



1 Action shot of the dredge pumping through the bomb box and into borrow pit (Tom Henderson) **2** Completed breach repair (Tom Henderson) **3 & 4** Borrow pits 4 and 7 before remediation (Peter Ollivier) **5** Breach repair (Tom Henderson) **6** Communal activity in Borrow pit 7 after remediation

Tuvalu Borrow Pit Remediation

Project Location: Funafuti, Tuvalu

Calibre Consulting for Ministry of Foreign Affairs & Trade

Disciplines: Project Management



Calibre Consulting completed the project management, design and implementation of this NZD10M project for the Ministry of Foreign Affairs and Trade (MFAT)'s Pacific aid programme. The objective was to fill in the 'borrow pits' that were excavated by the US Army during WWII to obtain material to construct a new airfield.

Tuvalu has the world's fourth smallest population and is the second lowest country with most land only 1-2 metres above sea level. The borrow pits covered over 6% of the main island and filled with every tide. They were unattractive and heavily polluted with septic tank effluent and rubbish, posing health and environmental risks to residents.

Calibre Consulting and its core team worked closely with MFAT and Tuvalu representatives to investigate and consult with government and the community to assess potential social and environmental effects to inform project design.

This investigation was key to minimising risks from such a large scale project. Hall Contracting Pty Ltd was contracted to dredge 250,000m³ of sand from the lagoon and to 'overfill' the pits where possible, to increase the island's resilience against sea level rise. The project also repaired a breach in the atoll beach ridge to prevent the island breaking in two, and to improve solid waste disposal operations on the island. Relocation of pig pens substantially reduced lagoon pollution.

The main works were completed in September 2015 as required before the cyclone season and over one month earlier than the contract completion date of 10 November 2015. The contract was formally signed off as complete in April 2016 following completion of additional works requested by GoT.

The project's many positive impacts include increasing available land area of Funafuti by 6%, improving visual impact and land use segregation (between pig pens and housing), reduced odour nuisance, and improved access to recreation - evidenced by the increased volleyball on evenings and weekends. There are also anecdotal reports of a reduction in mosquitoes and dengue fever, obvious improvements in solid waste management, and a huge impact on both the physical and psychological wellbeing of the Tuvalu community.

Perhaps more importantly the project has demonstrated that well-managed dredging and reclamation projects are viable options for low-lying island nations to consider as interim solutions to combat climate change and to provide increased country resilience against sea-level rise. Tuvalu and other Pacific Island governments now have a visible example which demonstrates that they have the ability to shape their own future.

The New Zealand Government has been quick to recognise this potential and MFAT has already proposed that existing levels over a 330ha area could be raised on South Tarawa atoll in Kiribati to provide additional land for development. The Kiribati Government agrees with the proposal and MFAT are currently seeking donor funding to support this initiative.

Judging & Copyright Statement

This project is a Finalist entry in the 2016 INNOVATENZ Awards of Excellence competition. The winners will be announced on Friday 2 September, 2016.

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