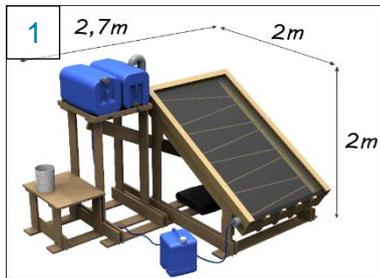
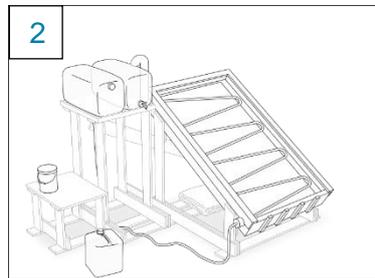


Working principle

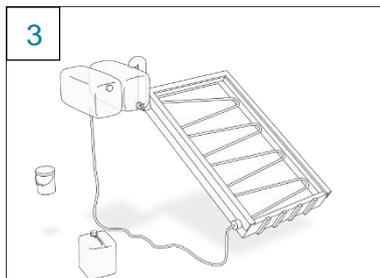
SoWaDi – Solar thermal water disinfection



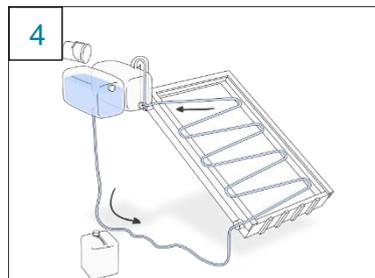
This is how the device looks like! The dimensions are ca. 2.7x2x2 meters. It improves water quality through heat treatment. Here we show how it works.



The angular part on the right is called "absorber". It collects the sun's radiation. The tanks on the left side are the input tank for the untreated and the output tank for the treated water. The wood construction holding the absorber at the defined angle and the tanks at the correct height is called rack.



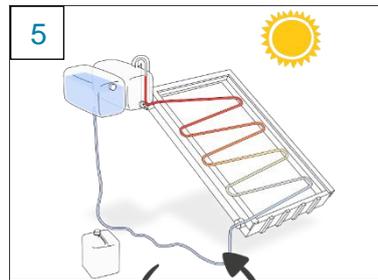
We don't need the rack for the explanation, so we'll hide it. The input tank is connected with the absorber through a tube (or pipe). In the middle, hidden behind the output tank, there is the insulated riser, from which the treated water will flow into the output tank.



First of all, the input tank is filled with the water that should be treated. Via the tube the water level in the absorber rises to the same fill height as the input tank.

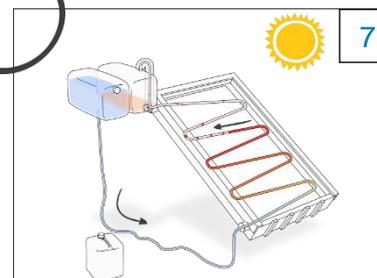
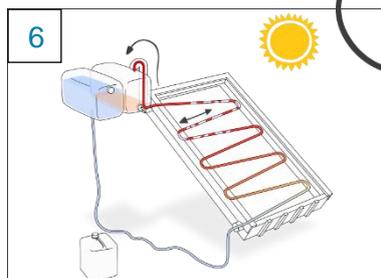
It is important, that the water is clear and not chemically contaminated. A piece of fabric can be used to filter the water to a small degree.

The process

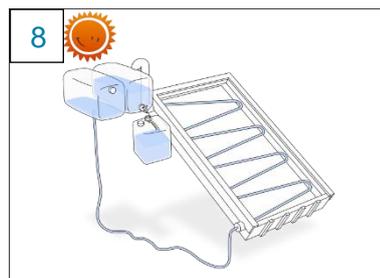


The sun heats the water in the absorber. A good insulation is very important.

When the water in the absorber is hot enough it starts to boil. Steam emerges in the absorber pipes (bubbles). The expanding steam pushes this hot water out of the riser into the output tank.



When the steam reaches the output and leaves the absorber, water from the input tank flows into the absorber again. The water is now a little bit cooler again and needs to be heated. This will happen quickly once the device heated up in the morning. Now the last steps repeat until the sun is not strong enough anymore.



At the end of the day the all of the water in the output tank got treated. If the sun is not strong enough to treat all the water there will be water left in the input tank.

The water in the output tank cooled down and should be used within one day. According to the need, water can be drawn off during the day.

In the evening or at the next morning the input tank is filled again or the absorber is covered to deactivate the device.

There should always be water in the input tank, because the device can get very hot without water. To stop the device the absorber just has to be covered.