

BioSand Filter

What is a BioSand Filter?

The BioSand filter is also called a BSF. It is a water filter that makes dirty water safe to drink. It can be used in houses or buildings like schools. It can be made of concrete or plastic. It is filled with layers of sand and gravel that are carefully prepared to go inside the filter. The BFS is easy to build, use and maintain. It does not need an external source of power to function.

How does the BioSand Filter work?

The BSF is filled with layers of specially selected and prepared sand and gravel. The sand removes pathogens, the creatures that make you sick when you drink them, and suspended solids from contaminated drinking water. A biological community of bacteria and other micro-organisms grows in the top 2 cm of sand. This is called the biolayer. The micro-organisms in the biolayer eat many of the pathogens in the water, improving the water treatment. The biolayer is very important for making the water safe to drink. The biolayer takes about 30 days to grow.

What happens to the pathogens in the water?

They get trapped in the sand

The water can flow through the sand, but some dirt and pathogens are too big to fit through.



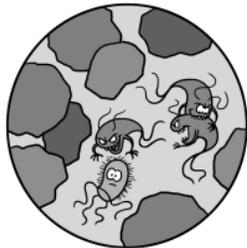
They get stuck to sand

Some pathogens stick to the sand and can't get away.



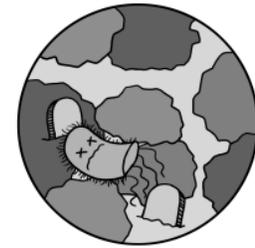
They get eaten

The microbes eat each other inside the filter, especially in the biolayer.



They die

Some pathogens die because there isn't enough food or air for them inside the BSF.



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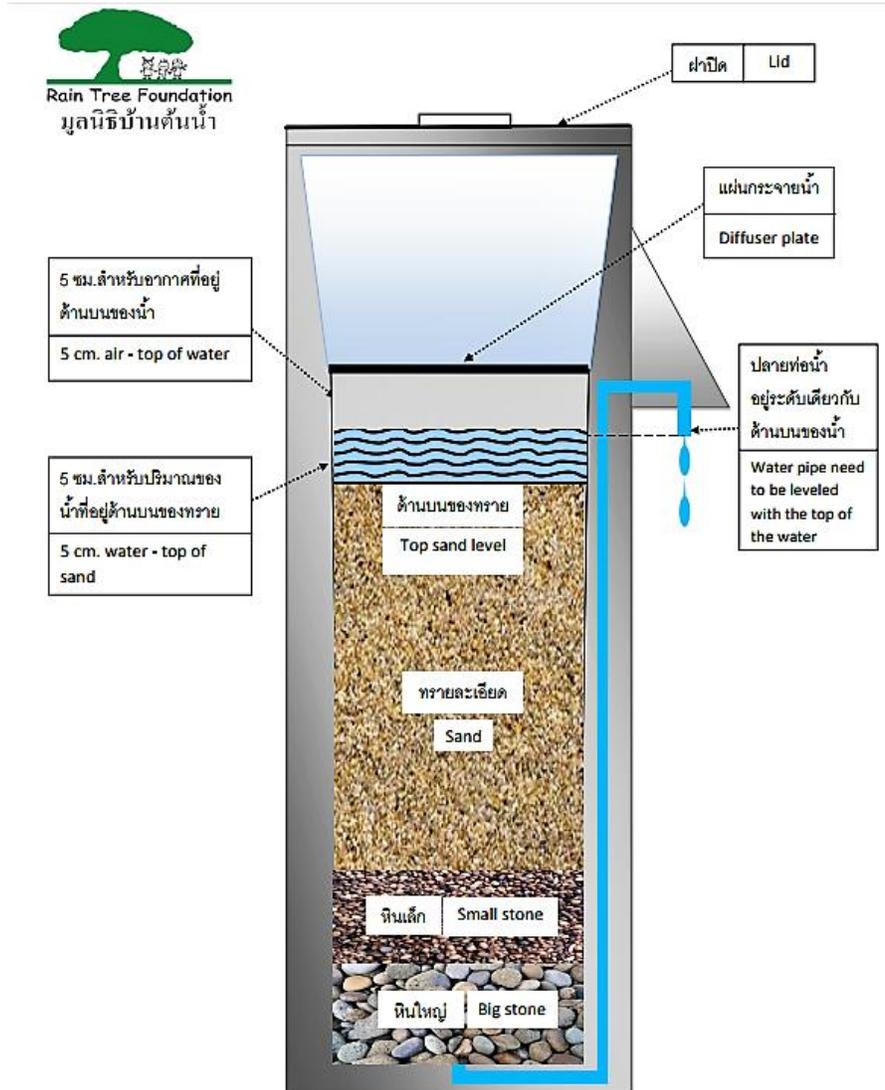
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The Parts of the BioSand Filter



What is the most important part?

The sand! The sand removes pathogens from the water. The biolayer lives in the sand. If you do not get the right kind of sand, or do not prepare the sand properly, the biosand filter will not work well.

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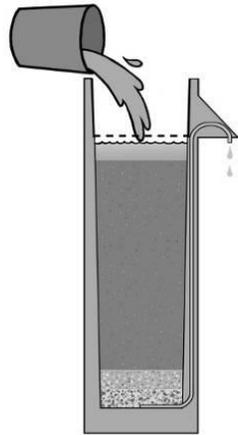
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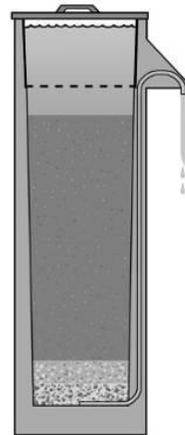
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How to use a BioSand Filter?



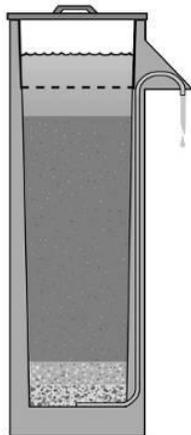
1 Pour a bucket of dirty water in the top of the filter. Water will start to flow out of the tube. Put the lid back on the filter.

The filter should be filled between 1 and 4 times every day.

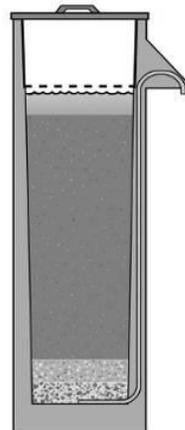


2 The top of the filter is called the reservoir. It can hold 12 litres of water—about 1 bucket.

Water coming out will flow fastest when the reservoir is full.



3 It usually takes at least 1 hour for the water to stop flowing.



4 After the water stops flowing, the filter must rest. The filter must rest for at least 1 hour before pouring in more water.

This is called the **Pause Period**.

What kind of water can be used for the BioSand Filter?

You can use any kind of water in the BSF: water from the river, from a pond, from a well, or rainwater. However, it is best to use water from the same source every time in the filter.

If you change the water source, for example, when the rainy season starts, it will take a few days for the microbes living in the filter to get used to the new water. For a few days, the water coming out of the filter may not be as good quality as usual but you can still drink the water.

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What does Rain Tree do?

We have installed numerous BioSand Filters already and the great impact is measurable through our own tests as well as with official laboratories in Chiang Mai, Thailand. The people need less fire wood to boil their drinking water and they have to spend less money for water born diseases. We built and distribute the BSF to villages and households in need. Additionally we also offer workshops on how to use and maintain a BFS.

How can you help?

Manufacturing and distributing the BFS costs money. One BSF costs around 70 Euros. A We are always looking for sponsors. You can either sponsor as an individual or as a company. There's also the opportunity to have your name written on the sponsored filter. Please be aware that we might take pictures for our own use.

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