

## Tackling point-diffuse pollution from on-site wastewater disposal in a Fijian village to improve health and environmental sustainability.

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Wastewaters from multiple individual households that discharge to ground soakage or small drain-ways collectively constitute point-diffuse sources of pollution (Neal et al. 2005). Such point-diffuse sources are causing deteriorating water quality in developing coastal areas of Fiji. This threatens the sustainability of the coral reefs and associated fisheries, the health and livelihoods of communities, and the future of the local tourist industry.

The Wai Votua project, funded through NZAID, employed a collaborative participatory approach to tackle these problems in Votua, a coastal village of nearly 300 people on the Coral Coast of Fiji. Working in close consultation with villagers and local tradesmen, a range of innovative wastewater treatment options were developed and implemented for a village of nearly 300 people (Fig. 1).

The system included septic tanks for blackwaters, followed by vertical and horizontal-flow constructed wetlands, with disposal and reuse in a surface-flow wetland treatment garden growing ornamental flowers and dalo (leafy taro). Improved options for management of greywaters were also introduced across the village. Local expertise was used to supervise construction, with ongoing capacity-building, supervision and oversight from New Zealand via periodic site visits and regular remote communication. Construction was undertaken using a mix of voluntary and paid village labour, assisted by a local earthmoving company.

This approach has taken time, but produced a skilled local workforce able to construct and manage their own wastewater infrastructure. It has been supported by capacity-building in the village on key health and hygiene issues. Other innovative “eco-trench” systems originally developed and tested in Rarotonga, have also been taken up and implemented in related village projects currently underway. By incorporating nutrient-demanding crops such as banana, these “ecotrench” systems combine treatment, reuse and disposal to ground.



Fig. 1: Villagers constructing a vertical-flow wetland as the first stage of a village-scale black-water treatment system, Votua, Fiji.

### References

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