



Secretariat of the Pacific Community

Government of the Cook Islands

GLOBAL CLIMATE CHANGE ALLIANCE: PACIFIC SMALL ISLAND STATES

PROJECT DESIGN DOCUMENT

Environmental Monitoring to Enhance Community Livelihoods and Build Resilience to Climate Change in Low-Lying Atolls of the Cook Islands

Project Summary

The overall objective of the project is to build resilience to climate change in the Cook Islands with the main aim of strengthening environmental monitoring and its relevance to the communities of low-lying atolls of the Cook Islands. The key result areas (KRAs) are as follows: (i) awareness and understanding of the results from environmental monitoring of the lagoon system advanced; (ii) existing environmental monitoring system strengthened especially in Manihiki; (iii) feasibility study of appropriate marine-resource related livelihood conducted activities in Penrhyn, Rakahanga, Pukapuka and Palmerston in light of changing climate; and (iv) community engaged in implementing the pearl farming management plan.

The project will improve the environment for pearl farmers, artisanal and small scale commercial fisheries in the northern atolls of the Cook Islands. This will enhance the capacity of the vulnerable communities on these atolls to adapt to the impacts of a changing climate. The project requires both broad-scale and fine-scale approaches. The activities seek to strengthen existing environmental monitoring, including water quality; to provide information that will assist pearl farmers to improve their farming practices, and avoid disease outbreaks and stress to the oysters due to present environmental conditions and future projected conditions under climate change.

This project is consistent with the climate change adaptation needs and priorities for the Cook Islands as identified in the Joint National Action Plan for Climate Change Adaptation and Disaster Risk Management and supported by intensive participatory consultations.





Cook Islands Îles Cook

Penrhyn
(Tongareva)

Rakahanga

Manihiki

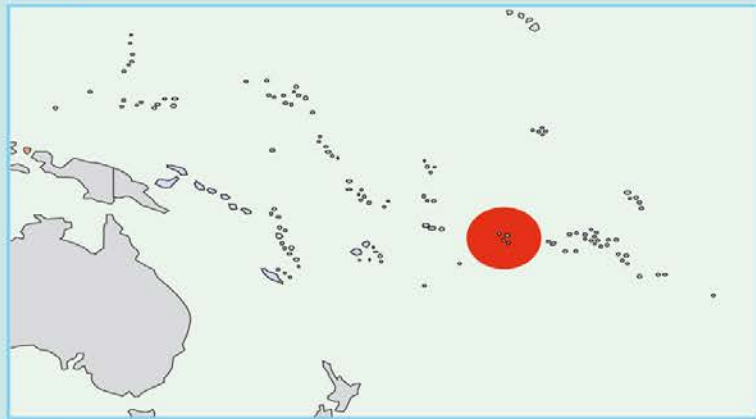
Pukapuka

NORTHERN GROUP

Nassau

ÎLES COOK DU NORD

Suvarrow



Palmerston

ILES SOUTHERN COOK DU SUD

Aitutaki

Manuae

Takutea

Mitiaro

Atiu

Mauke

RAROTONGA

Mangaia

164° W/O

22° S



0 Kilometres 3

0 Kilometres 300



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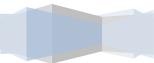
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SIGNATURE PAGE

Country: COOK ISLANDS



1. INTRODUCTION

The Global Climate Change Alliance: Pacific Small Island States Project (GCCA: PSIS) is a three-year project funded by the European Union and executed by the Secretariat of the Pacific Community (SPC). The overall objective of the GCCA: PSIS project is to support the governments of nine smaller Pacific Island states, namely Cook Islands, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Niue, Palau, Tonga and Tuvalu, in their efforts to tackle the adverse effects of climate change. The purpose of the project is to promote long-term strategies and approaches to adaptation planning and pave the way for more effective and coordinated aid delivery to address climate change at the national and regional level.

The GCCA: PSIS project is implemented by SPC as part of its 'whole of organization approach' and is one of the activities contributing the SPC Climate Change Engagement Strategy. The four key result areas (KRA) are:

National Level Key Result Areas

- KRA 1: Supporting national efforts to successfully mainstream climate change into national and sector response strategies.
- KRA 2: Identifying, designing and supporting the implementation of adaptation activities.

Regional Level Key Result Areas

- KRA 3: Enhancing the contribution of regional organisations to national adaptation responses.
- KRA 4: Building regional capacity to coordinate the delivery of streamlined adaptation finance and targeted technical assistance to countries

Cook Islands, as one of the countries participating in this project, has already highlighted many of its adaptation needs in official documents and at various regional and international fora. It has, during the last decade, been involved in a number of climate change projects which have helped shape how climate change adaptation is dealt with in the country. Cook Islands' approach to climate change adaptation is based on a no-regrets approach and it will pursue a strategy for precautionary adaptation since it is difficult to predict far in advance how climate change will affect a particular site, sector or island community. The strategy ensures that implementing adaptation measures now would be justified even in the absence of climate change, as it would lead to better management of natural resources and sustainable development.

Given the foregoing, Cook Islands has identified "Environmental monitoring to enhance community livelihoods and build resilience to climate change in the low lying atolls of the Cook Islands" as its focus for a national climate change adaptation project to be implemented under the GCCA: PSIS project.

This project design document (PDD) outlines the overall objective, project purpose, key result areas and activities that comprise the project. The project design follows the logical framework approach. This section of the PDD outlines the background to the project, its rationale and related projects. Section two describes how the project was identified. The third section describes the project's overall objectives, project purpose, key result areas and activities using a logical framework approach while the fourth and last section of the document provides a schedule and budget for the project activities.

Background

Cook Islands is made up of 15 islands, with the high volcanic island of Rarotonga the main centre of government and commerce. As an island nation, Cook Islands is geographically diverse covering almost 2 million km² of exclusive economic zone. Culturally the country is divided into two groups: the southern group, comprising the islands of Aitutaki, Atiu, Mangaia, Mauke, Mitiaro, Rarotonga, Manuae (an uninhabited atoll) and Takutea (uninhabited sand cay); and the northern group, comprising the atoll islands of Manihiki, Palmerston, Penrhyn, Pukapuka, Suvarrow and Nassau, which are relatively less developed and isolated.

The Cook Islands has become one of the better performing economies in the Pacific region with its per capita Gross Domestic Product (GDP) as the highest in the region. The current focus of economic development is centred on tourism, the black pearl industry and improvements to infrastructure.

The population of Cook Islands has fluctuated since 1971 and the preliminary results from the *Cook Islands Census of Population and Dwellings 2011* indicate a total of 17,791 people, of which 243 people were from Manihiki Island. The population of Manihiki Island had declined from a high of 668 in 1996 to 243 in 2011. The decline in population may have been influenced by Cyclone Martin which devastated the island in 1997.

Climate and Climate Change Projections for the Cook Islands

Cook Islands has a tropical, maritime climate with a pronounced hot wet season during the months of November to April and a cool dry season from May to October. The climate is generally influenced by large inter-annual variation and the El Niño-Southern Oscillation phenomenon. During El Niño years, the southern Cook Islands experience a reduction of annual rainfall (up to 60%) while in the northern Cook Islands rainfall increases in excess of 2300 mm annually; there is a reversal of this trend during the La Niña phase.

Future projections of climate change for the Cook Islands generally show the following changes over the next 20 to 30 years: (i) average air temperature will increase by 0.5°C to 1.8°C; (ii) increase in the number of very hot days; (iii) decrease in the number of cool nights; (iv) increase in annual rainfall with increases in wet and dry season rainfall; (v) increase in sea surface temperature; (vi) increases in ocean acidification; and (vii) sea level will continue to rise. Projections about the future behaviour of El Niño-Southern Oscillation are uncertain at the moment.

Rationale

The fragile and exposed low lying atolls of the northern Cook Islands (Manihiki, Rakahanga, Penrhyn, Pukapuka and Palmerston) are vulnerable to extreme weather events. Manihiki atoll had been considered to lie outside of the main cyclone belt. However, it was devastated by Cyclone Martin in 1997. A number of waves swept across the whole island and 19 people lost their lives.

These atolls have few economic opportunities to develop infrastructure and address social and welfare needs. Environmental and economic factors have contributed to the most significant challenge facing the Cook Islands society – its high rates of depopulation, up to 60% in many of the northern Cook Islands atolls.

Planning for adaptation to the impacts of climate change requires an ability to monitor changes at local levels within the atoll communities. This allows for planning adaptive management for activities such as pearl farming and inshore fisheries. All of the northern atolls are highly dependent on fishing for coastal pelagic and reef fish for livelihoods and food security.

Manihiki is the centre of pearl production in the Cook Islands. It is the main economic activity on the island and the most significant activity amongst the northern atolls. Penrhyn is another atoll which has significant but unrealised potential for pearl culture. The pearl industry is dependent on the existence of a healthy lagoon environment. In recent years the Manihiki pearl industry has suffered major setbacks: in 1997 due to cyclone damage, in 2000 due to a pearl oyster disease related to El Niño type weather patterns, and in 2011 a mass mortality of all shellfish related to a hypoxia (low oxygen levels in aquatic ecosystems) influenced by an intense La Niña event. All of these factors have combined to reduce export production of pearls from its peak of NZ\$20 million to approximately NZ\$400,000 today.

Urgent action is required to rebuild pearl production and enhance livelihoods for people living in these remote communities especially in the face of climate variability and climate change.

Related Projects

A number of climate change related projects are currently being implemented in the Cook Islands. The following list provides brief information about four specific projects where opportunities for collaboration and building synergy exist.

Strengthening the Resilience of Our Islands and Our Communities to Climate Change (SRIC-CC) 2011-2015

SRIC-CC is five year (2011-2015) climate change programme focused on the Pa Enua. The objective of the programme is to strengthen the ability of all Cook Island communities, and the public service, to make informed decisions and manage anticipated climate change driven pressures (including extreme events) in a pro-active, integrated and strategic manner. There are five key components which are being implemented by the Pa Enua:

- 1) Strengthening and implementing national climate change adaptation and disaster risk reduction policies.
- 2) Strengthening capacities for climate change adaptation and disaster risk reduction in the Pa Enea.
- 3) Implementing climate change adaptation and disaster risk reduction policies and plans in the Pa Enea.
- 4) Monitoring and evaluation of programme including climate change adaptation and disaster risk reduction knowledge management.
- 5) Programme management.

The programme is coordinated by the Climate Change Cook Islands, Office of the Prime Minister and is delivered through established service delivery mechanism of the government of the Cook Islands.

Pacific Adaptation Strategy Assistance Programme (PASAP)

The Pacific Adaptation Strategy Assistance Programme, under the Australian Government's International Climate Change Adaptation Initiative (ICCAI) is funding three collaborative projects with the Cook Islands Government:

- 1) Cook Islands Government Climate Change Institutional Restructure – the first phase of this project focused on the Public Service Climate Change Functional Review (Review). The review recommended the establishment of a climate change coordination division within the Office of the Prime Minister (OPM). The Climate Change Cook Islands office was established as a result and now employs two staff.
- 2) Avarua coastal vulnerability assessment – goal of this project is to understand the coastal vulnerability of Rarotonga's infrastructure and community to climate change-related sea level, wave and inundation impacts, and to identify needs and options for adaptive response to those changes. The project is being managed by OPM and is being carried out with support from the University of New South Wales Water Research Laboratory, Australia.
- 3) Community vulnerability and planning mapping exercise – this activity is being carried out in five islands; Atiu, Manihiki, Palmerston, Penrhyn and Rakahanga. The project involves conducting mini-workshops with island and community leaders to look at climate change/disaster risks and adaptation options, household surveys on climate change and disaster risks, and climate change awareness and information.

The projects will be completed by April 2013.

The University of the South Pacific- European Union Global Climate Change Alliance Project 2011-2015

The objective of this project is to develop and strengthen the Pacific countries' (including the Cook Islands) capacity to adapt to the impacts of climate change. This objective will be achieved through the training of local, national and regional experts on climate change and adaptation and the development and implementation of sustainable strategies for community adaptation to climate change, based on improved understanding of impacts of climate change and variability in the Pacific region. Key results of the project include:

- 1) Networking – network of local, national and regional specialists on climate change who will support communities, governments, NGOs and regional organisations.
- 2) Building capacity and training – non-formal and formal training through workshops and train-the-trainers programme as well as post graduate programmes on climate change adaptation and related issues.
- 3) Research projects – improving the knowledge of the climate change and variability, impacts and adaptations in the Pacific region.
- 4) Adaptation projects - formulation of appropriate adaptation strategies through community engagement in the Cook Islands.
- 5) Participatory Vulnerability and Adaptation (V&A) assessments – through community engagement process and using participatory processes.

In the Cook Islands a number of communities including (Penrhyn Island) have been identified and the V&A assessment in these communities are planned for 2013.

Impact of Acidification on Black Pearls 2013-2014

The Australian Commonwealth Scientific and Industrial Research Organisation is currently planning a research project with the Pacific Australia Climate Change Science and Adaptation Planning Project (PACCSAP) to deploy pH sensors on the water quality monitoring buoy being installed under this project in the second half of 2013. The moored and discrete data will be used to help establish controls on the local acidification.

Cook Islands Pearl Industry

The Cooks Islands government shares close working relationships with its constituents including organisations and groups from the private sector associated with the pearl industry. These are briefly discussed below.

The Cook Islands Pearl Authority (CIPA) - CIPA was established by Act of Parliament in 1993 “to promote, encourage and assist the development of a sustainable and commercially viable pearl industry in the Cook Islands.” Resurrected in 2006 by the Government as the vehicle to revive and rejuvenate the industry, its primary focus has been to arrest further decline in pearl production and the continued exit of farmers from the industry and to provide

a base upon which to rebuild the industry and to initiate measures aimed at rejuvenating and growing the industry.

The key initiatives identified are developing a new marketing strategy which culminated in the launch in 2009 of the “Avaiki” brand and exploring options to establish a farm materials revolving credit fund that farmers can access and borrow from to expand production or start up new farms.

The MMR Pearl Industry Division - The MMR Pearl Industry Division has twelve staff and an annual budget of between \$2-400,000 per year. Headquartered in Rarotonga, the division also has a marine station on Manihiki, a marine centre and hatchery on Penrhyn and a staff member on Rakahanga.

The primary purpose of the Pearl Division is to rejuvenate pearl production by:

- Assisting the Island Council with lagoon and farm management,
- Assisting the pearl farmers to improve and expand their levels of pearl production,
- Overseeing appropriate pearl research and development programs and provide business advisory service.

The Manihiki Pearl Farmers Association (MPFA) - MPFA was established in 2007 as an incorporated society. Its purpose is to represent the interests of private sector pearl farmers on Manihiki. It has 62 financial members. The Association is a voluntary organisation which has received limited support by government so far.

In 2009 the association received a small grant fund of \$25,000 dollars from the MMR project funds to bulk purchase materials and to establish a small production revolving fund. Since the initial order, the MPFA have turned over their stock (primarily buoys) more than twice and established a line of credit with their main New Zealand based supplier to expand their future order. For more information on MMR involvement with the pearl industry see Annex I to this document.

2. PROJECT SELECTION PROCESS

The project selection process involved a number of activities which are listed below in chronological order.

February – May 2012: Review of Background Information

A literature review was conducted of the projects, programmes and activities relating to climate change that were ongoing or recently implemented in the country. Information from the review was compiled into a climate change profile for the Cook Islands now available at <http://www.spc.int/en/our-work/climate-change/qcca.html>. The document provided a useful background for identification of a focus area for the adaptation project in the Cook Islands.

May 2012: Discussions at GCCA: PSIS Steering Committee Meeting

At the first GCCA: PSIS steering committee meeting, 28-29 May, 2012, specific consultations were conducted with country representatives to clarify adaptation needs and priorities. In the case of Cook Islands, adaptation in marine resources, human health, and agriculture and food security were discussed.

July 2012: Consultations with Climate Change Adaptation and Disaster Risk Management Platform

Further consultations were held with the Platform during a consultation mission to the Cook Islands in July 2012. The consultations involved a number of ministries and line agencies including the Climate Change Cook Islands, Office of the Prime Minister, Emergency Management Cook Islands, Ministry of Finance and Economic Management, Ministry of Marine Resources, National Environment Service, and the Cook Islands Meteorological Services.

Several project topics were discussed by the Platform on Climate Change Adaptation and Disaster Risk Management (Platform). At the July 2012 Platform meeting it was decided that the focus area for the GCCA: PSIS adaptation project in the Cook Islands would be on the marine resources sector. The selection of this sector is consistent with Strategic Area 4 of the Joint National Action Plan (JNAP) for Risk Reduction and Climate Change Adaptation - to strengthen economic development and livelihood systems in key sectors, increasing resilience to disasters and climate change.

August – October 2012: Project Concept Note Preparation and Approval

After the selection of the focus area for adaptation, a project concept note on “Environmental monitoring to enhance community livelihoods and build resilience to climate change in the low-lying atolls of the Cook Islands” was developed by the Ministry of Marine Resources and submitted to the GCCA: PSIS Project and the European Union for approval. The project concept outlined the key implementing agencies and partners, estimated cost, objectives, justification/rationale and how the project fits with certain key criteria which include feasibility, scientific validity, cost, urgency, equity, replication, measurability, scope and supporting documentation. The Concept Note was approved in November 2012.



Fig 1: Manihiki Atoll, Cook Islands. Source: <http://google.com/maps>

November 2012 – February 2013: Project Planning Process

During the second GCCA: PSIS mission to the Cook Islands (November 12-22, 2012) the development of the PDD started. The process involved meetings, consultations, participatory workshops, and collection of related documents.

A Climate Change and Disaster Risk Management Platform meeting was held on 13th November to share information about a number of climate change projects implemented in the Cook Islands. The projects included GCCA: PSIS, Strengthening Resilience to Climate Change in Our Communities- Cook Islands (SRICC-CC), University of the South Pacific – Global Climate Change Alliance (USP GCCA) Project and Pacific Adaptation Strategies Assistance Programme (PASAP). The meeting provided an opportunity for exchange and provision of relevant information for this PDD. Further consultations were held with the Office of the Prime Minister (OPM), Climate Change Cook Islands (CCCI) and Ministry of Marine Resources (MMR) to collect more background information for the PDD. A planning meeting was held with 17 stakeholders from Rarotonga and five from Manihiki (via Skype) on 15th November 2012 to advance planning of the adaptation project. The Project Concept Note

was used as a starting point for project planning using the Logical Framework Approach. Participants worked to develop the overall objective, project purpose, key result areas and specific activities. The workshop was extremely successful in providing an opportunity for different stakeholders to contribute to the planning process.

Further meetings were held with MMR, other agencies and the Manihiki stakeholders to advance the project log frame. A completed log frame is presented in Section 3 of this PDD. A number of issues were highlighted in the consultations including the need to conduct a feasibility study on other marine-related livelihood activities in the northern low-lying atolls of the Cook Islands and accessibility constraints relating to the few transportation opportunities to the northern islands.

3. PROJECT DESCRIPTION

Overall Objective

The overall objective of the project is **“To build resilience to climate change in the Cook Islands”**. The overall objective is in line with the high-level aspiration of the Cook Islands as outlined in the “Government of Cook Islands. 2007. National Sustainable Development Plan (NSDP) 2007-2010: Living in the Cook Islands Vision - A 2020 Challenge”. The current period of the NSDP has three major outcomes which are consistent with the overall objective of the project: (i) sustainable economic growth in harmony with our social values, culture and environment; (ii) well-educated, healthy and productive people and resilient communities; and (iii) enhanced cultural and environmental values.

The overall objective is also in line with the government’s other plans, policies and strategies including the Joint National Action Plan for Climate Change Adaptation and Disaster Risk Management (JNAP), Community Sustainable Development Plans for all islands, national sustainable development plans and the MMR annual report and business plans. Business plans are prepared by each ministry and line agency of government at the beginning of the fiscal year to facilitate the government’s budget process.

Project Purpose

The project purpose is **“To strengthen environmental monitoring and its relevance to the communities of the northern atolls”**. The project will enable communities and islands of the northern group to engage in monitoring their marine environment to better understand and respond to adverse impacts of climate change. Community/island level involvement in the project will facilitate further awareness of impacts of climate change at all levels including schools, communities and island councils.

Key Result Areas and Activities

The key result areas (KRA) identified for this project are as follows:

1) **KRA1: Awareness and understanding of the results from environmental monitoring of the lagoon system advanced.**

This component includes the following activities.

- 1.1. Communication plan – a communication plan for marine resources management in the context of climate change in the northern atolls will be developed and used during the implementation of the project and will involve community/island level participation. The plan will include activities to enhance the understanding of monitoring results.
- 1.2. Preparation of communication tools - it is expected that at least one new effective communication tool will be prepared collaboratively and used widely in the communities during the duration of the project. Regular updates of information and data relating to environment and water quality monitoring will be available via the web. Additionally, a number of community noticeboards will be established in Manihiki and other atolls where regular updates, information on water quality monitoring and resilience building activities will be posted. It is envisaged that these communication tools will complement the Quarterly Pearl Industry Report (Poe Viravira).
- 1.3. Preparation of an information package for end-users – the information packages will include information, data and results of water quality monitoring; updates on monitoring equipment operation and maintenance. These will be prepared and disseminated widely to all northern atolls and also to the wider Cook Islands community. Water quality monitoring information could also be distributed outside of the Cook Islands.
- 1.4. Training of pearl farmers in water quality monitoring – this activity will include hands-on-training of pearl farmers in water quality monitoring using simple water quality testing kits. The testing kits will be purchased and distributed to pearl farmers and schools and training provided using a learning-by-doing approach. This will enhance understanding of the water quality monitoring and build ownership of the more sophisticated monitoring programme described in KRA 2.

2) **KRA2: Existing environmental monitoring system strengthened especially in Manihiki.**

The project will strengthen existing environmental monitoring systems and provide new systems if necessary in Manihiki atoll where the main pearl farming industry exists in Cook Islands. The key activities are:

- 2.1. Provision of two qualified staff, employed by MMR: Two staff for the project will be employed by MMR; one to be situated in Rarotonga and the other in Manihiki, to drive the project. The two staff will carry out day-to-day operations relating to the project implementation.

2.2. Improve monitoring of environmental conditions: The project will install improved and recalibrated monitoring equipment (water quality monitoring buoy) and operate the equipment over the life of the project. A maintenance plan will be prepared and implemented. A financing plan for continuation of the monitoring beyond project life will also be prepared. Several training sessions will be held with MMR staff on environmental/water quality monitoring, analysis and application of data.

2.3. Train MMR personnel to conduct environmental monitoring, analysis and application of data: This will involve training of MMR staff in analysing the large amounts of data generated by the water quality monitoring buoy so that trends, risk thresholds and other important parameters can be detected and possibly addressed in the short term.

2.4 Laboratory upgrade: This will strengthen, complement and encourage collation and analysis of information and data, received from the monitoring buoy and strengthen the program. The purchase of a nutrient analyser will enable the nutrient analysis to be processed in house and reduce costs that government cannot maintain in the long term. The upgrade will include public health issues such as the bacteria and ciguatera which are sometimes triggered by climatic influences.

3) KRA3: Feasibility study of appropriate marine-resource related livelihood activities conducted in Penrhyn, Rakahanga, Pukapuka and Palmerston in light of changing climate.

A feasibility study on marine resources related livelihood activities in the other northern atolls will be conducted including an assessment of the economic and environmental viability of pearl farming. The existing pearl economic model will be updated. The key activities are:

3.1 Update existing Pearl Economic Model: The existing model (2004) assumes that more sustainable oyster stocking densities and farming practices will improve oyster health and increase the yield and quality of pearls harvested. This model will be revised and updated taking into account current conditions for pearl farming.

3.2 Feasibility study into the viability of pearl farming and other marine resource related livelihood activities in the northern atolls: The study will analyse the economic and environmental viability of pearl farming and other marine-resource related activities using existing resource assessments and management plans as well as new research and analysis. The study will be conducted by a consultancy covering four atolls (Penrhyn, Rakahanga, Pukapuka and Palmerston).

3.3 Consultations with stakeholders on four atolls: The consultancy identified in 3.2 will also include consultations with stakeholders (including island communities, island councils, community-based organisations and civil society) to discuss the future viability of pearl farming in the light of climate change in Penrhyn, Rakahanga, Pukapuka and Palmerston. The results of the consultations will be included in the feasibility study report.

4) **KRA4: Community engaged in implementing the pearl farming management plan.**

Under this KRA one activity will be carried out:

4.1. A short term consultancy will be undertaken to help design a compliance structure to the pearl management plan: The activity will involve (i) a review and discussion of existing management plan with the pearl farmers especially in Manihiki; (ii) assessment of the extent to which the management plan has been implemented; (iii) identification and analysis of constraints; (iv) recommend revisions to the existing management plan; (v) discuss the revisions with pearl farmers and the MMR; and (vi) design a compliance structure.

The project log frame is presented below.

Project Logical Framework

Environmental monitoring to enhance community livelihoods and build resilience to climate change in the low-lying atolls of the Cook Islands

Description	Verifiable Indicators	Verification Sources	Assumptions
<p>Overall Objective</p> <p>To build resilience to climate change in the Cook Islands</p>	<ul style="list-style-type: none"> Climate change issues are included in at least four island community development plans by December 2014 	<p>Government plans, policies and strategies, Joint National Action Plan on CCA and DRM, Community Sustainable Development Plans, MMR Annual Report and business plan</p>	<p>Plans, Policies and strategies have a stakeholder or community buy-in and willingness to implement.</p>
<p>Purpose</p> <p>To strengthen environmental monitoring and its relevance to the communities of the northern atolls</p>	<ul style="list-style-type: none"> At least one northern atoll community is engaged in environmental monitoring by December 2014. At least two communities in the northern atolls are publicly displaying the results of the environmental monitoring by December 2014. At least one school in the northern atolls is regularly monitoring water quality by December 2014. 	<p>Poe Viravira Quarterly Pearl Industry Report</p> <p>Trip reports</p> <p>MMR Annual report</p> <p>Progress Reports</p>	<p>Interest and buy in from stakeholders</p> <p>Tools and resources are available, cost effective and simple enough for communities to understand, adopt and implement</p>
<p>Key Result Area 1</p> <p>Awareness and understanding of the results from environmental monitoring of the lagoon system advanced.</p>	<ul style="list-style-type: none"> One new effective communication tool prepared collaboratively and used widely in the communities by December 	<p>Poe Viravira Quarterly Pearl Industry Report</p>	<p>Communication tools appeals to community and is easily accessible and simple for communities and stakeholders.</p>

Description	Verifiable Indicators	Verification Sources	Assumptions
	2014. <ul style="list-style-type: none"> At least 10 pearl farmers are trained in water quality monitoring and climate change resilience building activities by December 2014. 		
Key Results Area 2 Existing environmental monitoring system strengthened especially in Manihiki	<ul style="list-style-type: none"> One fully operational environmental monitoring system in place in Manihiki by December 2013. MMR laboratory upgraded so that all nutrient analysis will be analysed in-house by June 2014 At least six people in Manihiki are trained in maintenance and operation of monitoring equipment by July 2014. At least two MMR personnel trained in water quality monitoring and data analysis by December 2014. At least one contribution to SPC Pearl Bulletin about project activities by December 2014. 	Poe Viravira; Quarterly Pearl Industry Report Annual water Quality Report Monthly Water Quality Lagoon Health Report Annual Report Progress Report User Manual Training Report MMR Business Plan MMR website Pearl Services Portal Scientific publications SPC Pearl Bulletin MMR Information Management System Equipment Purchased Data & Methodology implemented	Island council, farmers, and pearl farmers association support environmental monitoring programme. Basic infrastructure (power, transport, communications) remain in place Appropriate and timely recruitment of key staff. Monitoring system in place with minimum logistical and setup problems.

Description	Verifiable Indicators	Verification Sources	Assumptions
<p>Key Result Area 3</p> <p>Feasibility study of appropriate marine-resource related livelihood activities conducted in Penrhyn, Rakahanga, Pukapuka and Palmerston in light of changing climate</p>	<ul style="list-style-type: none"> Feasibility study completed on marine resources management in the four northern atolls by December 2014. Existing Pearl Economic Model revised based on current conditions by December 2014. 	<p>Resource/or management plans</p> <p>Island Council Meeting Minutes</p> <p>Progress Reports</p> <p>National gazette</p> <p>Feasibility Reports</p> <p>Trip reports</p> <p>Terminal report</p> <p>Updated Pearl Economic Model</p> <p>Training report</p> <p>Technician Training report</p> <p>Baseline Technician Survey report</p> <p>Pearl Seeding Technician Registry</p>	<p>Island Councils of Penrhyn, Rakahanga, Pukapuka and Palmerston are willing to participate in the feasibility study.</p> <p>Logistics, transportation availability.</p>
<p>Key Result Area 4</p> <p>Community engaged in implementing the pearl farming management plan</p>	<ul style="list-style-type: none"> Revised compliance structure completed for the pearl management plan by December 2014. At least 20 pearl farmers provide input to the review of the pearl management plan. 	<p>Six-monthly inspection report</p> <p>Seeding harvest reports</p> <p>Census and benchmarking reports</p> <p>Manihiki Island Council report</p> <p>Minutes of the Island Council Meeting</p> <p>Progress Reports</p> <p>Six-monthly National Economic Report</p>	<p>Manihiki Island Community supports revising the plan</p> <p>Market demand for high quality pearls does not drop below current levels.</p> <p>Appropriate authority is willing and able to ensure compliance</p>
<p>Activities</p> <p>1.1. Development of a communication plan</p>	<p><u>Means</u></p> <p>Technical assistance</p>	<p>Indicative costs: €0.5 million</p>	<p>Communication strategy appropriate and is accepted easily understood by various stakeholders.</p>

Description	Verifiable Indicators	Verification Sources	Assumptions
<p>1.2. Preparation of communication tools</p> <p>1.3. Preparation of an information package for end-users</p> <p>1.4. Training of pearl farmers in water quality monitoring</p> <p>2.1. Provision of two qualified staff employed by MMR (one in Rarotonga and one in Manihiki)</p> <p>2.2. Improve monitoring of environmental conditions including a maintenance plan and financing plan beyond project life.</p> <p>2.3. Train MMR personnel to conduct environmental monitoring, analysis and application of data.</p> <p>2.4. Laboratory upgrade</p> <p>3.1. Update the existing Pearl Economic Model.</p> <p>3.2 Feasibility study into the viability of pearl farming and other marine resource related livelihood activities in the northern atolls</p> <p>3.3 Consultations with stakeholders on the four atolls (linked to 3.2)</p> <p>4.1 Short term consultancy to design a compliance structure for the pearl management plan.</p>	<p>Missions to countries</p> <p>Purchase of equipment</p> <p>Training activities</p> <p>Meetings and conferences</p> <p>Media involvement</p> <p>Reporting and evaluation</p>		<p>New staff are employed in time.</p> <p>Collaboration with stakeholders all good.</p> <p>Political interference minimal from Government and within communities</p>

4. PROJECT BUDGET AND PAYMENT SCHEDULE

Budget

Activity	Total (NZ\$)
KRA1. Awareness and understanding of the results from environmental monitoring of the lagoon system advanced	84,000
KRA2: Existing environmental monitoring systems strengthened especially in Manihiki	405,687
KRA3. Feasibility study of appropriate marine resource related livelihood activities conducted in Penrhyn, Rakahanga, Pukapuka and Palmerston in light of climate change	85,000
KRA4. Community engaged in implementing the pearl farming management plan	30,000
Additional travel to Manihiki for MMR staff, unanticipated freight costs, possible charter costs*	
Total	
Contingency including coverage for exchange rate fluctuations	52,091
Overall Cost	765,400

First Payment:

The first tranche paid to MFEM, Cook Islands will be NZ\$285,500. An additional amount of NZ\$ 130,181 will be available for SPC-AGTD to refurbish and install the monitoring buoy during 2013.

The first payment will be made to Cook Islands once this Project Design Document is signed by all parties. Payments shall be made into the Government's account. All payments will be made in the currency of the Government of Cook Islands. The second payment can be requested once 80% of the first payment has been fully acquitted. Acquittals must be supported by all original receipts. Annual government audits will be sufficient unless any accounting or financial problems emerge. Any interest accruing from the advances paid by SPC shall be considered as income for the purpose of operating this project. It may be used to cover eligible costs of the operation.

The Government shall oversee accurate and regular records and accounts of the implementation of the operation.

- Financial transactions and financial statements shall be subject to the internal and external-auditing procedures laid down in the financial regulations, rules and directives of SPC.
- All original substantiating documents relating to each financial transaction shall form part of the monthly acquittal.
- Reimbursements of funds shall only be made on receipt of the proper acquittal of the funds already advanced.
- Fixed Assets (equipment): All fixed assets (equipment) will remain the property of SPC until the closure of the project. On closure of the project the assets will be officially handed over by SPC to the respective stakeholders in the country. An asset register of all assets purchased should be kept in the office of the Government.



5. PROJECT SCHEDULE

Key Result Areas/Activities	2013				2014				2015	
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q
	Jan	April	July	Oct	Jan	April	July	Oct	Jan	April
<i>KRA1. Awareness and understanding of the results from environmental monitoring of the lagoon system advanced</i>										
1.1 Develop a communication plan										
1.2 Preparation of communication tools										
1.3 Preparation of information package for end-users										
1.4 Train pearl farmers on water quality monitoring										
<i>KRA2. Strengthening existing environmental monitoring system especially in Manihiki</i>										
2.1 Two qualified staff in place in MMR (on in Manihiki and the other one in Rarotonga)										
2.2 Install monitoring equipment, re calibrate after 12 months, prepare a maintenance plan and financing plan beyond project life										
2.3 Train MMR personnel to conduct environmental monitoring, analysis and application of data.										
2.4 Purchase equipment and reagents to update laboratory										
<i>3. Feasibility study of appropriate marine-resources related livelihood activities in Penrhyn, Rakahanga, Pukapuka, Palmerston in light of climate change</i>										
3.1 Update existing pearl economic model										
3.2 Feasibility study into viability of pearl farming in										

Key Result Areas/Activities	2013				2014				2015	
	1Q Jan	2Q April	3Q July	4Q Oct	1Q Jan	2Q April	3Q July	4Q Oct	1Q Jan	2Q April
other northern atolls										
3.3. Consultations with stakeholders in 4 northern atolls										
4. Engage the community in implementing the pearl farming management plan										
4.1 Design a compliance structure for the pearl management plan										

6. INSTITUTIONAL ARRANGEMENTS

The project will be managed and implemented by MMR and coordinated at the national level by the Office of the Prime Minister through the Climate Change Cook Islands Office. The GCCA: PSIS project is being implemented under the ambit of the Letter of Agreement signed on 15th October 2012 by SPC and the Government of the Cook Islands. The Cook Islands signatories to the Letter of Agreement are the Ministries responsible for Foreign Affairs and Trade, and for Finance and Economic Management.

Project Oversight Committee

Project oversight will be provided by a Project Oversight Committee whose membership will comprise of representatives from the Office of the Prime Minister (CCCI), MMR, MFEM and the SPC GCCA: PSIS Climate Change Adviser, Dr. Graham Sem. The Project Oversight Committee will be responsible for providing technical and policy advice on the implementation of the project. The Oversight Committee will meet (face-to-face meetings and skype) once every quarter and/or on needs basis. The Oversight Committee will be chaired by the representative from MMR. The GCCA: PSIS National Coordinator, Dr. Teina Rongo, Climate Change Advisor, situated in the Office of Climate Change Cook Islands, Office of the Prime Minister, will provide secretarial support to the Oversight Committee.

Reporting

The GCCA: PSIS National Coordinator and the Rarotonga-based Project Officer at MMR will be responsible for overseeing the implementation of project activities and providing quarterly progress reports to the Oversight Committee. A template for the quarterly report is presented as Annex 2.

Day to Day Implementation of the project

One of MMR staff will be based in Manihiki and the other in Rarotonga to implement and manage the project activities. They will work closely with the GCCA: PSIS National Coordinator.

7. RISK MANAGEMENT AND EXIT STRATEGY

Risk Management

The project risks and ways to manage them are listed in the table below.

Risk and consequence	Likelihood	Seriousness (Impact)	Mitigation actions	Responsible Person
1. Natural Disasters				
Natural disasters such as tropical cyclones and tsunamis.	Medium	Medium	Sound early warning systems.	Cook Islands Government
			Investigate mechanism for shutting down the system before the onset of tropical cyclone/tsunami to save equipment and redeploy after the disaster had passed.	SPC-AGTD.
			Availability of qualified support from SPC-AGTDi.	
2. Remoteness				
Approximately 1,200km of ocean between Rarotonga and Manihiki. Equipment trouble shooting is a risk.	High	High	Provision of one MMR officer in Manihiki who is trained in maintaining the equipment	MMR Project staff
3. Funding for equipment maintenance				
Continuous operation and maintenance of the monitoring system and the need for financial resources	High	Medium	Develop Operations and Management Plan and financing through introduction of levies on pearl sales	MMR
			MMR to include water	MMR

			quality monitoring in its annual business plan	
4. Lack of stakeholder involvement				
Pearl farmers may not support the need for water quality monitoring	Medium	Medium	Involve pearl farmers and whole community in project activities, awareness creation and education	Project staff, MMR, related projects

Exit strategy

Understanding of the results of monitoring work will have increased among the pearl farmers, island councils, mayor, school teachers, children and the island community at large. This will facilitate ownership of the monitoring as an ongoing activity. However, continued support from the national government is essential.

Increased capacity in the maintenance and deployment of water quality monitoring equipment in MMR as well as data analysis skills will have increased thereby paving the way for continuation and sustainability of this type of monitoring in the Cook Islands. This will have been enhanced by collaboration with other similar monitoring projects, such as the one that may be supported by CSIRO.

It is envisaged that MMR will hold the information, data and lesson learned on behalf of the Government and people of the Cook Islands. This information should be integrated into the existing MMR information management system. MMR will be responsible for making these data and information available through its web site. As a depository of information, MMR will be responsible for documenting, archiving and storing relevant information, data and lessons learned. This information will be made available for teaching, learning, research and to the communities in the Cook Islands and elsewhere.

Annex 1

Cook Islands Government Support to the MMR and Pearl Industry

The Cook Island budgetary support to MMR is through its annual Business Plan. The support for the pearl industry is provided through Output 2 of the plan for the Pearl Division, shown below:

Cook Islands Government Contribution to the MMR Pearl Division: 2007-10

Description	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Pearl Division						
- Personnel	\$296,692	\$280,59	\$280,598	\$220,879	\$225,539	\$210,779
- Operations	\$88,500	8	\$134,500	\$86,500	\$60,800	\$60,800
- Crown payment		\$88,500	\$40,000	\$65,584		
Total Budget	\$385,192	\$369,098	\$455,098	\$372,963	\$281,339	\$286,579

N.B. Additional funding support not shown in the table above is also provided via other outputs such Corporate Services Division and Policy and Legal Services Division.

External assistance to the pearl Industry provided through MMR has been derived from a number of sources. There are current contributions from an AusAID funded incentives project which total \$93,000.

External Pearl Projects undertaken by MMR

Date	Programme contributions	Cost	Donor
Aug-98	Oyster health survey	\$30,000	ADB
Nov-00	Oyster mortality report	\$35,080	NZODA/MMR
Sep-01	Bathymetry survey	\$57,500	SOPAC
May-02	MapInfo workshop	\$8,630	SOPAC/SPC
Jul-02	Initial investments for seeding school (shell)	\$9,201	MMR
Jul-02	Seeding school 1	\$51,200	PDF/NZODA/MMR
Apr-03	Seeding school 2	\$51,200	PDF/NZODA/MMR
Nov-03	Monitoring buoy	\$110,000	NZODA/SOPAC/MMR
May-04	Seeding school 3	\$51,200	PDF/NZODA/MMR
Dec-03	Pathology & water quality skills transfer	\$85,300	NZODA/MMR
2004	Management plan & code of practice	\$6,500	MMR
Sep-03	YSI Probe	\$8,000	MMR
2005	Seeding school 4	\$50,000	PDF/NZODA/MMR
2006	Seeding school 5	\$55,760	PDF/NZODA/MMR
Jul-07	Monitoring Buoy Calibration, Installation	\$17,535	PDF

2007	Harvest school 1	\$25,450	PDF
May-08	Harvest school 2	\$22,185	PDF
Mar-09	Purchase Work Boat for Manihiki	\$47,265	PDF
May-09	2nd Phase Pearl Technician Training	\$65,120	PDF
Mar-08	Dive Instructor Training	\$28,500	PDF
Mar-09	Manihiki Pearl farm Asso Revolving Fund	\$25,000	PDF
Aug-09	C.Is 2nd Phase Pearl Seading & Pearl Quality Research	\$22,775	PDF
2011	Pearl Industry Monitoring Program	\$68,000	AusAID
	Total	\$956,701	

Key milestones achieved between 2006 and 2011 are set out below.

Activity/Initiative	Description	Funding
Lagoon/farm survey and industry benchmark	Annual joint surveys by CIPA, MMR and an economist funded under the CIMRIS project since 2006. Follow-up annual workshops held to present/discuss the results of the lagoon benchmark survey	CIMRIS/CIPA/MMR
Farm records and business advisory services	Workshop on farm records keeping and basic business training carried out.	CIMRIS /CIPA
MPFA established	Initiated and nurtured by CIPA in 2007 and culminating in the incorporation of the MPFA in September 2007.	CIPA/Manihiki farmers
National pearl grading system	Pearl Grading Task Group established (2006-08) to develop and recommend an uniform grading system. Pearl Grading Guide published in 2008; final Pearl Grading Manual published in 2010.	CIPA
Accreditation of pearl graders	Policy recommendation adopted in 2009 to accredit pearl graders under the new grading system. Training under the new system trialled in Manihiki in 2009. Formal grading tests and grader accreditation started in 2010.	CIPA
Manihiki Lagoon Management Plan adopted	CIPA and MMR exert pressure on the Manihiki Island Council in 2008-09 to adopt and bring into force the draft (2004) Manihiki Lagoon Management Plan and Code of Practice. The updated and amended Plan and Code were finally brought into force in March 2009.	CIPA/MMR/Manihiki Island Council
Industry strategic review	CIPA Board undertook a study tour in 2007 funded by CIMRIS to look at the strategy of successful NZ primary export industries (kiwifruit, wine, merino wool, and mussel).	CIMRIS

	Consultant engaged under CIMRIS funding in 2007 to prepare scoping report regarding future industry strategy.	CIMRIS/CIPA
Strategic marketing plan	Marketing consultants engaged in 2007 to develop strategic plan. Plan endorsed in 2008 after presentations to Cabinet, Manihiki farmers, and Pearl Industry Forum.	CIPA
'Avaiki' brand strategy	Avaiki brand developed and launched in July 2009. Brand promotional material and collaterals developed and distributed.	CIPA
'Avaiki' value chain	Accredited Avaiki retailers and wholesalers in the Cook Islands appointed (2009-10). International brand partners canvassed and one wholesaler appointed in 2010. First Avaiki wholesaler workshop convened in 2010 to develop a 3-year marketing plan for a "whole crop" strategy (brand and unbranded pearls).	CIPA CIPA/Wholesalers
Accredited 'Avaiki' farmers	Farms which met the Avaiki performance and quality benchmarks would qualify for Avaiki accreditation. Inspection and accreditation were carried out during 2009-10.	CIPA/MMR
Marketing revolving credit fund (MRCF)	A marketing revolving fund proposed by farmers in 2007 to make an advance payment against the harvest crop and the balance paid after the crop is sold by CIPA. Funding of \$485,000 acquired in two tranches in 2008 (\$200,000) and 2009 (\$285,000). Funds used to provide loan finance to local retailers and wholesalers to stimulate and increase local purchases. Farmers paid 70% of the purchase price with the balance payable after 90-120 days.	CIPA
Pearl exchange	Established in 2010 to extend the scope of the MRCF by providing a central brokerage facility where local and overseas buyers can view and buy pearls. \$300,000 of MRCF funds earmarked for the Pearl Exchange. The farmer receives an advance of 50% of the assessed value of the crop with the balance paid when the crop is sold.	CIPA
Production credit fund	Options were explored since 2009 to establish a production revolving or credit fund that farmers can access to increase production or start up new farms.	CIPA/MMR

Support to farmers from other government agencies in the form of technical assistance includes agencies such as Emergency Management Cook Islands and Cook Islands Red Cross. This has been by way of Disaster preparedness and Islands Disaster management plans for each islands.

Annex 2 Quarterly Reporting Template

Activities	Progress in Quarter X	Planned Activities in Quarter X+1
Key Result Area 1: Awareness and understanding of the results from environmental monitoring of the lagoon system advanced		
1.1 Develop a communication plan	<ul style="list-style-type: none"> • • • 	•
1.2 Preparation of communication tools	•	•
1.3 Preparation of information package for end users	•	•
1.4 Training for pearl farmers in water quality monitoring	•	
Key Result Area 2: Environmental monitoring systems strengthened especially in Manihiki		
2.1 Qualified staff in place in MMR	•	
2.2 Monitoring equipment in place, maintenance plan, financing beyond project life plan	•	
2.3. Train MMR staff in data analysis and application	•	
2.4 Upgrade nutrient laboratory	•	
Key Result Area 3: Feasibility study of appropriate marine-resource related livelihood activities conducted in Penrhyn, Rakahanga, Pukapuka and Palmerston in light of changing climate		
3.1 Update existing pearl economic model	•	
3.2 Feasibility study in marine resource livelihoods in northern atolls	•	
Key Result Area 4: Community engaged in implementing the pearl farming management plan.		
3.1 Compliance structure and pearl management plan	•	