

Abstract

Cameroon has a large population lacking easy accessibility to clean water sources. Many become ill due to parasites or diseases spread through the water, such as Cholera, which occurred in over 7,000 people in 2010 alone [1]. A four-student ETHOS team installed six Biosand water filters in several remote villages to reduce the effects of waterborne illness.

Introduction

- Biosand filters are cost-effective, user friendly, and remove significant amounts of contaminants
 - Uses biolayer grown in each filter
- Biosand filters have been shown to remove:
 - Up to 100% of worms
 - Up to 100% of protozoa
 - Up to 98.5% of bacteria (which often causes Cholera)
 - 70-99% of viruses
 - Up to 95% of turbidity
 - up to 95% of iron [2]

Project Description

- Concrete containers poured by a previous ETHOS group
- Filled with sand and two types of gravel
- The ETHOS team and Nkong Hilltop staff sieved and cleaned all the gravel and sand for the filters, built lids and diffusers, and worked with local village residents to assemble filters
- One filter costs about \$30 to make in Cameroon (not including mold)

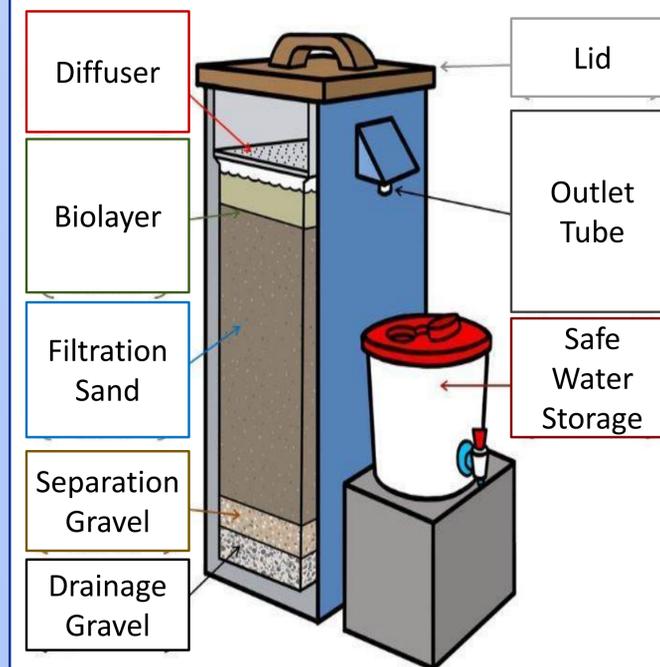


Figure 1: Parts of a Biosand Filter

Results & Discussion

- The Biosand filters were completed in the villages of Misellele, Mongo, and Mudeka
- Water in the villages entered the filter brown and opaque, and left the filter clear and colorless
 - Chemical water testing was unavailable

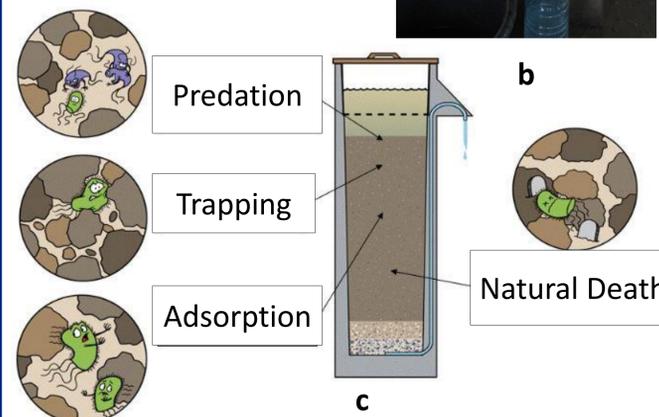
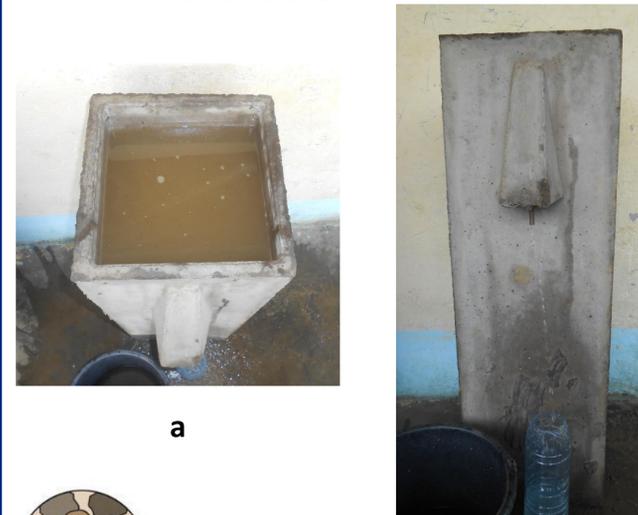


Figure 2a-2c:
 (a) Top view of Biosand Filter
 (b) Front view of Biosand Filter
 (c) How pathogens are removed from the water

Recommendations

- Because the filter is not perfect, always sterilize water that comes from the filter by
 - Chlorine 
 - Solar Disinfection 
 - Boiling 
- Hire a skilled carpenter to make the lids for the filters
- Provide new, clean water storage containers to those using the filter
- Involve the community in the process – the more involved they are, the more invested they are in the success of the project
- Bring kit to test for Arsenic, Phosphates, Chlorine, and other such chemicals

Acknowledgements

- [1] <http://www.unicef.org/>
 [2] <http://www.cawst.org>