Desalination to secure water in the desert

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Visitors Lyn Palmer, Robyn and Danny Hood inspecting the Cogenra Solar Photovoltaic and Heating System at the Rockingham Desalination Research Facility.

Murdoch University researchers are working with the National Centre of Excellence in Desalination Australia (NCEDA) on an innovative project to secure water supplies in desert communities.

Researchers, led by Dr Trevor Pryor, Dr Tania Urmee and Research Associate Kane Low, chose the Tjuntjuntjara community, 700 kilometres east of Kalgoorlie, because it has an acute shortage of fresh water, but abundant hypersaline groundwater. Hypersaline water is even saltier than seawater.

This desert location receives ample sunshine needed for the solar powered membrane distillation system, which uses less energy than

traditional reverse osmosis desalination, provided that cheap heat is available.

"The community's only water supply is a small lens of subterranean fresh water that floats on the hypersaline water and easily depletes," said NCEDA CEO Neil Palmer.

"If all goes to plan, the pilot plant will produce up to one kilolitre of distilled water each day.

"Successful operation will lead to construction of a larger plant of around 20 kilolitres per day, which will double the community's water supply."

The system has also been designed to require less maintenance, with plans to encourage local people to keep the pilot plant running smoothly.

"As the membrane is hydrophobic, it doesn't scale and can be cleaned by flushing with distilled water," Mr Palmer said.

Members of the Tjuntjuntjara community, part of a larger Indigenous group known as the Spinifex People, moved to the Great Victoria Desert in the 1950s, prior to the Maralinga atomic tests.

The Tjuntjuntjara site was established in 1988 after an earlier temporary camp ran out of water.

"We are expecting this technology will provide enough potable water to allow the community to grow and develop sustainably," Mr Palmer said.

"If it works at Tjuntjuntjara, it's likely it will work in other remote desert communities too."

Provided by Murdoch University