

ETHOS Technology Highlight: CLEAN WATER

In 2010, The United Nations General Assembly declared that every human being has the right to have access to water for personal and domestic use (50-100 L of water per person per day) which must be clean, acceptable, affordable and physically accessible. This means water should not exceed 3% of household income, be no more than 1000 meters from home, have a collection time of no greater than 30 minutes and be safe for consumption. Current global efforts should allow for approximately 92% of the world's population to have access to clean water and sanitation. [1]



[2]

Summer 2014 Spotlight

Buea, Cameroon– Biosand filter construction and implementation

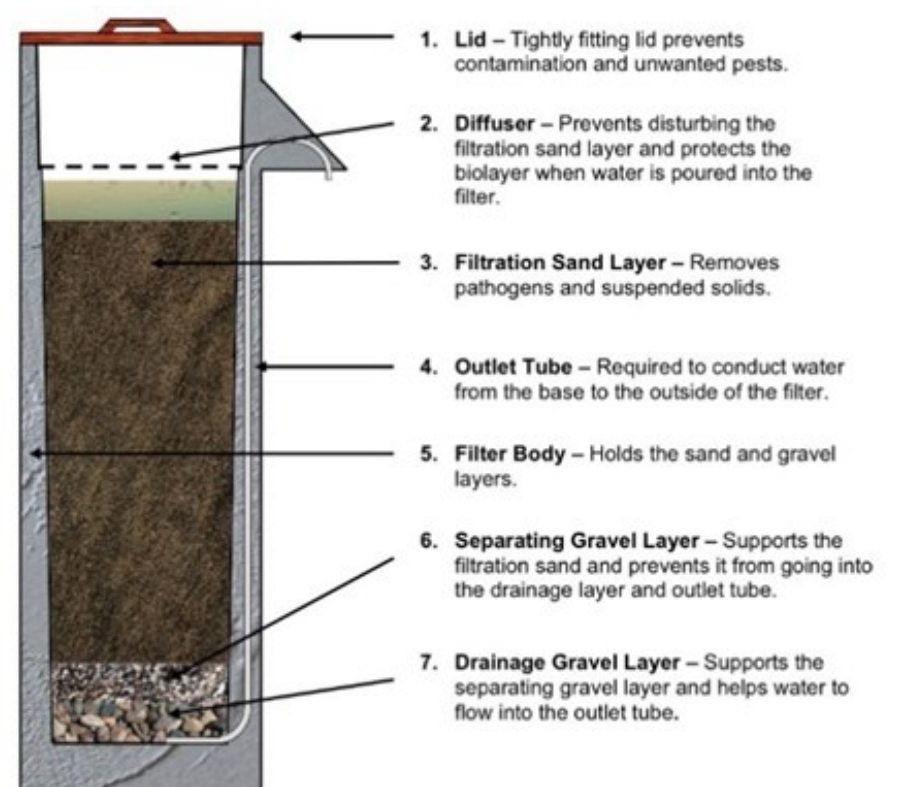
Sabana Grande, Nicaragua- Drip irrigation System

Cortijo, Guatemala– Rain water collection and storage

Why is it important? [2] [3]

- 3.4 million people die every year from a water related disease
- Death rate of children is equivalent to a giant airplane crashing every 4 hours
- Approximately 1 in 9 people lack access to clean water
- Includes more than 1/3 of Africa's population
- Unclean water kills more people than war, malaria, HIV/AIDS and traffic accidents combined

The figure on the right shows a specific type of water filtration known as a Biosand filter. First, contaminated water is pouring into the top of the filter. As it slowly drips down through the holes in the diffuser, it travels through the biolayer where microorganisms at the top of the sand will eat pathogens in the water. Then, the water will flow down through sand and gravel layers in which more pathogens are removed through trapping or absorption. By gravity, the clean water is then pushed up to the outlet tube where it can be collected. They have been shown to remove up to 100% of worms, 100% of protozoa, 98.5% of bacteria and 70-99% of viruses. [4]



[4]