Safe Water Optimization Tool could have many uses

While the tool was designed to be used in refugee settlements, its application could potentially extend to any situation where water is stored and collected for long periods of time, including in low-income urban settings around the world where water supplies are intermittent.

The research team is also interested in exploring applications in situations around the world where there is a water-treatment plant failure and water trucking may occur.

In future versions, they plan on including not just chlorination data, but other water quality and health outcomes, and to begin looking at how the tool could integrate more community participation from displaced people themselves.

"We want to explore how we can use participatory water-quality monitoring at the household level," says Ali. "If you can find ways that people can test their own water and that data can be uploaded so both people in the community and operators could see what the water quality is, it could really help tighten that loop for feedback and reduce the data-collection burden in the field."

SWOT v2 improvements at a glance:

- Advanced machine learning and process-based modelling to improve the robustness and accuracy of SWOT recommendations.
- Evidence-based water chlorination targets that account for both water safety and user taste and odour preferences, so that people are less likely to seek out alternate sources of water that may not be safe.
- New and improved user interface and experience (UX/UI).
- Improved user functionalities that enable better project management including continuous site data records—handy for larger NGOs managing multiple sites and countries.
- Ability to select a specific time period for analysis—useful for sites that have distinct seasons (e.g., Bangladesh where there is a dry and a rainy season) so that the SWOT recommendations are not only site-specific but also temporally-specific.
- New user dashboard with predicted water household safety improvements and other operational insights unlocked by analyzing monitoring data.
- Technical training resources on water quality and treatment that position the SWOT v2 as a "one-stop shop" for safe water supply.