

## **Project BRAVO**

### **Executive Summary**

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Project BRAVO was a field study in Haiti undertaken by CAWST to increase our knowledge base and improve our training and technical consulting service. Specifically, the purposes of this project were to:

- Evaluate the use and performance of the biosand filter in households in the context of water storage, sanitation, hygiene practices and diarrhoeal health.
- Assess the sustained use and repeatability of this type of household water treatment (HWT) in a developing country.
- Determine the outcomes over a broad timeframe by surveying both new users (80 households) and long term users (107 households).
- Develop 'template tools' to conduct future evaluation and water testing.

The project surveyed a total of 187 households, involved over 700 visits and more than 5,000 water analyses, over a period of six months. Perceptions of the householders toward the filter were positive regarding its ease of use, the taste, smell and appearance of the filtered water. Over 95% believed their water was improved by the biosand filter. In 96% of the 187 households surveyed, the head of the family stated that their family's health was 'better' or 'about the same'.

Effectiveness of the biosand filter was found to be inconsistent if the filter sand media is not properly selected. The long term filters had an average bacterial removal effectiveness of 98.5% after an average of 2.5 years, while the new users' filters removed only ~73% initially, rising to ~85% after 3 months. The sand media in these filters was not well graded flowing at 150% of the recommended maximum flow rate. Likewise, turbidity removal was far better in the long term filters vs. the new users.

1. Longevity of the biosand filter, meaning the expected lifetime of the filter in continuous use, was found to exceed five years as the filters proved to be durable with only minor problems observed.
2. Repeatability, or scale-up, appears feasible as 95% of the households said they would recommend the biosand filter.
3. Recontamination of the drinking water, post-filtering, was significant for both study groups reflecting the poor water storage, hygiene and sanitation practices observed.

As a result of these findings, CAWST plans the following initiatives:

1. Quality Assurance Plan for the biosand filter media
2. Safe water storage and recontamination emphasis
3. Training of Community Stewards to influence hygiene and sanitation
4. Training curriculum and support for: a) Monitoring and Evaluation, and b) Water Quality Testing

The long term users' portion of the study was conducted with The University of Victoria. This resulted in a peer reviewed paper available online through *Rural and Remote Health* (<http://rrh.deakin.edu.au/articles/showarticlenew.asp?ArticleID=570>).

The presentation of the results of the entire study is provided here in PowerPoint format to make it easier to view and use the information. As an 'open source' organization, CAWST encourages anyone to make use of these results. Please direct any comments or questions regarding this project to [dbaker@kawst.org](mailto:dbaker@kawst.org).