

**GLOBAL CLIMATE CHANGE ALLIANCE:
PACIFIC SMALL ISLAND STATES PROJECT**

CONCEPT NOTE

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

Name of Country: Cook Islands

Name of Person/Agency: Dorothy Solomona, Acting Director, Pearl Support Division, Ministry of Marine Resources (MMR), Cook Islands

General Information:

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

Project site(s): Manihiki, Penrhyn, Rakahanga, Pukapuka, and Palmerston atolls, located in the northern Cook Islands

Project Partners: Island Council (Local Authorities), Islands Fishing Clubs, Manihiki Pearl Farmers Association, IRD – French Polynesia, Secretariat of the Pacific Community – Applied Geosciences and Technology Division

Total Project Cost: EUR500,000

Project Duration: 2 years

Short Description of the Project

The goal of this project is to improve the environment for pearl farming and 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.

To enhance the monitoring and management strategies of the northern atolls in the Cook Islands requires both broad-scale and fine-scale approaches. The strategy seeks to strengthen existing environmental monitoring including water quality; 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.

The project will specifically assist livelihood sustainability in the pearl industry by:

1. Acting as an early warning system of environmental conditions.
2. Providing information that will assist pearl farmers improve their farming practices and avoid disease outbreaks and stress to the oysters due to present and future environmental conditions.
3. Providing technical information that helps to estimate the carrying capacity of the lagoon (the number of pearl oysters the lagoon can handle without detrimental effects to the lagoon ecosystem).
4. Regulating the stocking of pearl oysters within the carrying capacity of the lagoon and allowing early detection of lagoon degradation.

5. Providing baseline data that can be used to assess the potential of other lagoons for pearl farming (e.g. in Rakahanga, Penrhyn, Pupuka and elsewhere).
6. Providing readily available information to advise Island Council and stakeholders of sound management decisions which will strengthen compliance with the Manihiki Pearl Farming Management Plan.
7. Contributing to international research and understanding of pearl farming, climate change and coral reef studies in lagoon environments.

Background and Justification

For the fragile and exposed low lying atolls of the Cook Islands (Manihiki, Rakahanga, Penrhyn, Pukapuka, Palmerston) climate change is an ever present reality. Manihiki atoll is a classic example of the vulnerability of these atolls to extreme weather events. The atoll had always 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 isolated atolls have few economic opportunities to develop infrastructure, social and welfare needs. Combined environmental and economic factors have contributed to the most significant challenge facing the Cook Islands society – its high rates of depopulation, up to sixty per cent 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 pearl farming and inshore fisheries.

Manihiki is the centre of pearl production in the Cook Islands which is the main economic opportunity on the island and the most significant activity amongst the northern atolls. The Manihiki pearl industry 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 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 just 2 per cent of the value today. The pearl industry is dependent on the existence of a healthy lagoon environment and other atolls e.g. Penrhyn have significant but as yet unrealised potential for pearl culture.

The communities on these atolls are small, and livelihood activities are a family affair, with men, women and children all participating in different aspects of the activity, be it pearl farming, fishing, or small scale agriculture. Thus the entire populations will directly benefit from an ecosystem which is more resilient to the impacts of climate change.

Urgent action is required to build resilience to climate change, and this project opportunity is very timely. The project will result in the remote communities on these atolls being in a much better position to survive in this vulnerable environment and in the face of changes to their climate.

This project is in line with the Cook Islands National Sustainable Development Plan (NSDP) 2011-2015 and the Budget Policy Statement for FY2012-2013.

Project Cost and Budget

Details on the expenditure of approximately EUR500,000 will be detailed when the project design document is prepared.

General Criteria for Identification of Projects

Criteria	How does the proposed project adhere to the criterion?
1. <i>Feasibility</i> : Is the proposed project feasible taking into account: Time frame of GCCA: PSIS project, Available budget, National human resources, Previous track record with project implementation.	The project can be undertaken within the GCCA: PSIS project time frame and budget of EUR 500,000. Cook Islands has a good track record with its planning and project prioritisation under the Joint National Action Plan for Disaster Risk Management and Climate Change Adaptation (JNAP).
2. <i>Cost</i> : Does the project require minimal resources	The project will require significant capital costs, but ongoing costs will be reasonable.
3. <i>Consistency</i> : Does the project support the country's climate change adaptation policy and planning	The project is consistent with the Cook Islands JNAP, and considered as high priority. It contributes to the JNAP Management Goal 3: Analysis and assessment of vulnerability to climate change impacts and disaster risks; and 4: Enhanced community preparedness and resilience to impacts of all disasters.
4. <i>Urgency</i> : Is the project urgent or could it be delayed 10 years with minimal impact	The project is urgent. Any delay could prevent early detection of impending water quality issues, with resultant down turn in the economic viability of life in Manihiki.
5. <i>Scientifically valid</i> : Is the project based on scientifically valid climate change projections	Climate variability due to the El Niño Southern Oscillation impacts lagoon conditions. Climate models do not yet provide consistent projections of changes in the frequency, intensity and patterns of future El Niño and La Niña events. However, during El Niño years in the northern Cook Islands rainfall increases in excess of 2,300mm (i.e. over 200%) annually. Sea surface temperature is expected to increase as will ocean acidification and sea level.
6. <i>Equity</i> : Does the project involve all sectors of society (especially community participation and gender considerations)	This project is centred on the full participation of pearl farmers, communities, governmental and non-government organisations and provides opportunities for entry of gender considerations in the design and implementation of the project.
7. <i>Replication</i> : Can the project be replicated in the country or elsewhere	The project could be replicated in other northern atolls including Rakahanga, Penrhyn, and Pukapuka. A similar project is underway in Fiji
8. <i>Measurability</i> : Can the benefits of the project be measured and quantified	An M&E framework designed for this project will be used to measure the benefits. However, it is recognised that monitoring will have to extend beyond the project lifecycle to fully evaluate impacts.
9. <i>Scope of project</i> : Does the project activity focus on one	The project has long term implications especially with developing policy guidelines and has strong links to

sector and include a blend of visible (on-the-ground) activities and intangible support activities (e.g. policy development, capacity building)	economic sustainability, food security, health and livelihoods. Project activities are in line with Goals 3 and 4 of the JNAP.
<i>10. Supporting documents:</i>	Cook Islands Pearl Industry Support Programme 2011-2013, Manihiki Pearl Management Plan, MMR Business Plans, NDSP, JNAP.
Date of assessment	19 th October 2012

¹ Australian Bureau of Meteorology and CSIRO, 2011; Climate change in the Pacific: Scientific Assessment and New Research Volume 1: Regional Overview. Volume 2: Country Reports.