Safe Water Optimization Tool

Leveraging routine water quality data to guarantee safe water supply

Background and Problem

Chlorination is the most widely practised water treatment technique used to ensure the safety of water supplied to populations in precarious situations. If well managed, it can ensure residual protection from further contamination up to the point of water consumption in the household. Humanitarian agencies prioritize water safety and routinely collect, monitor and report residual chlorination data. Little is done, however, to leverage this information to ensure that water quality complies with safety guidelines at the point of consumption, a significant oversight in response efforts.

The Solution

The proper management and analysis of routinely collected residual chlorine data, using appropriate statistical techniques, will provide humanitarian field workers with high-quality, site-specific, and evidence-based operational guidance. The Safe Water Optimization Tool (SWOT) is being developed with this primary objective.

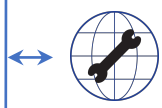
How it works

INPUT: Paired and time-stamped water quality monitoring data collected at distribution points and households.

Data collection can be carried out using either a digital platform or a 'paper-pen-to-spreadsheet' approach.

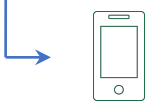
DATA MANAGEMENT: Cloud-based data storage.

Provides a secure repository for historical data which can then be used for reporting purposes.



DATA PROCESSING: Web-based analysis of water quality data using a sophisticated machine learning approach.

Various water quality parameters can be included for analysis.



THE OUTPUT: Site-specific guidance for the residual chlorine level required at distribution points to ensure safe water supply up to the moment of consumption in the household.

Guidance can be viewed online or sent by email.

The Benefits

- Improve public health by helping to reduce the incidence of waterborne disease
- Establish site-specific guidance to ensure better compliance with chlorination standards at the household level
- Provides a secure repository for historical data which can then be used for reporting purposes
- Improve accountability to populations and donors
- Identify and highlight problematic areas or practices towards which resources can be focused during water supply or outbreak control interventions

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This project is a collaboration between Médecins Sans Frontières (MSF) and the Dahdaleh Institute for Global Health Research (DIGHR) at York University, Toronto. For further information please contact Dr. Syed Imran Ali (DIGHR) [siali@yorku.ca], or Mr. Jeff Fesselet (MSF) [jeff.fesselet@amsterdam.msf.org]

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