

Advancing rural water services: strengthening systems for fit-for-purpose water quality monitoring

Thursday October 29, 2020 | 9:00-10:15 EDT | 13:00-14:15 GMT



Achieving SDG 6 requires government institutions, regulators, donors and operators to professionalize rural water services, including delivering improvements in water safety. This session will share learnings from three initiatives seeking to understand and strengthen systems that underpin water safety management in low-income rural areas of Nepal, Kenya, and Uganda.



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Background

In keeping with the global sustainable development agenda, many water sector regulators, donors, and service suppliers are looking for ways to increase water quality monitoring in rural areas of low- and middle- income countries. Currently, monitoring in these areas is minimal or absent, and when sampling does occur it is usually limited to infrequent public health surveillance efforts facilitated by on-site test kits or centralized laboratories. The absence of monitoring for operational or risk management purposes prevents operators from responding to risks proactively.

Advances are being made in exploring the possibilities of locally operated labs that are equipped for conducting regular analyses of standard quality parameters over the long-term. Researchers and water service suppliers in both the public and private spheres are setting up labs to conduct monitoring that is fit for their purposes.

These labs enable higher frequency sampling that is targeted to inform specific management objectives, and they may also offer an opportunity to improve water quality monitoring at scale if the results are shared. Innovations include locally constructed equipment (Schertenleib et al, 2019) and validation of lower cost consumable for culture-based assays (Brown et al, 2020). Nevertheless, local labs also bring technical and institutional challenges (Nowicki et al. 2020), and research is only beginning to inform on the logistics and costs of installing and operating them.

Research overview

From 2017-present, rural water safety management models in rural and rural-urban transition zones have been investigated at study sites in Nepal, Kenya, and Uganda, each with varying testing capacities, management arrangements, and institutional settings.

- In Nepal, five labs were established through the Helvetas Integrated Water Resources Management project (IWRM-P) to perform testing for spring-fed piped water supplies serving rural communities in Karnali Province. These labs are equipped with microbial, chemical, and physical testing capacity (Robinson et al. 2018).
- In Kenya, a lab in northern Kitui county was established through the REACH Water Security Programme in cooperation with a social enterprise (FundiFix Ltd) and community and government stakeholders. It has enabled regular operational monitoring for a wide range of supply types (Nowicki et al. 2020).
- In Uganda, interdisciplinary research from the IHE Delft Partnership Programme for Water and Development (DUPC2) and the Ugandan National Water and Sewerage Corporation has called for explicitly including public health measures such as water safety management in services models applied to small towns, and for expanding water and sanitation coverage in rural-urban transition zones (Marks et al. 2020).

Speakers

Kenya, REACH Water Security Programme

- **Mary Musenya Sammy**, Water Safety Officer, FundiFix Ltd
- **Martin Mbogo Mwaniki**, Water Safety Officer, FundiFix Ltd
- **Saskia Nowicki**, Doctoral Candidate, University of Oxford
- **Katrina Charles**, Associate Professor and Co-Director of REACH, University of Oxford

Nepal, Helvetas Integrated Water Resources Management Project

- **Madan Bhatta**, Programme Manager, Helvetas Nepal
- **Bal Mukunda Kunwar**, Business Development Officer, Helvetas Nepal
- **Sital Uprety**, Post-doctoral Researcher, Eawag
- **Sara Marks**, Senior Scientist, Eawag

Uganda, DUPC2: IHE Delft Partnership Programme for Water and Development

- **Christopher Kanyesigye**, Research Manager, Ugandan National Water and Sewerage Corporation
- **Giuliana Ferrero**, Associate Professor, IHE Delft

Further Resources

Brown J, Bir A, Bain ESR. (2020). [Novel methods for global water safety monitoring: Comparative analysis of low-cost, field-ready E. coli assays.](#) npj Clean Water, 3:9.

Marks SJ, Clair-Caliot G, Taing L, Bamwenda JT, Kanyesigye C, Rwendeire NE, et al.(2020) [Water supply and sanitation services in small towns in rural-urban transition zones: The case of Bushenyi-Ishaka Municipality, Uganda.](#) npj Clean Water [Internet];3(1):1-9.

Nowicki S, Koehler J, Charles KJ. (2020). [Including water quality monitoring in rural water service provision: why safe water requires challenging the quantity versus quality dichotomy.](#) npj Clean Water [Internet]. 2020;3(14):1-9.

Schertenleib A, Sigrist J, Friedrich MND, Ebi C, Hammes F, Marks SJ. (2019). [Construction of a Low-cost Mobile Incubator for Field and Laboratory Use.](#) J. Vis. Exp [Internet]. 145(e58443).

Tosi Robinson D, Schertenleib A, Kunwar BM, Shrestha R, Bhatta M, Marks SJ. (2018). [Assessing the impact of a risk-based intervention on piped water quality in rural communities: The case of mid-western Nepal.](#) Int J Environ Res Public Health. 15(8).

Convening organisation:

REACH Programme
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