



By Samantha Magick

A Tokyo-based start-up working on small-scale water recycling systems hopes they may help solve water shortages in small island communities.

WOTA's technology is a response to what it describes as a 'looming crisis' in Japan, aging and deteriorating water infrastructure and the prohibitive cost of providing subsidies to keep water utilities solvent. The founders are also concerned about the implications of pollution and climate change on global water supplies.

WOTA believes part of the solution is breaking the reliance on big, centralised water utilities and instead developing small infrastructure that can be installed in individual homes. In effect, it's "a water cycle in each home," says WOTA's Vice President Innovation, Ryo Yamada.

"In doing that, we think we can reduce the installation cost, the installation time, and the environmental impact associated with constructing large scale infrastructure," he contends.

WOTA has two products already in market. The WOTA Box is a portable shower that uses recycled water, and is mainly used in evacuation centres to enable people to take showers after natural disasters.

The second product, a stand-alone handwashing station, was launched last year. It also recycles water and disinfects mobile phones using ultraviolet light. The focus on handwashing and hygiene at the height of the COVID-19 pandemic saw it picked up by retailers, hospitals and restaurants around Japan.

WOTA is now working on a system that can recycle all household wastewater, from kitchens, toilets and all other grey water. The small amount of water lost in the system can

be replenished by rainwater, and the whole process is automated. Once installed, the system is monitored by an array of sensors. WOTA has also developed a series of algorithms to automate water treatment and maintenance. And by deploying hundreds of products in the market, WOTA can gather data to improve these algorithms, says Yamada.

"Our big challenge now is to drive down the costs," he says, noting that it costs around US\$6 per cubic metre of water. That is more expensive than water rates in Japan, but cheaper than some European nations. WOTA aims to bring the cost below Japanese water and wastewater rates by 2026.

Last year WOTA received the Earthshot prize, which enabled Yamada to represent WOTA at COP26. Antigua and Barbuda's environment minister heard him speak there. "He thought it would be very interesting to test the technology on the island," Yamada says. An MOU has now been signed and discussions have moved to designing and planning a pilot project in the Caribbean nation next year.

"Small island nations in general, have a variety of water issues in a very compact area...so it's an ideal place for a start-up like ourselves to demonstrate our technology and show that we can solve these problems," says Yamada.

It is conceivable that with modifications to suit local environments, systems such as that being developed by WOTA could be used in Pacific islands and atolls struggling with drought and chronic water shortages. Data collected during the trial in the Caribbean will be useful, the unit price would need to come down, and local technical support would need to be found and trained. But it is this type of innovation that will be critical if Pacific Island communities are to become climate resilient. [B](#)

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