

# **THE REHABILITATION AND UPGRADING OF THE TAUNGANUI AND OMUTU HARBOURS ON THE ISLANDS OF MAUKE AND MITIARO**

**Project Completion Report**

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## EXECUTIVE SUMMARY

The purpose of the Southern Group Harbours project was to repair and upgrade the harbours of the islands of Mitiaro and Mauke. The intended outcomes were to:

Improve social and economic development of Mitiaro and Mauke

Improve cargo transfer from ships to the island

Increase safety and improve access from sea to shore for harbour users

Improve navigational and port lighting; wave control; harbour access and facilities

The project has achieved its outcomes against the DAC criteria of relevance, impact and sustainability. The effectiveness of the project has been provisionally satisfactory and efficiency outcomes have been less than satisfactory.

**Relevance - the project can be considered highly relevant in aligning to NZ and CIGOV development policies and priorities, and meeting the needs of each islands population contributing to their medium to long term resilience through improved harbour access and safety measures.**

**Effectiveness** - As no results framework was in place at the time of the design of this project, it is difficult to demonstrate results based progress. Reporting shows that PBS followed the design plan to repair and build the harbours on Mitiaro and Mauke, however, issues related to access and safety for small crafts is a key weakness of the design.

**Efficiency** - Governance and management arrangements presented a range of challenges that contributed to overruns of time and expenditure. The inefficiencies relating to issues by all partners involved in this project were less than satisfactory. However the longevity of the harbours design and construction with an expected 50 year life, along with the high costs associated with the remoteness of the islands, offers some value against the level of investment in the project.

**Impact** - Improvements to the harbours have not only enhanced access by a range of larger ships directly to the wharf, but it has also increased their safety. Reduced time and cost to load and offload cargo, especially in poor weather conditions impacts positively on future economic development. Some issues relating to unintended impacts for canoes and small craft have created safety hazards which Island officials would like remedied.

**Sustainability** - Because of the high cost of construction in the outer islands, sustainability and durability are essential features of these projects. Both companies have strived for quality constructions on both harbours. PBS has provided workshops and plans which will help ensure sustainability by the community users of the harbours.

**Lessons learned:** Capacity within agencies leading post-disaster recovery and reconstruction should be supplemented with experienced professionals as required to complete design and implementation quickly; CIGov should consider streamlining post-disaster procurement processes as part of its planned update of infrastructure procurement; Landowners and other directly affected parties should be consulted as necessary during design and reconstruction; On-site Project Management meetings should be inclusive of all partners. Remote participants can still contribute via teleconferencing or Skype; Contractors tendering for remote outer island projects must be fully aware of problems related to working on isolated island; A results framework would improve reporting on results. NZHC should intervene as needed to support better results reporting if DCD or implementing agencies do not understand its requirements.



## **1. INTRODUCTION<sup>1</sup>**

In February-March 2005, the southern Cook Islands were hit by four cyclones. The damage that had been caused by Cyclone Heta in 2004 had not had time to be addressed before the 2005 cyclone season had begun, causing further damage to the Taunganui and Omutu harbours on the islands of Mauke and Mitiaro. The Cook Islands Government had a strong interest in the rehabilitation of this spate of damaged infrastructure and had indicated the need to see work being carried out to address the damage done to the outer islands by these cyclones. The project was aligned to the focus on outer islands development, particularly infrastructure development, in the NZAid/AusAID Cook Islands Country Strategy. The cyclone damage to Mauke Harbour had been prioritised by the Cook Islands Government for the NZAid-funded Cook Islands Recovery and Reconstruction Plan (CRRP) 2006 programme. The Mitiaro upgrade was initially prioritised under the NZAid/AusAid Outer Islands Development Infrastructure programme. An initial pre-feasibility study in 2005 recommended rebuilding and expanding the harbours on their current sites.

The Cook Islands Government (CIGOV) were first involved in the project design process. There were also to be in charge of the tendering process until it was found that specialist assistance was required. MFAT- IDG introduced two companies - AMPM for the tendering process and BECA for the project design documentation - leaving CIGOV in charge of coordinating the activities of the construction contractors. However, due to the lack of capacity within MOIP to satisfactorily fulfil this role, the on-site supervision of the construction activities was assigned to BECA which had proved its worth in other MFAT projects (and were also project managing an ADB project at the Avatiu Wharf on Rarotonga). A CIGOV representative had a monitoring role on the Project Management Committee (PMC) for the harbour project and subsequently reported to the CRRP Project Coordinating Committee which consisted of local stakeholders on Rarotonga. MFAT was to be represented on both committees but as the PMC meetings were on-site, they were updated by written reports from BECA and PBS, as well as at the CRRP meetings from the MOIP programme manager until his resignation. BECA representatives also reported separately to Post.

A construction firm from Fiji - Pacific Business Solutions (PBS) - was selected from among those that tendered. Their tender was within BECA's estimate and they seemed to fit the bill according to BECA's criteria. The lengthy introduction had already caused delays to the start of the project. What eventuated was even more delays caused by contractor issues - optimistic programming, working during the cyclone season, transport delays, employment issues, community complaints, shortage of materials and equipment failure. At the end of the construction activities, MOIP engineers found workmanship issues that also needed to be addressed before PBS's final payment and departure. The cyclones that initiated the project occurred in 2005, construction began in 2010, and the best that we can hope for is that the defects to be repaired will be completed before the end of 2013.

## **2. PROJECT DEVELOPMENT TIMELINE**

The project was aligned to the focus on outer islands development, particularly infrastructure development, in the NZAid/AusAID Cook Islands Country Strategy. The cyclone damage to Mauke Harbour had been prioritised by the Cook Islands Government for the NZAid-funded CRRP programme. The Mitiaro upgrade was prioritised under the NZAid/AusAid Outer Islands

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<sup>1</sup> NZAid AMS - Programme Activity Authority, Crown Expenditure p2



Development Infrastructure programme. An initial pre-feasibility study in 2005 recommended rebuilding and expanding the harbours on their current sites.

**2005** - Feb-March: Five cyclones hit the Cook Islands. Four of them had direct impact on the southern group islands. Limited repair work was done on the damaged harbours in the southern group, but no real progress was made.

**2006** - July: The Cook Islands Cyclone Reconstruction and Recovery Plan (CRRP) was approved. NZ agreed to contribute \$10 million over three years. Repairing the cyclone damage and upgrading of the harbours on Mauke and Mangaia were included to be funded under the CRRP.

**2007** - July: A Development Partnership Arrangement and Funding Arrangement was agreed upon between the NZ and Cook Islands Governments for the implementation of the CRRP

**2007** - October: CIGOV (Office of the Ministry in charge of Island Administration - OMIA - and the Aid Management Division of MFEM - AMD) developed a Project Design Document for the harbours project and NZHC Rarotonga (Post) provided comment.

**2007** - December: CIGOV sought tender proposals on a design and construct basis.

At this stage, NZAid agreed not to be involved in the tender assessment panel, but that they would provide oversight of the project by their involvement on the CRRP Project Coordinating Committee and the harbours' Project Management Committee. However, concerns were raised about the way in which the tender process was being carried out, so that NZAid commissioned an independent review by Adam Matthews Project Management Ltd (AMPM). They identified several "very high" risks to the project and therefore NZ funds<sup>2</sup>.

**2008** - January: The focus of attention by the Cook Islands Government changed to Mauke and Mitiaro. Design work for rebuilding and expanding the harbours started soon after but a variety of issues conspired to further delay the start of this project.

**2008** - June: NZAid confirmed to CIGOV that they would assume responsibility for tendering and contracting a design process and then tender for construction. CIGOV would be represented on the tender panels and would be closely involved in all aspects of the project. AMPM was contracted to produce tender documents for the design process.

**2008** - September: CIGOV advises NZAid that it was withdrawing Mangaia from the project and would construct it itself. NZAid had the draft tender documents revised to include only Mitiaro and Mauke.

**2009** - Jan-April: The Request For Proposal was published in early 2009 for the design phase of this Activity. The tender panel met in April 2009

**2009** - September: A contract for the design was signed with BECA International Ltd. When the tender was originally let, CIGOV was supposed to provide the project management/supervision for the construction phase. CIGOV subsequently advised that they were no longer able to provide this role, due to the restructuring of the Ministry of Works (now part of MOIP), and being overstretched

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<sup>2</sup> More information can be sourced from "AID/COK/ER/4 dated 26/5/08"



with relief efforts for several other disasters. It was then decided to seek an Executive Director's Exemption (EDE) so that they could negotiate with BECA to extend the contract to include the construction phase supervision. This exemption was granted.

A peer review process was set up where the preliminary and detailed design were reviewed by an experienced coastal engineering consultant (Paul O'Brien, ACS contract). The consultant visited the islands, reviewed BECA's preliminary design, provided advice to the project management committee and recommended acceptance of the preliminary design.

**2010** - November: The construction was tendered with results evaluated by BECA in December. Two tenderers were far too high. Two were close to the BECA estimate but still \$800,000 above the earmarked funds. One contractor was new and didn't have the equipment required. PBS had undertaken similar projects and had the equipment available, with a barge to transport material to both islands as well as transfer machinery across from one island to the other as required.

**2011** - January: Pacific Business Solutions (PBS) from Fiji was appointed as the successful tenderer at a cost of NZD 4,362,595.97<sup>3</sup>. Additional funding was to be provided by the Cyclone Rehabilitation Fund. The contract was awarded on 8 February 2011.

**2011** - February : the company took possession of the site (Mauke) on 14 Feb and the contract duration was for 40 weeks (as per the tender documents), with completion originally propose for November 2011.

**2012** - August: PBS finally mobilised themselves to Mauke and then the completion date then became April 2013.

**2013** - MOIP engineers' inspection visits began on July 2013. The defects liability period is extended to February 2014.

**2014** - March: Completion of the project date now 24 March 2014.

## **VARIATIONS TO THE ORIGINAL BECA CONTRACTS**

Due to the CIGOV being unable to fulfil their responsibilities to the project, the continual loading of additional responsibilities onto BECA from the outset of the project has led to an extension of timeframes and subsequently of the project budget. Eleven variations to BECA's original contract of \$267,236 based on the additional responsibilities resulted in a total cost of \$949,854. When the costs of The variations included:

1. (1 Dec 2009). A Topographical and Levelling survey for both harbours using a subcontractor at a cost of NZD19,972 plus additional fees of \$2,272 to manage the subcontract.
2. (31 May 2010). Extension of the end date of the contract from 30 June 2010 to 15 January 2011.
3. (12 Oct 2010). Approval of additional personnel, task (EIA for Taunganui Harbour) and associated expenses totalling \$14,685.

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<sup>3</sup> MOIP Tender and Tender Evaluation Reports, 1. Upgrading of the Taunganui Harbour, Mauke Island - Contract CO1/11 2. Upgrading of the Omutu Harbour, Mitiaro Island, Contract CO411, December 2010, p8. Original budget was \$3,800,000.



4. (2 December 2010). Extension of the date of the contract from 15 January 2011 to 31 March 2011, including the managing of the tender phase. Total cost \$43,128.
5. (27 January 2011). Reduction of a milestone payment due to a change to Milestone 4. (Fiscally neutral)
6. (31 March 2011). Extension of the end date from 31 March 2011 to 8 April 2011. (Fiscally neutral)
7. (8 April 2011). Extension of the contract end date from 8 April 2011 to 28 February 2013 - to include the period for Project Management for the Construction Phase; a 12 months Defects Liability Period, and a final month for the contractor to provide any final reporting and a final invoice. Total cost \$280,449.
8. (22 December 2011). Extension of the contract end date to 31 July [2012]. Total cost in fees and expenses \$174,966.
9. (7 June 2012). Extension of the date to 31 October 2012. Total cost \$97,522.
10. (30 October 2012). Extension of the contract to 30 November 2013. Lump sum fees total \$387,821.66 and recoverable expenses \$135,909.00.
11. (30 January 2013). Extension of the contract to 31 March 2014. This period is to include the 12 months Defects Liability Period and a final month for closure activities. Total cost \$49,624.

### **3. PROJECT OBJECTIVE ISSUES**

#### **Proposed outcomes**

The primary aim of the project was to repair and upgrade the harbours to a standard that would allow safe and efficient transfer of cargo to and from the islands (50 year design period). The construction was tendered and awarded in 2010. The original construction was planned to take place during the months of April to October of 2010, outside of the main cyclone season.

According to the project design document, the specific intended outcomes of the project were to:

- Improve social and economic development of Mitiaro and Mauke
- Improve cargo transfer from ships to the islands
- Increase safety and improve access from sea to shore of harbour users
- Improve navigational and port lighting; wave control; harbour access and facilities

Long term sustainability has been a key design criteria. Due to the remoteness of the islands, the high cost of the construction as well as the operating and maintenance of these new harbours in these environments, sustainability and durability are essential features to ensure value for money. Specified technical instruction for construction that integrates construction materials and methods will aim at ultimately minimising the need for on-going maintenance.

BECA's original contract and variations drafted the following summary of the goal and outputs, and also the major design criteria. This summary was seen as an appropriate guide for their completion report. As the project works are not finished, no report is due as yet.

Goal: to rebuild the cyclone-damaged harbours on the islands of Mitiaro and Mauke in order to improve the safety of cargo deliveries and of boat launching and return.



#### Contracted Outputs:

*(Design and project management stage in original contract and variations)*

- a. Survey of harbours
- b. Review of harbour concepts
- c. Design wave analysis
- d. Preliminary detailed design and costing
- e. Detailed Design
- f. Tender documentation and tender review
- g. Environmental Management Plan
- h. Technical support during construction

*(Construction supervision)*

- i. Project Management support for construction contracts
- j. Monitor construction, undertake site visits as required
- k. Visit to sites for inspection and issue of defects liability certificate
- l. Care and Maintenance Plan

#### Design Criteria

- Sustainability and durability, able to withstand a 1 in 100 year event, with all structural components designed for a 50 year life
- Minimise need for on-going maintenance

When BECA was contracted to supervise (and in some versions to project manage) construction, its responsibilities shifted from doing some of the following to making sure it was done well. There were 11 variations to the BECA contract during the term of the project.

#### Relevance

The project achieved a goal of the Cook Islands National Sustainable Development Plan 2006-2010 to provide strengthened and affordable basic infrastructure, with the supporting strategy to provide and maintain safe and secure port facilities and services on all islands. The Government's Preventative Infrastructure Master Plan had recognised that a lack of investment in maintenance, rehabilitation and upgrading of basic infrastructure had resulted in ageing systems that did not provide appropriate levels of service to meet current demand and to support sustained growth<sup>4</sup>. Initially, the cyclone damage to Mauke Harbour and Mangaia Harbour were prioritised by the Cook Islands Government for the NZAid-funded Cook Islands Recovery and Reconstruction Plan (CRRP) 2006 programme while the upgrade in Mitiaro was prioritised under the NZAid/AusAid Outer Islands Development Infrastructure programme. Mitiaro was substituted for Mangaia in 2008 when the Cook Islands Government undertook to construct Mangaia harbour through local appropriation.

In addressing the needs and priorities of the island populations, representatives confirmed the project was relevant to their needs improving access from sea to shore for harbour users. The primary aim of the project was to repair and upgrade the harbours to a standard that would allow safe and efficient transfer of cargo to and from the islands. The previous cyclones had damaged them to an extent that they were dangerous for local and inter-island shipping access. The project was also aimed to provide the islands with a harbour that would be strong enough to last for at least fifty years. It has improved access to ocean fishing and the income generating opportunities for the

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<sup>4</sup> BECA, Rehabilitation and Upgrading of Taunganui Harbour, Mauke Island - Environmental Impact Assessment, 20 October 2010, p15



community. Although the harbours were not intended to be a main revenue earning facility, at the same time, there is potential for economic opportunity for the island community due to enhanced harbour access as well as facilitating the loading of bulky cargo from ship to shore. Harbour facilities, navigational and port lighting have also improved the safety needs of its users.

Overall, the project can be considered highly relevant in aligning to NZ and CIGOV development policies and priorities, and meeting the needs of each islands population contributing to their medium to long term resilience through improved harbour access and safety measures.

### **Effectiveness**

The intended outcomes of the project have mostly been achieved. At the time of the projects design, no results framework was in place to be able to demonstrate results based progress and no effort was made to retrospectively prepare one to more clearly directed outcomes and provide appropriate supporting mechanisms. However, reporting shows that PBS followed the design plan to repair and build the harbours on Mitiaro and Mauke.

Faults of design and construction were identified and have been mostly remedied through the implementation of the project.

**KEY ISSUES - MAUKE:** The Mauke Harbour depth due to a build up of rocks at the entrance of the harbour making it a metre shallower than designed so that it restricts access to the harbour by larger vessels. The end of the slipway was too short so that the end of it was exposed at low tide and boat-users had to step up to the slipway. This made it difficult to land and get out of their boats easily. In addition, at high tide, wave swirl created by the design of the harbour often capsized canoes and other small craft as they approached the slipway. An additional wall was added to the Mauke slipway which noticeably cut down on the wave swirl. In these instances, the related outcomes are only partially achieved. Mauke feedback noted that some consideration for this wave activity should have been included in the initial design. (below)



Mauke harbour's additional wall to cut down on wave swirl capsizing small canoes on the slipway.

**MITIARO:** Although a similar wall was recommended, fishermen and other boat users on Mitiriao have stated that they do not want a wall intruding into the middle of their Harbour space. The community and PBS are trying to find some way to resolve the design fault (below)





Engineers consider how to cut down on wave swirl on Mitiaro slipway.

Overall, while the project has satisfactorily achieved most of its outcomes, issues related to access and safety for small crafts is a key weakness of the design. The steep slipway and high tide wave action make it difficult for fishers with canoes and small crafts to move between the shore to the sea safely.

### **Efficiency**

Overall the project is determined to have been inefficient in terms of costs and timeliness throughout the life of the project from inception to completion. Delays occurred from the outset.

Governance and management arrangements presented a range of challenges that contributed to overruns of time and expenditure. This includes institutional issues related to MOIP's capacity to act as lead agency through the project management cycle. The weak technical and administrative capacity of MOIP to lead and manage a major construction activity of this nature using existing and potential resources and systems. This was further exasperated in 2010 with resources stretched further by reconstruction demands from the damage of Cyclone Pat in Aitutaki. This aspect proved to be a key contributor to the project's inefficiencies.

A change from normal governance arrangements may also have contributed to the inefficiencies of the project. Despite being aware of reporting, financial and communication deficiencies within the Government department, MFAT shared responsibility of the two contractors so that BECA reported to MFAT while PBS was to report to MOIP. This resulted in little collaboration between the two parties which potentially strained relationships at times especially after the CRRP Programme Manager resigned in December 2011 and was not replaced. This resulted in no Cook Islands representation at Project Management meetings and no direct reporting contact identified for PBS. Lack of communication of important financial information by MOIP also made it difficult to confirm actual expenditure and to provide assessment information about value for money. Meanwhile, BECA provided the only regular reporting communication on project progress and any difficulties.



Keeping to project timelines has become an issue for Cook Islands development projects. This project was first prioritised for the Cyclone Recovery Reconstruction Programme (CRRP) in 2006, yet has taken nearly 8 years to negotiate the project activity process from design to implementation. CIGOV did not prove itself to be a reliable or cooperative partner from the early days of the MOIP/MFAT partnership. MFAT was being continually pressed to outsource what should have been incorporated into MOIP functions, thus further extending project time and financial resources.

BECA's list of project responsibilities expanded from a design input at a potential cost of \$350,000 to also include tendering, monitoring and project supervision activities which resulted in an expenditure of \$950,000. The total project cost (as of Dec 2013) was The cost of the project therefore became very high in relation to the small island populations.

Fiji-based Pacific Business Solutions was offered a measure and value contract (\$4,362,595) after the tender process in November 2010. The project start date on Mauke was February 2011 and the construction end date for both Mauke and Mitiaro, was November 2011 with a 12 month defects liability period. Such were the delays that the project completion date has now been set for 24 March 2014. These delays included continual breakdowns of PBS equipment, inadequate ordering and late arrival of materials. Even in the concluding stages of construction, digger and rockbreaker breadowns were slowing excavation work on Mitiaro<sup>5</sup>. There were concrete testing issues for BECA, as well as local employment and water issues which contributed to construction delays. When BECA recommended to the CRRP PCC to invoke penalties for the delays by PBS, these were not activated. The number of defects identified at the conclusion of the construction contract was raised as a concern - 8 remedial actions on Mitiaro and 34 on Mauke. Some are minor and should have been picked up during the construction period, but the number is high considering there was a BECA manager on site throughout the project.

Overall, the above inefficiencies relating to issues by all partners involved in this project were less than satisfactory. However the longevity of the harbours design and construction with an expected 50 year life, along with the high costs associated with the remoteness of the islands, offers some value against the level of investment in the project.

## **Impact**

Mauke and Mitiaro harbours are their islands' main connecting point to Rarotonga's shipping services for all cargo deliveries<sup>6</sup> but the remoteness of these outer island communities creates a number of challenges for their social and economic development. Improvements to the harbours have not only enhanced access by a range of larger ships directly to the wharf, but it has also increased their safety. They have reduced the time and cost to load and offload cargo, especially in poor weather conditions where in the past they often had to leave without loading or unloading cargo.

As noted earlier the outstanding wave action and steep slipway have created unintended impact for canoes and smaller crafts owners as a safety hazard by Islands officials and fishers if not remedied.

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<sup>5</sup> Beca,

<sup>6</sup> MFAT - Schedule 1, Scope of Services, Design consultancy services for the rehabilitation and upgrading of the Taunganui and Omutu Harbours on the islands of Mauke and Mitiaro



Island representatives have noted the potential for economic development from the improved harbour facilities, through better access for tourism operators, greater opportunity for trade with other islands as well as potential exports overseas of local produce from their marine and agricultural sectors. These will all contribute to improved living conditions for their communities.

### **Sustainability**

Due to the remoteness of the islands, the high cost of the construction as well as the operating and maintenance of these new harbours in these environments, sustainability and durability became essential features that would ensure value for money.

Sustainable economic development on Mitiaro and Mauke had been hindered in the past by the lack of reliable and good harbour facilities. As with other outer islands, economic growth was further limited by the depopulation of mainly young people leaving the islands for better opportunities on Rarotonga, or further afield, contributing to long-term poverty and limited development on the islands. The reconstruction of the harbours provides a foundation for sustainable development of the two islands and hopefully reverse the depopulation trend by introducing new water-based business opportunities.

PBS was responsible for ensuring that an Environment Management Plan and a Harbour Management and Maintenance Plan were provided for the island communities so that they can ensure the sustainability of their new facilities.

### **Proposed costs**

The activity was originally approved at the level of \$4.5million, but later market testing valued it as \$900k higher than originally budgeted. The breakdown of the funding was as follows:

1. Design, including tender preparation and evaluation \$350,000
2. Project management/construction supervision \$350,000 (including 8% contingency)
3. Construction \$4,600,000

The financial summary below has been compiled from DCD data (dated 10 January 2014). Project activities are incomplete and final reports from BECA and PBS have yet to be received. BECA costs paid by MFAT are not recorded as their accounts have not yet been finalised.

### **Actual expenditure against budget**

Item	Original Budget	Spent	Notes
Total budget	\$5,300,000	\$5,276,498	PBS payments and defects remediation actions still to be accounted for

### **BECA/MFAT**



Design &	\$ 267,236		Original contract for design services.
Supervision		\$1,013,861	Final cost includes tendering and design work by Coastal Engineers and project supervision
	<b>\$ 350,000</b>	<b>\$1,013,861</b>	
<b>PBS/MOIP</b>			Paid by DCD (as of 12 Dec 2013).
PBS payments	\$4,893,545	\$4,238,936	Final PBS payment and defects issues are still to be accounted for.
MOIP expenses		\$ 18,226	
Early design		\$ 5,475	Balance = \$630,908
	<b>\$4,893,545</b>	<b>\$4,262,637</b>	

### Proposed Impact

Mauke and Mitiaro harbours are their islands' main connecting point to Rarotonga's shipping services for all cargo deliveries<sup>7</sup>. They are the main launching and return points of their island communities' fishing vessels. Inter-island shipping vessels offloaded cargo onto the island barges that used the harbours for docking purposes.

Mitiaro Harbour had some work done to it in 2005 but further work was still required - specifically the deepening of the main channel and creating a turning basin on the western side of the harbour. The slipway was in a poor state and with no breakwater walls, dangerous cross passage surges made harbour operations unsafe. Further damage to the coral and other marine organisms was also a concern. The Councils of each of the islands had attempted some remedial works on the harbours after the cyclones, but the magnitude of the repairs was beyond their capabilities. Two independent consulting engineers had recommended major reconstruction works be carried out on each harbour so that they could be freely accessed by barges, fishing boats and canoes. (MFAT, Schedule 1, p7)

This activity has been delivered under the NZ-Australia joint aid programme to the Cook Islands. The contract set milestones with incentives to complete the work in time. Being an infrastructure project, there was a clearly described short-term outcome - to repair and upgrade both harbours. The work also enabled delivery of mutually identified priorities, for example, shared responsibilities for different aspects of procurement and management. Mutual accountability was pursued through processes for infrastructure support, including the Project Management Committee.

### Impact on Poverty<sup>8</sup>

The remoteness of outer island communities creates a number of challenges for their social and economic development. They depend on reliable sea transport for bulk supplies and trading goods. Supply ships were not able to directly land in the harbour, and goods were required to be transferred to smaller landing crafts to navigate the reef channels. Improvements to the harbours for these crafts would increase safety for these ships and reduce the time and cost to load and offload cargo. It would also reduce the number of times when ships had to leave without loading

<sup>7</sup> Adapted from MFAT - Schedule 1, Scope of Services, Design consultancy services for the rehabilitation and upgrading of the Taunganui and Omutu Harbours on the islands of Mauke and Mitiaro

<sup>8</sup> NZAid AMS - Programme Activity Authority, Crown Expenditure p5



and unloading due to poor weather conditions. This project activity was proposed to stimulate trade with and by the outer islands, and improve living conditions.

### **Sustainable economic development**

Economic development on Mitiaro and Mauke had been hindered by the lack of reliable and good harbour facilities. The limited economic growth on the islands have resulted in depopulation with many young people leaving the islands for better opportunities on Rarotonga, or even New Zealand and Australia. These factors further contribute to long-term poverty and limited development on the islands. The development of the harbours can provide a foundation to initiate increased economic development of the two islands. While the availability of a good harbour facilities is a key element to offering more business opportunities for the islands, it is important that there is an ongoing commitment of communities to build on the opportunities that are offered, and to develop appropriate business and revenue-creating ideas.

### **Management and Maintenance**

The capital cost of this project is high in relation to the relatively small dispersed communities with low incomes, so that the harbours are not intended to be a main revenue earning facility and it is envisaged that the projects will have little impact and returns. At the same time community awareness of the proper use of the facilities will be necessary to sustain its economical design strength. There will be a need for the Cook Islands Government to provide a budgetary allocation for the implementation of a harbour management and maintenance plan which will streamline operation and maintenance, and minimise associated costs. A stronger management base for the harbours will improve the institutional governance of harbour operations on both islands. Potential environmental impacts of the upgrade were to be minimised by the introduction of an environmental management plan (EMP) to be developed by the Contractor and approved by the National Environment Service. An environment management plan (EMP) and a harbour management and maintenance plan were to be prepared for both harbours to ensure sustainable use of the harbour environment by the community.

### **Gender**

The communities on Mauke and Mitiaro are generally quite traditional. Men and women follow traditional lifestyles. Men tend to be employed in island administration, agricultural activities and small business operations. Opportunities for women are more limited with many of them working in schools, health centres, the home or in low level administration jobs. However, with continuing education being supported through the University of the South Pacific (USP), women's attitudes to traditional roles are starting to change. Technology is enhancing opportunities for women and the government and donors are encouraging women to establish small industries that can generate income for themselves. What is required on the island to take advantage of these new opportunities for women is support from the current male decision-makers to enable women to contribute and to take more responsibility for the development of their islands, as decision-makers. This is a challenge for the outer islands, but the development of the harbours, coupled with enhanced technologically-assisted communication, could assist in this area. While there were no particular human rights issues identified for this activity, the increased and safer ability to receive supplies and trade goods produced on the islands will aid social and economic development. Gender equality issues were not identified, but women were consulted on the design during the initial site visit of the consultant and



peer reviewer. Women were also given the opportunity to earn some income by preparing lunch for the workers

#### **4. PROJECT PARTNERSHIP ISSUES:**

##### **Delayed Project Start-up**

The project had already been delayed by 5 years and there was a risk that there would be further delays to implementing the harbour upgrade. Appointing BECA to firstly tender for the design and then extending it to include the construction supervision because of capacity constraints within MOIP, was seen as the best guarantee for a quality construction results avoiding further delays. The objective at that stage was to award the contract by February 2011 and to get construction underway and hopefully completed in the off-cyclone season 2011. The project was supposed to last 40 weeks, with completion date proposed around November 2011. PBS finally mobilised themselves to Mauke on August 2012 - having prefabricated several concrete walls in Fiji before arriving on Mauke, and hopefully to cut down on time. However, because of delays in the interim, the completion time was still extended until April 2013.

##### **Project partner relationships**

The "Southern Harbours Project" was approved in the CRRP 2006 submission. MFAT-IDG engaged BECA International Consultants (BECA) to design the rehabilitation and upgrading work. BECA had previously undertaken several infrastructure project designs and implementation for MFAT-IDG (eg Tuvalu ship to shore project, Tonga 'Eua airport upgrade). They were also the design and construction consultant for an ADB funded upgrade project for Avatiu Harbour, Rarotonga. BECA won the tender for the harbour upgrade design and this was extended to include tender preparation/evaluation and construction supervision. MOIP was not considered to have the capacity to cope with project management of the extent of this project. When it came to tendering, the original intention was for MOIP to manage the tenders for the project manager and construction, however MFAT decided that it would take on some of these functions due to MOIP's known capacity constraints. MOIP was to be the principal to the construction contract.

BECA reports note that a contributing factor to the slow startup of the project was technical experts (the engineers) asserting differing views, but there was no one local, that is from MOIP, providing the professional leadership. The Project management Committee met on site and consisted mainly of BECA and PBS representatives. The MOIP programme manager attended these meetings occasionally, and MFAT not at all. This may have contributed to MOIP and MFAT having to call in their own experts at critical stages. Contract management problems also flowed from a decision that MFAT contract BECA while MOIP contract PBS. This split was recommended by the Senior Development Programme Coordinator at NZHC Rarotonga, because the Infrastructure Committee wanted some responsibilities to stay with MOIP, even though MOIP had asked for the whole project to be managed by MFAT. At the time, MOIP was busy with the Aitutaki Cyclone Pat Recovery and Reconstruction Programme. Since NZHC was also busy with Aitutaki, the BECA contract was managed from Wellington. The resultant effect was that the Project Management Committee did not have the full picture. The governance structure, staff churn and other work pressures meant MFAT relied heavily on BECA to do its activity management role and BECA's costs were not queried soon enough by MFAT. The PBS-MOIP and BECA-MFAT relationships were maintained so that PBS and BECA did not work together well and MOIP and MFAT were not working together enough to



move the project along effectively. It led to MFAT spending far too much on BECA because PBS never followed its work programme reliably and BECA had an engineer on site even when PBS did not undertake major work.

### **Value for Money**

The design contract was won by BECA and after it became clear that CIGOV would not be able to adequately supervise construction, this was extended to cover the construction supervision to ensure a quality result. Although this extension was not tendered, it was considered sufficient information on pricing available from other BECA contracts with MFAT-IDG to manage the negotiations. Value for money could be considered against delays that were caused by regular equipment breakdowns, inadequate ordering of materials and their not arriving on time, concrete testing issues, as well as local employment and water issues. MOIP did not contribute positively to the project when the CRRP programme manager resigned in the middle of the project and was not replaced. This resulted in MOIP not adequately monitoring progress and reporting accordingly to the donors, but also complicating the already complex relationships issues that existed between BECA and PBS as described above. BECA also created delays by the slow decision making with an onsite project manager who was not allowed to make decisions without referral to his superiors overseas.



*Mauke Harbour*

### **Concrete Testing**

Although the reports do not indicate the concrete testing to be an issue, the topic featured in a majority of the meeting minutes written by BECA's site engineer. Anecdotally, it appears that PBS were more annoyed that BECA passed on risks to PBS (in how it wrote PBS's contract). BECA had sub-contracted harbour surveys to NZ firms but these were inadequate for detailed design work. Such details had to be revised on site and the BECA engineer in place at the time (AK) was a junior so that the process was fraught. When PBS tendered for the project, they named a contractor who would ensure the quality of the concrete to be used. When the tender was accepted the original



contractor was unavailable and another consultant who had been trained in NZ standards at the Fiji University and whose senior lecturer vouched for him, was appointed to carry out this task. PBS assured BECA that they had all the necessary equipment. Another young BECA engineer (KS) observed the testing that PBS trialled and agreed that everything seemed to work satisfactorily. However, because the site engineer was inexperienced, BECA insisted that the testing should be sent to the lab on Rarotonga. This required several samples to be sent by plane to Rarotonga and await the results. This added further delays, especially if there were issues relating to the consistency of the quality of the concrete.

### **Land issues**

An important aspect of life on Mitiaro and Mauke is the ownership of land by traditional owners. It was acknowledged that ongoing support for the construction, operation and maintenance of the harbours would be dependent on the continued support from the island chiefs. Although the chiefs supported activities that would benefit their islands, the relationships and agreements between the local, government and contracted parties were based on accurate and honest communication, especially to ensure that the local landowners were being treated fairly. There were land issues on both Mauke and Mitiaro which required renegotiation by the Cook Islands Government. On Mauke, this related to makatea that was removed without formal consent by the landowners. The landowners did not have issue with the contractors, but more with the Government (the Cook Islands Investment Corporation - CIIC - which is in charge of government assets), who had not fully explained the harbour design and the need for a section of makatea being completely removed in order to build the new slipway. This lack of consultation and the lack of response to landowners request for negotiation before the land was removed, resulted in the landowners seeking compensation from CIIC. The issue was further complicated because one of the landowners was the Island Secretary. On Mitiaro, the contractors were more proactive in working with the locals to use a block of land for the disposal of makatea. They were also able to negotiate with the community the breaking down of this rock for local use.

## **5. PROGRESS REPORTS**

### **Activity Monitoring Report - October 2012**

Newport's activity report (Oct 2012) noted that "delays for this project have continued throughout since the last quarterly report was tabled in 2011. The project is substantially [passed] the original expected completion. However, Taunganui Harbour is now all but completed and works have commenced on Omutu Harbour. Construction is expected to proceed to completion over the next quarter. Construction supply and plant breakdown issues have affected performance to date. Expenditure is expected to remain within funding available. Mobilisation of resources by MOIP will be required to meet Infrastructure Technical Assistance to the CRRP functions throughout the remainder of the project. Better quality topographical and hydrographical surveys at the design stage are required. Areas for contractor site establishment needs to be identified and secured (lease and agreement) at the design stage"

Newport reported that "since the departure of the Infrastructure technical adviser in Dec 2011, MOIP have absorbed the tasks internally with some short term contracted assistance." She noted that monitoring and quarterly reporting functions for this project had lapsed, and although it was assumed that the MOIP functions for the remainder of the project would continue to be absorbed by



MOIP. It was hoped that with the appointment of the Acting Secretary of MOIP to a permanent position, that she would bring ongoing continuity of government leadership and management as the principal in the contractual relationships for this project. However, the lack of attention to important communication responsibilities to the CRRP projects funded by NZAid was said to be one of the factors which contributed to the eventual dismissal of the HOM not long after her appointment.

Newport reported that “relationships between contractors and MOIP including stakeholders continue to be satisfactory”. This was facilitated by the weekly meetings where BECA’s site representative and a contractors representative met with the Island Secretary and members of their Island council. Regular meetings had been held on Mauke, with community members being updated on progress of the project, and negotiating activities that could facilitate the ease of progress, particularly in relation to access to water, employees, agreed policy about community use of the harbour during the construction period, and agreement about waste disposal and other decision-making that needed negotiation or collaboration. On Mitiaro, as on Mauke, negotiations with the island administration and landowners for PBS to occupy neighbouring land for its operations had to be agreed upon and formalised by letter. As with other CRRP projects, the employment of local labour on both islands, provided economic and skills development benefits to the beneficiary islands.

Separating of the contracting of construction responsibilities to MOIP and the supervision contracts being assigned to BECA was seen by MFAT as catering for the lack of capacity of MOIP to satisfactorily carry out these roles. BECA responsibilities also included regularly communicating progress for their area of responsibility. BECA provided very comprehensive reports throughout the project, however, MOIPs reports ended when the MOIP CRRP Programme Manager resigned and was not replaced. This created difficulties for PBS when they had no direct conduit for liaison and support from MOIP.

#### **MOIP Engineer’s Report- December 2013**

A defects register was produced by BECA and MOIP engineers (Joe Akaruru, Tenga Mana and Simiona Wichman) visited in June 2013, they closed 31 defect issues ( 7 out of 9 defect on Mitiaro; and 24/34 defects on Mauke). Joe returned in October and although he closed a majority of the issues, there are still some matters outstanding. These are outlined in Appendix 2.

## **6. LESSONS LEARNED FROM THIS AND OTHER CRRP PROJECTS<sup>9</sup>**

### **Results Frameworks**

While project reports indicate that the majority of high level outcomes were achieved, which is a positive result, this project along with others that were implemented prior to results frameworks becoming mandatory lack baseline information and other data which make it difficult to judge the actual outputs. Thus it is vital that results frameworks are developed for all projects. Baseline data will greatly assist with demonstrating progress, results and value for money.

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<sup>9</sup> Adapted from MFAT. Comments on CRRP reporting. AID/INP/34/2/9. Date 02/11/2012



### **Delays to the actual start of a project**

As with other CRRP projects, there have been significant delays to the start of this project due to the protracted development of its early stages. The need for rehabilitation of the Mauke and Mitiaro harbours was developed after the cyclones of 2005. Between 2006 and 2009, concept development design, stakeholder engagement, financial and other approvals as well as assigning roles and responsibilities took their toll on an already protracted lead in time. It had been identified early on that MOIP lacked the capacity to carry out some important initial tasks which required the appointment of external consultancies to carry out these tasks. The construction work therefore did not begin until 2011. Although there is considerable merit in establishing a formal process for project development, clearly identifying roles and responsibilities and funding sources, it is recommended that the partners meet more regularly in the initial stages of this development, to regularly monitor progress and maintain its momentum. This would also relieve the anticipation and frustration of the island communities who waited for the project to materialise, and then waited a couple more years for the projects to be finally complete - nearly 9 years after they were first notified of it.

### **Contractor performance**

Various stages of project development for the Harbours Project were outsourced - from concept development and design, physical construction works, project management and reporting. Performance issues have arisen where there has been an apparent absence of a collective understanding of the key objectives of these activities. This has resulted in contractors developing concepts and designs that may not be completely suitable or appropriate, or even supported by key stakeholders. Contractors appeared to have under-estimated the challenges of working in the outer islands. This has been the main contributor to the delays in project delivery and demonstrates the vital importance of considering all the challenges when designing projects for these environments, particularly in the procurement phase. During the tender process and when providing information to potential responders, there is a need to clearly articulate the practicalities and the challenges of working in remote island locations. While there is a responsibility for the contractor to assess risks and challenges and to scope and price a bid appropriately, what has been revealed is that the lowest price tender is not always the best value for money. In the case of the Mauke and Mitiaro Harbours, the harbour building contractor (PBS) has been arguably ill-equipped and under-prepared for the job. At the same time, the project management team (BECA) has not dealt with community and construction issues in the best timely, effective or efficient way by having a junior project manager onsite unable to make important decisions when they needed to be made. Both situations significantly contributed to delays from the outset of this project.

### **Contract Management**

The performance of the CRRP contractors has been closely linked to the management of their contracts by the Principal - particularly MOIP. Many contracts have had large up-front payments, including advances for fees prior to work actually being completed. While small local contractors may have limited capacity for up-front purchasing of equipment and materials, it nonetheless is a practice that has the effect of reducing the amount of leverage available to the Principal when things don't go according to plan.

On a number of occasions MOIP could have been more proactive in managing several contract issues and addressed concerns prior to them snowballing. With regards to the Mauke Harbour situation,



MOIP could have assisted with the concrete testing issue, water problems, community safety and land issues. These would have benefited from a Cook Islander explaining the situation in their own language to give the community a better understanding of the respective roles, responsibilities and expectations of the key stakeholders (the Principal, the project manager and the contractor). In this way, all participants would have been more aware of the responsibilities and could collaborate on appropriate solutions.

Although it appears that MOIP complained about contractor inaction at times, they were reluctant to hold them to account for under-performance or breaches of contract. A more proactive approach to contract management was required, actively seeking to address contract-related issues or concerns at an early stage. More results-focussed contracts and percentages being paid according to key milestones might also have produced better results for the project and for relationships among the different partners.

PBS have indicated their frustration when the MOIP inspection during the defects liability period was carried out AFTER PBS had mobilise their equipment from Mauke, leaving the contractor without any means to remedy certain structural issues.

### **Project management**

Once again project management has been an issue of concern during this and other CRRP projects. An effective high-level project manager (Infrastructure Technical Adviser - ITA) was required for the CRRP. There were several anecdotal reports of issues that arose between the programme manager and on-site project managers. After the programme manager position became vacant in December 2011, MOIP did not take appropriate steps to fill the position with a person who could address the communication and relationship management position more appropriately, thus resulting in the majority of its key outputs remaining incomplete. It would be timely for the Cook Islands Government to look into a more appropriate project management model for managing projects for which it is responsible. MOIP's management of CRRP projects have not demonstrated its lack of capacity to satisfactorily manage projects of any considerable scale of expertise. Insufficient resource, both human and financial, has been dedicated to project management. There has also been no clear and shared understanding about the roles and responsibilities of the Principal, the Project Manager and the Contractor. With the Mauke project, BECA was responsible for managing the quality of on-site construction activities and with PBS, took on role that involved the community that could have been more appropriately managed by MOIP. Regular meetings were held, but they did not always include all the stakeholders, so that the BECA records were one-sided, relaying issues which were left to the contractor to resolve. Full involvement of all members of the project team could have created a more collaborative project effort.

### **Financial management**

Managing tax-payer money is a core responsibility of public servants. Recent reports on MOIP performance have revealed poor record keeping and practices which have been identified as areas of concern during financial audits. In many cases, insufficient financial information was available to make an accurate assessment or to provide informed comment. The lack of general financial management capacity within MOIP is a serious concern with regards to future aid-funded projects. Financial management support from DCD who made the payments would have been helpful. It is



also recommended that a financial audit is carried out on all aid-funded projects to confirm actual expenditure and to allow an accurate assessment of value for money.

### **Stakeholder and Relationship management**

All the CRRP projects have involved a complex web of stakeholders and relationships, each which is different but often overlapping. This obviously creates a challenging environment in which to manage a project, but also suggests that additional attention and resource should be dedicated to this function, especially by the Principals. Where there was seen to be active engagement with outer island communities and other stakeholders, the project appeared to yield good results. Where there was an obvious lack of consultation produced an opposite result.

A stronger MFAT relationship, other than a donor-recipient approach, could also have yielded better outcomes. Reports on the different projects reveal that strong personalities and breakdowns in relationships, especially at project manager and contractor level, contributed to negative outcomes. MOIP could have taken more responsibility for managing issues which in many cases were left unaddressed, creating unnecessary risk to the project.

With CRRP projects, the problem was exacerbated by MOIP's preferred approach to have all decisions made through its single point of contact - the HOM. A more proactive approach to stakeholder and relationship management would have been to establish regular formal meetings and delegating responsibilities to those stakeholders who were more directly engaged with project activities and who could have more effectively dealt with issues. Any difficult decisions or issues could have been referred to the HOM.

### **Risk Management**

Overall, although many CRRP projects have risk registers, the degree of risk management that has occurred during the course of the projects is questionable. In many instances, mitigation measures were either not taken or they were ineffective. Many of the practices outlined appeared to create additional risk rather than managed it. This suggests that there was a lack of understanding of the impacts of such practices or a disregard for their consequences. Risk registers are established for all projects and could be effectively managed at regular project/stakeholder meetings and in this project, communication among stakeholder groups was not as effective as it could have been. Risks could be managed more effectively if these project management practices were strengthened.

A Risk Register (BECA, Appendix B, March 2010)<sup>10</sup> provided mitigation measures for identified risks, but not adequately enough to address construction delays which created a risk to both the project and to donor funds.

- Health and Safety of staff and employees was the responsibility of the contractors. Any accidents were recorded and safety issues were reinforced. PBS addressed site safety with onsite personnel at daily ToolBox talks, as well as ensuring that correct safety gear was used. PBS provided local workers with Health and Safety workshops, distributed safety equipment

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<sup>10</sup> BECA International Consultants Ltd (BECA). Monthly Report. Cook Islands Rehabilitation and Upgrading of the Taunganui and Omutu Harbours... Prepared for NZ Aid. March 2010. Appendix B. Risk Register pp1-3



and organised training programmes for handling cargo on the wharf<sup>11</sup>. A Cyclone Disaster Management Plan for both islands was in place.

- A serious accident occurred in January 2012 involving PBS's 20 tonne mobile crane and an excavator<sup>12</sup>. Both required major repairs. Thankfully there were no injuries, but it identified the need to ensure that only qualified personnel used specialist equipment. Not identified initially was the possible transfer of sandflies on equipment travelling from Mitiaro to Mauke - an environmental risk. All equipment from Mitiaro had to be thoroughly cleaned before it was landed on Mauke. Despite the Design Wave analysis (March 2010), wave action created difficulties on both slipways. This design fault has been addressed by an add-on feature on the Mauke slipway, but is still being addressed on Mitiaro.
- Risks that created recurring delays were not minimised as effectively as they could have been - lack of suitable and correct quantities of materials and plant to the site, mechanical breakdowns, although the responsibility of the contractor should have been resolved through more joint collaboration - including MOIP. To prevent further delays construction work continued during cyclone season dependent on the weather.

Risks related to quality, impacting on durability were considered high risk yet the number of defects identified at the end of the project is a concern considering a BECA manager was on site throughout the project.

### **Communication**

It has been found that there is a definite need for the strengthening of communication at all levels within local projects. Communication breakdowns are mentioned as a major contributing factor to project difficulties. Often low level issues are played down, leaving matters unresolved and stakeholders associated with the issue unsatisfied. Not dealing with situations in an efficient and timely manner often led to the erosion of trust and confidence in those who are managing projects. Regular and formally minuted meetings would more clearly state roles and responsibilities

### **Record keeping and Reporting**

As with other projects, what has been found is a lack of record keeping, including key documents, major decisions and financial transactions. This could be addressed by MOIP's instituting more formal and structured processes for managing projects and delegating roles and responsibilities. There has been a major gap across the projects with regards to activity reports. With regards to the Southern Harbours Project, the lack of reports from the Principal resulted in a contractor being called in to complete a progress report, and again to complete the Project Completion report. It is important that sufficient and dedicated resources be committed to keeping appropriate records for each project. More formal communication, delegation and project management systems, as has been described in earlier paragraphs, would greatly assist to keep project partners regularly updated with relevant information about project development and to resolve problems in a timely way so that issues don't get out of hand.

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<sup>11</sup> BECA, Upgrading of the Taunganui and Omutu Harbours - Monthly report, March 2013, p2 Health and Safety

<sup>12</sup> BECA, Upgrading of the Taunganui and Omutu Harbours - Monthly report, December 2001/January 2012. Health and Safety, p8.



## **Lessons Learned**

It was revealed by the tendering process that there had not been enough information prepared to give contractors a better idea of what was required and what to expect, given the isolation of the remote island on which they had worked. The Northern Waters project used local contractors who were already aware of what was to be expected from working on isolated islands, and they were able to work across three islands within the allocated timeframe.

In this type of project situation, perhaps NZAid could be looking at employing a local construction partner working alongside an experienced (and probably a little more expensive), overseas company could have done the job more quickly, effectively and efficiently, but at the same time mentored a local construction company to carry out any followup repair work should it ever be required.

When contractors are working on remote island locations, consultation, communications and public relations play a major part in the successful implementation of this project. It is critical that they build relationships with community stakeholders, including the local Council and the Island Administration, as well as within the project team as well. Only in this way will project objectives be achieved, not only for the donors but also with regards to the Cook Islands Government's Recovery Plan. Including the community and local workers into the plan, also helps to reinforce social relationships and individual motivation by enabling them to be part of a change-making process on the island and encouraging a greater sense of community and social cohesion.

The BECA Project Management Team should have been more inclusive and established systems that would have engaged all stakeholders in their weekly meetings - not only MFAT and MOIP but also local council members so that they could have had more understanding about what was happening, and could contribute to any changes that might have been required, at an earlier stage. Finding out that the slipways don't work at the end of the project does not indicate that the PMT were being inclusive and listening to all stakeholder requests.

The poor communication between BECA and PBS can be attributed to MFAT's decision to separate their relationships between Wellington for BECA and MOIP for PBS. Because of MOIP's distancing itself from the project after the departure of the CRRP Programme Manager, PBS got very little support from MOIP. A more effective communication strategy could have improved the eventual outcomes of this project, as well as for other CRRP projects under MOIP's control.

## **Overall judgement and critical issues**

Contract management issues and project management issues impacted on contractor performance. MFAT should have expected better management of the project from BECA, considering how much they charged for their role in this activity and whether it was value for money. The budget was \$5,300,000. The project cost nearly \$5,900,000. BECA's bill was close to \$1million.

The people on the island do not believe that the design of the project has fully achieved two of the project's key objectives: increased safety for harbour users and improved wave control

The complex web of stakeholders and relationships obviously creates a challenging environment in which to manage a project, but it also suggests that additional attention and resource should be dedicated to this function, especially by the Principals. Where there has been seen to be active engagement with outer island communities and other stakeholders, outer island projects have appeared to yield good results. Where there was an obvious lack of consultation produced an opposite result.



For this project, a stronger MFAT relationship with all stakeholders, other than a donor-recipient approach, could have yielded better outcomes. MOIP could have provided more professional leadership to manage issues which in many cases were left unaddressed, creating unnecessary risk to the project. A more proactive approach to stakeholder and relationship management by BECA through formal meetings that were more inclusive and delegating responsibilities to those stakeholders who were more directly engaged with project activities, would have more effectively dealt with construction issues. Land issues were internal and should have been better dealt with by CIIC. They impacted on the relationship between the community and the contractors.

Overall, the efficiency of project delivery would have to be described as poor.



## Appendix 1: FINANCES - MOIP-DCD

APPROVED FOR PAYMENT - MOIP FILES (07/07/2010 - 15/06/2012)

MINISTRY OF INFRASTRUCTURE AND PLANNING

MAUKE AND MITIARO HARBOUR PROJECT

DATE	INVOICE	PURPOSE	AMOUNT
7/07/2010	26191	CIPS - BECA preliminary drawings	\$ 67.50
1/10/2010	26604	CIPS - colour prints	\$ 111.51
	12933	CI News - Advertisement for EIA	\$ 831.40
3/11/2010		Paul Lynch	\$ 1,200.00
	15	NES - EIA Application	\$ 500.00
15/11/2010	27591	CIPS - copies of harbour upgrade books	\$ 341.44
21/12/2010	82811	refreshments for tender evaluation team	\$ 35.40
	154	reimbursement for purchase of order book	\$ 9.80
26/02/2011	14755	Adv for harbour upgrade	\$ 696.29
	15838	Adv for harbour upgrade	\$ 698.63
22/03/2011	6178	Couriered documents to PBS Suva	\$ 485.13
21/04/2011		Payment Certificate 1 - BECA - Taunganui (\$49,694.72)	\$ 94,441.36
		Payment Certificate 1 - BECA - Omutu (\$44,711.64)	
4/05/2011	353485	Return airfare - Raro-Mitiaro- public consultation	\$ 498.00
16/05/2011		Payment Certificate 2 - -BECA - Taunganui (\$8750.17)	\$ 13,687.52
		Payment Certificate 2 - -BECA - TaunganuiOmutu (\$4937.35)	
10/06/2011		Pacific Buildings Solutions Claim 3 for Taunganui Harbour	\$ 826,911.37
19/06/2011		Pacific Buildings Solutions Claim 4 for Taunganui Harbour	
	V238968		\$ 412,532.84
8/07/2011		N. Rani. Return airfare to Mauke, 4 days incids & meals	\$ 738.00
22/07/2011		Shortfall as per Payment Certificate #4	\$ 58,333.33
26/07/2011	V238996	Ri's Retreat - 6 days bike hire	\$ 150.00
26/07/2011	V238997	Ngateina Rani - reimbursement accomodation Mauke	\$ 100.00
5/08/2011		Payment Certificate 5 - for Omutu and Taunganui	\$ 212,697.14
9/08/2011		Payment Certificate Claim 6 - Omutu Contract	\$ 177,664.95
26/08/2011		Return airfare - Raro-Mauke- monthly meetingm- Aug-Sep	\$ 518.00
6/09/2011		N Rani incidentals and meal allowance	\$ 220.00
13/09/2011		Payment Certificate Claim 6 - Taunganui & Omutu Contract (VAT) (\$8326.59)	\$ 66,612.71
13/09/2011		Payment Certificate Claim 6 - Taunganui & Omutu Contract (VAT) (\$57,416.81)	
23/09/2011		N Rani. Reimbursement for accommodation & bike hire	\$ 175.00
10/10/2011		Payment Certificate claim 7 - Taunganui Harbour	\$ 128,554.30
		Payment Certificate Claim 8 - Omutu Harbour	
07/11/2011`		Air Rarotonga - return airfare to Mauke for 14/11/2011	\$ 518.00
7/11/2011		Payment Certificate Claim 8 - Taunganui	\$ 62,598.48
		Payment Certificate Claim 9 - Omutu	\$ 9,296.90
9/11/2011		N Rani. 3 days incidentals and meals	\$ 165.00
21/11/2011		N Rani - 2 days bike hire and accommodation	\$ 150.00



20/12/2011	Taungarui Claim 9 and Omutu Claim 10	\$ 216,950.78
16/02/2012	Tuanganui Claim 10	\$ 35,999.02
11/04/2012	PBS as instructed by MOIP	\$ 100,171.17
7/05/2012	Ris Retreat for 2x draughtsmen	\$ 180.00
7/05/2012	Air Rarotonga - return airfare to Mauke	\$ 920.89
7/05/2012	Landmark Services for surveys of Mauke Harbour	\$ 3,950.00
21/05/2012	PBS certificate #14	\$ 159,162.38
14/06/2012	PBS certificate #15	\$ 45,818.80
15/06/2012	PBS certificate claim 11	\$ 376,620.49
15/06/2012	Frame Group Ltd for services rendered	\$ 722.50
		<b>\$ 3,012,036.03</b>

## FINANCES 2

### DCD - GENERAL LEDGER STANDARD (as of 12 Dec 2013)

#### MINISTRY OF INFRASTRUCTURE AND PLANNING

#### MAUKE AND MITIARO HARBOUR PROJECT

DATE	INVOICE	PURPOSE	AMOUNT
6/09/2012	163		\$ 25,098.65
6/09/2012	164		\$ 24,597.34
19/09/2012	167		\$ 18,345.00
27/09/2012		Taunganui Claim #19	\$ 224,211.87
1/10/2012		CIPS for printing services	\$ 382.50
9/10/2012	298		\$ 64,298.63
16/11/2012		Claim #12 Southern Harbours	\$ 155,811.69
12/12/2012		PBS Claim #14 Omutu Harbour	\$ 133,210.73
8/01/2013		PBS Claim #5 Southern Harbours	\$ 69,129.27
10/02/2013		K Tiro, survey services	\$ 650.00
18/02/2013		PBS Southern Harbour Claim #16	\$ 60,023.77
19/03/2013		PBS Claim #17	\$ 20,656.56
27/03/2013		Omutu Harbour Project Claim 20	\$ 90,386.86
17/04/2013		PBS Claim 18	\$ 102,620.24
8/05/2013		PBS Claim 20	\$ 95,186.86
4/06/2013		PBS Claim 19	\$ 157,305.08
30/06/2013		Ris Retreat CRRP	\$ 430.00
30/06/2013		Air Raro Charter Flight to Mauke	\$ 5,430.00
30/06/2013`		per diem, Joe, Tenga and Simi (Mitiaro, Mauke)	\$ 756.00
3/10/2013		Return airfare to Mauke	\$ 518.00
3/10/2013		Joe - allowance	\$ 400.00
3/10/2013		Return airfare to Mitiaro	\$ 107.00
21/10/2013		T Moetaua meals for Joe	\$ 270.00
21/10/2013		Ris Retreat for Joe	\$ 575.00
21/10/2013		Sea Breeze Lodge accom for Joe	\$ 200.00
		Finances 2	<b>\$ 1,250,601.05</b>
		Finances 1	<b>\$ 3,012,036.03</b>



TOTAL

\$ 4,262,637.08

## Appendix 2: FINANCES - MFAT

### A00200 Reconstruction of Harbours on Mauke and Mitiaro 56 \$5,840,398.78

26-Mar-2010	BECA INTERNATIONAL CONSULTANTS LTD	COOK IS. HARBOUR DESIGN BECA INT. FEES MAR10	\$30,000.00
26-Mar-2010	BECA INTERNATIONAL CONSULTANTS LTD	COOK IS. HARBOUR DESIGN BECA INT. EXPS MAR10	\$21,900.00
25-Jun-2010	BECA INTERNATIONAL CONSULTANTS LTD	MILESTONE 2 PRELIM DESIGN & COSTING	\$80,000.00
30-Jun-2010		Accrue Beca milestone achievements not yet pd	\$29,000.00
01-Jul-2010		Accrue Beca milestone achievements not yet pd	-\$29,000.00
21-Oct-2010	BECA INTERNATIONAL CONSULTANTS LTD	RECOVERABLE EPX K SHERNING	\$2,007.00
21-Oct-2010	BECA INTERNATIONAL CONSULTANTS LTD	MILESTONE 3 DETAILED DESIGN, SPECIFICATION	\$60,000.00
31-Dec-2010		AMD Transfer to Activities: NOV-10	\$3,051.85
31-Jan-2011	BECA INTERNATIONAL CONSULTANTS LTD	Expenses - D Robertson	\$2,271.62
31-Jan-2011	BECA INTERNATIONAL CONSULTANTS LTD	Milestone 3 - Environmental Mgmt Plan + EIA	\$57,650.00
04-Feb-2011	BECA INTERNATIONAL CONSULTANTS LTD	Milestone 5	\$48,600.00
04-Feb-2011	BECA INTERNATIONAL CONSULTANTS LTD	Expenses - R Frankland - Dec 10	\$3,137.66
28-Feb-2011		AMD Transfer to Activities: Jan-11	\$45.20
08-Apr-2011	BECA INTERNATIONAL CONSULTANTS LTD	MILESTONE 6	\$20,844.00
30-Apr-2011		AMD Transfer to Activities: MAR-11	\$1,880.05
31-May-2011		AMD transfer to Activities: Apr-11	\$94,441.36
30-Jun-2011		AMD transfer to activities: May-11	\$14,185.52
30-Jun-2011		Accrue Beca fees and expences to June 11	\$50,000.00
30-Jun-2011		Accrual: June AMD estimate: Southern Harbours	\$1,420,814.00
01-Jul-2011		Accrual: June AMD estimate: Southern Harbours	-\$1,420,814.00



01-Jul-2011		Accrue Beca fees and expences to June 11	-\$50,000.00
31-Jul-2011		AMD Transfer to Activities: JUN-11	\$826,911.37
12-Aug-2011	BECA INTERNATIONAL CONSULTANTS LTD	EXPS MILESTONE 8	\$19,377.41
12-Aug-2011	BECA INTERNATIONAL CONSULTANTS LTD	FEES MILESTONE 8	\$58,943.00
23-Nov-2011	BECA INTERNATIONAL CONSULTANTS LTD	FEES MILESTONE 8	\$6,909.92
23-Nov-2011	BECA INTERNATIONAL CONSULTANTS LTD	EXPS	\$22,807.54
30-Nov-2011		AMD transfer to Activities: Oct-11	\$128,554.00
31-Dec-2011		Expenditure against the June 2011 AMD transfer: Jul-11	\$471,854.17
31-Dec-2011		Expenditure against the June 2011 AMD transfer: Aug-11	\$390,880.09
27-Feb-2012	BECA INTERNATIONAL CONSULTANTS LTD	Expenses	\$24,894.26
27-Feb-2012	BECA INTERNATIONAL CONSULTANTS LTD	Fees	\$41,289.89
31-Mar-2012		Transferred from A00202 (originally October)	\$67,007.71
31-Mar-2012		AMD transfer to Activities: Feb-12	\$35,999.02
05-Apr-2012	BECA INTERNATIONAL CONSULTANTS LTD	MILESTONE 8 FEES * EXP FEB 2012	\$40,190.05
08-May-2012	BECA INTERNATIONAL CONSULTANTS LTD	FEES FOR MILESTONE 8 AND EXPS	\$14,773.52
31-May-2012		AMD transfer to Activities: APR-12	\$100,171.17
12-Jun-2012	BECA INTERNATIONAL CONSULTANTS LTD	MILESTONE 8 FEES & RECOVERABLE EXPS	\$18,826.44
30-Jun-2012		Accrue: Beca International Consultants, invoice 4361 May expenses	\$36,113.91
30-Jun-2012		AMD transfer to Activities: May-12	\$164,213.27
30-Jun-2012		AMD transfer to activities: Jun-12	\$423,162.00
30-Jun-2012		Correction to January AMD acquittal	-\$52.00
30-Jun-2012		Accrue: Beca International Consultants, invoice 4362 June expenses	\$54,388.99
30-Jun-2012		Balance of June payment to AMD	\$2,171,240.00
01-Jul-2012		Accrue: Beca International Consultants, invoice 4362 June expenses	-\$54,388.99



01-Jul-2012		Accrue: Beca International Consultants, invoice 4361 May expenses	-\$36,113.91
16-Jul-2012	BECA INTERNATIONAL CONSULTANTS LTD	MILESTONE 19 JUNE 2012 FEES & EXPS	\$51,103.03
16-Jul-2012	BECA INTERNATIONAL CONSULTANTS LTD	MAY 2012 MILESTONE 18 FEES & EXPS LOV 9	\$33,764.57
26-Aug- 2012	BECA INTERNATIONAL CONSULTANTS LTD	JULY 2012 ON SITE SUPERVISION	\$10,811.40
24-Sep- 2012	BECA INTERNATIONAL CONSULTANTS LTD	AUG 2012 ON SITE SUPERVISION	\$23,101.03
30-Oct-2012	BECA INTERNATIONAL CONSULTANTS LTD	SEPT 2012 ON SITE SUPERVISION	\$61,282.48
29-Nov- 2012	BECA INTERNATIONAL CONSULTANTS LTD	MILESTONE PAYMENT FURTHER PORTION OF MILESTONES 8-21	\$82,410.97
19-Dec- 2012	BECA INTERNATIONAL CONSULTANTS LTD	Design Consultancy Phase 2 Milestone 8-21 Bill	\$18,999.55
31-Jan-2013	BECA INTERNATIONAL CONSULTANTS LTD	MILESTONE PAYMENT - MILESTONE 21.1 (LOV 9) AND 22 (LOV 10) PAYMENT	\$41,115.60
18-Feb-2013	BECA INTERNATIONAL CONSULTANTS LTD	MILESTONE 21.1 (LOV 9) & 22 (LOV 10)	\$7,673.75
13-May- 2013	BECA INTERNATIONAL CONSULTANTS LTD	FEES FOR MILESTONE 21.2 (LOV 11)	\$37,169.31
31-Aug- 2013	BECA INTERNATIONAL CONSULTANTS LTD	Fees for Mileston 22`	\$5,000.00



## APPENDIX 3: OUTSTANDING DEFECTS ISSUES (DECEMBER 2013)

### MITIARO

Outstanding issue	Location	MOIP Inspection comment
Western Beacon pole to be made 3m high as originally instructed	Boat Ramp	Satisfied with western beacon pole cut to 3m high, however the navigation light stainless steel base is not welded onto the pole as instructed using stainless steel rods, instead an 18mm plywood was cut and used nailed onto a 3x2 piece of timber that was inserted into the steel pole. According to the contractor, their materials didn't arrive on time before this inspection was undertaken. Have instructed the contractor to weld the steel base back onto the pole using stainless rods. If the equipment arrives on Mitiaro the task can either be done by the contractor's local workers or the Island Council can organise a contractor to complete the task. <b>(Item status - closed on the condition that instructions are completed)</b>
Reinstall anchor point for tyre fenders that were pulled out. Replace tyre fenders. Wire shackles to prevent accidental loosening.	Entrance to inner harbour	All three fenders have been reinstalled however I was not satisfied with the size of the chains and shackles that were used by the contractor. The new chain size was 10mm and the designed size or existing chain size was around 16mm. Have instructed the contractor to supply and use the same size chain and shackles as the old one - again the installation of these chains once it arrives on Mitiaro can be done by the contractor's workers or other contractors as organised by the Island council. <b>(Item status - closed on the condition that instructions are completed)</b>
Remove Stockpile of loose material on the western edge of the site compound, to prevent it from being washed into the harbour basin in a cyclone	Western edge of the site compound, overlooking the harbour	The Island council has already taken the initiative to remove the stockpile of loose material on the western edge of the site compound since the cyclone season is near starting in the month of November. After discussion with the island Mayor, Executive Officer and Contractor (Lee Oliver) the Island council was to submit an invoice to the Contractor for payment consideration for the use of the Island Administration machinery and equipment used for this clearance work. <b>(This item will be closed once both parties are happy with the payment claim arrangement)</b>

### MAUKE

Return site compound to original state	Site compound	No agreement was made to the extent of cleaning and returning the site to its "original" state. The mayor and Executive Officer was shown a copy of the Contractor's email dated 30 Sept in response to Beca's remedial register. PBS insists that it did look better than it did before, but the issue relates more to a relationship breakdown between the landowners and PBS created by the unwarranted assignment of the land by CIIC. <b>(As far as MOIP is concerned the status is closed)</b>
Section of quay slab approx. 30mm below quay level 1.7mCD. <i>(I don't quite understand this one, MH)</i>	1.9 x 17m section of quay slab adjacent to Wall 5	No work has been done on this section. According to the email of 30 Sept to Beca, the drawings show this area to be level, so that there seems to be a design issue in which BECA and the Contractor need to sort out. <b>(Status - Still open)</b>
There are significant amount of the joint	Main slabs	None of this work was done. According to the Contractor the joint sealant tubes from the supplier in Rarotonga was hard and not usable hence nothing was



sealant not adhering to the concrete and lifting . There are also some unsealed and some sealed cracks.

done. The issue of getting the materials across was also a problem according to the contractor **(Status - still open)**

One of the tractor tyres on the outside of the inner wall is missing (there are only two present)

Inner wall of the harbour

Although the tyre was replaced and installed, the chain size used to shackle the fittings need to be replaced with the specified size of 16mm (not 10mm as has been used). **(Status - to be closed a soon as the right size chain is installed)**

#### Additional matters raised on site 9 July 2013.

Remove three reef blocks from inside the reef wall, north side of the harbour

According to the Island EO, a proposal was given to them by the contractor for \$10 for the removal of the reef block. During out inspection on site, this matter was raised with the Island Mayor and EG who confirmed to the Contractor rep that they accept the proposal of \$10k to remove the reef blocks. Contractor head office will confirm this arrangement. **(Status - closed once confirmation is given by PBS)**

Query over the depth of the entrance to the inner harbour - checked on site by MOIP. Appears that material left in outer harbour basin has moved into the entrance channel to the inner harbour

Nothing has been agreed upon at this stage, during our discussion on site, MOIP has advised the Island Mayor and EG that MOIP will need to sight the contract document clause for item CO 240-13 as highlighted by the contractor in its email to BECA dated 30 September 2013. MOIP is still concerned about the depth at the entrance to the inner harbour and insists that some dredging work is still required. **(Status - still open)**

Remove loose rock from north side of the old ramp area (corner timed off to allow plant access to the northern reef area) to avoid it being washed back into the harbour

No action of agreement made. MOI is interested to hear BECA's response to the email sent by the contractor on all the points highlighted by the contractor in response to the remedial register. **(Item Status - still open)**

Concrete wall construction at new ramp (slip way)

A new concrete wall was constructed by the Contractor at the new ramp or slipway. A precast concrete slab was not used. Since the construction of this concrete wall, a lot of positive feedback has been received by fishermen and users of the harbour ramp. There is also a more consistent runup of seawater up and down the ramp, with less turbulence and swirls at the harbour ramp entrance. However, some further work is required to this wall , in particular to the bottom end of the wall. It seems, during the concrete pour, that the concrete didn't set properly. This work can only be done at low tide and on a calm day. This work can be done by the contractor's workers on the island, or by the Island Council contracting other workers. The contractor is to sort and organise. **(Status - Closed once remaining work has been completed)**







**Appendix 4: PROJECT MANAGEMENT COMMITTEE MINUTES - summaries of available meeting notes - to give an overview of on-site issues.**

DATE	MOIP	PBS	BECA	MFAT	ISSUES
8/02/2011		NM	3		PBS confirmed that: all plant offered in tender or an equivalent or superior item is available; they have a pneumatic drill (airtrak); key spare parts will be shipped to the islands for all major plant items; productivity level of excavation of coral expected to be 135 sqm per day; concrete testing equipment will be recalibrated on island before production of concrete commences. PBS confirm Noel McManaway will be the Contractors Representative and site manager, as noted in the tender documents. Names and CVs of other key site and project personnel will be confirmed in the next 2 weeks. PBS confirmed that precasting will be carried out in Suva, reinforcing steel and cement will be supplied from Fiji, aggregate source will be confirmed. An unscheduled building was reduced from \$298k to \$98k by a variation. PBS will provide transport for the Engineer and his staff between the two islands when required. The programme dates were agreed: contract award 8 Feb 2011, possession of the site 14 Feb 2011, contract duration 40 weeks (as per tender docs), completion 15 November 2011.
25 Feb 2011 (phone)		2	3		BECA to provide locations for disposal sites. PBS to provide an electronic copy of the CMP to NES for approval. Monthly report required by BECA (KS) by email. Stephen Priestly (BECA) is the Engineer Richard Frankland is the Engineers rep and main point of contact. Ashley Keyworth is the day to day site contact. Detailed construction prog required to be outlined in the monthly report. PBS workplan for next fortnight includes: compiling gear in Fiji, preparing precast drawings, preparing paperwork to submit to BECA. PBS asked about local workers. BECA confirmed that there is no obligation to hire local plant. KS to organise disposal locations for dredging material (urgent). Engineer requires CVs of all positions changed in PBS bid. plus 1. precast construction drawings, 2.Site Safety Management Plan, 3.quality plan, 4.environmental management plan, 5.damage to property assessment, 6.contractors bond, 7.contract insurance, 8.confirmation that all concrete testing will be by a certified testing lab. Cook Is government to send contract documents directly to PBS in Fiji. Engineers Representative Letter; sent to PBS. AL will have no power to vary the contract. AL will review remeasurement of quantities (measure and value contract).
4 Mar 2011 (Phone)		4	2		PBS to provide an electronic copy of the CMP to NES For approval - waiting for information about disposal site on Mauke so CMP can be completed. PBS will have two people on site full time to start survey and taking baseline measurements for monitoring requirements in two weeks PBs programme includes: work permit applications, barge survey in Fiji, compiling gear in Fiji, preparation of precast drawings, site visit, preparing papers work to submit to BECA as required by the contract. Physical work to start 14th April. BECA to issue final "For Construction" drawings. Engineer requires from PBS:1. precast construction drawings, 2.Site Safety Management Plan, 3.quality plan, 4.environmental management plan, 5.damage to property assessment, 6.contractors bond, 7.contract insurance, 8.confirmation that all concrete testing will be by a certified testing lab. Cook Island Government has sent contract documents directly to PBS in Fiji.



**18/03/2011**  
**(phone)**

BECA to issue final "For Construction" drawings to PBS. PBS has sent CMP to NES for approval. All water for concrete production to be provided by the desalination plant. Queried why they need to submit precast drawings for the quay walls if only changing the width - BECA wants drawings for ANY changes to design. BECA to confirm if precast wall can be paid as lump sum. PBS confirmed that NM will be onsite 80% of time. Noel and Ravi will be in charge of concrete production instead of Glen Flitton as started on PBS tender. BECA confirmed ERASITO consultants will inspect precast units prepared in Fiji. Must check reinforcing before they are poured. Reef walls need to be 1.5m above reef level. 70-80% of precast wall length will be rebated into reef. BECA will review any proposed change in quantities of precast reef walls before approving precast drawings.

**29/04/2011**  
**(phone)**

6 2

BECA requires PBS's insurance certificates - to be issued by 2 May. Concrete testing to be done on site by Ravi - testing qualifications to be reviewed by BECA. NES has been slow to approve CEMP - Sec of MOIP wants to reopen EIA process - BECA state that it has already been approved. BECA state that delays with processing of CEMP no reason for any delays with completion date. Amendments to the Project Quality Plan (PQP) and Site Specific Management Plan. PMB to provide a filled out "dummy" JSA form. Responses to KS containing comments on the PAP H&S- JSA required for unloading PBS's barge; site inductions/tool box talks; workplace hazard inspections; any accidents to be reported; safety of local harbour users while maintaining harbour access. PBS has seen letter from MEA approving the CEMP and agrees to its conditions. Additional makatea removal has been discussed with land owners and interested parties

**3/06/2011**

2 AK

Mayor and Island Sec have been informed on H&S procedures by PBS - cargo will be unloaded by PBS and taken to shed for distribution. People unloading the barge will have personal protective equipment - distributed to local workers as well. (LO) CEP and PEP for Mitiaro has been updated. MOIP must consider transportation of sandflies from Mitiaro to Mauke as an issue to be resolved between PBS and MIA. PBS intend to: survey Mitiaro over next 2-3 weeks; barge due on Mauke on 8 June - once mobilised will start with excavating makatea headlands, stockpiling aggregate for concrete production and set up of precast and testing facilities. PBS expect to employ about 20 local residents. Issues: BECA to provide confirmation of levels once chart datum has been confirmed.

**10/06/2011**

3 2

Landing and unloading procedure to be developed and distributed on site; first tool box talk to be held when barge arrives; PBS will unload cargo for Mauke and bring it to the cargo shed for distribution. Those unloading barge will wear protective equipment. AK noted that Basilio will be present on voyages between Mitiaro and Mauke and will liaise with the Mitiaro environmental officer regarding prevention of sandfly transportation. PBS will excavate additional makatea headland at no additional cost to the contract as a source of concrete aggregate. PBS will grade a temporary access ramp for local fishing boats to use while the works are underway.



17/06/2011	3	1	<p>H&amp;S - man overboard involving 2 PBS employees while transporting material from PBS's Viking Staff and the harbour quay. No injuries. PBS have incorporated local crew who are familiar with the harbour environment. <b>Revised CEMP and PEP have been submitted to NES.</b></p> <p>Concrete inspection and test results shall be submitted to BECA prior to commencement of concrete works. <b>PBs to provide a hydrographical survey of the inner basin so dredge depths can be confirmed (WHY WAS THIS NOT DONE PRIOR TO TENDERING? MH)</b> Makatea excavation commenced, be completed by 22 June. PBS to send someone to Mitiaro to complete the tide gauge survey.</p>
24/06/2011	3	AK	<p>H&amp;S incidents relating to bike passenger being injured in confines of the work site after hours, and a man overboard during unloading of equipment. Announcements will be repeated on TV about site being out of bounds; and only experienced Cook Islanders will be used for unloading cargo as well as sea conditions will be better assessed before attempting unloading. <b>AK informed that CEMP for Mitiaro has not been approved by NES.</b> NM noted that makatea harder to excavate than expected - a new fitting for the hydraulic cutter due 25 June. Issues: confirmation of the depth of quay wall foundations</p>
1/07/2011	3	AK	<p>H&amp;S procedure in place for general public access to the site, including the launching of boats. (PBS) Preliminary samples of grout have been prepared for compression testing - initial concrete samples being prepared for testing. Reef wall positions have been assessed - no changes to alignment will occur. Large rock block of makatea located at the landward end of the northern wall will be moved and the wall extended approx 2 m to marry into the existing headland; PBS following items coming up in programme: dredging after makatea excavation, concrete tests, proof testing of reef wall anchors, fuel store, reef wall precast production. PBS noted they have come under pressure to employ more locals or implement a rotation system amongst the workers (BECA COULD HAVE ASSISTED WITH THIS)</p>
8/07/2011	3	AK	<p>(LO) steel mill certificates have arrived (NM) queried how to grout the ramp anchors into the makatea beneath a layer of loose material. Sleeving the anchor was discussed but PBS does not have the equipment to do this. PBS propose to place reef wall blocks then drill and grout anchors in one continuous pour (AK noted that this will impact on the accuracy of anchor production testing) the methodology would be reviewed once proof testing established the required anchor depth. Issue raised was concrete testing in relation to the contract specs. PBS were to trial concrete production until they reached required compressive strength. PBS would start pouring concrete before test results received. AK noted that this deviated from the requirements of C0617.8.2</p>



15/07/2011	1	3	2	<p><b><u>Mauke visit</u></b> - pupose to participate in the July monthly meeting and to followup on outstanding jobs. Issues discussed: concrete testing requirements. Ravi was to go to NZ but there was an issue about a visa. Decision was to use McConnell Dowell's facility. Trial batches have been found to be better and above necessary compression strengths; status of injured PBS personnel - been sent back to Fiji; Sandflies. PBS has offered to wash barge with seawater before loading and departing from Mitiaro though it is highly unlikely that machinery will be returned to Mauke from Mitiaro; Community requests. PBS has had backlash after community requests have been attended to, but has created problems in other areas. All requests are now to go to AK who will ask PBS to cost it and advise whoever initially asks. This will also apply to requests from the Principal; Progress of Construction works: an update was given. Finance issues: Claim 4 has been submitted. Island Council Mtg. AK meets every Monday at 9am to update them on progress, including issues and concerns.</p>
- 18/07/2011				
15/07/2011	1	3	2	<p>H&amp;S - glass fragments in eye of excavator operator - flown to Rarotonga- transferred to Fiji. NR recommended high pressure washing of all PBS machinery to prevent sandflies reaching Mauke from Mitiaro. NM noted concrete testing indicates adherence to specs. <b>RF confirmed that no concrete should be poured for harbour works until certified test results are received.</b> Next in programme: concrete testing; pouring of boat ramp; pour fuel store slab; proof testing of reef wall anchors; reef wall precast production; excavation of existing quay and harbour dredging, 2nd barge load of materials expected by end of July; excavators can be sent to Mitiaro once dredging activities completed on Mauke; overall PBS are confident of achieving completion by the end of the year.</p>
22/07/2011		2	AK	<p>(AK) to provide a template to record reef wall and ground anchor test results (PBS) noted progress and noted following items coming up on their programme - 2nd barge load of materials expected 28 July - no issues raised</p>
29/07/2011		2	AK	<p>(AK) reticulated water supply on Mauke suitable for concrete production; AK queried results of preconstruction concrete testing &amp; concrete curing procedure and how PBS would maintain a consistent concrete slump while pouring concrete; PBS gave explanations. Issues - preconstruction survey and tide gauge monitoring at Mitiaro. Could become part of the critical path.</p>
5/08/2011		3	AK	<p>NM noted incorrect minutes- the extension of the boat ramp area will be aligned with the western edge of the cargo shed at no cost to Principal. PBS still to prepre CEMP and PEP for Mitiaro. Issues - preconstruction survey etc for Mitiaro. NM noted that volumes of Type 3 concrete under quay slab on Mitiaro may vary ofrom those scheduled, AK noted that deviation should only be an issue if surveyed levels are not relative to each other</p>
19/08/2011		2	AK	<p>Construction queries- AK queried quantity of excavation should be minimised; NM- pump required to operate hydraulic jack to arrive soon; crushing plant out of operation, being repaired; new system to be trialled re concrete transportation rate. Progress - AK queried concrete production rates, and block precasting production; NM noted concrete works behind prog, confirmed finish date 16 Dec. Issues-AK noted Mitiaro quay slab on a Type 3 levelling course to be placed on the existing surface</p>



6/09/2011	4	2		<p>Outstanding are the confirmation of the reef wall alignment and of concrete testing proposal and results from a certified concrete testing facility. <b>CEMP document has been approved but neither PBS or BECA have seen the document.</b> KS to check with Nrani. and also to confirm status of the PEP (Project Environmental Plan). RS to go to NZ on 5 Sept to receive CCANZ accredited concrete testing training. Possibility of sending samples to McConnell Dowell's laboratory on Rarotonga. AK noted that the quality of the reef blocks has slipped slightly. Type 3 concrete fill to the quay was discussed. NM proposed alternatives. KS to pass on to design team. Casting of reef walls is behind schedule. 6xNovacoils used for the ducts for the anchors have gone missing and will need to be replaced with supply from Fiji. Also behind in excavation of the toe of the ramp, placing concrete for the boat ramp, and dredging. NM has gained permission from Island Council to cure concrete on Sunday.</p>
9/09/2011	1	4	KS	<p>(AK)concrete testing, contract instructions, (NM) delegation of engineers powers; behind schedule, completion due 16 Dec 2011; Barge with more equipment due on Mauke end Sep - water shortage on the island</p>
23/09/2011	4	AK		<p>Revised construction program reflecting changes in methodology and expected completion date still due. Approval for reef wall alignment for both the southern and northern walls have been obtained. Contract instruction to be issued. Two results from the September tests were 23.4 and 23.6 Mpa which is below the required 25Mpa. AK will follow up on individual results, but insisted that 25Mpa should always be the standard. NM confirmed that works are behind schedule and that 16 Dec is unlikely to be achieved. Island Council has raised the issue of compensation for aggregate being used in precast blocks for Mitiaro. AK to follow up with NR. A tractor is barring access to the recommended agricultural water source for PBS, so they are having to continue to draw on the main island supply.</p>
1/10/2011	4	AK		<p>Two accidents - PBS's small truck crashed into coconut tree en route to the landfill - no injuries; employees hand cut while tying steel reinforcing. AK noted unpredictable wave strength and the need for safety around water and checking swell prediction charts. Revised construction programme still required from NM. NM confirmed that works are further behind schedule. Expected completion date likely to extend into 2012. Taunganui Harbour due to be completed mid-late Nov. PBS plan to charter plane to deliver outstanding mechanical parts to repair machinery. Island Council and Island Sec have asked for compensation for aggregate materials to be used in blocks for Mitiaro. If budget allows, compensation in kind will be considered as small contract variations as requested by Island Council. Island Council and Sec noted their concern about the 6000L daily consumption by PBS from main reticulation system.</p>



7/10/2011	4	AK	<p>No concrete testing results issued for Sept. NM noted that the results are still with McConnell Dowell. PBs would prefer testing to be completed on site. BECA to review proposal. AK noted that freshly poured concrete not always kept damp - needs curing for 14 days after being poured. AK noted that saw cuts had not been put into the boat ramp to control any cracking of the slab (ideally done the day after pouring). NM confirmed delays of the programme, demobilisation of plant and equipment from Taunganui expected at end of Nov, and completion for Mitiaro to be early Feb. Programme is behind in : precasting of reef walls, placement of the southern reef wall delayed by incomplete anchor testing and inability to place ground anchors; placement of reinforced concrete slab for the boat ramp due to delay caused by faulty air track drill, and dredging is behind. Air track drill is required for the placement of reef anchors for the reef walls, ground anchors for the boat ramp and Wall 5. Components will be on charter flight from Rarotonga on Monday.</p>
14/10/2011	4	2	<p>Some health and safety issues were discussed relating to Ravi breaking his ankle and workers diving around precast wall panels to remove loose material from the base of the excavation. Alternative safety measures were discussed. Locals were advised against eating fish from the harbour during construction time - although no reports of illness. Concrete testing was discussed. KS confirmed that 6 certified tests from a certified laboratory are required for Type 2 concrete, for each week that this concrete is produced. Results are to be submitted weekly instead of at the end of each month. AK asked that test samples and where tested be clearly noted in the results. Curing of the concrete was noted by AK as an issue, NM and RS noted complaints from island about water usage, but BECA insists that curing is to continue as per specs. NM confirmed that works are behind schedule: precasting of reef walls is behind prog; placement of the southern reef wall has been delayed by incomplete anchor test and inability to place ground anchors; placement of the reinforced concrete slab for the boat ramp is behind schedule; delay caused by inability to place ground anchors until air track drill is repaired. Dredging is behind schedule and will get underway as sea conditions allow. Ks asked when the survey of Mitiaro would take place. Weather has hindered the trip to Mitiaro to do the survey.</p>
26/10/2011			<p>Letter from NM to RF: asking for approval of Ravi as an already qualified and certified tester based on his credentials and experience and to certify the concrete works already produced and installed into their next payment certificate. MOIP was awaiting BECA's response.</p>
27/10/2011	2	AK	<p>A near miss accident occurred where two excavators became unstable as they started to tandem lift a precast wall panel in place with personnel working close by. NM to work on this safety issue. Ear muffs must be worn to protect staff hearing when the air track drill and compressor are in operation. Concrete testing results from October are overdue. Air track drill is leaking oil into the sea. Although seals need to be replaced by design oil is lost in operation. NM to work on minimising oil loss into the environment. Air track drill has been fixed. Programme for the next week includes: placement of precast panels for Wall 1; dredging around tow of the boat ramp; placement of Wall 5 and southern reef walls; continued production and screening of aggregate. Issues: impacts on PBS's programming and logistics about wanting to go ahead with remedial works to the existing reef wall or not. AL to follow up with MOIP asap.</p>



4/11/2011	1	1	<p>H&amp;S report - a near miss accident occurred while lifting a precast panel into place. <b>NM requested confirmation of remedial works to the existing reef wall, to allow planning for procurement of additional material if required. This will be discussed by MOIP.</b> NM confirmed that all outstanding concrete testing results have been submitted. NM confirmed that a new seal has been ordered for the air track drill to stop it leaking - a bucket has been set up to catch any oil drips - the hydraulic oil is a biodegradable product and NM would submit its specs. While RS is in Mitiaro, NM has agreed for RK to take over the daily site records, work method statements and be responsible for quality on site, including signing concrete placement cards. AK noted that curing procedures still not in place and that fresh concrete is only being intermittently kept damp after regular prompting. NM to look at a more effective curing system Among other issues, AK noted that the condition of steel reinforcing prior to placing [in?] concrete needed to be clean and free from salt spray as required by the specs and NZS3109, with reference to the Wall 5 upstand. AK noted that a revised construction prog is required for this month clearly identifying the construction methodology, the critical path and completion dates for each harbour.</p>
14/11/2011	1	2	2 <p>Report on near miss accident involving precast panel still not received. PBS to submit outstanding concrete results from McConnell Dowell. NM must replace their non-water soluble non-biodegradable hydraulic oil. Steel must be corrosion free before being placed in concrete (rust brushed off). NM to place barbed wire around fuel store. Also noted that sabotage of their air track compressor has set drilling operations back approx 3 weeks compressor will take another week to be repaired. NM has noted expected completion date for both projects is April 2012. KS queried the limiting factor for productivity. NM noted that it was the machinery on site. Island Council has asked for a volume of aggregate for Mauke community under a separate contract. NR has asked for a disaster response plan to secure works and storage of machinery during the cyclone season. Evacuation procedures and programmed works during cyclone season to be considered. NM noted that one staff member will be available over Xmas period, and if in the event of an emergency response, PBS equipment will be available to assist. PBS noted that they had not included steel for precast quay units and asked if MOIP would consider paying for steel used - approx \$20k. KS has also confirmed that \$5k should be allowed for hand rail and stairs for Mitiaro contract.</p>