

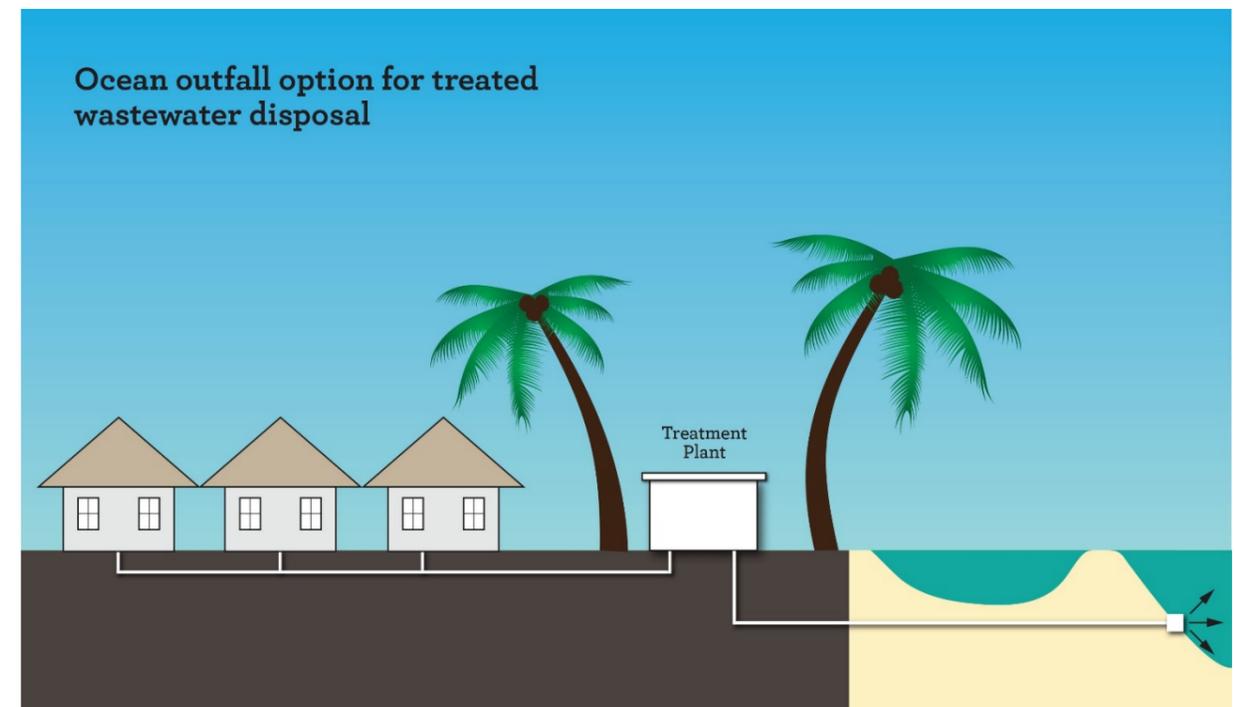
Mei Te Vai Ki Te Vai

Restoring the Health of Our Lagoons

About the ocean outfall option

The Mei Te Vai Ki Te Vai project management unit (PMU) has completed environmental investigations confirming the need for new reticulated wastewater infrastructure in Muri. This new infrastructure will service the sensitive coral sands area in Muri where more intensive development has occurred – this will help restore the health of the lagoon.

We have identified options for this new infrastructure – both options involve constructing a wastewater treatment plant to treat effluent to a ‘secondary’ level.



We’re looking at two possible ways to dispose of treated wastewater – either onto land, or into the ocean. **This guide explains the ocean outfall disposal option.**

What is ‘secondary treatment’?

Secondary treatment is an additional stage of wastewater treatment after ‘pre-treatment’ and ‘primary treatment’. It uses a biological process to digest and remove biodegradable organic matter from wastewater. Pre-treatment removes any large solids from the wastewater. Primary treatment removes smaller solid particles, usually through settlement in a pond or tank. Both pre-treatment and primary treatment improve the quality of the wastewater significantly. Secondary treatment uses a biological process to digest and remove dissolved organic matter from wastewater.

What is an ocean outfall?

Ocean outfall involves dispersing treated effluent deep into the ocean beyond the reef, using a special 'diffuser'. The ocean currents disperse and dilute the treated wastewater, and the sea life consumes any remaining nutrients and organic matter it contains.

What impact would an outfall have on the environment?

Ocean outfalls typically have minimal environmental impact because the ocean has a very high capacity to disperse treated wastewater.

The Project Management Unit is preparing a comprehensive Environmental Impact Assessment (EIA) for an ocean outfall to help inform Government's decision about which treated wastewater disposal option should be progressed. The EIA will be published, so the public will have an opportunity to understand the impacts. If the Cook Islands Government chooses an ocean outfall, it would be designed to meet strict international environmental and public health standards.

Once in operation, regular and on-going testing of the treatment plant and water quality at the discharge site would be necessary.

How much land does it use?

The ocean outfall for the developed Muri coastal area will need about 2 hectares (5 acres) for the treatment plant and a pumping station to send treated wastewater to the outfall. One advantage of an outfall is that it could cope with future growth, without needing more land.

How would you decide where to put the outfall?

The MTVKTV project has engaged a number of technical specialists to do extensive monitoring and assessment to identify the most suitable location for an outfall.

Ocean outfall location is dictated by a number of things, including the depth of the outfall, wind, waves, ocean currents and distance from the wastewater treatment plant. Ocean outfalls are always located and designed to protect both the environment and public health, so recreational activities along the coastline would not be impacted.

Ocean outfalls are used successfully around the world

Below are two relevant examples of ocean outfall systems in the Pacific Islands.

Kinoya treatment plant, Suva, Fiji



The Kinoya treatment plant in Fiji was upgraded in 2014 to include a biological trickling filter. This filter helps to remove smaller solids and bacteria before the wastewater is treated at a secondary level. This upgrade was to ensure compliance with the World Health Organisations standards, and cater for future growth in Fiji. The biological trickling filter is one that is similar to concept designs prepared for Rarotonga. This treatment plant also uses secondary treatment and disposes of treated wastewater using an ocean outfall system.

Sogi, Samoa



Installed in 2009, this system manages wastewater collected from Samoa's central business district area. It uses a wastewater treatment plant (tertiary treatment), and the plant's capacity is about the same as would be needed to service Muri. This treatment plant replaces septic tanks (which are still the main treatment system around the island) and was installed in response to poor quality of Vaiusu Bay.