

BIOSAND FILTER- AN EASY SOLUTION FOR SAFE DRINKING WATER

The United Nations estimates that nearly 900 million people do not have access to safe drinking water sources. In places with no clean water or infrastructure for sustainable water sanitization, people often obtain their water from the same sources in which animals drink and defecate. This leads to water-related diseases such as diarrhoea, dysentery, and cholera.

According to World Health Organization (WHO) estimates in 2008, deaths of more than 2.2 million children per year could be prevented by reducing the diarrheal and malnutrition impacts related to unsafe water, inadequate sanitation, or insufficient hygiene. Deaths of children under 15 are greater than the combined impact of HIV/AIDS, malaria, and tuberculosis.



India lost more than 6 lakh under-five children in 2010 due to water, sanitation and hygiene (WASH) related diseases, such as diarrhoea and pneumonia. These diseases are caused by pathogens (biological contaminants). (Source: UNICEF India)

THESE LIVES CAN BE SAVED...

A water treatment device developed by Dr. David Manz of the University of Calgary, Alberta (Canada), called a biosand filter, is an effective, sustainable, and proven water purification method. Biosand filters remove pathogens (the leading causes of waterborne disease), as well as iron and suspended solid particles from water, making it suitable for drinking and other purposes. With a simple adaptation, the device can also be used for arsenic removal. The filter works under the force of gravity without needing any form of energy or on line pressure. Biosand filters are now

being used in more than 70 countries throughout Africa, Europe, Asia, North, Central, and South America, the Caribbean, and the South Pacific.

INNOVATIVE DESIGN



Traditional pre-cast cement concrete filters faced issues related to production, quality control in construction, and portability. The need for a casting mould poses quality consistency issues, rendering it unsuitable for mass production. Concrete filters are prone to breakage and can be difficult to transport due to weight (75 Kg), especially in remote or hilly locations. Common quality issues are variations in construction material and manufacturing flaws. Further, the efflorescence due to salts in water reduces the life of the filter. These

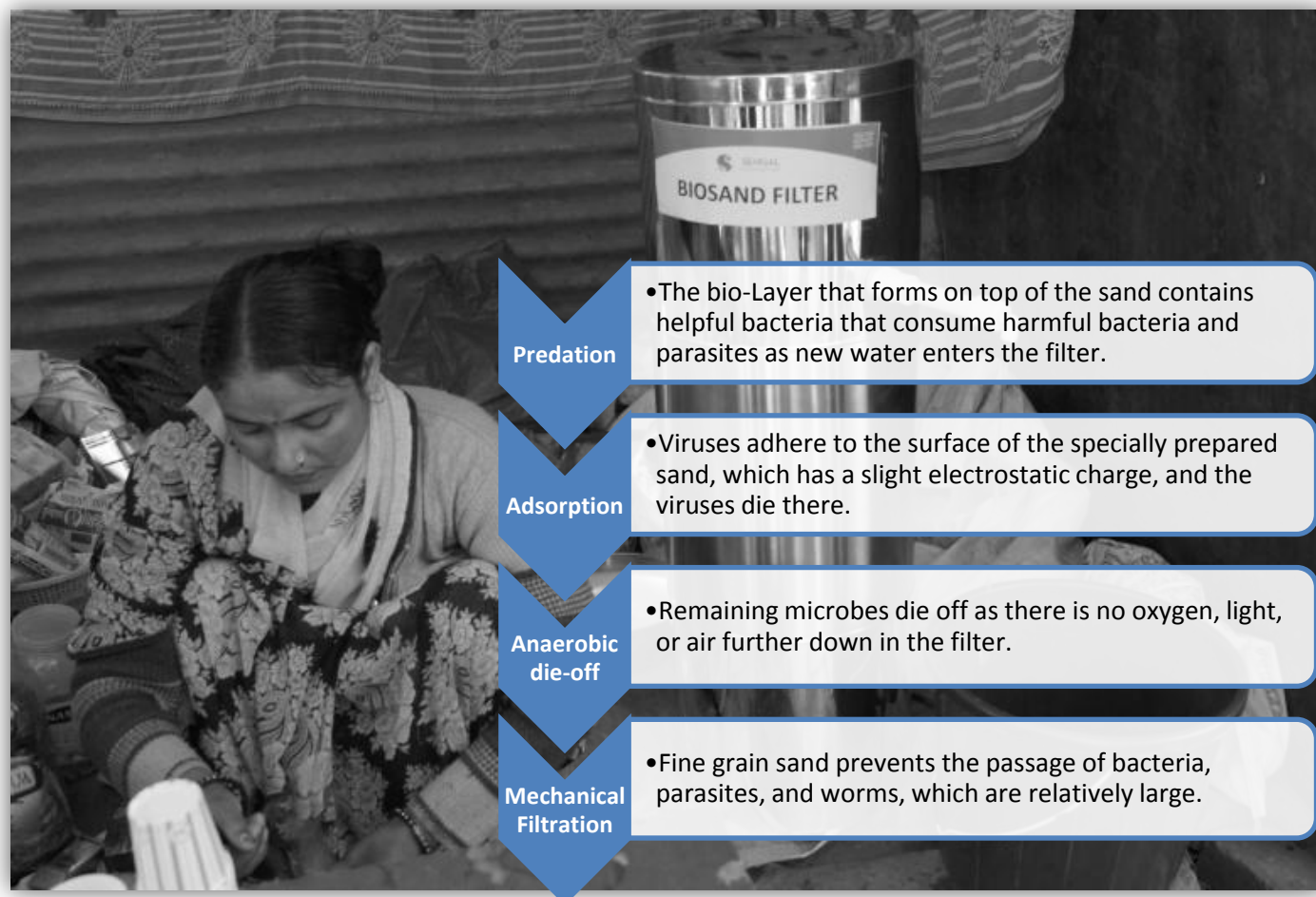
issues led engineers at Sehgal Foundation to work on developing the stainless steel biosand filter.



The newly developed lightweight (4.5 Kg) stainless steel biosand filter has an edge over concrete filters, overcoming each of those shortcomings and providing better quality control. Besides improving its appearance, stainless steel adds to the strength, reliability, durability, and portability of the filter.

HOW IT WORKS

Biosand filters remove pathogens through four processes:



The biosand filter is suitable for water from any source.

EASY MAINTENANCE

The biosand filter does not require any replacements as there are no moving parts. With time, the flow rate of filtered water may be reduced due to silt that comes with water and accumulates over the sand layer. Whenever this happens, simply lift the lid, pour water in the filter, take out the diffuser box, and do a "swirl and dump," which means gently swirling the water above the top layer of sand and pouring out the cloudy water above the sand. This may be repeated 3 or 4 times to clean the top layer of accumulated silt and filter starts working at normal flow rate.

SAFE DRINKING WATER ASSURED...

Sehgal Foundation is committed to promoting the stainless steel biosand filter through partnerships with like-minded organizations to benefit communities across India and beyond.

For more details, please contact- Lalit Mohan Sharma at lalit.sharma@smsfoundation.org