



COOK ISLANDS INTERNATIONAL WATERS RIDGE TO REEF PROJECT RESULTS AND LESSONS LEARNED



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Introduction

The Global Environment Facility (GEF) Pacific Ridge to Reef (R2R) Programme is a global test case aimed at achieving the sustainable development of Pacific Small Island Developing States (Pacific SIDS) within a truly integrated environmental and natural resource management framework.

The goal of the GEF Pacific R2R programme is “to maintain and enhance Pacific Island countries’ ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience.”

The programme supports and addresses national priorities and development needs of 14 Pacific Island countries while delivering global environmental benefits by focusing on a more crosscutting and integrated approach to water, land and coastal management. It is a GEF multi-focal area, multi-GEF agency and multi-country initiative that guides the coordinated investment of GEF grant funding across its focal areas of biodiversity conservation, land degradation, climate change adaptation and mitigation, sustainable land, sustainable forest management, and international waters in Pacific SIDS. Countries are allocated funding for this programme under GEF’s System for Transparent Allocation of Resources (STAR).

The Pacific Regional International Waters Ridge to Reef (IW R2R) project – Testing the Integration of Water, Land, Forest & Coastal Management to Preserve Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods in the Pacific (IW R2R) is a component of the GEF Pacific R2R programme and is regionally executed by the Pacific Community (SPC) in 14 Pacific Island countries.

The over-arching objective of the IW R2R project is to test the mainstreaming of ridge to reef, climate resilient approaches to integrated land, water, forest, and coastal management in the PICs through strategic planning, capacity building and piloted local actions to sustain livelihoods and preserve ecosystem services.

The Regional Programme Coordination Unit (RPCU), implemented by the Pacific Community's Geoscience, Energy and Maritime Division in the Fiji Islands, is tasked with the provision of technical, operational, reporting and monitoring support as requested by the participating Pacific Island Countries.

The Cooks Islands IW R2R demonstration project commenced in 2017. It was designed to strengthen ridge to reef integration by establishing synergies among the work of the various sector agencies between government and communities, and civil society and the private sector.

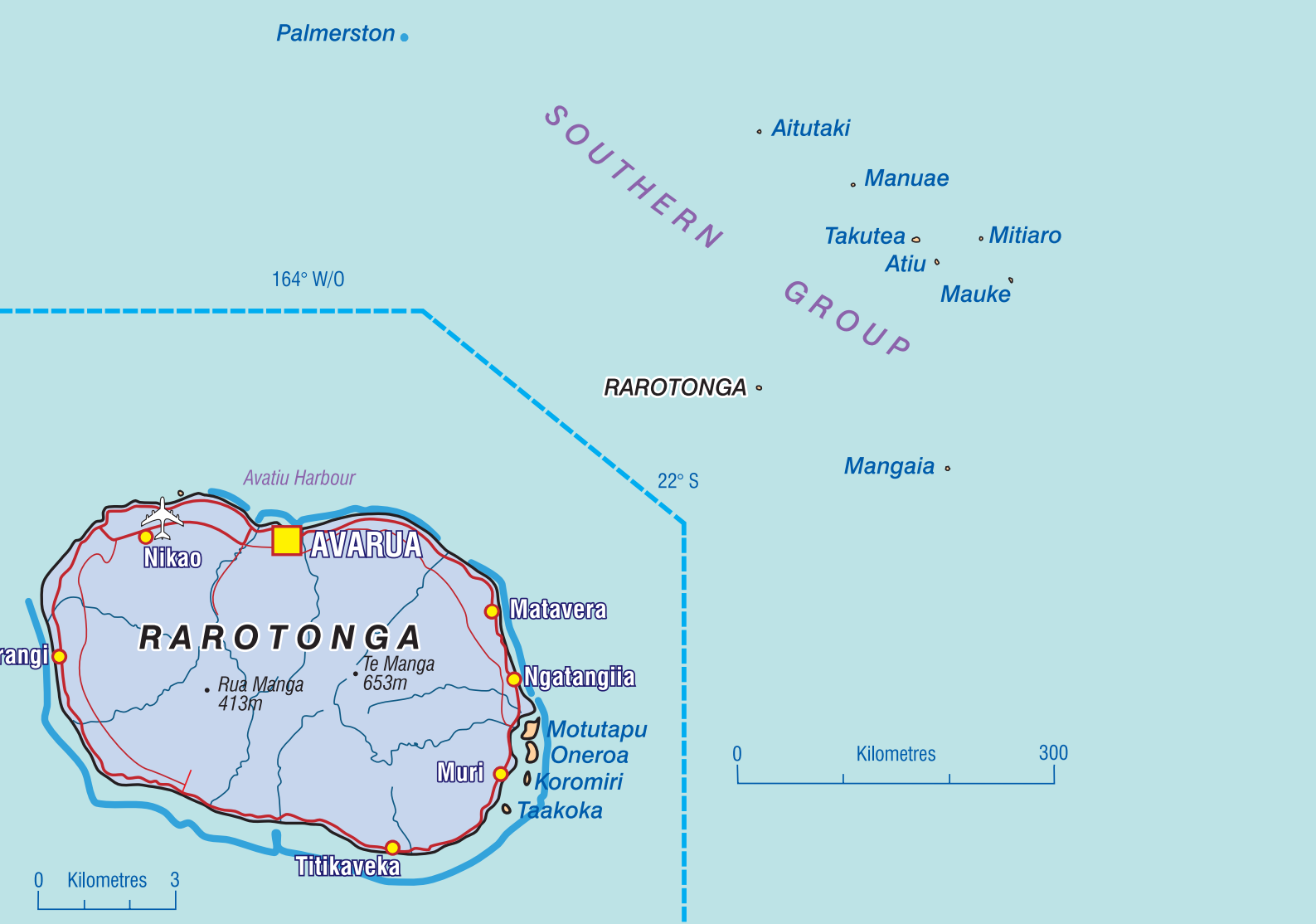
The project objectives focused on addressing degradation of the Muri Lagoon in Rarotonga by building local capacity and enabling best practice in waste management through community mobilisation; management of piggery waste; establishing public-private partnerships for tourism sector investment in Integrated Coastal Management in Muri; and increasing the knowledge-base and capacity for effective environmental stress reduction measures and integrated catchment management in Muri.

Following project inception to better align with agency priorities and mandates, and to complement national activities that had commenced (during the 3-year proposal pipeline phase), the project scope was revised to focus on addressing management of stormwater runoff into the lagoon. This included the design of stormwater infrastructure, development of erosion and sediment control guidelines and a GeoMap.

Infrastructure Cook Islands (ICI) was designated the lead agency for the IW R2R project.

The project concluded in September 2020.

This publication showcases some of the most significant changes through project highlights and lessons over the four-year term of project implementation. It also discusses the adaptive management processes that were necessitated during the project and highlights the practicalities of implementing projects with limited human resources in country. The lessons learned will potentially guide the planning, development, and implementation of future programmatic approaches to ridge to reef management.



The Cook Islands – Ridge To Reef In Context

The Cook Islands are a Polynesian island group comprising of 15 widely dispersed islands, surrounded by an exclusive economic zone of 1.8 million square kilometres. The total land area of the islands is 240 square kilometres. The 2016 Cook Islands Census counted the population of the Cook Islands as 17,434 people, with 13,007 people living on the main island of Rarotonga (Govt of Cook Islands, 2016).

Nearly all development is on the coast where free draining coral sands overlay a shallow groundwater table that drains into an encircling coral lagoon. The widest part of the area is the Muri Lagoon, which is situated on the eastern side of Rarotonga (see Figure 1).

Muri Lagoon represents the focal point for tourism in Rarotonga, which has meant that maintaining its natural health and visual quality is considered critical. The Cook Islands Sustainable Tourism Development Policy Framework (2016) cites tourism as the key driver for economic development in the Cook Islands, contributing over 60% of its GDP (McCue et al. 2018).

The health of the lagoon started showing signs of deterioration over the last 20 years, including several outbreaks of an irritant seaweed observed since 2014. Possible causes include increasing levels of land-based pollution from human and animal waste, agricultural fertilisers, sediment and siltation run-offs into the lagoon. It is uncertain which ones (or a combination) contribute the most to poor health of the lagoon biodiversity. Intense and anomalous levels of rainfall in April 2018 resulted in large scale erosion of land areas, raising concerns over further contamination of the lagoon, and prompting urgent need for finding long term solutions for drainage and prevention of runoff and sedimentation into the lagoon.

The continued deterioration of the lagoon would result in reduced resilience of the environment to withstand natural disasters and anthropogenic influences, reduced availability of resources that support the traditional subsistence lifestyle of Cook Islanders, increased frequency of waterborne illnesses and diminished appeal of the islands for tourism.

A scientific assessment of the lagoon and surrounds determined that the main contributors to the deterioration of the lagoon water quality were poor sewage management, pollution from upstream piggeries, and sedimentation from erosion and runoff. The excessive nutrients in the lagoon trigger algae bloom, and in the absence of water mixing and circulation in the semi-enclosed lagoon eventually increase chance of oxygen deprivation which in turn cause mass mortality of marine organisms and lifeforms. The assessment also found that the large volume of sediment export mainly during wet seasons discharging from the rivers into Muri Lagoon increase turbidity due the suspension of silts into the water column and smothering live coral colonies.

While it was hoped that a simple low-cost technological solution would easily resolve the situation, it became increasingly clear that a multi-level integrated approach was required, involving institutional strengthening, training, inter-agency cooperation and effort, and community awareness programmes as well as improved wastewater technologies and systems¹.

The GEF Pacific Integrated Water Resource Management (IWRM) Project (2008 – 2014) had started to address some of these issues through cross-sectoral planning and management initiatives. The IWRM was followed by the Waste Management and Sanitation Improvement Programme (WMI) and then the Sanitation Upgrade Programme (SUP), both focusing on onsite upgrades and sector improvements. The SUP evolved into a reticulation project, Mei Te Vai, Ki Te Vai (MTVKTV), in the project site following an extensive algae outbreak in Muri lagoon in 2015 to early 2017. The algae have returned to the lagoon since.

The Cook Islands IW R2R demonstration project was originally intended to support the MTVKTV wastewater reticulation project through a series of capacity building, community engagement and mobilisation, private sector partnerships and scientific assessments. However, the opportunity to address another cause of lagoon degradation while responding to climate change effects was decided on as a better way to utilise the opportunities and resources available through the IW R2R project.

The environmental investigation carried out under the MTVKTV project confirmed that sedimentation was second to wastewater in contributing to lagoon degradation in Muri. ICI thus undertook an adaptive management approach to revise the IW R2R Results Framework and redesign some of the project activities to focus on improving drainage/stormwater management. Funds could only cover the design work, so the implementation phase relied on funding from the national budget.

1 Later in the project, the development of the Island Diagnostic Analysis (IDA) for Cook Islands provided this multi-level integrated approach. However, the work carried by the ICI was done well before the IDA was completed. The IDA is available at https://www.pacific-r2r.org/sites/default/files/2021-08/Cook_Islands_IDA%20Report.pdf

The project pursued outcomes under three components:

Component 1: Local capacity for waste management implementation and environmental protection built to enable best practice in coastal waters, land, and public health protection

This component targeted the uptake of sustainable pig waste management methods with a focus on community engagement, outreach, and training. The component focus largely remained the same with the partnership of environmental NGO Muri Environment Care and the development of a draft piggery waste management policy with the Ministry of Health and other agencies. The Ministry of Health is the regulator for wastewater/sanitation.

Component 2: Establishing public-private partnerships for tourism sector investment in ICM in Muri

The project had initially proposed to establish cross-sectoral coordination to explore the feasibility of a PPP for tourism sector investment in ICM in Muri and establish such partnerships through various mechanisms. However, this was superseded by a larger government initiative funded by the Asian Development Bank, which undertook a higher-level assessment to identify tourism sector investment opportunities. The project thus focused its efforts on establishing working 'agreements and guidelines for grassroots level partnerships between community and private sector, targeting management and care of the streams to reduce erosion and sedimentation.

Component 3: Increasing knowledge-base and capacity for effective environmental stress reduction measures and integrated catchment management in Muri

The project aim was to characterise the ecological health of Muri lagoon and identify land-based contamination processes for key ICM planning and investment; increase local community understanding of the development process; and improve integrated catchment management via monitoring and evaluation of existing stress.

Due to planned activities such as wastewater management already underway through other arrangements, adaptive management was applied to better reflect current needs and parallel initiatives. It was decided to focus on conducting a feasibility study and designing appropriate drainage/stormwater solutions, which would contribute to the objective of reducing stress on the Muri lagoon from stormwater runoff. This component also identified the following outputs to be developed under the project:

- Erosion and Sediment Control guidelines
- Land development permit
- GeoMap

The subsequent sections highlight the approaches taken, project results and lessons learned.



Legend

— Streams

□ water catchment

Avana Stream

Figure 1: Muri lagoon showing the catchment area and streams
(source: MMR 2011 cited in McCue et al. 2018)

Community to Cabinet Approach

The community to cabinet approach underpinned the success of the previous IWRM project, which placed significant emphasis on engagement and involvement of communities, especially landowners and community leaders, in the development and uptake of national policy. It is well-recognised that the participation of civil society organisations and community leaders in development planning is essential to increase the local relevance of management actions and secure sustainable results. The following outlines existing cross sectoral coordination arrangements and efforts to engage stakeholders in the Cook Islands IW R2R project.

Cross-sectoral Coordination and Planning

By its nature, a ridge to reef approach requires cross-sectoral coordination and planning. Different government agencies and regulatory bodies will have jurisdiction over different areas, and they will need to identify ways of working together.

In the Cook Islands, the earlier IWRM project reported to the Infrastructure Committee (IC), which reports to Cabinet through the National Sustainable Development Committee. The IC has representation from private sector and other key government agencies.

A joint steering committee for the IW R2R and the STAR projects was a requirement under the Memorandum of Agreement with SPC. However, the STAR Project Manager at the time did not want a joint arrangement, possibly because the IW R2R project site and its aims were not aligned with those of the STAR project (focused on the development of the large marine protected area known as the Marae Moana).

Establishing a new committee for the IW R2R was not considered appropriate because there already were numerous committees and not enough personnel. The IW R2R project thus operated without a steering committee or other formal coordinated inter-agency governance mechanism. This approach is arguably not a best practice, which runs contrary to the success of the governance structure established for the IWRM.

However, the activities undertaken require an integrated and cross-sectoral approach recognising the level of commitment and engagement between relevant government agencies and civil societies is relatively poor. For example, the Land Development Guide needs to be implemented in collaboration with the National Environment Service, while the development of the draft Piggery Waste Management policy needed input from and to be driven by the Ministry of Health. Monitoring of the Muri lagoon and streams will need to be led by the Ministry of Marine Resources (MMR), which is the primary water quality monitoring agency. MMR is assisted by personnel from the National Environment Service. Even if cross-sectoral collaboration appears to be difficult, it is acknowledged that every effort needs to be made to encourage and motivate those representatives of agencies who do remain engaged.

In effect, the IW R2R project proceeded with little to no cross-sectoral coordination. The challenge has been that each agency has its own priorities and deliverables, and personnel did not have time to become engaged in the project activities (which were viewed as additional to their work). Attempts to work with the Health, Marine Resources and Environment agencies were largely unsuccessful.

In the end, the project team, faced with the need to deliver on time-bound outcomes, found that it was far more effective to concentrate activities that were within the mandate of the ICI (the implementing agency) so that work would not be delayed due to reliance on non-responsive agencies. That said, the concept of all of government approach requires cross-sectoral approaches and the IW R2R project test case is premised on that and mainstreaming of R2R.



Figure 2: Some of the participants at the options workshop undertaken as part of the feasibility study
(Photo: ICI)

A lesson learned is effective planning and formalising project governance at the start. It is also noted that the project design and early consultations could have enabled better alignment of project objectives and the deliverables of partner agencies towards a more holistic approach. The conservative approach taken by ICI takes into consideration the short time remaining of the project its priority outcomes and outputs focusing only what ICI can lead and deliver.

Stakeholder Engagement

The IW R2R project document notes that the preparation phase of the IW R2R project in Cook Islands was based on a “consultative process involving national government agencies, community representatives, and civil society organisations. Stakeholder inputs elicited during the preparation phase were incorporated in the results framework”. This was undertaken towards the end of the predecessor IWRM project in 2013. The IW R2R project started at the end of 2016 (well after the IWRM project had closed). This time lag meant that changes in priorities, personnel and stakeholder interests were inevitable. Thus, despite consultations being conducted in the early phases of the project, including for the development of the island diagnostic analysis, there is perhaps a need to encourage ongoing communication and feedback to ensure institutional memory is sustained.

Some of the earlier identified stakeholders in Figure 3, did not respond to invitations to participate in the project. It is thought that the larger GEF STAR R2R project implemented with substantive financial resources, may have taken priority for many stakeholders over the IW R2R project.

A key component of the IW R2R work involved conducting a feasibility study on stormwater management in the Muri catchment. This process was highly participatory, involving the application of a multi-criteria analysis process whereby a systematic analysis enabled stakeholders to assess and identify management options based on their own knowledge. Information programmes were undertaken on erosion prevention along rivers and streams. Although there were concerns by ICI over possible “consultation fatigue”, the community was already well-engaged through the past sanitation projects, the NGO Muri Environment Care and the Mei Te Vai, Ki Te Vai Project.

Ridge to Reef stakeholders

- | | | |
|---------------------------------|---|--|
| • Infrastructure Cook Islands | • NZ High Commission | • Ministry of Agriculture |
| • Aid Management Division | • Ministry of Health – Public Health Division | • House of Ariki – Traditional Leaders |
| • Tourism Cook Islands | • Meteorological Office | • Cook Is Red Cross |
| • Ministry of Marine Resources | • Office of the Prime Minister | • Te Ipukarea Society |
| • National Environment Services | | • Muri Environment Care |

Figure 3: Identified potential ridge to reef stakeholders at the beginning of the project.

Project Results

Process indicators

The GEF International Waters process indicators were developed to help characterise the completion of institutional processes on the multi-country or national level that will result in joint action of needed policy, legal and institutional reforms and investments that aim to reduce environmental stress. Traditionally, process indicators have been a measure of progress in project activities involving procurement and production of goods, physical structures, and services. Capacity and human resource development and stakeholder involvement have also been recognised as important to achieving sustainable project outcomes (GEF 1996).

The complex nature of many GEF International Waters (IW) projects requires that there are additional process indicators adopted to reflect the extent, quality, and eventual on-the-ground effectiveness of the inter-ministerial, and cross-sectoral efforts that are at the heart of the GEF IW approach.

Below are the most significant results outlined by the Cook Islands IW R2R Project during implementation.

Improved design of ICI infrastructure works to reduce sedimentation

A feasibility study was conducted for stormwater management in the Muri catchment. A multi-criteria assessment process was used to identify an appropriate mix of 'tools' to implement in the Muri catchment. This involved the development of assessment criteria and an in-depth consultative workshop to identify appropriate options. Details of the process, including the assessment criteria and options are outlined in the feasibility study report (Tonkin and Taylor 2019).

The feasibility report provided the foundation for the design of stormwater management towards reducing sedimentation from the land runoff, which is a key contributor to degradation of the Muri Lagoon. The community workshop and follow up meeting carried out has shown an understanding that the community now has for managing runoff and how they can contribute to lessening the impacts of stormwater on the natural environment. The same feasibility and design development for drainage/stormwater can and has been applied to other catchments on Rarotonga.

Erosion and Sediment Control guidelines

These guidelines establish requirements for improved land development practices, which will be instrumental in reducing erosion and runoff into the lagoon. The land development permitting authority, the National Environment Service, can now use the guidelines to require the application of the techniques within the guide under conditions of their permits and consents.

Land Development Guide

Education and awareness of developers was targeted through a Land Development Guide, which encourages sustainable practices during and after development. A gaps analysis conducted within the scope of the development of the Land Development Guide has assisted the National Environment Service with the review of the Environment Act 2003.



Figure 4: Pig farming in Rarotonga © Jan Chandler (Pinterest)

Draft piggery waste management policy

A draft Commercial Piggery Sewage Management Policy has been drafted for control of effluent from piggeries. The draft policy and accompanying Cabinet Submission, is now with the Ministry of Health, awaiting submission to Cabinet. Improved management of piggery waste will contribute to reduction in nutrients entering the lagoon. There are no commercially operating piggeries however, numbers of pigs across lands are variable, with female pigs having litters and these pigs being distributed or slaughtered.

Developing an accessible GeoMap

Various studies and research activities have generated a lot of information on landforms, rivers, lowland, etc in the form of GIS data and maps. The information is valuable for planning, research, and land development. However, there is little use of and access to this data by both regulators and community members. Under the IW R2R project, ICI commenced work on amalgamating all the data into one platform with the aim of making it freely available online via the open-source software, Open Street Map. Despite delays due to COVID-19 related travel restrictions, work has progressed with assistance of SPC, which has deployed the software regionally. ICI has conducted a pilot DTM (Digital Terrain Model) at a selected site to show that it has the capacity to run a model of an area of interest to enable engineers to undertake their design process and view data in real time. The data will in future assist ICI to make decisive decision on planning and design of infrastructure.

This is a significant step forward for data management and informed and improved planning process in the country. The software has recently been presented to government agencies and is expected to prove mutually beneficial to a range of stakeholders. Other agencies will also be encouraged to contribute to the database.



Figure 5: Conducting the underwater survey

Knowledge transfer and capacity building through the James Cook University Post Graduate Course in R2R Sustainable Development

Only one employee of ICI undertook the JCU course to the end. That employee reports that the JCU course was very educational in terms of learning more about best practices in development and how to protect the environment. Their role is engineering, and it is expected that their learnings under the post-graduate training course will enhance their skills as a progressive engineer in terms of practices that work with environmental processes.



Stress Reduction

Stress reduction indicators relate to the specific on-the-ground measures implemented by the country. The Cook Islands IW R2R demonstration project was designed to contribute to improved catchment management (through management of land-based pollution). The identified stress reduction target was 600 ha of Muri lagoon under improved catchment management.

The work undertaken by the IW R2R project will contribute toward reducing runoff from land into the Muri lagoon once the stormwater drainage system is in place and as the Erosion and Sediment Control Guidelines are implemented. The IW R2R project spent over US\$200,000 to conduct extensive technical assessments and modelling work with the aim to provide baselines and model outputs to manage stormwater and control fast erosion and sediment export downstream, and related works on piggeries and land-use strategies.

Key products resulted from R2R investments, which and technical reports, guidelines, and management measures, are available and accessible:

- RapCA
- Feasibility Study for Stormwater Management
- Erosion and Sediment Control Guidelines
- Land Development Guide or Guide for developers with sustainable practices

The above IW R2R products significantly contributed to about 1374 ha under protection and effective management. This target far exceeds the original target of 600 ha stress reduction target.

The ongoing water quality monitoring undertaken by Ministry of Marine Resources could provide the information required, along with regular (annual) rapid coastal assessments of marine biodiversity.

Environmental Status Indicators

For projects in damaged transboundary systems, collaborating countries must harmonise their sampling, laboratory, and analysis methods so that they all agree on what parameters should be sampled to track progress toward a goal. The State of the Environment and State of the Coast reporting represent this.

These agreed status indicators are measures of actual performance or success in restoring and protecting resources. They have been established jointly by GEF project participating countries so that they can be monitored by countries undertaking harmonised monitoring programmes and reported to the relevant parties and stakeholders. Social indicators help to measure whether communities and stakeholders benefit from the changes in environmental conditions brought about by the project. The agreed list of governance, socio-economic and environmental indicators for the IW R2R activities is provided in the Regional Guidelines for Implementing R2R Science to Policy Strategic Framework. The framework also provides suggested data collection techniques for each of the indicators.

Visible and detectable on-ground changes as a result of R2R interventions may take many years to become evident and often rely on several variables and stress reduction measures. For change to be measured effectively, the first step is to establish clear baselines, preferably quantitative, although qualitative baselines could also be used.

Regular monitoring and evaluation of identified indicators will be needed, and a database established that remains accessible to and can be updated by national managers over time.

The regional IW R2R project, with the assistance of the Geo-informatics Section within Geo-science, Energy and Maritime Division of SPC have launched a facility for purposes of data repository, storage, analysis, modelling and mapping of available data. It is called the Pacific State of Coast Spatial Data Infrastructure for the Pacific Ridge to Reef Programme (<http://r2r.spc.int/>). Most of national IW R2R baseline data collected during the life of their projects and other relevant publications are also stored and accessible in this facility. It is expected that all R2R data from both IW and STAR R2R projects can be made available and imported into this facility.

The IW R2R project agreed on a list of 22-indicators (governance, socio-economic & environment) for State of the Coasts Report and Rapid Coastal Assessment².

² Regional Guidelines for Implementing the (modified) R2R Science to Policy Strategic Framework; <https://www.pacific-r2r.org/resource-library/regional-guidelines-implementing-modified-r2r-science-policy-strategic-framework>



Figure 6: Erosion of land during the 2018 flooding, Muri lagoon © ICI

LESSONS LEARNED

Lesson 1

At the planning/design phase, conduct a full analysis of the priorities, capacity and interest of the proposed implementing agency and reassess this before project inception and signing of agreements.

The most significant lesson learned within the operation of the IW R2R Project is project design. In deciding what agency to approach to be the implementer, the mission and mandate of that agency should be examined so that the project design will be something that the agency knows how to manage and understand. Consideration should be given to the project activities, outputs, and outcomes to ensure they are suited to what the confirmed implementing agency does, that is, has responsibility in the thematic issue and has the capacity to manage the project with the aim of producing tangible and lasting benefits. In carrying out the project, project design could end up being more suited for another organisation.

Notwithstanding, the R2R concept is cross-sectoral and therefore can only realistically work if there are levels of commitments and engagements at varying degrees at the planning stage. It doesn't have to be the whole agency, but at least key representative(s) can be identified or co-opted from relevant agencies and civil society and communities. There are of course certain levels of government internal processes need following to roll out an external funded project like GEF, and to comply with requirements of both the host country and operate within the confines of a signed MoA or legal instrument relative to the project document.



Island Diagnostic Analysis consultation workshop, Cook Islands, 2017.

Lesson 2

Ensure that the right agencies and representatives (individuals) are involved in the initial planning phase (project design, planning).

Sometimes it is preferable to use past or existing committees without a need to establish one. This also means the same representatives or designate could also be participating. This approach of early engagement will ensure that (a) important background information (such as related projects in the pipeline) is captured and contributes to informed decisions and (b) the project benefits and aligns with the deliverables of each agency involved. This must be done with the understanding that Rarotonga is a small place, and the same group of people are involved. It is important therefore, to work within their capacity and capability, taking care not to overload but complement the work of these individuals and participating agencies if they are to be meaningfully involved.

Lesson 3

At the development and sign-off of funding proposals, use existing high level in-country mechanisms to strengthen inter-agency approach and coordination.

One of the challenges for the project has been the reliance on other agencies that have not committed to the project. Achieving the IW R2R project objectives was premised on inter-agency coordination e.g., pig waste management and catchment monitoring. This has caused delays and frustrations for the agency tasked with leading the project. Using high level mechanisms such as the National Sustainable Development Plan (NSDP) committee (Office of the Prime Minister) or the Infrastructure Committee (in the case of ICI) would enable formal commitment of agencies to participation from the early stage and in line with their mandates. which meets directly with Cabinet.

Lesson 4

Ensure that there is a dedicated project manager for the entire duration of the project and that the project budget has allocation for hiring and retaining personnel at the projected market rates.

A project manager was recruited initially but resigned within thirteen months of the start of the project and the position was not replaced. This impacted on implementation, which could have occurred faster with a dedicated project manager. A capable, dedicated project manager would likely have seen the project completed in the initial time frame, without need to be extended to the end of 2020. Having existing personnel take on the project meant that attention was split between tasks. However, recruiting a new manager at a fair salary would have adversely affected the delivery of outputs, given the project budget.

Lesson 5

Advocate for political commitment and engagement through active oversight role of designated supervisors or GEF Operational Focal Points in the smooth execution of the project

Lesson 6

Close adherence to contractual obligations in administering consultancy work in-country, which include strict compliance to schedule of payments only after milestones have been successfully completed and approved by both host agency and SPC. The lesson is that RPCU staff ended up finishing off the RapCA report after the consultants and host agency abandoned the work, and the consultant fully paid.

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