District Monitoring

The Rural Water Supply Network has conducted a webinar series aimed at sharing knowledge and evidence from government-led mapping and monitoring of rural water supply services. In a series of four webinars the discussants, facilitators and participants explored the history of Water Point Mapping (WPM), present examples of district and national monitoring systems through a series of case studies, looked back at cases of failure and forward to the latest developments and innovations designed to enable improved mapping and monitoring of water supply services. Technical aspects as well as elements of related policy and practice were shared.

WPM is acknowledged as a useful tool for investment planning and decision making by national governments, development agencies, NGOs and other actors, particularly in under-serviced rural areas. Though in theory WPM should contribute to greater accountability, transparency and equity in service delivery, and in some cases it does, there are still many challenges in keeping data updated and ensuring it is used properly.

This second webinar visited case studies of district monitoring experiences in Ethiopia, Bolivia and Ghana to review the methods, costs, challenges and lessons to be learned from each experience.

District monitoring is important because local governments are often responsible for the management, maintenance and implementation of water services. NGOs have aimed to equip and enable districts with water point mapping systems and processes while advocating the importance and benefit of doing so to national governments. Some difficulties have arisen in creating an environment for long term sustainability of WPM practices, including commitment from the government for assuming the finances, training, technology, staffing and general requirements of keeping WPM in operation. In most countries, NGOs still shoulder a significant amount of the costs and initial set up.

How can WPM be sustained?

Tuesday 14 October 2014
RWSN Mapping and Monitoring

Chair of RWSN
Ton Schouten, IRC

Contents

What is WPM?
Water point mapping is a tool for monitoring water point distribution and functionality used by governments and NGOs to improve service delivery. The process includes data collection and entry, which is often then translated into a visual tool for analysis, generally in the form of a map displaying geographic distribution of water points, their functionality and usage statistics.

Case Study:

WPM experience in WaterAid Ethiopia

WaterAid Speaker: **Gosse Wolde**, WaterAid

What were you trying to achieve at the district level?

Ethiopia is divided into districts (woredas) that are composed of several wards (kebeles). The woreda governments are responsible for the implementation and management of services. WaterAid Ethiopia aims to support the operation and management activities of woredas, provide them with data for planning and ensuring the equitable distribution of resources and sustained service provision.

Each Woreda WASH Team consists of Health, Water, Education and other offices. The process for establishing WPM in Ethiopia included setting up capabilities for this in each woreda water office. Data was collected by the Water Office trained staff, then processed and shared with the Woreda WaSH teams.

What data is collected?

Data	Parameters
Coordinate	Longitude Latitude
Population	Woreda/District Kebele/sub district Village User/Scheme
Water quality	Bacteriological & Phiso-chemical
Management System	Presence and absence of WASHComs
Functionality	Level of service Reasons of failure Source reliability
Water Point	Source type Abstraction means Drawdown Accessibility

Data is collected using the **Water Point Mapper** tool created by WaterAid. This tool allows the collection of data using GPS and paper forms, and that data is then entered into an Excel spreadsheet. The mapper provides geographic information offline and allows offline data access, which helps in areas where connectivity issues are poor.

When mapped, the data can be illustrated with a radius of influence surrounding each waterpoint; while the water points are coded based on functionality (functional, partially functional, non-functional and greyed where no data is available).

Water point functionality
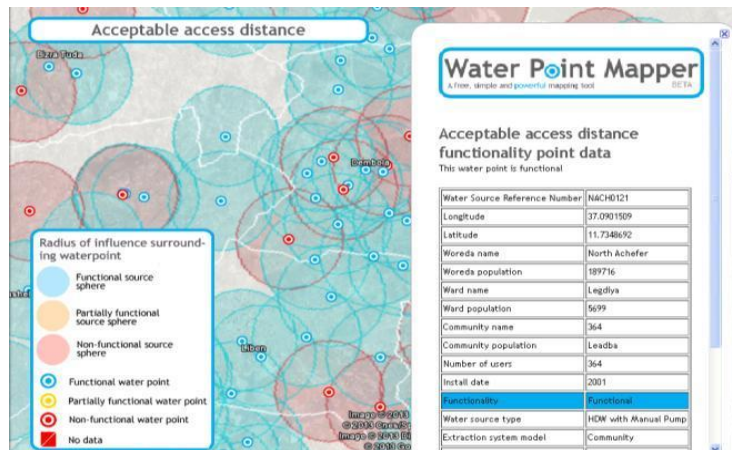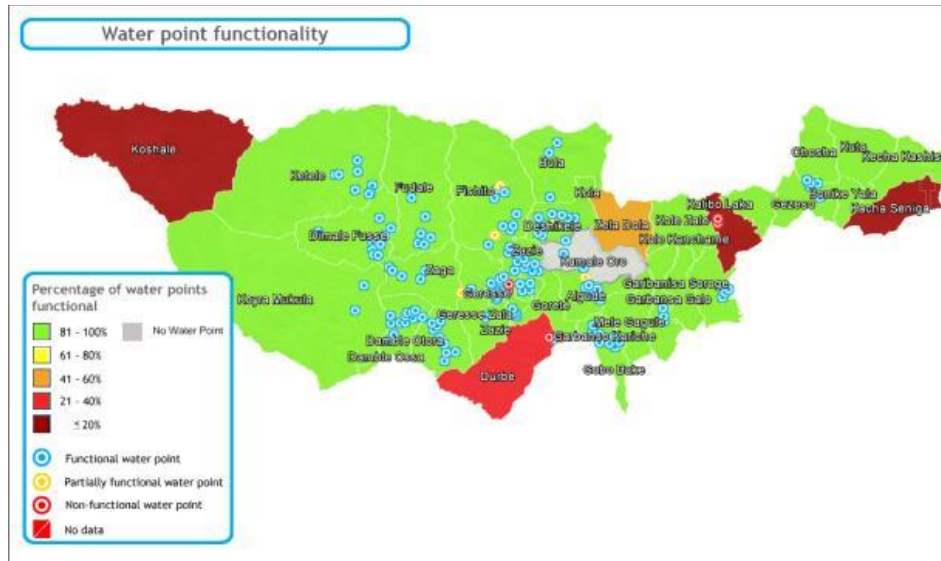
The mapping tool is updated in two ways:
1. **Established system in woreda level water offices**, in which staff collect water service data and update it in the system. Each water point is assessed on a yearly or six-monthly basis.
2. **Health extension workers in each kebele deployed by government** complete forms which are then provided to the woreda water office, where the data is analysed and presented to the woreda WASH team.

Costs estimation:

The cost for WPM monitoring activities and updating mechanism per each Woreda is provided in the following table
are then provided to the woreda water office, where the data is analysed and presented to the woreda WASH team.

Cost breakdown per woreda	
Computer	8,250.00
GPS	2,000.00
Training cost	15,620.00
Data verification	19,730.00
Updating	9,250.00
Printing	3,500.00
Total cost for woreda	60,350.00 Birr $3,017.50
(Updating cost per year)	$925

Link with national level monitoring

Ethiopia's national Ministry of Water, Irrigation & Energy launched a WASH Monitoring & Evaluation Management Information System as nation-wide database. This database draws upon the data from the woreda's level mapping and creates a mapped visualization of the information.

However, scaling up WPM to the national level is ongoing: WaterAid's current focus is currently on district level programs and mapping, but the goal is to support the process of updating the national MIS with district data whenever it is collected. It is believed that the district level systems could easily be scaled to national level, as the software, including WaterAid's Water Point Mapper, Google and MS Excel, are simple to learn and use and have low cost. WaterAid's WPM tool is currently being included as monitoring tool within the One WaSH Programme.

Ultimately, WaterAid Ethiopia aims to work with other organizations and all levels of government to improve information for the sector.

Challenges and successes

A number of challenges were experienced with the use of WPM by WaterAid and the Woreda WaSH offices due to high turnover of staff at district level, which WaterAid Ethiopia has tried to address by training more staff at district level. Furthermore, the distant geographic location of pilot woredas from central support areas (400-600 km), often made regular support from WA difficult. Technical issues to maintain the WPM process included difficulties with computer maintenance. Additionally updating mechanisms were not planned or designed at the beginning of the project and lack of strategy for scaling up WPM activities reduced the long-term impact of the successful work.

On the other side, the WPM process and output maps influenced successfully a modification of resources allocation (in particular in North Achefar Woreda) while a specific map information allowed to raise additional external funding (from Canada Embassy). Furthermore the Ministry of Water, Irrigation & Energy has recognized the WPM tool as a monitoring tool for the One Wash National Program.

Lessons learnt

WPM strategies should be developed with a realistic view of the feasibility and capability to replicate, scale up and hand over the systems to government authorities at both district and national level.
Data verification processes and capacity building should not be overlooked in the piloting phase, as these contribute to the overall success and viability of a WPM system. Experiences in Ethiopia show the need to have a vertical and horizontal scaling up strategy once the pilot project is complete, and a definition of responsibilities for the scale up which can be led by an organization (NGO) government or external parties.

WaterAid's experience in Ethiopia also highlights the need to bring all stakeholders onboard at the beginning of a project to increase engagement levels, and to focus on the woreda/district level first, as they are closer to community stakeholders and ultimately have the responsibility of managing the WPM systems.

Sustainability

Because the WPM systems have been embedded at district level and the costs are generally very low, WaterAid recognizes the sustainability of WPM in Ethiopia. While WaterAid is currently covering the set up costs at the district level, costs for the system maintenance are relatively minor and it is believed that can be covered by district budgets. It is expected that the costs for this will be covered with a national government fully owned and operated M&E system.

Questions for Gossa

Q: How is the monitoring tool linked to the national water inventory data?
The integration of the monitoring to the national inventory is an area of current development while the WPM monitoring work has currently been at district level, where it is well established. The national MIS which is being established at national level includes data being collection by district water offices. At the moment only one national survey has been performed, but there is an opportunity to use the data from the national survey as an update to WPM anytime an updated dataset is available.

Q: Given the challenges with the national WASH inventory and the data quality during digitizing data from paper-based data collection, do you think this is the relevant system to replicate in Ethiopia, or should we have other options, like smart phone technology for data collection and analysis?
The use of smartphones for data collection would be an additional input to the Water Point Mapper tool, which is currently being used for data analysis. The smart phone is a complementary tool to the system, but it is not mutually exclusive. The use of smartphone data collection could improve the data quality but it does not replace the Water Point Mapper system itself.

Q: Based on the current design and country context of human and financial resources, is it feasible for the government to eventually institutionalize the program nationally? (Is it scalable?)
The program could be scalable easily. The Water Point Mapper is a software developed by WaterAid, and it is quite simple to learn and use, and is free. Along with it, other simple software are used including Google and MS Excel. The program is already used for planning activities at woreda level. It's simple to learn and has low cost.

Q: How do you validate the data and ensure good quality?
Training is firstly conducted at the district level. During the first staff's data collection,, the data collection work is evaluated. This ensures the skill has been properly transferred to the staff. After this, WaterAid does not do further validation.

Q: What is the long term strategy for covering monitoring and mapping costs? Who are the foreseen funders? (Including for updating data and ensuring a permanent monitoring system)
WaterAid Ethiopia is currently bearing first hand costs for establishing WPM at the district level. After that, the updating costs are considered very minor. Once the government has taken on the monitoring and evaluation system as a tool, we assume they are able to bear the costs. Most of the updating costs are logistic costs and coverable by existing district level allowances.

Case Study:

Water for People Bolivia

water for people

Speakers: **Keri Kugler and Isaias Chiri**, Water for People

What are you trying to achieve at the district level?

WFP's programmes, which generally work at the district level, aim to ensure every school, family, clinic and community has access to a high level of water and sanitation services. WPM and service monitoring are a key way for the NGO to accomplish this, and their ultimate goal is to enable local governments to assume responsibilities for this.

How is the data generated and analysed?

WFP Bolivia uses a programmatic, district level approach to establishing WPM systems, which includes monitoring all projects in a district regardless of who implemented them (government, other organisations, private owners, etc). Data is collected using Android smartphones by trained enumerators, and is stored and analysed using the monitoring tool Akvo FLOW. Monitoring is performed annually during the project duration, and for 10 years after completion. Monitoring is performed at 5 levels:

1. Each water point or system for service level (functionality)
2. Service provider for sustainability of water service provider (being committee or private operators)
3. Financial systems in place (fee collection, financial management, spare parts, O&M and software costs to provide the sustainable water service)
4. Water and sanitation service provision in schools and clinics
5. Household sanitation survey for user and customer feedback on service provision

Data is analysed by score allocation and is then aggregated at district and national level.

The outcome is reported in the Re-Imagining Reporting platform (public website) with information on water service functionality, financials and additional resources. The information is the used by each country district officers, national government and other partners during annual reviews to inform the planning process.

Costs

The programs in Bolivia used Android system smart phones, which cost around **$200 per phone**. One instance of Akvo FLOW, the monitoring tool used in these programs, costs **$6,500**, which includes data storage.

Enumerators cost between **$1** and **$3** per survey and were sourced depending on the local context; including both government staff and other local partners.
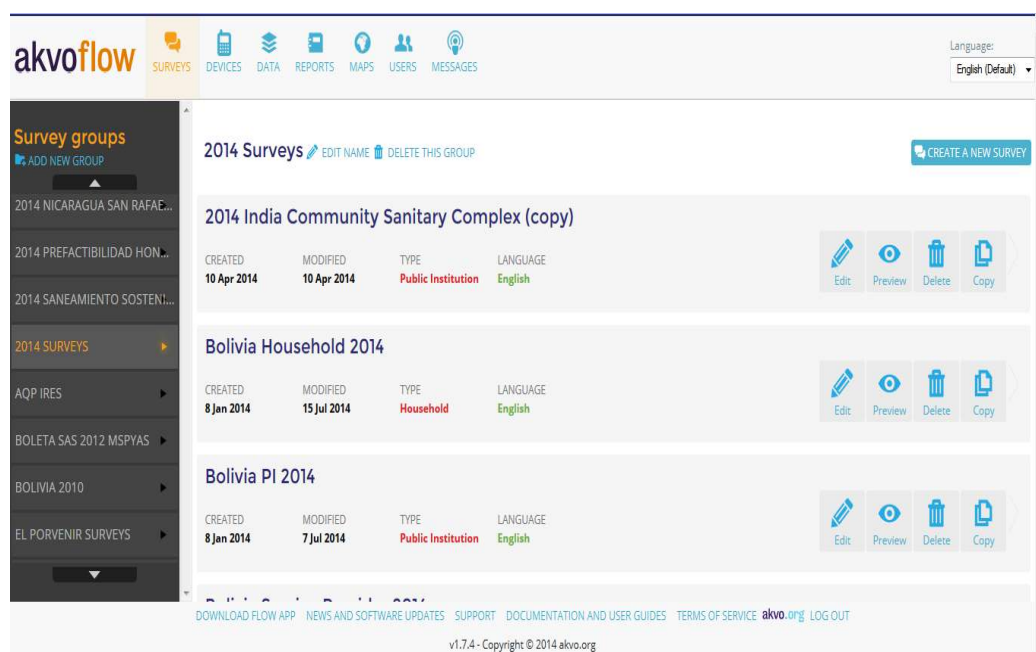
Challenges

Challenges experienced by Water For People in Bolivia included training enumerators and eliminating bias to reduce enumerator error, as well as retaining enumerators and training them on an annual basis to improve the quality of data.

The metrics used to evaluate and record data have changed over time, which has made comparing historical data difficult.

It has also been difficult to embed the monitoring systems in both district and national governments for long term sustainability and the transfer of ownership and responsibility. For example- from the experience in Bolivia- initially the municipality had difficulties understanding the tool and its potential to support monitoring and planning. Following a few years of system piloting from Water for People and demonstrating the use and benefits of the system, some municipalities in Bolivia have requested to take ownership of the monitoring tool and system piloted.

Sustainability

One of the primary objectives of WFP in Bolivia was to ensure that WPM systems were embedded in district governments during the early stages. Some individual districts seem willing and committed to owning the data collection process themselves in the near future, but all data validation and analysis and the majority of costs are still covered by WFP. WFP funds a district for one to three years until its government has the capacity to plan and fund the WPM system itself; the intention is to eventually shift full ownership to districts and the national government.

Questions for Keri and Isaias

Q: When you started the data collection and first analysis, was there a discrepancy in the coverage reported and the actual coverage of water and sanitation? (Accuracy of data)

When the broad scale data collection was started, it was revealed that the data did not match with the existing national data. The monitoring process allowed to build a much clearer picture than national data.
The municipalities are now using indicators from the system provided by WFP Bolivia, as they have been well accepted. There is now a broad acceptance of WFPs results (since the system is now taken up by government).

Q: Elaborate on process of system validation and how the system would be handed over to government?

All data validation and analysis is currently done by WFP staff. There is a need to embed systems locally in district governments, in early stages of the process. In two cases, districts have asked for their own instance of Akvo FLOW to collection data themselves.

Q: What is the long term strategy for covering costs? Who are the foreseen funders? (Including for updating data and ensuring a permanent monitoring system)

The majority of costs are currently covered by WFP from the unrestricted funding pool. In the long term, the goal is to pass the costs on to districts and national governments. WFP Bolivia is looking at ways districts can share costs by sharing instances of Akvo FLOW or another monitoring system. Until then, WFP funds a district officer for 1-3 years until the district can plan and finance the staff and process.

Q: Has there been a commitment to cover these costs?

For next year, 50% of the monitoring costs are covered by municipalities, and in future they will cover 100%.

Case Study:
Service monitoring in Ghana

IRC Supporting water sanitation and hygiene services for life

Speakers: **Ton Schouten and Jeremiah Atengdem**,
IRC Ghana

Focus on the monitoring aspects surrounding WPM, not just the data, as all are important toward the end goal of improving services.

What were you trying to achieve at the district level?

At the time of introducing WPM process, IRC already had established a long term program in Ghana, based on community level, and was therefore able to work with the government to inform and strengthen asset management at the district level. The aim of WPM exercise was to inform corrective actions and decision making for improving and maintaining services.

How is data generated?

A decentralised approach to water service ownership has been adopted in Ghana, so districts are responsible for maintaining services. District staff are trained to collect data using mobile phones. The Akvo FLOW program is used for collection, processing, analysis and data storage.

The data is monitored according to national level standards and norms, set by the Community Water and Sanitation Agency (CWSA)- agency of the Ministry of Water Resources Works and Housing (for rural areas and small towns)- while another agency is responsible for the larger urban areas. The focus of monitoring is on water supply rather than on sanitation, and includes the following:

➢ All improved communal water systems (handpumps, piped schemes and standpipes) and their management: pilot monitoring took place in 3 districts, concerned all communal systems and management of system - performance of service provider and service authority
➢ Functionality measuring
➢ Service levels (reliability, accessibility (distance and crowding), (perceived) service levels also contained quality, quantity)
➢ Water service provider performance (on governance, operational and financial issues) monitoring should inform decision makers on whether providers are doing their job. In Ghana's rural and small towns areas, the service provider is usually community-based organizations who provides handpumps management and sanitation services
➢ District Water Authority performance monitoring as it is a decentralized system
➢ Data quality checks and validation are also embedded in the system as part of district staff responsibilities. The CWSA developed data cleaning tools and processes with IRC and supports districts via CWSA regional offices.

Importantly, this process focuses on the monitoring aspects surrounding WPM, not just the data, as these all are important factors towards the end goal of improving service provision.
## Costs

Cost breakdown	$ cost / district
Equipment (6 phones per district)	$660
Training data collectors	$570
Data collection (fuel, per diems, etc.)	$4,025
Monitoring of data collection	$1,154
Data cleaning, processing and analysis	$1,376
TOTAL per district	$7,785

> "We've really just started thinking of funding and incentives for districts. How can you link district level performance to national accountability; could well-performing districts be rewarded? The aim is to incentivize districts to continue monitoring even beyond funding."
>
> Ton Schouten, 2014

The cost presented excludes the cost of the Akvo FLOW instance and its annual subscription fee. Personnel costs are also not included because these are covered by the government and national budgets, as the task is incorporated in their responsibilities. Currently, there are six district level staff working 25 days covered by the district governments and 1 regional staff for 10 days covered by the CWSA. The costs listed are yearly per district, and there are 216 districts in Ghana.

A district can contain between 40-60 water systems. Some are dispersed; some are concentrated in smaller areas so this diversity doesn't allowed to determine specific costs per system or per user.

Link with national level
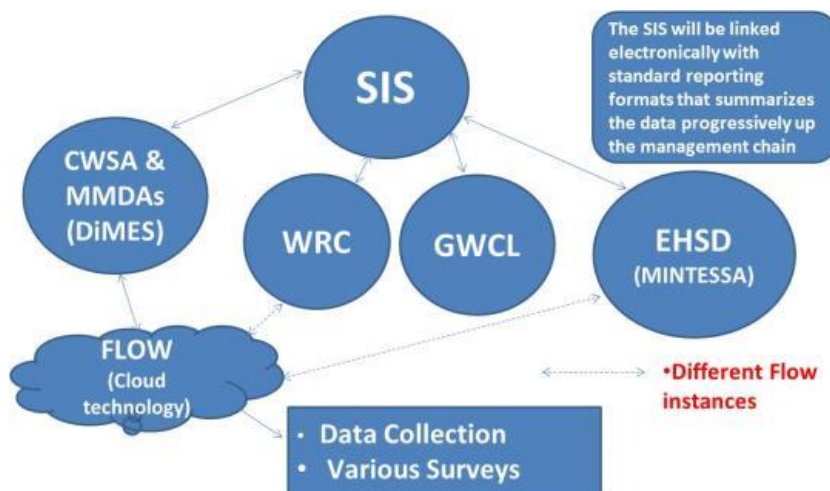
Though districts are responsible for maintaining services, service monitoring in Ghana is led by the national Community Water & Sanitation Agency (CWSA) and is based on its monitoring framework and national standards. The CWSA provides support to district level staff, and the district level data that is collected using mobile phones is stored in the central online data storage platform so that it is accessible from different stakeholders and can inform national level planning and sector debate. The Ministry of Water Resources Works and Housing is also looking at developing, with support from the World Bank, a Sector Information System (SIS) which will include not only water monitoring information but also overall WASH subsectors to inform planning and policy making.

Challenges

One of the key challenges, which is echoed in the other case studies, is the motivation and capacity of districts to undertake continuous monitoring without project funds and the potential role of financial and motivational incentives for district level for continuous monitoring. Monitoring in itself 'is only part of the puzzle"; in order to improve water services, districts will need to be equipped to respond to the monitoring data, which requires management capacity, funding, skills and organised logistics.

Advice to others

From the Ghana experience, we understand the need to build and improve upon national systems while involving the relevant district staff and data collectors in the analysis and use of the data. Districts will need sufficient support, and in order to scale up the WPM systems, monitoring will need to be 'de-projectized' and rearranged to support the scaling up of monitoring activities.

Minimum Standards

The CWSA has established a national policy which sets a minimum benchmark for service delivery. There are two additional levels above and below this benchmark to gauge how a district is performing. The CWSA sets standards for parameters of quality, quantity, reliability and access. These include 20 litres per person per day as the minimum for quantity, 95% year-round reliability and a maximum distance of 500 meters [per household] for access.

Sustainability

It is emphasised that monitoring programmes should ultimately aim to be funded primarily by central governments, and that district plans and budgets need to account for this. Currently, the donor community has shown a lot of interest in funding infrastructure improvements in Ghana, and specifically in the CWSA's monitoring system. While in reality many countries still rely on foreign aid for these projects, incentives for maintaining monitoring within districts need to be established to ensure they carry on beyond funding. The aim of the work in Ghana is to raise awareness for the benefits of monitoring and to motivate districts to raise funds for it while they are supported by the national CWSA.

Questions for Ton and Jerry

Q: How many people are involved in the data collection at district level?

Six enumerators per district are required to collect data and they work in pairs of 2 for the data collection work. The enumerators training which was delivered at, national to regional to district level, included just fewer than 1000 enumerators trained for data collection in 113 districts.

Q: How were the service level minimum standards set?

Benchmark standards are set by the CWSA for each of four parameters: quality, quantity, reliability and access. These are set out by their guidelines, policy and Legislative Instrument.
]. A service ladder is defined: below the benchmark, there is basic service and 'no' service at all. Basic service is scored as less than 20 liters. Above the benchmark are two additional levels of service delivery; this way it can be established how much below or above the benchmark a district is.
The benchmarks values for quality, quantity, reliability and access include the following:
- 20lcpd for quantity
- 95% reliability all year round
- distance 500m

Q: How do you validate the data and ensure good quality?

The validation is done by the district staff, who also collected it, with support from the CWSA Regional office at the district level.. So data quality and verification is embedded in the system and conducted by national staff.
Tools and processes for data validation have been developed by CWSA with support from IRC to ease the data cleaning processes.

Q: What is the long term strategy for covering costs? Who are the foreseen funders? (Including for updating data and ensuring a permanent monitoring system)

In Ghana, there has been quite a bit of interest from the donor community for infrastructure improvements. There is an interest in using the monitoring system of the CWSA to perform the base line and end line for the infrastructure programmes - government is usually depending on aid for these (a reality in many countries), so there is a potential that they will use the information to fund the projects.

The thinking on funding and incentives for districts has just started. The link between district level performance and national accountability needs to be further analyzed. In addition, further understanding and consideration for the potential incentives systems for districts to maintain monitoring beyond external funding has to be in place.
The goal is to use the baseline data process and findings to raise awareness and motivate districts to raise funds for continuous monitoring. CWSA would support the process with the FLOW instance acquired, phones bought and the capacity build to support the process. The district cost actually would be a small allowance for the enumerators to go to the communities and update the database, as this is already part of their routine work.
Ultimately, it's important to incorporate the financing for monitoring in district plans and budgets to ensure that it gets funded by central government.

Community:
https://dgroups.org/rwsn/mapping/join

Presentations & Recordings:
http://www.rural-water-supply.net/en/resources/details/615

Full webinar series on rainwater harvesting, groundwater research and water point mapping (RAIN - UPGro - WaterAid - IRC - RWSN)
http://www.rural-water-supply.net/en/projekts/details/79