

Integrating Technology in WASH monitoring

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Over the past two decades, the global water sector has made great strides in reducing the number of people without access to safe drinking water and sanitation infrastructure. However, the challenge remains in maintaining implemented infrastructure and sustaining water, sanitation and health (WASH) service delivery. Numerous studies have indicated failure rates of between a quarter and a third of all water points installed in Sub-Saharan Africa, with abandonment occurring only after a few years of operation.

The [Global Water Initiative \(GWI\)](#) has been a pioneer in assessing the sustainability of water infrastructure in a holistic way, focusing on various governance aspects including the technical and financial management capacity of the community-based management organization (usually a water committee), the committee's transparency and accountability to its user base and the external support it receives. Crucial to GWI's evidence and research-based approach has been the development of the [Governance into Functionality Tool \(GiFT\)](#), which is a questionnaire that looks into the aforementioned metrics among others. In 2013, the GiFT survey was conducted in 219 schemes (151 schemes in Uganda, 57 schemes in Ethiopia, and 11 schemes in Tanzania), representing a diverse array of scheme types. This year, CARE International is piloting novel technology-based tools in applying the GiFT tool and harnessing the power of mobile technology in improving the overall monitoring of WASH infrastructure.

Over the past week, I have conducted a training session on the use of mobile phones and tablets in administering the GiFT tool in Uganda, attended by GWI staff and members of the district-level government ministry in Otuke. The participants were trained on the use of [mWater](#), an android-based tool for collecting and visualizing WASH infrastructure data. This tool allows the GiFT survey to be conducted using a mobile device, and for the collected data to be analyzed in real-time. The session comprised of two days of classroom training followed by a day of piloting the technology at a number of GWI water schemes in Otuke. During the training, the participants received a detailed overview of the mWater platform including the process of designing a survey, conducting the GiFT survey, the use and care of Android devices and the analysis of collected data.



Currently, monitoring and functionality data in the GWI partner countries is primarily collected through one-off paper-based surveys that are costly to administer regularly and introduce numerous opportunities for error along the data collection process. Once collected and analyzed for immediate reporting purposes, data too often remains largely inaccessible on organizational servers, in dusty reports, and in proprietary monitoring systems of donor-funded projects. During the training, it was noted that the use of mobile tools can provide an alternative to this inefficient use of data in a sector with scarce monitoring resources, while enabling the local government and civil society organizations the opportunity to track the long-term dynamics of water point functionality.

The participation of staff from the district-level government ministries was greatly appreciated and added a new dimension to the training. CARE feels strongly that the most important end-users of any Information and Communication Technology (ICT) based platform are district level government officials in the countries of operation. For the ICT tools to be effective, data collected using modern technology must be able to influence local government decision-making, particularly



in terms of resource allocation, identifying mechanisms for long-term technical support and private sector regulation. The Otuke district government ministry staff were very eager about the use of mobile tools in data collection, noting that this will make their work significantly cheaper, easier and faster. Following the classroom section of the training, they themselves adapted the existing Ugandan Ministry of Water & Environment's [data collection form for point water sources](#) into a mWater survey, which was then tested at several GWI water points during the field activity on the last day of the training.

The field activity provided an opportunity for the technology to be piloted in five communities under GWI. The benefits of using mobile-based surveys was evident after this trial, with the process being significantly faster and easier compared to conducting paper-based surveys. Using the Android tablets and smartphones, the surveyors were also able to collect geo-referenced data as well as pictures of the water infrastructure. Moreover, this exercise generated crucial feedback regarding the GiFT survey and the mWater app. Over the next couple of weeks, the GiFT survey will be modified accordingly, and then translated to local languages in GWI's area of operation, including Lango (Uganda) and Oromiffa (Ethiopia). This training will also be conducted in Addis Ababa and Bahir Dar in Ethiopia. Following these

training sessions, the next round of data collection across GWI's portfolio of water schemes in Uganda and Ethiopia will be conducted using the mWater platform.

The use of mobile technology will enable the collected data to be analyzed in real-time through water functionality maps. In the future, CARE hopes to integrate this data into an online dashboard which will be highly customizable, allowing users the ability to analyze functionality of individual water systems, governance structures that lead to sustainable water services, as well as patterns and trends useful for resource allocation.



CARE also plans to pilot a SMS-based service which will allow rural water committees or individual users to report information regarding the functionality of their water point. SMS messages texts can be sent at minimal cost using the most basic, inexpensive mobile phones. Harnessing SMS reporting will allow community-based WASH committees or individuals to relay data about the functionality of their water infrastructure proactively to the local government official or private sector service provider responsible for maintenance and repair. Once an issue has been flagged, the relevant service providers, including the district-level government ministries, and the private sector operators linked to the systems will be alerted. This service will address issues of information asymmetry between key stakeholders, and is expected to lead to faster and more reliable responses to breakdowns.

The GWI and CARE team is confident that integrating technology in WASH monitoring will improve the overall sustainability of water service delivery.