

BASELINE SURVEY

Status of Reliable Access to Safe Water in Mityana District

Prepared by Whave Solutions for the Team Up Consortium: Action 4 Health Uganda (A4HU), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Deutsche Stiftung Weltbevölkerung (DSW), Hanns R. Neumann Stiftung (HRNS), Siemens Stiftung and Whave Solutions



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LIST OF ACRONYMS

HPM – Hand pump mechanic
 HPMA – Hand pump mechanic association
 MWE – Ministry of Water and Environment
 O&M – Operation and maintenance
 PAWD – Prepaid Automatic Water Dispenser
 PMCR – Preventive maintenance and continuous renovation
 PPP – Public Private Partnership
 VSLA – Village saving and loans association
 WSC – Water and sanitation committee

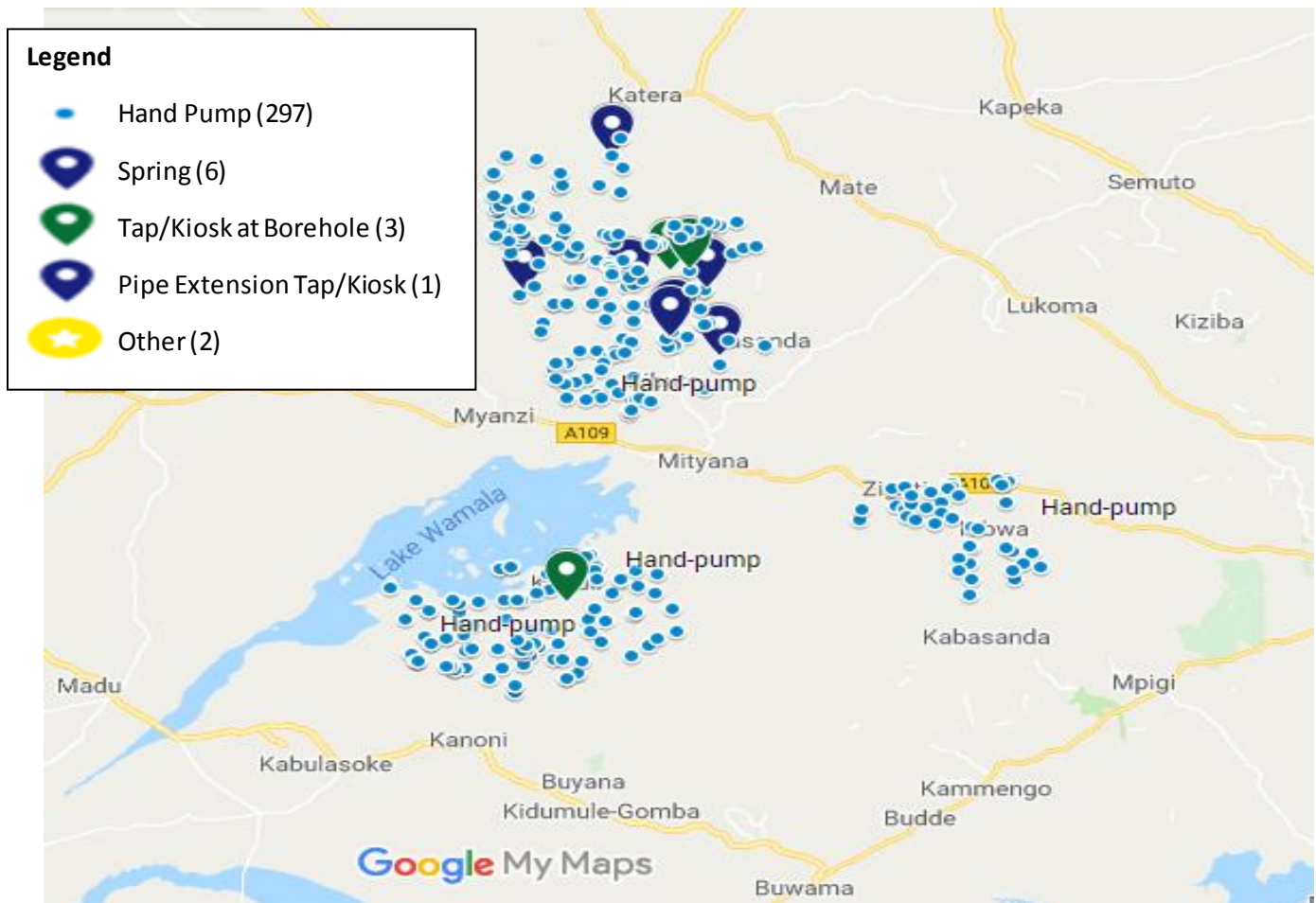
EXECUTIVE SUMMARY

Whave Solutions is one of the members of the TeamUp Consortium, also named the “Improved Livelihoods perspective for Youths in Rural East Africa” project which is active in five sub counties in Mityana district: Maanyi, Banda, Malangala, Bulera and Kalangaalo.

The role of Whave in the consortium is to work together with rural communities, local government and other stakeholders such as central government, NGOs and Development Partners, to establish self-sustaining systems for reliable safe water supply in rural areas.

As a first step in addressing this task, Whave conducted a baseline survey of 309 water sources of which 297 were hand-pumps. The survey records functionality status and other characteristics. This report provides a basis for measuring progress with our intervention in the five target sub counties of Mityana: Maanyi, Banda, Malangala, Bulera and Kalangaalo.

The survey findings show that the percentage of hand pumps which are fully functional is 27%. The Sub County with the lowest functionality is Banda at 15% while Kalangalo had the highest functionality at 30%.



The implication is that despite installations of boreholes and hand-pumps in recent years, rural families in these sub-counties do not have adequate access to safe groundwater 73% of the time.

The government of Uganda projects a functionality rating of 95%. The survey therefore found a situation which falls very short of the official target.

The survey investigated several characteristics of the communities surveyed. For example, it found that only 28% of the communities have active water and sanitation committees.

The survey results demonstrate a strong need for a freshly designed systemic intervention to improve and assure functionality of water sources in Mityana, in order to achieve the SDG 6.1 and achieve Uganda's Vision 2040 of universal access to safe water.

1.1 INTRODUCTION AND BACKGROUND

Whave Solutions is one of the implementing partners in the TeamUp Consortium, also named the "Improved Livelihoods perspective for Youths in Rural East Africa" project which is active in five sub counties in Mityana district: Maanyi, Banda, Malangala, Bulera and Kalangaalo.

The role of Whave in the consortium is to work together with rural communities, local government and other stakeholders such as central government, NGOs and Development Partners, to establish self-sustaining systems for reliable safe water supply in rural areas. As a first step in addressing this task, Whave conducted a baseline survey which maps the presence of rural water sources and records their functionality status and other characteristics.

The other implementing partners in the Consortium are HRNS and A4HU. This project aims at improving the prospects for youths in rural areas in Mityana district by working in three thematic areas;

- i. Improving health with a particular focus on SRHR, on specific problems related to water, sanitation and hygiene that impede youth development;
- ii. Improving the economic situation of youth and their families through agribusiness and entrepreneurship support; and
- iii. Enabling youth to make their voices heard in decision making processes.

Whave's interventions are geared towards achieving thematic areas (i) and (ii) by establishing a sustainable preventive maintenance system to achieve adequate functionality, therefore increasing access to clean and safe water in communities.

Youth empowerment will underpin all activities. Gender mainstreaming and women's empowerment will further cut across all program areas. Through working with and investing in youth and their central areas of life (health, employment, political participation and self-determination, with a special focus on gender issues) the program will contribute to establishing the conditions for a demographic dividend.

Direct beneficiaries of the program will be over 50,000 female and male youth aged 15 to 30 years. The program will target in-school and out-of-school youth as well as their parents, the wider community, teachers, influential stakeholders including local leaders from the Community Action Committees and local and district government actors and health facilities and workers.

1.2 Objectives of the Survey

Specifically, the survey aimed to:

- i. To determine the level of functionality of the water sources in the five target sub counties;
- ii. To identify the key factors affecting functionality of the water sources;
- iii. To identify the number, the distribution and location of existing water sources in the five sub counties; and

- iv. To study actors in preventive maintenance and other existing maintenance strategies in the five sub counties.

2. METHODOLOGY

2.1 Data collection

A survey questionnaire was designed by Whave to capture information in five key areas including;

- i. Water source description (ownership, management, location, usage, components, functionality, water quality, installation/repairs history, issues and alternative sources);
- ii. Water source production, yield and storage (seasonal variation and irrigation usage);
- iii. Water Source Finances (collection, quantity, rates, management, (re)sales, contributors, timing, contracts, VSLAs, banking, by laws, committees);
- iv. Survey observations (security, condition, damage, surroundings, location, functionality, pictures, cleanliness, ease of use, potential and yield of the water sources); and
- v. Technical observations (depth of pump, water levels, pipes, mechanic assessment).

Key indicators included the quality of water, quantity of water, payment for repairs and maintenance, satisfaction of the communities with the HPMs, as well as Knowledge, Attitude and Practice (KAP) in the target sub counties.

Data was collected using tablets and synchronized to a collection data base. Data quality was maintained through a constant review of the responses to ensure high quality of data, and GPS coordinates were taken for each water source to ensure that all water sources were enumerated once.

The project staff who worked as the research assistants were given a two days training on the tool, they performed role plays, and the tool was pre-tested in Butayunja Sub County where 10 water sources were sampled. This pretest feedback guided the formulation of the final tool that was eventually used for the survey.

During the survey, all the improved existent water sources across the five sub counties were enumerated and visited which gave a total of 309 water sources. Data was collected using a customized Mwater software tool designed with logically connected questions.

2.2 Data Analysis

Data was analyzed using Excel and R Studio to produce descriptive statistics (frequencies and percentages were mainly used, whereas charts, bar graphs and pie charts were also generated) so as to interpret and logically present the data. To support the quantitative data, research assistants' observations and experiences from the field and interactions with the Mityana district water officer were put into consideration to check consistency of the data.

3. FINDINGS

A total of 309 improved water sources were enumerated in the five sub counties of Banda, Bulera, Kalangaalo, Maanyi and Malangala, out of this 297 were hand pumps, 6 were springs, 4 were piped extensions, 2 were water storages. The Table below shows the water sources and their distribution:

Type of Source	Banda	Bulera	Kalangaalo	Maanyi	Malangala	Total
Hand-Pump	40	63	92	58	44	297
Pipe Extension Tap/Kiosk	0	1	0	0	0	1
Spring	0	4	2	0	0	6
Tap/Kiosk at Borehole	0	2	0	1	0	3
Water Storages	0	2	0	0	0	2
Grand Total	40	72	94	59	44	309

3.1 Number of Households sharing a water source.

The table below shows statistical data on the number of houses sharing a water source. On average the number of houses sharing a water source in the 5 Sub Counties was found to be 70.

House hold that share from the water source	Banda	Bulera	kalangaalo	Maanyi	Malangala	Total
<26	1	18	12	4	8	43
26-50	17	13	27	12	9	78
51-75	0	7	7	9	9	32
76-100	18	8	20	14	6	66
101-200	4	14	20	14	10	62
201-300	0	4	3	3	1	11
>300	0	6	4	3	0	13
Grand total	40	70	93	59	43	305

3.2 Ownership of water sources

94.8% were found to be community water sources, 4.5% are school water sources and 0.7% are health center units' water sources.

3.3 Depth of boreholes

31% of respondents were unable to inform the surveyors of the depth of the well and it was not possible to find this information from other sources. Of the 69% where the depth was known, 61% had depth less than 30m (labelled "shallow wells" by the MWE), and 39% were "deep wells", meaning that they exceed this depth threshold.

Type of well	Banda	Bulera	kalangaalo	Maanyi	Malangala	Total
Shallow well	7	29	31	37	13	117

Deep well	21	12	17	12	14	76
Depth not known	12	22	44	9	17	104
Grand total	40	63	92	58	44	297

3.4 Functionality

The survey found that 27% of the hand pumps are fully functional, and 73% of hand pumps are not adequately functional.

The table below disaggregates the data into three categories: fully functional, not functional and mal-functional.

A mal functional source was defined conservatively as one from which water does not flow near to adequate levels, that is, it fails to fill even half a 20l jerry can at 60 strokes.

A fully functional water source is one which is working and when pumped for 60 strokes, it fills a 20 liter container (jerry can). This 60-stroke test is the official manufacturer's instruction on how a hand-pump should be working. It should fill a 20litre jerry can full, after 60 strokes. If it fails to do this, repairs are needed, because water users are not receiving adequate service and will tend to avoid using the source, because it is harder work and slow to collect water, such that queues are too long. Also, if repairs are not made when the 60-strke test fails, more expensive damage will result.

In the case of this survey, sources were recorded as malfunctioning only if they were very seriously malfunctioning, as indicated by failure to fill even half a jerry can.

A non-functional water source is one which does not produce any water at all.

On average in the five sub counties, 27.3% of the hand pumps were fully functional, 34.3% mal functional and 38.4% are not functional.

Total number of pumps surveyed	297	100%
Fully functioning pumps	81	27%
Malfunctioning pumps	114	39%
Not functioning pumps	102	34%
Not adequately functioning (malfunctioning + not functioning)	216	73%

The pie chart below visually shows the proportion of functionality in the five Sub Counties, with blue color showing that 73% are not adequately functional.

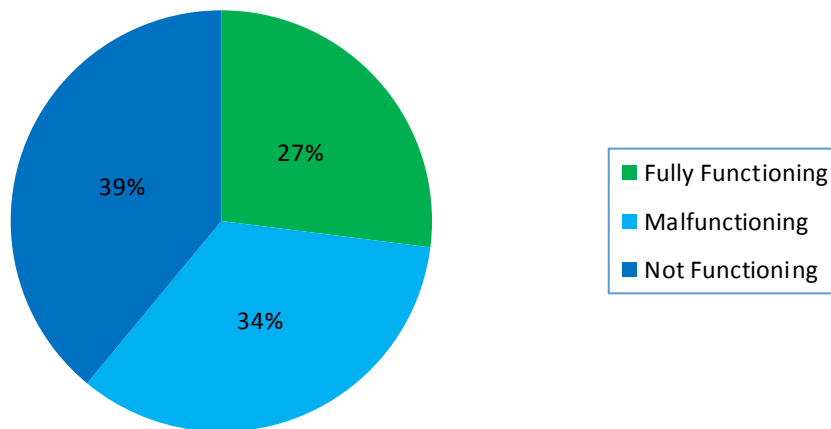
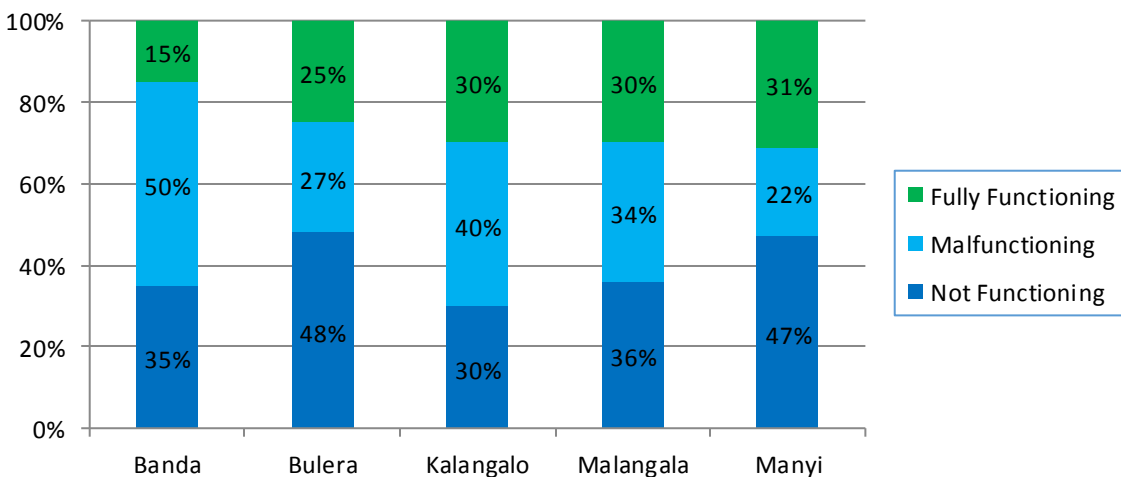


Figure 1: Functionality of Hand Pumps

3.4.1 Functionality per Sub County

The chart and table here show the functionality per Sub County.

Sub County	Number of Pumps Surveyed	Fully Functioning Pumps		Malfunctioning Pumps		Not Functioning Pumps		Not Adequately Functioning	
Banda	40	6	2%	20	7%	14	5%	34	12%
Bulera	63	16	5%	17	6%	30	10%	47	16%
Kalangalo	92	28	9%	37	12%	27	9%	64	21%
Malangala	44	13	5%	15	5%	16	6%	31	11%
Manyi	58	18	6%	13	4%	27	9%	40	13%
Total	297	81	27%	102	34%	114	39%	216	73%



3.3.2 Functionality versus Age

The year in which pumps were installed was reported by respondents. However, respondents were able to identify the years in which major rehabilitations or repairs had been done. Therefore, it was not possible to correlate malfunctioning and non-functioning pumps against date at which they were installed or rehabilitated.

3.3.3 Break down frequency and duration

Our respondent information indicated that 61% of hand pumps broke down at least once in the last year, and 31% of hand pumps did not break down at all in the last 12 months.

The common causes of these breakdowns were, worn out cylinder parts, broken chains, corrosion in riser pipes and rods.

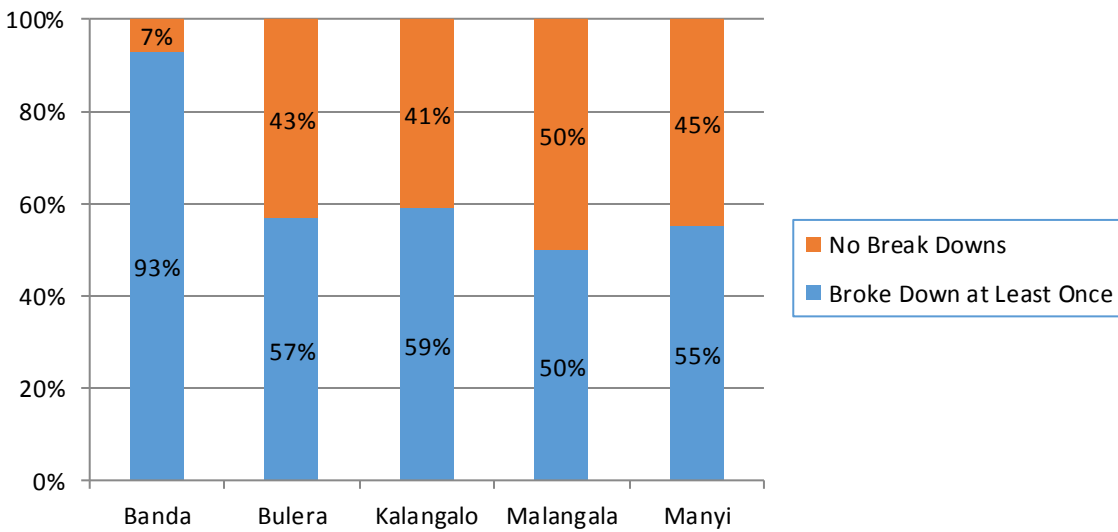


Chart 3.3.3a: Break down frequency of hand pumps in the last 12 months

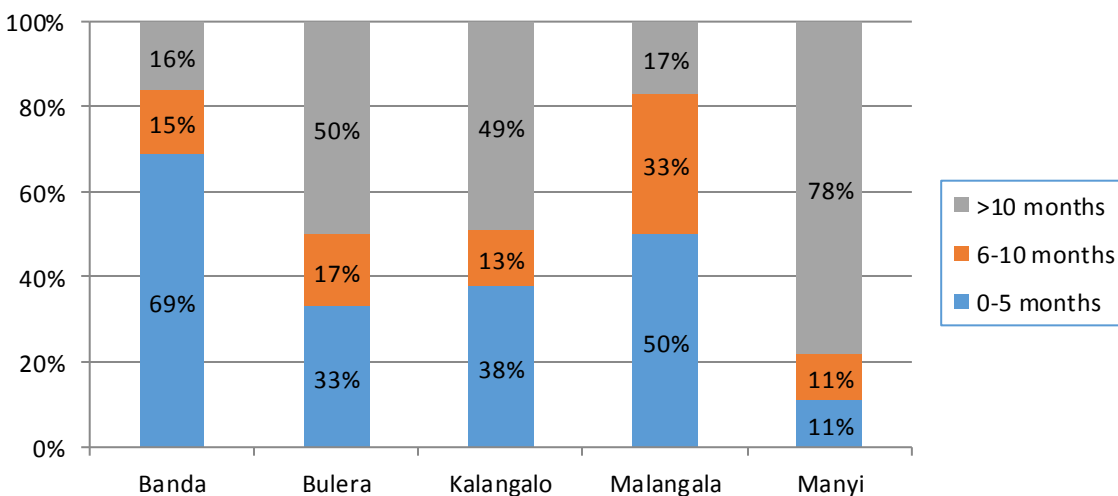
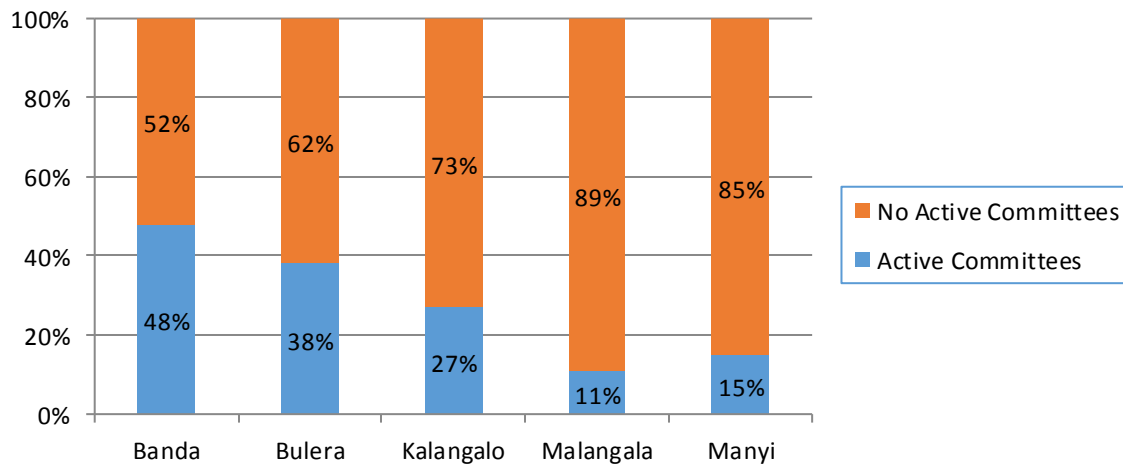
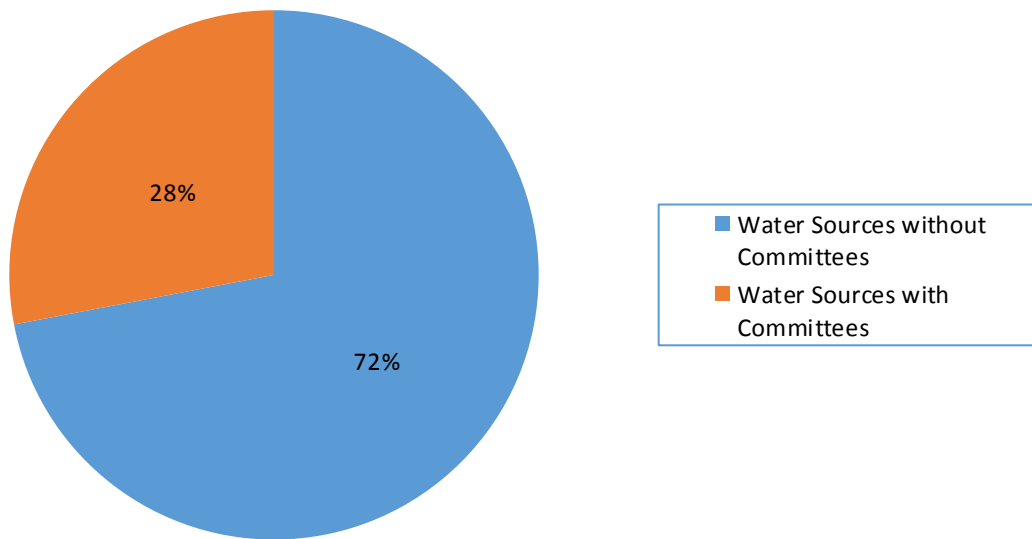


Chart 3.3.3b: Break down duration of hand pumps

3.3.4 Water and Sanitation Committees (WSCs)

It was found that 72% of the surveyed water sources did not have active/functional WSCs, and 28% of water sources did have active WSCs.

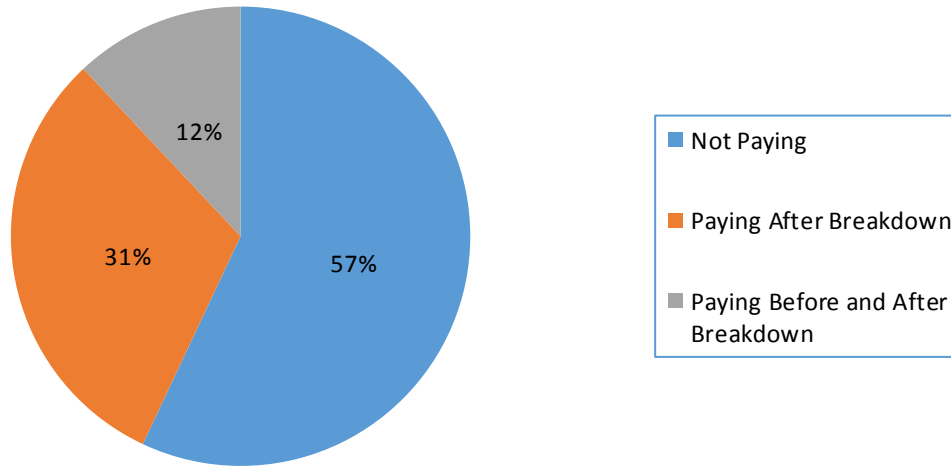


Banda has the highest number of active communities while Malangala has the lowest number of active committees.

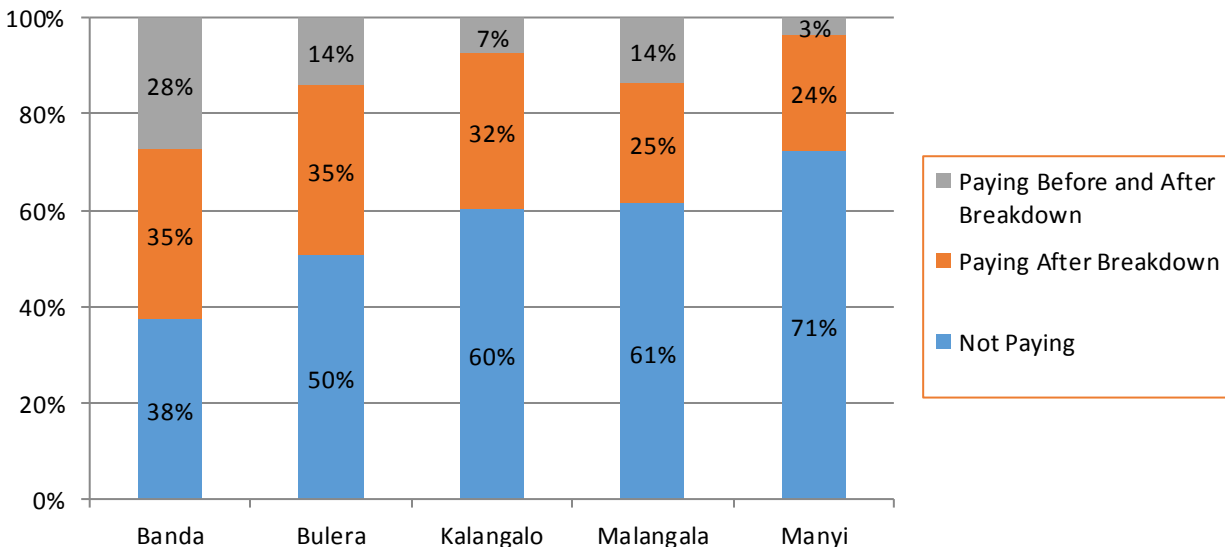
3.5 Payments for Repairs and Maintenance before and after break down

Out of the 297 hand pumps that were enumerated, 133 hand pumps (43%) pay for repairs and maintenance, and 175 water sources (57%) do not pay.

Out of the 43% that do pay, 31% of communities in the five sub counties stated that they paid after breakdown while only 12% of communities claimed to pay before breakdown as well as after. None of the communities paid before breakdown only. This is shown in the pie chart here.

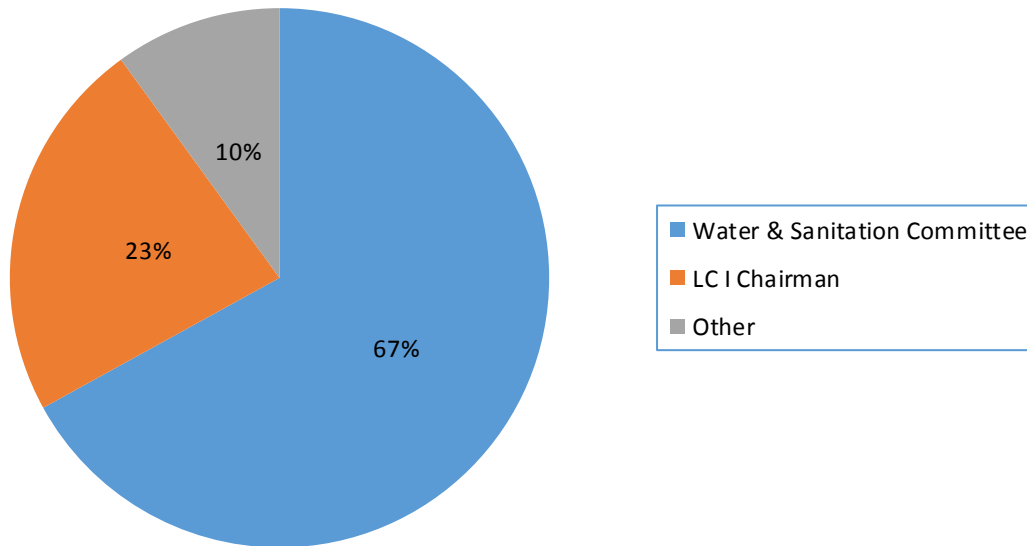


Those who paid after break down stated that they determined the amount depending on the cost of the repair while those that paid before and after break down, stated prior-payment sums which on average amounted 2000/= per house hold per month. However, evidence was not collected as to how much of this stated fee payment was actually paid in practice.



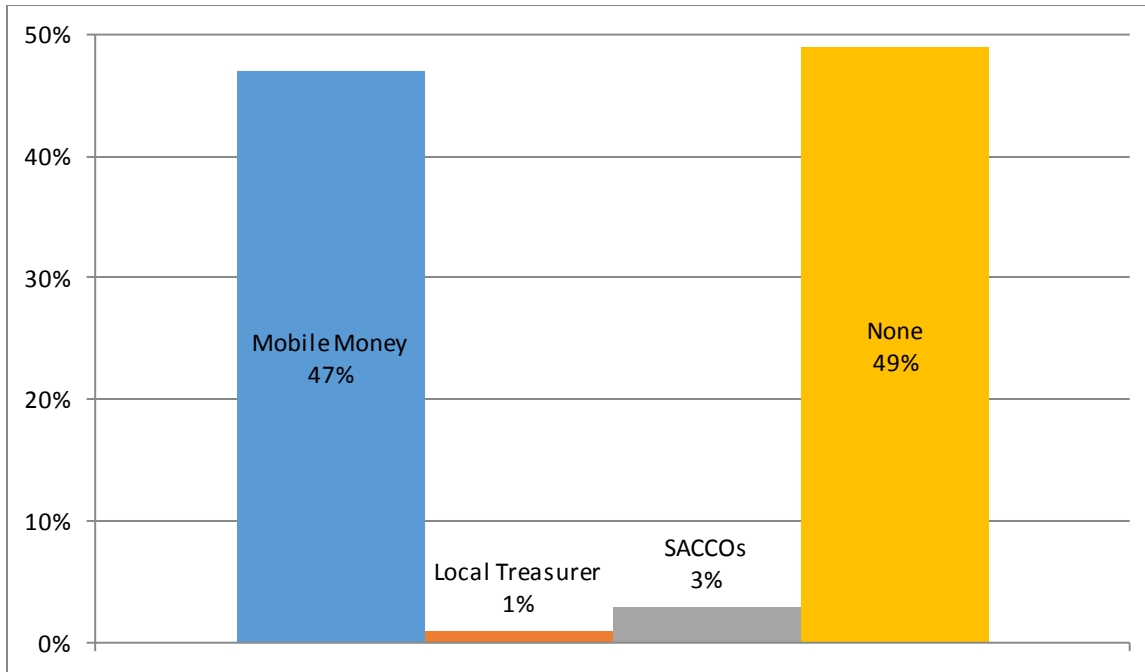
3.5.2 Collection of O&M Fees

The survey also sought to find out who collects the money for repairs and maintenance amongst the 43% which pay fees. The chart here shows the breakdown of fee recipients amongst these communities.



3.6 Community banking methods without regard to water maintenance

The survey assessed the banking methods and institutions used by the communities, without reference to water maintenance. It was found that 47% of communities rely on mobile money. The alternatives that were cited were SACCOs at 3% and Local treasurers at 1%. 49% of respondents did not use any banking method.

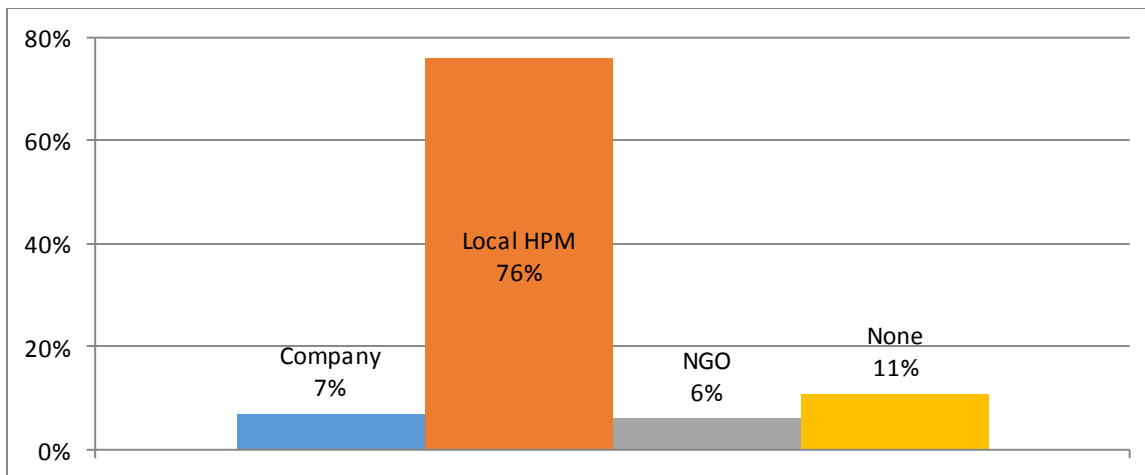


3.7 Presence of VSLA groups

The survey found that there were 135 VSLA groups across the 5 Sub Counties.

3.8 Actors participating in Borehole repair and maintenance

The survey has found that local HPMs are playing a key role in repairs and maintenance at 76% as compared to efforts from other actors such as NGOs and companies whose total contribution is at 24%.



3.8.1 Hand Pump Mechanics

A Hand Pump Mechanics Association (HPMA) was constituted in Mityana District some years ago with 40 registered hand pump mechanics., However, out of this number, it was found that only

18 are active hand-pump mechanics at the present time, having renewed their membership with the HPMA in 2018/These mechanics respond to borehole break downs.

4. Challenges

In some communities, the local leaders misunderstood the objectives/purpose of the survey. In such communities the common phenomenon from the leaders was that Whave was scouting to identify places that were water stressed so as to provide new boreholes. So, these leaders said their communities did not have boreholes at all. Whereas in other communities' leaders perceived that we were only interested in deep boreholes and so they gave little consideration to shallow wells that were existent in the community. In such situations the research assistants went an extra mile to clearly explain the objectives of the survey, and this resulted into positive co-operation from the community leaders and members. The navigation guides were also relevant in mobilizing respondents, identifying the water sources and making clarifications in relation to local community issues and questions that were arising

On a few occasions the research assistants encountered respondents who did not have sufficient information about the water sources. This caused delays considering that the research assistants and the navigators had to endeavor to find the right information by looking for more informed respondents within the same community.

Some water sources had been abandoned for a very long time and accessing such sources was difficult because they were covered in thick bushes. In such cases the research assistants had to leave their motor bikes quite a distance away to walk down the valleys to reach such water sources.

In Bulera, Kalangaalo and Banda sub counties, the research assistants encountered communities that had lost confidence in HPMS who cheat them, take their borehole parts in pretense of replacing them and they never return. Because of this, communities judged our efforts with a profound belief that it was the same mechanics who had returned to cheat them and so they were hesitant and rather reserved in sharing information. On this the research assistants endeavored to build up rapport with the respondents so as to create confidence in them.

The research assistants had limited access to internet for the purpose of synchronizing the collected data to the main server, and often times it took 2 or 3 days to have the data fully uploaded by each research assistant.

5. OBSERVATIONS

During the survey, research assistants, generated a list of points of what they learnt through field conversations and engagements with communities, some of these include;

1. Communities are largely subsistence farmers;
2. There is profound evidence that water users are able to afford and contribute O&M fees. However, the reason so many are not paying O&M fees is largely because of poor accountability and transparency of WSCs, and distrust of mechanics

3. Communities are aware that they are supposed to be paying O&M fees, though they are reluctant to meet their obligations for various reasons including overcharging by the mechanics, mismanagement of fees by the WSC, poor record keeping and poorly organized committees;
4. Water and sanitation committees are largely not active and the issue of WSCs is one of the factors affecting functionality in the 5 sub counties. Nonexistence of active water and sanitation committees has resulted into poor water source management, and this has subsequently resulted to reluctance of communities to pay for O&M fees, so there is no revenue readily available to hire a HPM and purchase spare parts.
5. The district and sub county stakeholders like NGOs, tend to prioritize establishment of more water sources without paying substantive attention to maintenance of existing water sources.
6. Communities are aware of the VSLA models and introducing this concept will not be a whole new idea. It is therefore recommended that a study on the effectiveness of this groups is done so as to identify capacity gaps which will inform the development of capacity building initiatives to strengthen them, stream line their activities and where necessary create new groups for communities at point water sources.
7. There are very many other players in the WASH sector in Mityana and they include; Religious institutions (Catholic Church, Muslim community), Wells of Life, A chance for children, Water to thrive and Partnership for community transformation. Most water sources constructed by the religious institutions and local leaders are done without consultation and supervision from the district water office. The district water officer gets to know about these sources when they break down and the communities are demand for repair services. Despite all these players, functionality levels are very low so that community members are commonly using for drinking water streams, open ponds, rivers, unprotected springs, lake among others whose water is not clean and safe. This exposes them to water borne diseases which in turn impacts negatively on their health
8. Irrigation is not a common practise though communities are largely interested in Irrigation technologies;
9. There is a dry belt zone in Bulera Sub County and this zone crosses along 2 Parishes in Bulera, and these places are highly water stressed;
10. Silting of boreholes is a common occurrence in Kalangabo Sub County;
11. Banda and Malangala Sub Counties have significant cases of salty water sources
12. There are more shallow wells than deep wells in the 5 Sub Counties.
13. To sustainably improve functionality, there is need to review the whole O&M structure for point water sources rather than focusing on the apparent challenge of the unwillingness of the water users to own and manage their water sources.
14. A preventive maintenance structure that addresses the lack of trust in WSC leaders and HPMs is highly recommended to sustainably increase willingness to pay, improve functionality of water sources, and responsiveness of HPMs.
15. It is worth noting that although Banda Sub County has the highest break down frequency, it also has the shortest breakdown duration. An interesting correlation is that it has the

highest number of active WSC and most of these members are women, there are few fresh water sources, and the number of water users sharing a water source is high. It is also noteworthy that Banda sub county communities lead in paying before break down.

APPENDIX

QUESTIONNAIRE ON COMMUNITY SOURCE MAPPING IN MITYANA DISTRICT

Questionnaire Number: ___|___|___|___|

SECTION A: DESCRIPTION	
Enumerator name	
Respondents name (s)	
Date of observation	
District	<input type="checkbox"/> Mityana
Sub county	<input type="checkbox"/> Bulera <input type="checkbox"/> Banda <input type="checkbox"/> Maanyi <input type="checkbox"/> Kalangaalo <input type="checkbox"/> Manalangala <input type="checkbox"/> Others Specify
Village of interview	
Is the respondent living in this village	<input type="checkbox"/> Yes <input type="checkbox"/> No
Specific source name(If an extension tap, name of the extension)	
What type of source is this	<input type="checkbox"/> Pipe extension tap / kiosk <input type="checkbox"/> tap/kiosk at borehole <input type="checkbox"/> Hand pump <input type="checkbox"/> Spring Others Specify
Who owns the source	<input type="checkbox"/> Community <input type="checkbox"/> Private <input type="checkbox"/> Institution
Name of the owner	
If Hand pump, provide the DWD number	
GPS Location	
Is the respondent using water from this source when it is working?	<input type="checkbox"/> Yes <input type="checkbox"/> No
How many household share from this source/tap?	
Please take a picture of the water source /tap	
If piped, how many extension taps	
If piped, who is managing the whole distribution?	
Was the source ever part of Whave?	<input type="checkbox"/> Yes <input type="checkbox"/> No
What is the name of the source according to the MWE Database	
Is the Pump currently working?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If pump is not working, when did it stop working?	
When working, are there any problems with water produced?	<input type="checkbox"/> Yes <input type="checkbox"/> No
When working, are there any problems with	<input type="checkbox"/> Taste <input type="checkbox"/> Smell <input type="checkbox"/> Others specify
When do these problems with water occur	

When was the pump/ spring installed?	
Who installed the source?	
How long has the source been not working?	
What steps have been taken to solve the issue?	
How many times last year has your pump broken down?	
What broke down, and for how long was it broken down?	
Are there any alternative water sources within 15 minutes' walk from here (1km)	<input type="checkbox"/> Yes <input type="checkbox"/> No
What are these nearby sources?	<input type="checkbox"/> Hand pumps <input type="checkbox"/> Piped Kiosks/taps <input type="checkbox"/> Unprotected spring <input type="checkbox"/> Protected spring <input type="checkbox"/> Open well pond <input type="checkbox"/> River/streams <input type="checkbox"/> Lake <input type="checkbox"/> Wet land/swamps <input type="checkbox"/> Others specify
SECTION B:YIELD,STORAGE &PRODUCTION	
When the pump is working, does it produce water in dry months of the year?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If no, how many months does it dry out?	
When working, does it produce water every day?	<input type="checkbox"/> Yes <input type="checkbox"/> No
During one day, does it dry out before everybody can collect	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, does it dry early many days or few days?	<input type="checkbox"/> Many <input type="checkbox"/> Few
Is there any community or village water storage?	<input type="checkbox"/> Yes <input type="checkbox"/> No
How large is the water storage	
Is the community water storage functional?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Please take a picture of the community water storage	
Are people interested in planting crops during dry season	<input type="checkbox"/> Yes <input type="checkbox"/> No
What type of crops are mostly planted during dry season?	
Where do they get water for watering their crops during dry seasons	
SECTION C: FINANCE	
Is money collected to pay for repairs?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, When is it collected?	<input type="checkbox"/> Before breakdown <input type="checkbox"/> After breakdown
Who is money paid to?	
If yes, how much do they pay (and how)?	
What kind of mechanic do you use to repair or maintain your Hand pump?	<input type="checkbox"/> Company <input type="checkbox"/> Local individual <input type="checkbox"/> NGO
Give the name of the NGO/Company/Individual	
Do water vendors(water resellers) use this source	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, how much do they pay (and how)?	

If yes, whom do they pay?	
Do business use this source	<input type="checkbox"/> Yes <input type="checkbox"/> No
Which businesses use this source	<input type="checkbox"/> Builders <input type="checkbox"/> Restaurants <input type="checkbox"/> Washing bay <input type="checkbox"/> Others specify <input type="checkbox"/> Do not know
Do they pay for water?	<input type="checkbox"/> Yes <input type="checkbox"/> No
How much do people doing business pay for water and how?	
How much is collected per household before breakdown?	
Is the source under prepaid service?	<input type="checkbox"/> Yes <input type="checkbox"/> No
How much do people pay before breakdown (and how)?	
If prepaid, does company/NGO/Individual first sign contract with the community?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is there any VSLA banking method used by this community?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, how many VSLA groups are there in your community?	
Are there any other banking methods used by many individuals in this community	<input type="checkbox"/> Mobile money <input type="checkbox"/> SACCOs <input type="checkbox"/> Commercial banks <input type="checkbox"/> Banking agents <input type="checkbox"/> Y Others specify
Are there water committee by-laws for this source?	<input type="checkbox"/> Yes <input type="checkbox"/> No
What do the by law's say people should pay and how?	
Is there a water user committee active?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If there is a water user committee, What positions on the committee are filled and active?	<input type="checkbox"/> Chairman <input type="checkbox"/> Secretary <input type="checkbox"/> Treasurer <input type="checkbox"/> Mobilizer <input type="checkbox"/> Others Specify
List the names, position and phone number of WUC committee	
SECTION D: SURVEYOR OBSERVATIONS	
Is there fence around the source	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the fence in good condition	<input type="checkbox"/> Yes <input type="checkbox"/> No
Please take a picture of the fence	
Is the concrete seal or spring wall damaged/ cracked?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Please take a picture of the damaged /cracked concrete seal or spring	
Is there a pit latrine within 30 meters from the sources	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the ground levelled and sloping away from the source to avoid ponding?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the drainage channel blocked	<input type="checkbox"/> Yes <input type="checkbox"/> No
Please take a picture of the drainage channel	
Is the ground clear of anthills that could damage the source?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is drainage water allowed to pool?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Please take a picture of the pooled drainage water?	
Are there signs that animals have been within 10 meters of the source	<input type="checkbox"/> Yes <input type="checkbox"/> No

Is the source area clean?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Once water is flowing, pump 60 full strokes into a 20 liter jerry can, how full is the jerry can	<input type="checkbox"/> Empty <input type="checkbox"/> Half <input type="checkbox"/> Quarter <input type="checkbox"/> Full
How many strokes until the pump produces water	
Is the pump handle light	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not a hand pump
Is the handle loose	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not a hand pump
Does the pump make thumping noise when operating	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the foundation of the Apron proper?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are there any screws or bolts missing?	<input type="checkbox"/> Yes <input type="checkbox"/> No
SECTION E: TECHNICAL DETAILS	
What is the skill/ occupation of the informer?	
Respondent name(s)	
How does the informer have special knowledge about the water source?	
Does the chain fold on the downward stroke?	<input type="checkbox"/> Yes <input type="checkbox"/> No
How was the well dug?	<input type="checkbox"/> Hand dug/ Auger <input type="checkbox"/> Drilling machine <input type="checkbox"/> Others Specify
Which parts of the hand pump have been breaking down in the last 12 months	
When the pump is broken, is there someone who repairs it?	<input type="checkbox"/> Yes <input type="checkbox"/> No
What is the name of your hand pump mechanic HPM?	
How would you rate the services of your hand pump mechanics	<input type="checkbox"/> Bad <input type="checkbox"/> Fair <input type="checkbox"/> Good
How many pipes are installed?	
What kind of pipes are used?	<input type="checkbox"/> PVC <input type="checkbox"/> GI <input type="checkbox"/> Stainless <input type="checkbox"/> Others specify
Is the number of pipes an estimate or known accurately?	<input type="checkbox"/> Estimate <input type="checkbox"/> Accurate
What is the pump depth?	
How deep is the water table?	

Thank you for taking time to give us this information. Again, we emphasize that this is confidential & will not be shared with any one