

BSF Guidance Manual #8

Cholera and the BioSand Water Filter

January 2009

Dr. David H. Manz, P. Eng., P. Ag.

Copyright claimed by David H. Manz January 2009

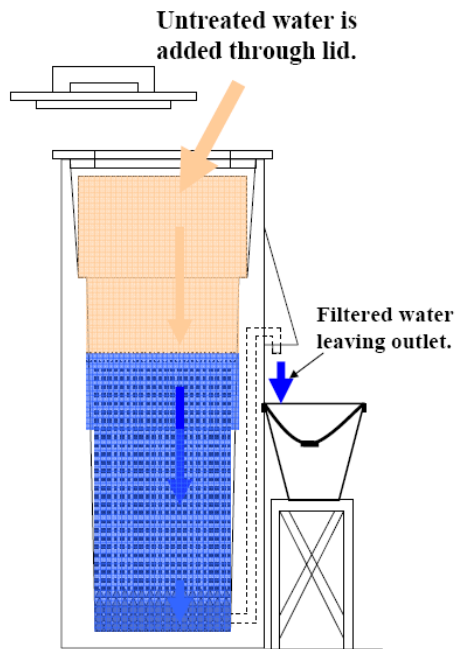
Cholera

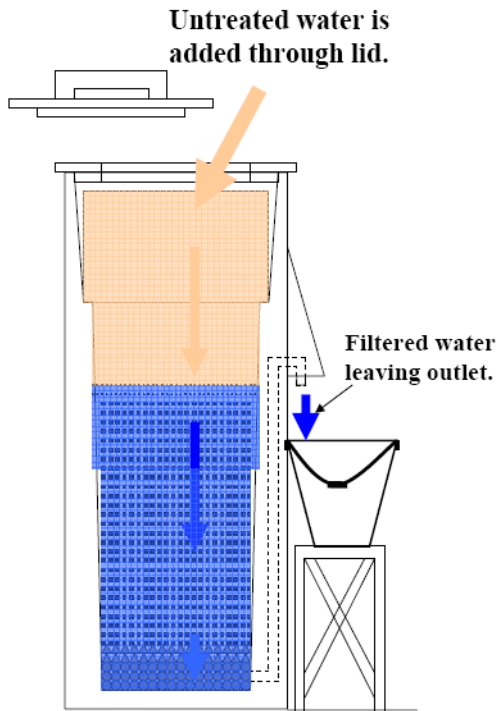
The BioSand Filter is exceptionally effective in eliminating the threat of cholera from water. In fact the first major success of the BSF technology was the elimination of cholera from the first community the filtration technology was ever introduced in Nicaragua. Cholera was ravaging the entire country. Many, many people were being infected and dying in every part of the country, every day – except in the community where the BioSand Water Filter had been introduced.

Vibrio cholera do not survive very long as a free swimming organism in any natural water system. In fact cholera has a very short life (as a free swimming microorganism) – only a few hours. Also, the infectious dose of cholera (the number of bacteria required to cause illness) is several millions of bacteria. So how can cholera become a major water borne pathogen threat and the BSF technology be so effective?

It is now understood that the *vibrio cholera* bacteria will be ingested by other larger microorganisms, such protozoa and helminthes, that are also living in the water supply. The larger microorganisms may not be pathogenic themselves; however, the *vibrio cholera* bacteria will be ingested by these organisms and survive and grow in numbers in the gastrointestinal systems of the much larger protozoa or helminthes.

When untreated (unfiltered) water is ingested by the human consumer very large numbers of cholera bacteria (the infectious dose) that are hiding in the bodies of the protozoa are being ingested. It is like the consumer is ingesting many little ‘pills’ or cholera bacteria that together provide the infectious dose to the consumer.

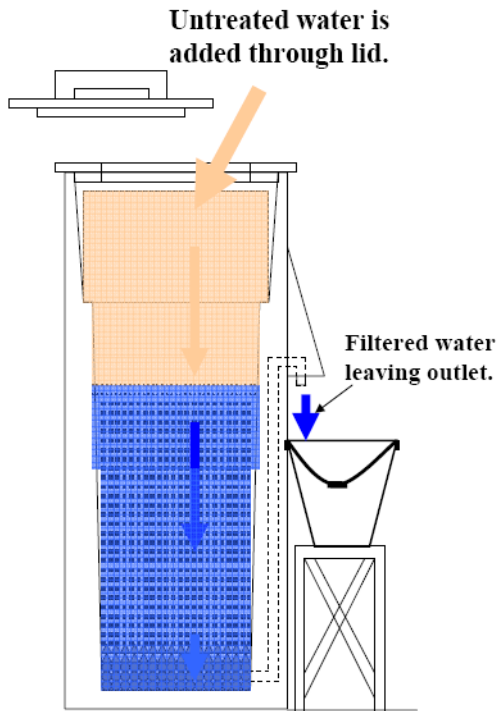




Recall that the BioSand Water Filter will remove 100% of parasites (protozoa) and larger microorganisms (helminthes).

Even without the formation of the biolayer the BSF will provide exceptional protection against infection from vibrio cholera – as clearly demonstrated in the early 1990’s in Nicaragua.

It is important to understand that disinfection using chlorine alone will NOT provide the same protection. Filtration is very important and the BSF is very useful and sustainable.



Note on Zimbabwe

The cholera epidemic in Zimbabwe represents the consequences of a very great tragedy in the life and history of a very wonderful country and people.

The BSF technology was introduced into Zimbabwe several years ago, Mupfure College, as discussed in the web site:

www.manzwaterinfo.ca.

The evaluation of the introduction of the BSF technology to the community (adjacent Mupfure College) was very positive and the people spontaneously and enthusiastically extolled the dramatic positive impacts the introduction of the BSF had on their health.

The present (2009) cholera epidemic is very sad since the proven technology that would eliminate the problem is languishing unused, in Mupfure College – in the country and next to the communities that would benefit.

It is very frustrating to watch national leadership fail their people so catastrophically.

Good Luck!

