The WADI is a simple device that measures when contaminated water has been sufficiently exposed to sunlight to be safe to drink | Photo source HELIOZ

DISINFECTING WATER WITH SUNSHINE

SUSTAINABILITY

An easy-to-use measuring device indicates when contaminated water has been sufficiently exposed to the sun's UV rays for water-borne pathogens to be eliminated

Spotted: Around the world, 1.8 billion people lack access to safe drinking water. To avoid water-borne disease, these people must treat the water available to them before they can drink it. But existing treatment solutions are associated with additional costs – both monetary and environmental. Boiling water, in particular, causes carbon emissions and air pollution.

But there is one way to treat water that involves no emissions and uses a free resource found everywhere: sunlight. Solar water disinfection (SODIS) is a process where the sun's natural UV rays eliminate pathogens—such as bacteria, viruses, and protazoa—from contaminated water exposed to sunshine. The difficulty is knowing when contaminated water has been exposed for a sufficient length of time for the UV rays to have rendered it safe.

This is where Austrian social enterprise HELIOZ comes in. The organisation has developed the WADI – a World Health Organization approved device that visualises the process of SODIS in water containers such as plastic and glass bottles. The WADI device, which can measure UV light, is placed alongside bottles of contaminated water exposed to sunshine, so that it receives the same dosage of UV rays. It can then be used to measure when the bottles have received sufficient exposure to render them safe – defined as the removal of 99.99 per cent of pathogens. This is done using reference values stored in the device.

The device is easy-to-use and designed for water treatment at the household level. Device users can look at a progress bar to track the rate of disinfection, and when the process is finished, the device displays a smiley face.

HELIOZ used the WADI devices as part of a campaign launched to coincide with World Water Day 2021. The campaign was focused on communities in India, Africa, and Southeast Asia. These communities received WADI devices, as well as water, sanitation, and hygiene (WASH) training. The results of the project were impressive: in the project areas, the rate of water-borne disease was reduced by 80 per cent.

Access to clean drinking water is a key sustainability issue, and Springwise has spotted a number of innovations that rise to this challenge. These include a mobile filtration system, an app that helps communities to maintain water systems, and an off-grid desalination system.

Written By: Matthew Hempstead

10th May 2022
Email: office@helioz.org
Website: helioz.org/en/wadi

Takeaway:

According to the World Health Organization, 829,000 people are estimated to die each year from diarrhoea as a result of unsafe drinking-water, sanitation, and hand hygiene. Consumption of microbiologically contaminated drinking water alone causes 485,000 annual diarrheal deaths. Solutions like the WADI are therefore crucial for ensuring the health of people in the worst-effected regions. And the cost-effectiveness and ease-of-use of the WADI makes it a particularly useful tool.