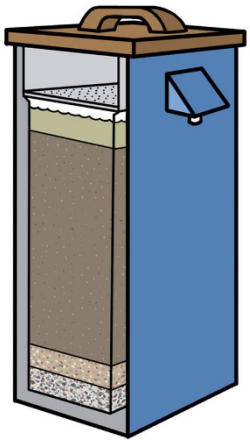
Biosand Filter

Source Protection	Safe Transportation	Sedimentation	**Filtration**	Disinfection	Safe Storage

What is it?

Biosand filters (BSFs) are columns of finely crushed rock on which microorganisms are living. The BSF body can be made of a variety of materials, such as concrete, plastic, or stainless steel. Water is poured into the top of the column and spends a period of time in contact with the sand. This allows the microorganisms living in the sand to remove pathogens from the water. Each new batch of water displaces the batch before.



Performance

Microbiological Effectiveness:

Parameter	Effectiveness
Bacteria	Effective (>90%)
Viruses	Somewhat Effective (>80%)
Cryptosporidium (Protozoa)	Very Effective (>99%)
Giardia (Protozoa)	Very Effective (>99%)
Helminths	Very Effective*

**Assumption based on pathogen size*

Other Parameters
High removal of turbidity. Removes iron. Can be modified to remove arsenic (see Kanchan Arsenic Filter). Not effective for most other chemical contaminants.

Source Water Requirements
Turbid water (>50 NTU) should be settled or strained before filtering.

Capacity
Treats one to four batches per day (12 L per batch).

Lifespan
Ten years or more.

Ease of Use & Acceptability

Operation & Maintenance
User pours water into the filter each day. Simple maintenance is required to clean sand when flow rate slows down.

Repair & Replacement
Lids and diffusers need replacement every few years.

User Considerations & Preferences
Requires that water be added every day or two to develop and maintain the microbiological community. Filter is heavy and difficult to move, making it unsuitable for people who move often.

Feasibility

Availability
Concrete bodies can be made anywhere. Other body types may need a centralized manufacturing facility, or they can be imported. Making steel molds to construct concrete BSFs requires skilled welders. Anyone can be trained to construct and install filters.

Cost
US$12–100

Size & Weight
Average size is 0.9 m tall by 0.3 m wide. Empty filter cases weigh 70–135 kg (concrete body) or 3.5 kg (plastic body).

More Information

Details and references: www.hwts.info/products-technologies/074f5f20/Biosand-Filter