

Household Water Filters for Emergencies

An experience with Siphon filters after the floods in Malawi

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Introduction

The Southern districts of Malawi experienced **floods** in January 2015, displacing an estimated 200.000 people and killing 176. People were relocated to **relief camps**, such as Osiyana relief camp in Nsanje district, Malawi.

Living in relief camps can increase risk of **disease outbreaks** (such as cholera), amongst other because of people living in close proximity to each.

To prevent the spread of diseases **451 Tulip Water Filters** were distributed at no cost to households in the camp shortly after the floods. In June 2015 an **evaluation study** took place to assess the **user adherence** and **perceptions** to the filters (Fagerli, 2015). During the evaluation study it was found an NGO had removed the borehole and installed a solar pump with chlorinated storage tank in April 2016.



Household Water Treatment

Household Water Treatment and Storage (HWTS) refers to treatment of water at Point of Use (PoU). With HWTS each household has its own treatment option. Examples of HWTS are Chlorine or Filters (membrane/ceramic). An advantage of PoU treatment over treatment at the source is the reduction of the risk of recontamination during transport or storage.

The CCAP SMART Centre promotes the Sawyer and Tulip water filters as one of the SMART technologies to increase access to safe water. The Tulip Siphon Filter consists of a filter element of diatomaceous earth impregnated with Colloidal silver, a siphon hose and a backwash bulb. Laboratory tests indicate that this filter removes all turbidity and over 99,99% of all harmful bacteria.



Methodology

The filters were distributed by the CCAP SMART Centre, in cooperation with Marion Medical Mission. The selection of beneficiaries took place in consultation with local chiefs and staff of the relief camp. The distribution was integrated with trainings on the use of the filter during distribution and one month after the distribution had taken place.

The evaluation study took place in June 2016 and as part of the study the heads of 101 households in the main Osiyana camp were interviewed on their experiences with the filter. The questionnaire included questions on household demographics, water sources, HWT use and preferences, Tulip Filter use, water knowledge and diarrhea prevalence.



Results

The evaluation study of June 2015 has given the following insights:

- ◆ 39% of the households used the filter at least once a week (observed recent use).
- ◆ Main incentive for use: cleaner water, safer to drink and prevents diseases.
- ◆ 10% completely stopped using the filter, mainly because of the solar pump.
- ◆ 88% finds Siphon filter most convenient method for treatment, 11% chlorination. Filter preferred because of absence of smell or taste.
- ◆ 4% reported frequent diarrhoea after using the filter, compared to 73% before the distribution of HWTS (data self reported by households).
- ◆ 91% of the participants reported to having received training on the use of the filter.
- ◆ Main complaint on the filter is 'filters too slowly' (11% of participants).

Discussion

- ◆ Although the use of the filter was found to be relatively low, households have accepted the filters as HWTS method.
- ◆ The distribution of HTWS in the Osiyana relief camps has led to a significant decrease in the prevalence of frequent diarrhoea. However, because the data is self reported, and not based on a baseline study, care is needed in handling the data.
- ◆ The installation of the chlorination plant has increased the availability of treatment options, but it also led to confusion among users on what method to use. When asked, however, households have a clear preference for filters.
- ◆ The Siphon Filters have shown to be suitable and accepted in this emergency situation. Key however, is to not just distribute the filter but to also conduct of trainings on the use of the filter.
- ◆ Visible contamination ('dirty water') is a major incentive to use a filter, while it is not necessarily a reliable indicator for safe water.

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Recommendations

The results of the evaluation study are mainly based on data as reported by the households. Including a baseline in future studies will help to increase the reliability of the data, especially on the prevalence of 'frequent diarrhoea'.

Future studies in the same study area can help to assess the long-term impact of emergency distributions and will help to determine the uptake and sustainability of the distributed technologies once the emergency has seized.

Despite the confusion among households after multiple treatment technologies had been distributed, it is advisable to distribute a range of technologies in emergency situations as it allows the beneficiaries to make a choice, based on personal preference. The ability to choose leads to an overall higher uptake of the HWTS technologies. It is however advisable for the involved organisations to make sure the information spread is in line with each other to prevent the spread of untrue or false information.



The
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More information:
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www.smartcentregroup.com / www.smartcentremalawi.com

Full research available as: Fagerli, 2015 'An Evaluation of User Compliance and Perceptions of Tulip Filters in Response to the 2015 Malawi Flood'

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