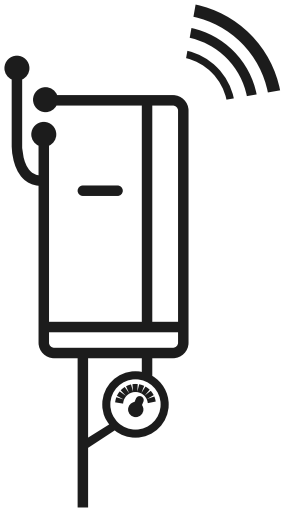

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Photo: Trisha Downing for Unsplash

Case Study: TankView

New Zealand Responds to Water Scarcity in Remote Areas

IOT VENTURES

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Many Pacific communities are vulnerable to increasing water scarcity. These communities often do not have access to reticulated water. Instead, they rely heavily on groundwater and rainfall, and face contamination of groundwater supplies as rising sea levels permeate through soil.

Water storage tanks are therefore widely used to collect rainfall and protect water supplies from seawater contamination. However, these tanks can be difficult to monitor, with little visibility into how much water has been collected, how much is left, and whether a leak is depleting reserves.

Many communities only know their tanks are empty when the tap runs dry – triggering crisis events that can require a month-long wait for a water order or a humanitarian response, such as importing emergency water supplies.

In New Zealand, pressure on water supplies is driving reliance on rain water, particularly in drought-prone areas. For home owners reliant on tank water, water shortages in peak times cause unnecessary stress and cost.

TankView, an integrated remote-sensing application from specialist New Zealand technology incubator IoT Ventures, is designed to improve visibility of crucial water supplies and help home owners and communities better predict outages and proactively avoid them.

The core TankView solution is based around tank-level monitors and rain sensors that regularly transmit status data to the TankView application via a LoRaWAN network. Regular data allows the application to monitor usage rates over time, incorporating forecast and actual rain data to help communities predict when each tank will be empty.

Users are automatically notified of water usage, significant changes to this usage and the timing of imminent depletion. Community water managers can group local tanks across the community into a single view, gaining insight into available and expected water resources across a geographical area.

FIGHTING WATER DEPLETION AND CONTAMINATION ACROSS OCEANIA

Costing just US$350 per device, TankView is cost-effective and can be used by anybody with a water tank – including residential and commercial interests, local governments and regional water authorities for whom drought planning is essential to sustaining life.

Development partnerships with the New Zealand Ministry of Foreign Affairs and Trade, Engineers Without Borders and a range of non-government organisations, have extended the TankView solution to Pacific Island communities that do not have access to reticulated water supplies. Because COVID-19 limited travel to the Pacific, community trials began in New Zealand, where the technology has also created real interest.

In 2021, more than 100 TankView devices and rain sensors have already been deployed, with installations under way for 500 - 1000 additional sensors to be installed in the coming year across Northland, Taranaki, Waiheke Island, Nelson Marlborough and the Coromandel in New Zealand, as well as Aitutaki and Tongareva in the Cook Islands.

The devices are already helping those communities become more water-resilient, experiencing fewer runouts by better managing their water during the dry season. This information has helped them introduce water conservation actions as rainfall decreases, enabling better pre-planning and management in drought situations.

A TankView Device in Use

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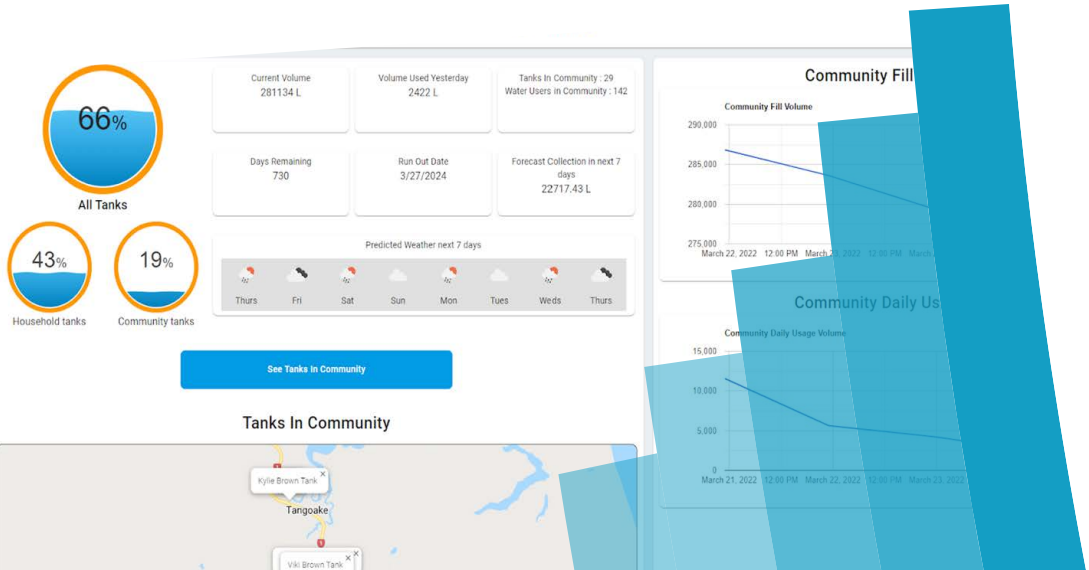

Read the whitepaper