

Producing simple kits for safe water in Rajasthan

October 3 2017, by Robyn Mills

University of Adelaide researchers are planning to produce simple, low-cost, self-assembly water purification kits to provide fresh drinking water in the Indian state of Rajasthan, South Australia's sister state.

The kits make use of sunlight and gravity, some clever design and basic materials to produce up to 10 litres/day of safe drinking [water](#).

The University today launched its first official crowdfunding project to fund the research, which will be needed to design and produce the kits. The University aims to raise \$30,000, to produce 1000 kits.

"It's been estimated that 680 million people around the world do not have access to fresh drinking water, and approximately 1.5 million people, predominantly children, die from drinking [contaminated water](#) every year," says project leader Dr Cris Birzer, Senior Lecturer in the University's School of Mechanical Engineering and Director of the Humanitarian and Development Solutions Initiative at the University.

"We want to build on the very simple water treatment kits we developed for use in the highlands of Papua New Guinea, which allow people to make their own water purifiers from materials readily to hand.

"These kits use sunlight to kill pathogens, making the water safe to drink. But in India, the water also contains heavy-metal contaminants and we need to do some onsite pathogen, heavy metal and other toxin assessments to be able to modify the kits for Rajasthan."

The original water purification kits were developed by Dr Birzer, his colleagues and students using glass tubing, metallised plastic and sunlight. The system makes use of UVA radiation direct from the sunlight to kill pathogens in the water.

A team of researchers, including engineers, microbiologists and anthropologists, will visit Rajasthan to engage with local communities and conduct assessments on local water quality, manufacturing capabilities and supply-chains before returning to Adelaide to develop and implement a customised solution.

"Once we know exactly what heavy metals and other contaminants are present, we'll be able to modify the kit design with, for example, sand filters to remove other contaminants," says Dr Birzer. For instance, the local Indian plant Moringa can be used to remove arsenic from contaminated water and could be mixed into a sand filter as a simple addition to the system.

"Once we've designed the kits, they will be produced in Rajasthan and distributed to the community through local partners," says Dr Birzer.

"The United Nations has explicitly stated that water is a human right. Here at the University of Adelaide we're trying to make sure those rights are fulfilled, and we want you to help us."

More information: Those wishing to help fund the project or just find out more should visit the crowdfunding page at universityofadelaide.pozible.com/2013/01/24/uv-a-filtration-system

Provided by University of Adelaide

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