USING MOBILE PHONES TO IMPROVE FUNCTIONALITY OF RURAL WATER SOURCES

Mobile phones for improved access to clean water is an initiative to improve the functionality of rural drinking water points by enabling water users to report faults by text message. This experiment involved piloting of the M4W (Mobile for Water) system across eight districts in Uganda and developing solutions so that M4W could be scaled up. For each component of the experiment, this document briefly describes progress following the innovation process outlined below.

THE INNOVATION PROCESS

The Triple-S (Sustainable Services at Scale) initiative has led a process of learning and innovation to improve rural water service delivery in Uganda and Ghana. This document briefly describes one of the innovations with reference to the generic phases in an innovation process:

- Phase 0: Understanding and 'socialising' the problem, which leads to a clear articulation of a problem and generates awareness among stakeholders.
- Phase 1: Proof of concept, which leads to detailed articulation of an innovation and consideration of its feasibility.
- Phase 2: Limited piloting, provides evidence on outcomes, impacts and costs of the innovation and the requirements to make it work.
- Phase 3: Full scale roll-out, means application of the innovation (almost) nationwide and for multiple years.
- 'More research' ideas, which can be developed into further research into specific parts of the problem
- There are also actions that are deemed not to require an experiment, for example because the cost of an experiment would be higher than implementing the innovation.

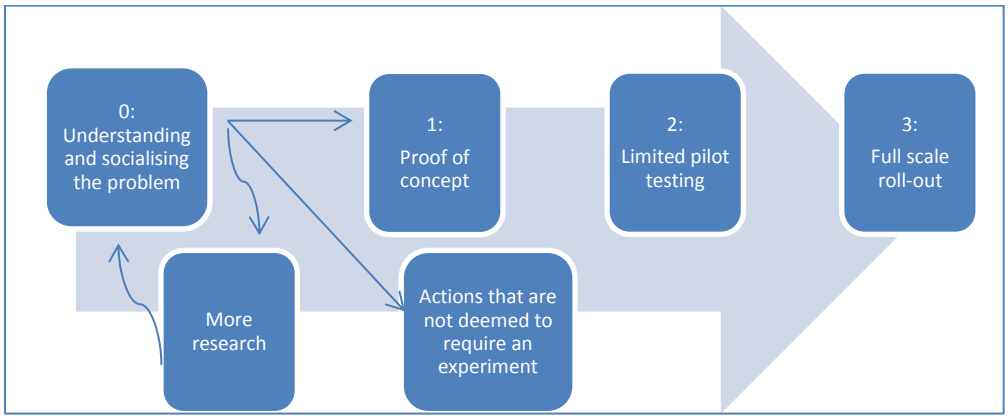

Figure 1 Innovation process: phases in experiments

BACKGROUND

'Mobile telephones for improved access to clean water' (M4W) is an initiative to enable people in rural areas of Uganda to access clean drinking water. This was expected to be achieved through improved efficiency in reporting water source faults, quick response to non-functional water sources and regular acquisition of data for updating the District Water Management Information systems at reduced costs.

The M4W system has three components, all of which were tested in an experimental way.

- Collection and storage of rural water point monitoring data
- Reporting of rural water point problems, by users through SMS
- Collection and storage of data on sanitation around rural water points, by health assistants (this component was not operationalised)

PHASE 1: PROOF OF CONCEPT

The M4W concept has been fully developed and written up in a consistent manner and proved to be possible to implement. The Ministry of Water and Environment developed a M4W Implementation Manual for District Water Officers (DWOs) and distributed to the pilot districts in February 2012.

Reporting of faults by users

By reporting water point problems, users can speed up remedial actions and help improve functionality. This component reached "Proof of Concept" phase and works as follows: When there is a problem with a water source, the user sends an SMS to code 8888, indicating the water point identification number and the nature of the problem. Once the system receives the notification, it generates an SMS which is automatically sent to the relevant Hand Pump Mechanic's phone. Upon receiving the message, the Hand Pump Mechanic (HPM) goes to the water point to assess the magnitude of the fault. If the fault is minor, the HPM advises the community on the necessary action. For major faults, the District Water Office is informed. Each fault attended to by the HPM is reported to the system and the water user is also given feedback.

This component has been elaborated in detail conceptually and has proven to be implementable. Emerging evidence reveals the experiment works and several improvements to the concept were made: e.g. community sensitisation about the system and establishment of a toll-free number for reporting faults. The experiment has generated answers about how to implement of M4W in Uganda and its potential in reducing water system downtime. It has also highlighted challenges, such as network connectivity and user participation, lack of operation and maintenance funds for remedial action, the need for regular refresher training for users of the system and providing unique coordinates for new water points.

PHASE 2: LIMITED PILOTING

M4W has been piloted by IRC/Triple-S in collaboration with SNV, Makerere University, Water Aid and the Ministry of Water and Environment in eight districts: Arua, Kasese, Kyenjojo, Kabarole, Masindi, Amuria, Lira and Katakwi.

Collection and storage of monitoring data

Collection and storage of monitoring data is positioned at the "Limited piloting" phase. When the M4W system was launched Hand Pump Mechanics collected data on the status of water points. This data was stored in the District Water Management Information Systems and has been used by District Water Officers for planning and reporting. Discussions are ongoing with the Ministry of Water and Environment to use the M4W monitoring data to update the national database hosted at the Ministry.

This component is fully functional with a few glitches (e.g. the system still doesn't automatically track downtime of water facilities). District Water Officers can easily access data from the online database for planning and reporting. A total of 9,278 water sources are being monitored using the M4W system. Data from the Sector Performance Reports reveal that functionality in Arua, Lira and Kabarole and Amuria districts improved on average by 2,5% between 2012 and 2013.

The team has collected data on costs to estimate per cost category, per implementation partner, per district and projected costs versus the benefits of rolling out M4W nationwide. Recommendations and cost estimates for deploying and running the M4W system have been summarised in a Policy Brief.

FIND OUT MORE

Mobile for Water in Uganda
Using mobile phones to facilitate local monitoring and improve functionality of rural water points (Policy Brief)
Triple-S Uganda experiments