

DECENTRALISED SEWAGE



CASE STUDY: Eco-resort keeps ocean and beaches pristine

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| CLIENT: | Mantaray Island Resort |
| LOCATION: | Fiji |
| TREATMENT TYPE: | Sewage + Greywater + Grease trap |
| CAPACITY: | 20m ³ per day |
| SYSTEM SIZE: | 2 x BioGill bioreactors. Total 492m ² of membrane |



SITUATION

Mantaray Island opened its doors to travellers as an eco-resort in 2004. Renowned to have one of the best house reefs in Fiji with manta rays visiting the island's waters every year, protecting the natural environment and marine reserve was a key priority.

With new accommodation facilities to be built, an upgrade of the existing septic tank system was required to cater for the additional wastewater, grey water and sewage. Being so far from the mainland as well meant the treatment system had to be easy to install, operate and maintain.



SOLUTION

In 2013, two BioGill bioreactors were installed to treat sewage, commercial kitchen and grease trap wastewaters.

The modular design of the bioreactors also made transportation and installation easier for the resort staff.

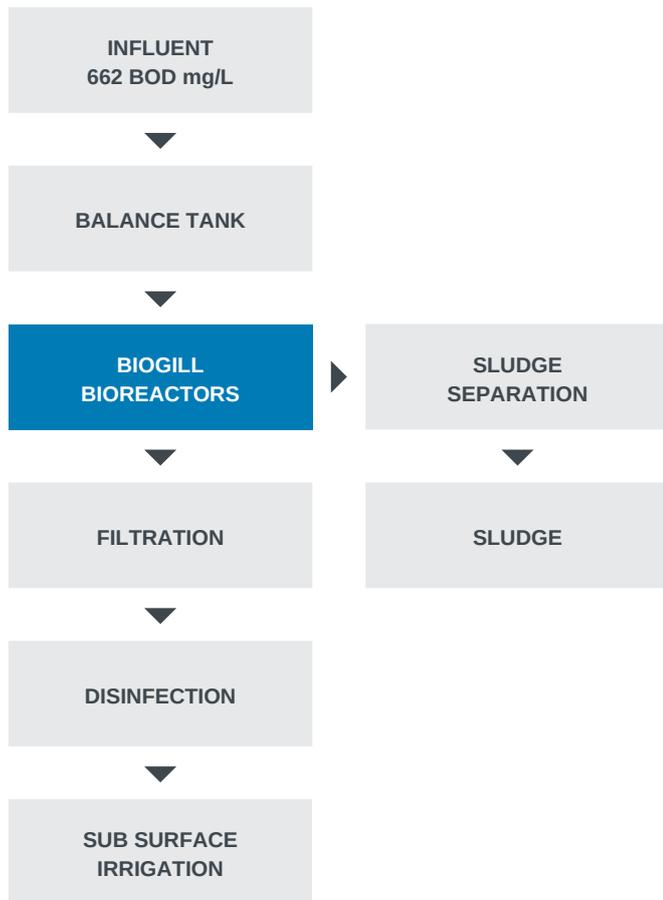




DESIGN

Sewage and wastewaters from the commercial kitchen are all fed into the balance tank. A submersible pump carries the wastewater to the top of the two treating BioGill bioreactors, where gravity takes over. Wastewater travels down through the gills where the microorganisms feed off the nutrients in the liquid stream. Sludge is collected in an in ground sludge tank.

Following treatment, the wastewater is disinfected then fed into a subsurface irrigation system for reuse on the island.



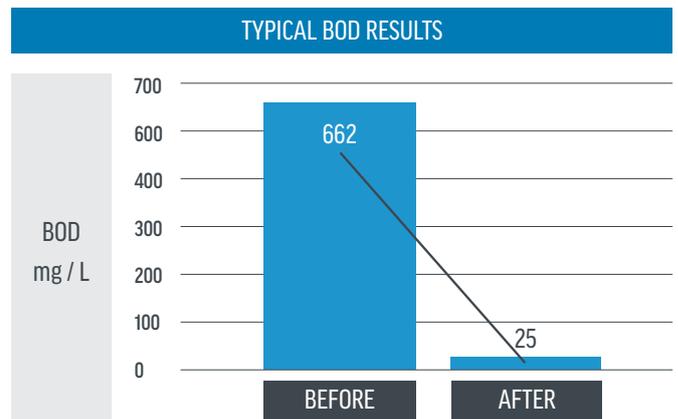
RESULTS

Independent testing from The National Water Quality Laboratory Suva has shown that the BioGill units on Mantaray Island are achieving a reduction of up to 96% in Biochemical Oxygen Demand – a widely used indication of the organic quality of the water.

High-load sewage, rich in oils from a commercial kitchen with an average BOD of 662 mg/L was reduced to an average BOD of 25 mg/L (96% removal efficiency) in a 24 hour cycle. Chemical Oxygen Demand (COD) of 998 mg/L was reduced to 58 mg/L, a 94% reduction.

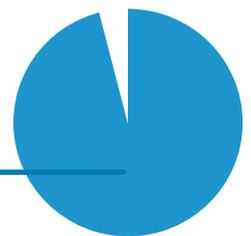
Total Nitrogen was reduced on average from 112 mg/L to only 24 mg/L (79% efficiency). The system generates wastewater for subsurface irrigation for the resort's gardens that have grown into a beautiful, lush jungle.

By using BioGill technology, the island is one of the most environmentally friendly resorts in Fiji.



96%

REDUCTION IN BOD



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Resort staff are impressed with the wastewater treatment results.