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Singapore's water tech companies, research institutes make waves worldwide



Wateroam's portable water filter technology has been exported to 38 countries, including Nepal, Malaysia and Indonesia. PHOTO: WATEROAM



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SINGAPORE - Water tech innovations and infrastructure that have helped water-scarce Singapore meet its daily water demands are now making waves worldwide, bringing clean water and sanitation to communities around the globe.

The Republic is a leading global hydrohub with an ecosystem of more than 200 water companies and 25 water research centres spanning the entire water value chain, including water supply, used water management and stormwater management, such as flood protection measures, said national water agency PUB.

Some local companies have also been commercialising their solutions in other parts of the world.

Wateroam, a company founded in 2014, has developed portable water filters to deliver clean water to countries as part of emergency response and humanitarian relief for disaster-hit areas.

The technology, which is designed to be as simple as possible, has been exported to 38 countries, including Nepal, Malaysia and Indonesia.

Non-profit organisation Lien Foundation launched the Lien Environmental Fellowship in 2010 to equip Asian scientists and researchers from selected regional countries with the skills and resources needed to tackle challenges related to water and sanitation, as well as renewable energy projects in their home countries.

Successful applicants receive mentorship from the Nanyang Technological University's Nanyang Environment and Water Research Institute (Newri), where they receive technical and financial support to transform their ideas into viable solutions.



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A total of 18 projects have been administered in nine countries as at May this year.

Lien Foundation chief executive Lee Poh Wah told The Straits Times that each project has to be tailored to the unique challenges of each community and the solutions have to be long-term, sustainable ones that have garnered local support and engagement.

Recently, the Lien Environmental Fellowship programme embarked on a new project to sample the water quality of Kathmandu's heavily polluted Bagmati River to determine the source and extent of the pollution.

There has been continuous dumping of solid waste, domestic sewage and industrial waste in the river.

Noting that plastic pollution in the water was immense, Newri executive director Shane Snyder said that a possible solution could involve a plastic upcycling technology, with plastic waste converted to diesel fuel to alleviate the high fuel costs that Nepal is currently experiencing.

He added that plastic waste - when left in water - can cause toxic chemicals to leach, which can be harmful for the human body.

Freelance climate change and senior watershed expert Madhukar Upadhyaya from Nepal, who was not involved in the project, said the idea was great, as it could provide jobs to those collecting plastic waste and incentivise households to save their plastic waste to sell it.

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The Fellowship programme also saw some of Singapore's best innovations - such as its membrane technology - benefit less-privileged communities.

For instance, Myanmar's Mandalay city had extremely hard water - full of calcium content, as well as E. coli bacteria and other pathogens.

"We knew that the nanofiltration method (which is typically used to soften and disinfect water) would be the way to go - but there was no such system available," said Professor Snyder.

However, local water tech company Century Water, picked up the intellectual property rights from NTU and the National University of Singapore - which also does water tech research - and installed a membrane nanofiltration system there at a low cost.

"The operations are still going strong, despite the coup there and even amid the Covid-19 pandemic," he added.

Mr Lee said that having clean water is the very foundation for health and human development.

"Without clean water, no country could ever escape poverty... and just as Singapore has become a global water hub, we have also benefited from foreign investment during the early days. So this is our way of paying it forward."

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