed by skills, resources, and then authority. We will use colors to indicate the relationship type arrowheads to indicate direction, and the number of arrowheads to indicate the strength of the relationship. Let's start with this actor. What is your relationship here?

Participants usually grasp the exercise quickly once they have completed one or two examples. It is important that they hold the markers throughout the exercise so that the enumerator does not unintentionally influence the results. Enumerators should be prepared to clarify any questions as necessary while the participant draws the network.

The process continues until relationships for each tie type for each actor have been discussed. For resource ties, the enumerator should also write down the estimated annual size of the resource flow in Ugandan shillings. Check for completeness at the end of the exercise and encourage participants to make any corrections or additions that they see fit.

Please check the network you have drawn and feel free to make any changes. Does anything need to be added or changed?

Proceed to the final part of the interview when the participant is satisfied that the network is complete.

Part 3 – Verbal Interview

This final part of the interview captures participant perspectives of factors affecting water services. Responses are audio recorded. If the participant does not want to be recorded, please take handwritten notes instead.

For all questions, encourage participants to elaborate on their responses through prompts including “tell me more,” “and,” and simply pausing to encourage further commentary. Other than necessary clarifications, enumerators should minimize specific follow-up questions that could influence responses, and instead allow participants to direct the conversation toward what they perceive as most important. If a response becomes too lengthy or redundant, enumerators can interrupt to summarize the point to ensure it is understood correctly, and encourage respondents to move on to new points with the prompt of “what else?” Responses are anticipated to not require more than 15–20 minutes.

Finally, I would like to ask you a few questions about how this network works, and about water services in this district. Is it all right if I record your responses to help me remember everything? [Begin audio recording]

1. In your opinion, what do you think is working well in sustaining rural water services in Kamuli?
2. In your opinion, what do you think are the main problems in sustaining rural water services in Kamuli?
3. What ideas or recommendations do you have about solutions to these problems?
4. How has this network changed over the past two years?

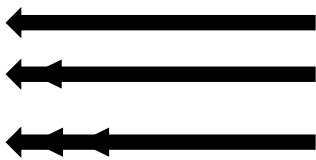


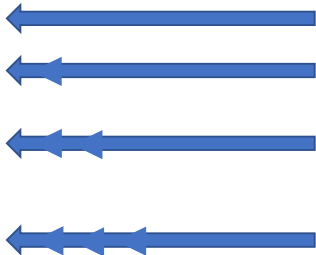
Part 4 – Closing

Thank the participant for their time and inform them about next steps for follow up. Complete the interview by:

1. Taping Post-it notes to the flip chart to make sure they do not come off

2. Taking a photo of the flip chart
3. Sending the flip chart photo and audio recording to Duncan McNicholl via:
 - a. Whatsapp: +255 774 671 758
 - b. Email: drmcnicholl@gmail.com

Annex C: Network Tie Types

	Tie Type	Sub-type	Description
	Information	1 - Download	Information sent from one to the other
		2 - Discussion	Issues are identified, discussed, and clarified
		3 - Dialogue	Exploring assumptions together leads to new understanding between actors
	Resources	Write down the estimated annual amount in UGX	
	Authority	1 - Influence	Ability to influence the interests of others indirectly
		2 - Authority	Control; the authority able to enforce consequences for non-compliance
	Skills	1 - Consulting	Temporary skill provision to complete a task
		2 - Training	Providing temporary skill building activities
		3 - Coaching	On-going customised interaction to support participants' ability to overcome challenges
		4 - Co-Development	Supporting another actor to develop their own way of doing things