

# Potable water filter system that's light and portable

It turns dirty water into drinkable water in the same time it would take to run it from the tap

By **OLIVIA HO**

IT weighs no more than 300g, fits easily into a backpack and looks like any other plastic bag.

But the simple device is a life-saver for people who have no access to clean, drinking water.

The bag, called Fieldtrate Lite, filters dirty water, such as river water, through a membrane and turns it into potable water in the same time it would take to run it from the tap.

It is the brainchild of Singapore start-up WaterROAM, which designs portable water filtration systems for use in disaster relief operations or rural communities without access to clean water.

The social enterprise, set up last August, is run by Mr David Pong, 26; Mr Lim Chong Tee, 24; Mr Vincent Loka, 22; and Mr Pooi Ching Kwek, 27. They were schoolmates at the National University of Singapore (NUS).

Mr Pong, WaterROAM's chief executive, said: "It's our vision to build a world where no man shall face prolonged thirst."

The Singaporean, who has a degree in business administration, said: "In the areas we went to, such as Phnom Penh and Bintan, we saw kids stunted in growth from having no proper nutrients and clean drinking water."

The team hopes Fieldtrate Lite can be the answer to the prob-

lem. WaterROAM also has a more elaborate filtration system, called Fieldtrate Plus, which is the size and weight of a large suitcase.

To date, the company's filtration systems have provided drinkable water for nearly 1,000 people in three countries, including an orphanage in Bintan; a village in Phnom Penh; and victims of last December's floods in Kelantan.

Mr Lim, chief marketing officer of the start-up, said he got interested in water sanitation after a trip to Phnom Penh during his junior college days.

There, he saw a boy drinking dirty water from a flooded well. "The water was very brown, even greenish, but he drank it anyway. It really affected me."

He decided then to study environmental engineering in university, so that he could help tackle water problems. He is now three years into his degree course.

Mr Loka, who is WaterROAM's

financial controller, said clean water can be scarce in his hometown of Medan in Indonesia because of frequent flooding.

"I took this path because I hope to contribute to my country some day," said the final-year environmental engineering student.

WaterROAM now sells the filters to non-governmental organisations such as World Vision, Cannaact and Relief.sg, which take them to overseas communities.

The team members also fly in – sometimes paying for flights out of their own pockets – to help install the systems and educate users on water hygiene.

Mr Pong, who went to Kelantan in March, said: "Three months after the flooding, many people were still relying on relief aid for bottled water. We want to help deploy systems which are more sustainable."


Mr Pong graduated from NUS last year; the rest are juggling their WaterROAM responsibilities



The device is the brainchild of Singapore start-up WaterROAM.

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The inventors explain how the filtration system works



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with their studies.

But Mr Lim said the pressure was "not daunting". "This is my dream job," he said.

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## How the 'plastic bag' produces clean water

FIELDTRATE Lite, designed by WaterROAM, is easy to operate and does not require electricity. Each bag, which costs \$35, is made of medical-grade plastic

and fitted with a tube that dispenses filtered water.

It takes just an hour to filter a full bag of six to 10 litres of water, which can serve a household of five to seven people.

It can last three to five years because it uses ceramic

membranes, which are more durable than the widely-used polymeric membranes which tear more easily.

The WaterROAM team says it is the first to use ceramic membrane technology, which is more commonly used for industrial waste management.

WaterROAM also has a more elaborate filtration system, called Fieldtrate Plus – at 30kg and sold for \$1,500. It can produce up to 500 litres of clean water per hour.

WaterROAM's next step is developing Fieldtrate X, a filter which can handle water

containing arsenic, which is a major issue for ground water in areas such as Bangladesh.

A prototype is being tested by the Bangladeshi government, and the team expects it to be ready for use in the field in six months' time.

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