

Harvesting rainwater to improve water access for maternal health in Malawi: protocol and preliminary findings



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Background

Safe and readily available water and adequate sanitation and hygiene are critical to the provision of essential health services. However, in 2020, 2 billion people – 26 % of the world’s population – had no access to uncontaminated water. Every year over 17 million women in the least developed countries give birth in facilities that are without adequate water and hygiene measures, putting their lives and their babies at risk of preventable infections. Malawi is one of those countries where access to water for healthcare services remains a challenge.

The SURG-Water Project

Aims to address the poor access to water in health clinics in rural Malawi by testing a new, low-cost technology to treat harvested rainwater using renewable solar UV.

The ultimate goal is to ensure that access to a safe water supply is maintained and can withstand extreme weather events and water supply breakdowns.

Methods

Our proposed solution centres on the development and demonstration of the potential of a large volume (250 L) transparent batch solar water disinfection (SODIS) reactor, deployed to treat harvested rainwater collected on-site in healthcare facilities in Malawi. It is being tested at 2 sites in the South and tailored to the needs of district facilities and the rural context.

In 2023 a rapid situation analysis was carried out at three district hospitals and three health centres to inform intervention design.

A pre-post, mixed-methods study is being used to evaluate the feasibility, adoption and effectiveness of the SURG-Water technology.



Maternity ward in Malawi. No running water is available on site for the 70 expectant mothers staying at the hospital.



Women fetching water (left). Sinks in a health centre in Malawi (right).

Results

All inspected facilities have **major challenges with access to water**, with health centres being most affected as they are not connected at all to the piped water supply infrastructure provided by the national Water Board.

Staff reported that **infrastructure** such as toilets, sinks, showers and steriliser machines are **non-functional** due to lack of running water. Patients, their guardians and staff collect water at nearby boreholes.

Staff reported **struggle with washing, sterilising and adhering to infection prevention and control** measures without water. The lack of water also negatively affects the personal hygiene and comfort of these staff members who reside on site at the health facility.

Patients at inspected facilities reported **not having enough water to meet their needs**. Mothers are forced to fetch water themselves, which is physically challenging. Mothers reported not being able to clean their babies and a risk of acquiring infections themselves from not being able to wash. In some facilities women leave earlier than the recommended stay after delivery due to the lack of water for them and their babies with a risk for their safety.

Discussion & Conclusion

In Malawi there is an urgent need to support rural health clinics in improving their access to clean water and their resilience to extreme weather events and mains water supply breakdowns. Without water the ability to adequately care for maternal patients is severely compromised.

SURG-Water is currently testing a new, low-cost technology to leverage the untapped potential to harvest rainwater and treat it with UV sunlight.

Full results of the evaluation will be available in late 2024.



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