REACH
Improving water security for the poor

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DISCUSSION BRIEF, APRIL 2018

Sustaining safely managed drinking water services in rural schools in Chandpur District, Bangladesh

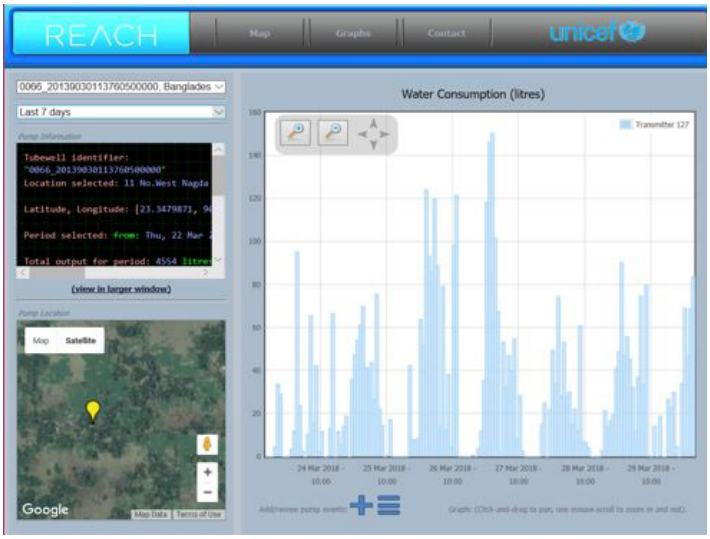
The Government of Bangladesh estimates over 100,000 primary, secondary, private and Madrassa schools need to provide safe and reliable water to every child, every day. Most schools rely on tubewells to provide low-cost and convenient groundwater. Monitoring and improving the delivery of safe water services is a major challenge.

This pilot study in Chandpur District explores the benefits of new, automated data loggers, which attach to the handle of a handpump and report data, estimating daily and hourly water usage and changes in performance, such as seasonal demand or downtime. The latter may be due to no usage (holidays, alternatives) or failure events.

Understanding and responding to variable usage and failure events will help to monitor infrastructure, improve management systems, and guide future planning and investment.

Preliminary Findings

1. 367 waterpoints were installed across 221 schools. 325 are still in active use providing an average of 1.5 wateroints per school.
2. 80% of waterpoints use No.6 handpumps: 44% were reported as deep tubewells, 52% shallow tubewells, and 4% are not known.
3. The Government of Bangladesh provided technical support to around 50% of the schools.
4. There were four observed types of maintenance models: private households, private collectives, school authorities/committees, and government support from Pourshava or DPHE engineers.
5. Concerns on water quality were identified in 26% of the tubewells. 5% of tubewells were tested on installation and 55% tested at a later date.
6. All schools agreed to install the data loggers following a request from Department of Primary Education, Department of Secondary and Higher Education and Department for Public Health and Engineering.
7. Following local consultation, installation began in February 2018 with the proof-of-concept phase finishing early in 2019.

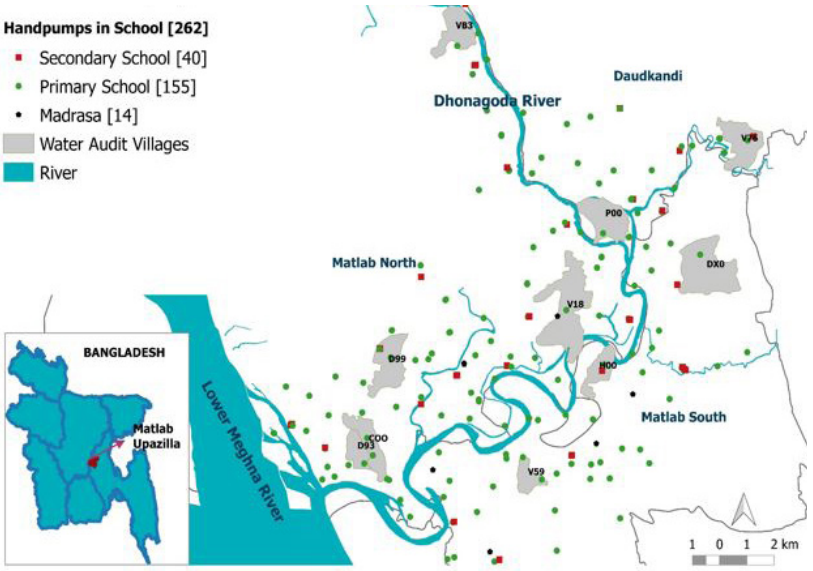


Real-time monitoring of school handpumps

Project Goals

1. Monitor daily usage patterns to understand variation over time in different schools with shallow and deep tubewells under different management models.
2. Monitor handpump functionality and reliability under different management models.
3. Test a range of water quality indicators in each school to inform water safety planning.
4. Based on results, discuss management, financial, maintenance and technological alternatives to monitor and deliver safe and reliable drinking water to all schools in Bangladesh.

Location of Handpumps in Schools



Do we need data loggers?

The data loggers are sensors that record the movement of the handle during pumping. Data are sent automatically over the mobile data with analytics estimating usage on a regular (hourly, daily) basis.

What information is produced?

We can estimate the volume of water, and identify if, and when, the handpump is being used.

What happens with the data?

The data loggers text the pumping data to a website where it is automatically processed and displayed on a graph. This shows individual handpump usage recorded over time.

Working with local partners we will use the data to review current institutional design to manage and monitor handpumps so schools and their children can benefit from more reliable water. Money invested can be more accountable with performance indicators and future investments can be guided by demand and gaps to achieve fairer outcomes for all.

Acknowledgements

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Project Website: www.reachwater.org.uk