

- High filtration rate (36 litres per hour or 600ml per minute when the reservoir is full)
- Consistent supply and water quality
- >97% Pathogen removal efficiency
- No operational cost
- Removes Iron & Manganese
- With adaptation of 5 kgs of iron nail, arsenic can be removed

### Dos

- Place the filter inside the house on a place on a level spot
- Clean outside and inside the filter & its components regularly
- Avoid any direct human and animal contact with spout and filter
- Use suitable container for collection
- Sanitize container frequently
- Measure outlet flow rate from the spout frequently

### Specification

- Filtration rate 600ml per minute for concrete filter
- House hold use – 6-15 users

### Models available

- Concrete Filter

### Facts about drinking water

In spite of efforts and huge investments during the past three decade, globally there are 1.10 billion live without safe drinking water. 220 Million People in India do not have access to safe drink-

ing water. About 86% of the Diseases in the country directly or indirectly related to poor quality of drinking water (Source: 2004, Water management in India, P.C.Bansil).

Nationally, 54% of Indians use untreated water from hand pumps, surface water bodies and wells.

They are drinking contaminated and polluted water which is unfit for consumption. India is facing a tremendous problem in this regard. Nearly 36% of the Indian people draw their drinking water from hand pumps, 18% directly lift from wells and 38% get their water from taps provided by public distribution systems. The remaining 8% have other sources.

Of these, those who get water from taps are provided with minimal protection of water which is free from contamination and germs. The others have to boil the water or do adopt some purification methods.

## Biosand Filter

*A solution for safe Drinking Water*



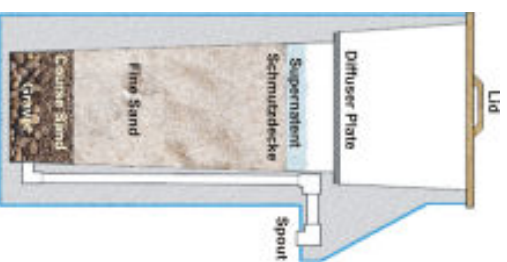
A brand new technological device developed by Canadian Engineers promoted by DHAN Foundation. The filter removes most of pathogens such as Bacteria, Protozoa and Virus found in drinking water source. Water from wells, tank and Orani can be filtered and used immediately for consumption. It is a household device and improved slow sand filter.



### Contact

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## Filter description



- 1 **Filter lid:** Prevents contaminants from entering the filter.
- 2 **Diffuser plate:** Protects the biological layer from damage when water is poured into the filter.
- 3 **Standing Water Layer:** Keeps the biological layer alive during pause periods.
- 4 **Fine Sand Layer:** Traps organic and inorganic material at the top of the filter media.
- 5 **Outlet pipe:** Conducts water from filter base to outside.
- 6 **Medium Gravel/Course sand:** presents fine sand from plugging underdrain gravel.
- 7 **Underdrain Gravel:** promotes vertical flow of water into collector pipe.

## How does it work?

A bucket of contaminated water can be poured into the top of the Biosand filter. The water simply flows through the filter and is collected in another storage container at the base of the spout. When the water is flowing through the filter, oxygen is supplied to the biological layer at the top of the sand by the dissolved oxygen in the water. The bottom of the standing water develops a layer of slime, mud and micro organism which develops at the sands surface.

The removal of pathogens occurs in the Bio-Sand filter due to a combination of biological and mechanical processes. Organic material is trapped at or very close to the surface of the sand, forming a biological layer or 'schmutzdecke'. Over a period of one to three weeks, micro-organisms colonize this part of the filter. These micro-organisms consume bacteria and other pathogens found in the water, thereby providing highly effective water treatment. In addition to this process (known as predation), pathogens are removed due to their death and subsequent collection at the surface of the sand.

Viruses are adsorbed (become attached) to the sand grains. Once attached, they are metabolized by the cells or are inactivated by antiviral chemicals produced by the organisms in the filter. Cysts and worms are removed from the water by becoming trapped in spaces which lie between the sand grains.

Between uses, a layer of water (5 cm deep) is maintained above the sand at all times. It is this design

feature that distinguishes the Biosand filter from other slow sand filters and which allows for both small scale construction and for intermittent use.

## How to use

- Fill up the bottom layer with washed gravel (baby size) for 5cm height
- Filling up of washed medium gravel 5 cm height above the gravel.
- Washed fine sand be filled upto 5 cm height from the lip on which diffuser plate is placed.
- Open the lid, pour the water and collect the filtered water from the outlet pipe.

## Maintenance

The biological layer typically takes two to three weeks to develop to maturity in a new filter. Removal efficiency and the subsequent effectiveness of the filter increases throughout this period.

When the flow rate of water through the filter decreases, the surface of the sand must be agitated. The dirty water can then simply be removed using a small container. The process can be repeated as many times as necessary to regain the desired flow rate.

After cleaning, a re-establishment of the biological layer takes place, quickly returning removal efficiency to its previous level.

## Advantages

- Formation of Biological layer on the surface of sand media
- Removal of pathogens