



Cook Islands International Waters Ridge to Reef Project

By: Infrastructure Cook Islands



Final Report 2016-2020

Aroko, Muri, Rarotonga

Prepared by: Jaime Short



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Preface

The Cook Islands International Waters Ridge to Reef Project is administered by the Ministry of Infrastructure Cook Islands. A Memorandum of Agreement was signed in 2016 between Infrastructure Cook Islands and the Pacific Community.

The Cook Islands International Waters Ridge to Reef Project aimed to address key ridge to reef issues through progressing mitigation of land-based runoff. This is done through producing developed designs with a focus on green solutions for stormwater management in the site area and producing Erosion and Sediment Control Guidelines to be used as conditions in development permits and consents.

Community action on riparian planting to complement the developed designs has been communicated and a draft piggy waste management policy prepared for the Ministry of Health. A permitting booklet will provide developers large and small the process for development and encourage sustainable practices during and after development. The Rapid Assessment of Priority Coastal Areas provides the Cook Islands and the region with a comprehensive assessment of the status of lagoon health in Muri.

This final report provides a summary of what the project is about, and the results and lessons generated over the course of its implementation. The technical information and policy outcomes that emerged provide useful and practical considerations in support of green solutions for stormwater and catchment management in the country, as well as, taking into consideration the ridge to reef and community to cabinet approaches.

I thank everyone for supporting the project during implementation. I also urge stakeholders to make use of the report and other knowledge products. These documents are particularly useful in our current and future efforts to mitigate land-based runoff and generally support integrated catchment and coastal management in the country.

.....
Tamarii Tutangata
Secretary
Infrastructure Cook Islands

Acronyms

M&E	Monitoring and Evaluation
R2R	Ridge to Reef
UNDP	United Nations Development Programme
WFP	Work and Financial Plan
ICI	Infrastructure Cook Islands
GEF	Global Environment Fund
MOH	Ministry of Health
MOA	Ministry of Agriculture
CITC	Cook Islands Tourism Corporation
MEC	Muri Environment Care Group
TIS	Te Ipukarea Society
CISPCA	Cook Islands Society for the Prevention of Cruelty to Animals
MFEM	Ministry of Finance and Economic Management
MTVKTV	<i>Mei Te Vai, Ki Te Vai</i>

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Basic Project Data

Project Title	"Testing: Pacific Islands Ridge to Reef National Priorities - Integrated Water, Land, Forest & Coastal Management to Preserve Ecosystem Services, Sequester Carbon, Improve Climate Resilience and Sustain Livelihoods" (GEFPACIFICIWR2R)
Project Site/ Location	Muri, Rarotonga
Project Objectives	Will ensure strategic investment of GEF grant and national funding initiatives to deliver tangible and quantifiable global environmental benefits through integrated results-based approaches to land, water, forest, biodiversity, and coastal management that contributes to poverty reduction, sustainable livelihoods, and climate resilience.

Contract Information	Contract number	SPC/GEF/R2R/Cook Islands
	Original Project Duration	2017 – Dec 2019
	Contract Extension (if applicable)	2017 – Sept 2020
	Contracting Party	Infrastructure Cook Islands (ICI)
	Contracting Party Signatory	Initial signing: Ngametua Pokino Extension: Diane Charlie-Puna
	Contract Amount (SPC-R2R)	USD 200,000
	Counterpart (Agency, Department)	USD 7,724.3
	Counterpart of other partners (e.g., development partners, NGOs, CSO, Academic, etc.)	USD 0

Executive Summary

The purpose of the Cook Islands IW R2R Project is to build capacity in the field of environmental management, to create public private partnerships (PPP's) and to increase environmental knowledge and management. These project components would lend to progress at the regional level, for increasing understanding of and implementation of ridge to reef management, increasing climate resilience and working towards a significant part of integrated catchment management.

The Cook Islands IW R2R Project demonstration site is Muri-Avana located in the southeast Rarotonga, and typically featured by the three (3) islands surrounding Muri lagoon. The project interventions at this site aim to deliver on a revised target of 600ha catchment and protection measures, and with a specific activity on improving catchment management. In the end, the project completed most of the outputs and thereby achieving outcomes and goals. Even though not all outputs are site specific, the project contributed to improved catchment management of Muri-Avana, characterizing ecological health of Muri lagoon, and establishing land-based contamination processes for key ICM planning and investment (1374 ha achieved).

Effectively, the Cook Islands IW R2R project successfully completed fourteen (14) out of eighteen (18) project outputs, thereby delivering on seven (7) out of nine (9) outcomes, Therefore, the project host agency ICI assessed that project performance as relatively high or 'moderately satisfactory.'

In Component 1, the most significant task was the preparation of a Commercial Piggery Sewage Management Policy and accompanying Cabinet Submission. The draft policy and Cabinet Submission are with the Ministry responsible for sewage management, the Ministry of Health. The ICI's mandate is not directly linked to piggery waste/ sewage and therefore handed over the draft policy to the Ministry of Health.

The focus of Component 2 on Public Private Partnerships (PPPs) is similar to an ADB-funded project for PPPs underway from 2018 to 2019. It was agreed that the IW R2R Project sought to inform and encourage the tourism sector and the community to conduct riparian planting within the project site area which compliments the work carried out in Component 3.

Component 3 delivered four significant pieces of work, namely: the Rapid Assessment of Priority of Coastal Areas (RAPCA), a Feasibility Study for stormwater management in the site area, Erosion and Sediment Control Guidelines for the Cook Islands and a Permitting Booklet or Guide for developers with sustainable practices. A GIS database referred to as a GeoMap was another task to undertake however travel restrictions due to the Covid 19 pandemic caused delays.

The project experienced delays in implementation and timely submission of final outputs, which have been mostly beyond the control of ICI. For instance, travel restrictions impacted the GeoMap, and it was partly completed. Most of the outputs are tangible and contribute toward real change. Here, the stormwater designs that resulted from the feasibility study are being used with the first step being to upgrade parts of the drainage system in the project site. The Guidelines are required under Permits and Consents and the booklet once printed would be available to the public freely when they start their development process. The GeoMap once operational will be open source. Compliance Officers and Developers can use the database to better understand what is occurring within the vicinity of their development and its expected impacts. The public can use the GeoMap to understand what is occurring in the vicinity of their land and this could also benefit students.

In summary, the project's technical results and outcomes provide valuable inputs supporting integrated catchment and coastal management in Muri-Avana, and future R2R investments and development planning elsewhere in the country. Approximately US\$177,000 of R2R financing has been spent from 2017 to 2020. In-kind contribution from ICI has been office space, internet and vehicle availability and other Ministry staff time. This has been valued at US\$7,724.30. The IW R2R investments provided an opportunity to generate baseline data and information and modelling outputs to inform integrated catchment and coastal management and planning.



Introduction

The Cook Islands are a Polynesian island group comprising of fifteen (15) widely dispersed islands, surrounded by an exclusive economic zone of 1.8 million km². Like many PICs, water supply issues are dominant in the management of water resources, and attention generally has focused on the areas of greater population – town and cities. In the Cook Islands this is Rarotonga, with a residential population of approximately 10,000. The islands source potable water is from two main sources. In the Southern Group of islands which includes the main island of Rarotonga (volcanic origin), surface water is sourced from springs and streams within catchments valleys. In the Northern Group of islands (coral atolls), water is sourced from rainwater that charges groundwater lenses and aquifers.

A freshwater lens is present, however, the past practice of manually extracting water from wells has been abandoned. Old steel and galvanised pipes have been replaced by uPVC and polyethene pipes on the respective islands. Per capita consumption figures of about 260 litres per capita per day are high for a developing country, and water losses throughout the older system on Rarotonga were thought to be between 50-70%, particularly in populated areas of Rarotonga. In the Cook Islands, the trend is no different, with the primary focus being on the water supply system within Rarotonga.

The responsibility for water management including regulation fell under the auspices of Infrastructure Cook Islands (ICI), but now a new utility has been created to manage the Rarotonga network, To Tatou Vai while Island Governments manage their own networks with technical assistance from ICI. Other agencies also have a key interest including the National Environment Service, Cook Islands Investment Corporation, Ministry and Finance and Economic Management, and Ministry of Health.

The major wastewater and sanitation issues in the Cook Islands relate to groundwater and marine water pollution which creates implications for human and environmental health. These issues stem from improper disposal of human and animal waste. The impacts of this pollution pose a risk of waterborne illnesses and

diminish the idyllic south seas appeal that provides the basis of the tourism industry. Apart from one small community sewage treatment system in Rarotonga, all domestic and commercial wastewater in the Cook Islands is managed by on-site systems. 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 tourism industry earns the greatest revenue in the Cook Islands and tourists expect a high standard of sanitation service when they come to enjoy healthy, safe, and ecologically stable coral lagoon ecosystems for swimming, snorkelling and other activities.

For an economy with high costs of living and low salaries, the challenge in the Cook Islands is to find the right balanced formula to provide the required high-standard sanitation service. The first sanitary systems used on the islands were pit toilets. This smelt and created health problems so there was a move to pour flush toilets. These proved unsatisfactory, so the Government agencies recommended flush toilets with single, then dual and three-chamber septic tanks, with most discharges to soak holes. Since 2014 new builds have been required to install Secondary Wastewater Treatment Systems in the coastal zone and Primary Improved Systems in the soil zones.

With rapid development on the coastline and deteriorating coral reef health, came increasing recognition of the impact of on-site wastewater treatment systems on human health and ecological sustainability. While some were hopeful that a simple low-cost technological fix was all that was required, it also became increasingly clear that a multi-level integrated approach was required, involving institutional strengthening, training, interagency cooperation and effort, and community awareness programmes as well as improved wastewater technologies and systems. This corresponds to the integration of ridge to reef and community to cabinet approaches.

The above issues had begun to be addressed through the cross-sectoral planning and management initiatives of the GEF Pacific IWRM Project. Following this was the Waste Management and Sanitation Improvement Programme (WMI), then the Sanitation Upgrade Programme (SUP), both based 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 from 2015 to early 2017. The algae have returned to the lagoon since.

The Cook Islands IWR2R project was originally formulated to support the MTVKTV wastewater project however, the opportunity to address another cause of lagoon degradation while responding to climate change effects was a better way to utilise the project and its funds. An extensive environmental investigation carried out under the MTVKTV project confirmed that sedimentation was second to wastewater in contributing to lagoon degradation in Muri. Following consultations and planning, it was agreed to refocus the project on improving drainage and stormwater management thereby addressing sedimentation and stormwater. In turn, the ICI revised the project logframe and multi-year work plan with a re-alignment of project outputs and activities.

For instance, the activity to conduct simulation modelling work to demonstrate the benefits of implementing various measures, such as rainwater harvesting and reuse to reduce the impacts of heavy rain. The model outputs help ICI demonstrate the need for investment in such measures and to inform future stormwater infrastructure project designs. R2R funds could only cover the design area, so the implementation phase relies on funding from the national budget.

From this, Component 1 remained largely the same, attending to work with the project site environmental NGO, Muri Environment Care and producing a draft piggery waste management policy. Component 2 which is based on PPPs, was acknowledged to be too high level for this project and is recognised as 'agreements' rather than PPPs. Component 3 contained the most significant changes and work and therefore consists of the updated work in drainage/stormwater management, a permitting booklet, an erosion, sediment control guide, and a GeoMap. The coastal assessment remained the same with a slight aim to measure sediment loss to correlate with the change in direction of the project. With the change in focus from supporting the wastewater project to complimenting it, it is considered that this change in project better reflects the integrated approach that the Ridge to Reef Project has as a goal.

Situational Analysis, project issues, needs

As documented in the Mid-Term Report and the Lessons Learned Report, the first issue discovered was that some activities were not suited to Infrastructure Cook Islands. There was a duplication of efforts in the activities identified, therefore project outcomes were revised and realigned to focus on priority deliverables.

Early discussions with the first Project Manager centred on how to implement the original activities and the need for revision. During the 6-month review, the Project Manager reported delays in the process of updating the project to the new focus (drainage) and the approval for that change. This affected project implementation and led to the resignation and departure of the Project Manager in March 2018. The Water Division Head resumed the role of the Project Manager temporarily a replacement is hired. Subsequently, at the 3rd meeting of the Regional Steering Committee that took place in Townsville, Australia, the process to change the Cook Islands IW R2R project began. This was negotiated between SPC and Infrastructure Cook Islands until an agreed way forward was confirmed in the second half of 2018.

Issue: Sedimentation to the lagoon

Since April 2018 Rarotonga has been experiencing heavy and regular rainfall which causes major flooding and erosion never seen before. Relatively large areas at the coast were washed away by flood waters, homes and streets were flooded, and muddy water flowed into the lagoon and sea. There was no capacity in the existing drainage network to cope with the deluge. The MTVKTV Project's environmental investigation confirmed that sedimentation to the lagoon was the second largest contributor to lagoon degradation. It was therefore decided at that point to target sedimentation for the Cook Islands IW R2R Project. This is a suitable field of work for ICI to concentrate on as an infrastructure manager in the field of drainage. Other areas that support improved drainage management were also investigated and these are riparian planting and managing the erosive effects of development.

Issue: Lack of understanding of the permitting process

Drawing from enquiries from the public, it was clear that there was limited understanding of the permitting process. From this, the manual outlined in Component 3 would instead be a booklet of the permitting process with tips to sustainably develop sites. Additionally, a publicly accessible GIS database referred to as a GeoMap would be useful for developers, for educational purposes as well as the permitting agencies to view and understand what is occurring across the landscape. The work for producing a permitting process booklet with tips for the sustainable design included a gaps analysis which has contributed to the review of the Environment Act 2003.

Project Scope, components, and anticipated results

In formulating project activities to deliver the outcomes it became clear that the project must also the goals of Infrastructure Cook Islands. For instance, people working in the Ministry's Policy and Legislation can also support efforts to better manage land development. Seeing that wastewater improvement was already underway for the project site, the IW R2R Project could collaborate and utilise its funds to support designs and modelling that restrict surface runoff. Therefore, it was decided that the following tasks would attend to Outcomes under the direction of the Ministry and replace some of the original activities and outputs: -

- i. Target drainage/stormwater management in the project area that protects infrastructure and the environment.
- ii. Place better controls on land development in sediment control and erosion.
- iii. Advance improved mechanisms to contribute towards better land development practices:

- Continue with piggery waste management policy
- Develop a permitting guide to educate the public on the land development permitting process and encourage developers to apply sustainable practices and future proof their land.
- Develop a GeoMap that draws together all existing data on land and landscape features as an educational tool for the public and as a tool for permitting authorities.
- Work with the community to advance community-based activities that support the project outcomes (riparian planting, beach planting).

These are regarded as the most important tasks the Ministry undertook in terms of its own functions. Component 2 was already underway and initiated under an Asian Development Bank initiative by Infrastructure Cook Islands. Later the project expanded in scope and moved to the Ministry of Finance and Economic Management where it was more suited. Due to this, Infrastructure Cook Islands did not want to duplicate or repeat this work and instead use the experiences and lessons learned for its future work.

In the context of Component, it was felt that the IW R2R project could only assist to broker the successful establishment of public-private partnerships. The IW R2R project scope and resources are far too limited to take a leading role considering the definition of Public Private Partnerships. The SPC/ICI discussed the design and timing for infrastructure work and agreed that within Component 2, the activity or Output would instead change to informing and encouraging streamside tourism operators (and residents) to plan the stream banks after the stream works take place. This was a decision made late in the project, which was at the end of 2019.

In assessing the project performance, the Infrastructure Cook Islands concluded that the expected results have been or are being delivered except for one activity that may not be achieved. There has been a significant step toward better managing surface runoff with the project area-developed designs for the drainage network and the ESC Guidelines. The project supported the completion of a draft Piggery Waste Management Policy which the Ministry of Health is rightfully responsible to finalise and submit to the cabinet for approval for implementation. In turn, the policy provides management and regulatory measures supporting wastewater management and piggeries in the country.

Using the table below, enumerate the key components and anticipated outcomes.

Key Components	Expected Outputs	Anticipated Outcomes
1. Local capacity for waste management implementation and environmental protection built to enable best practices in coastal waters, land, and public health protection	A successful project for beach stabilization and piggery waste management policy.	Community motivated and mobilized for integrated environmental management.
2. Establishing public-private partnerships for tourism sector investment in ICM in Muri	Grassroots-level partnerships between the community and private sector are established with guidelines. NB: UPDATED: inform the sector of the benefits of riparian planting and put stream riparian planting to them for after the stream work. FORMER: Agreements signed.	Coordination in partnerships that benefit ICM.
3. Increasing knowledge-base and capacity for effective environmental stress reduction measures and integrated catchment management in Muri	Investment plan for integrated catchment management.	Pilot stress reduction measure produced for investment planning.

Project Organization and Management

The Cook Islands IW R2R project is housed with the host agency, Infrastructure Cook Islands (ICI), and therefore has a role in national terrestrial and coastal management and development. The Ministry used to house water supply management however this responsibility has transferred to a newly established water authority. However, the hydrological function was retained. ICI houses the Civil Works Division which is responsible for road and road drainage management. The Projects and Planning Division is a project management unit that carries out projects in various forms of infrastructure including roading upgrades, coastal reinforcement to protect roading assets, Pa Enna projects for harbours, water supply, roads and airports and cyclone shelters. The ICI is not a monitoring agency.

Initially, the IW R2R project was housed under the Water and Waste Management Division (WATSAN) and originally had a dedicated Project Manager who eventually resigned. The Head of the WATSAN Division took on the management of the project and employed a local skilled staff temporarily to handle the administrative work. When the management moved to the head of the Division, a discussion took place with the STAR R2R Project regarding sharing the steering committee, consistent with the signed MoA and supporting for the programmatic approach.

The STAR Project manager did not agree to a joint steering committee and the reasons were not clear – possibly to do with different host agencies, implementing agencies and reporting obligations. The IW R2R project changed host agencies halfway through the original timelines potentially in August 2019 and with the original completion date of December 2019. The new host agency, ICI, continued with project implementation without a steering committee but closely worked in collaboration and partnership with the Ministry of Health and the National Environment as key partners but with no clear responsibilities.

Project Stakeholders and Engagement

In identifying stakeholders, the results framework/log frame was used to correlate the activities with the appropriate stakeholders across Government and the community. Despite having no joint steering committee with the STAR R2R project, both IW and STAR R2R projects continue collaborating and sharing information informally both in-country and during regional meetings. According to the GEF Pacific R2R Programme Framework Document (PFD), there should be an account of the national programmatic implementation of the R2R project.

With the limited time to progress project activities, stakeholder engagement was put at less of a priority and so not regularly undertaken. It was difficult to articulate how beneficial the engagement strategies were over the course of project implementation. Project staff agreed that the workshop held for the stormwater management feasibility was successful and it was believed that the participants engaged came to understand the significance of the work. This can be seen by the outcome from the participants that matched what the project hoped for i.e., *preference for more natural 'soft' solutions rather than hard engineering solutions.*

In this time of what feels like consultation fatigue, there appears to be the apprehension of trying to push stakeholder engagement in specific work programmes. Perhaps, it was felt that due to the technical nature of a large part of the work especially under Component 3, in-depth regular community stakeholder engagement was not necessary to achieve the Outputs and Outcomes. As for cross-government engagement, responses from what ICI deemed as stakeholders or partners, were not consistent and sometimes absent.

From this, a recommendation for stakeholder participation can be formulated where there is only one implementer and the role of a stakeholder engagement strategy. On the one hand, one can design a project that does not require a high level of stakeholder engagement; on the other hand, a project that depends on stakeholder engagement despite delays and the possible slowdown of the project. This is very much dependent on the type of project it is. In the Cook Islands IW Project, most of the work under the project is technical in nature and was not reliant on stakeholder engagement and therefore was able to progress without a steering committee. However, it is recognized that such an undertaking is inconsistent with

international best practice requiring a committee of some form to oversight implementation of funded projects of this magnitude, and it is a requirement of all GEF-funded projects as well as other donors.

Notwithstanding, Art. V (3) provides a diagram of the National Project Organisation and Governance, and with clear details of the Project Board and Technical Task Forces articulated in Art. V (4) & (5), respectively, following their ToRs.

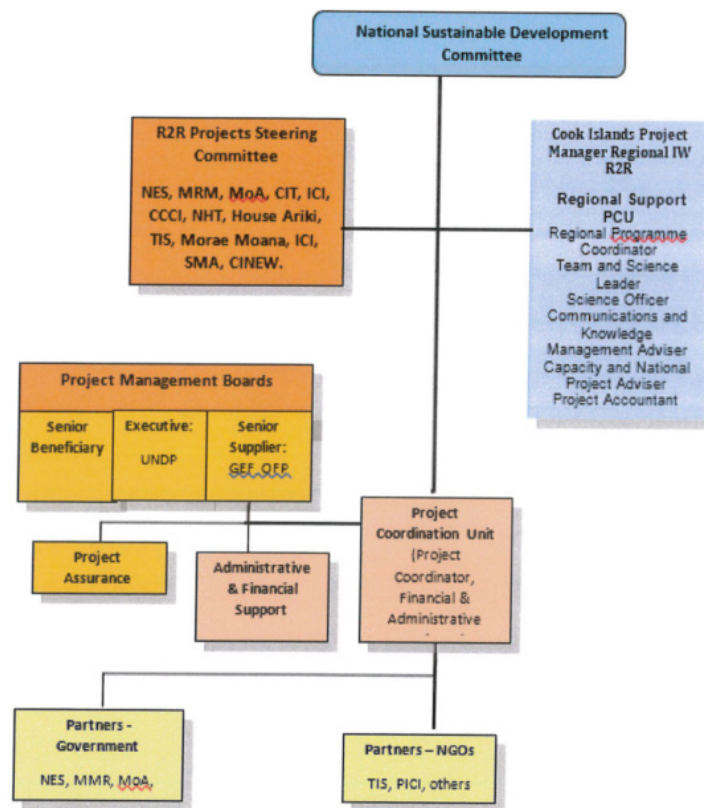


Figure 1. IW R2R Project Organisational Structure (source: SPC/Cook Islands signed MoA, 2016)

Mainstreaming gender and equity issues were not much of a feature in the Cook Islands IW Project as it had specific and technical-based work rather than community-level work. Engagement with government stakeholders was based on staff roles rather than gender and engagement for the one workshop held in 2019 was based on the invitation of homeowners who will be affected by management solutions, technical persons in specific fields and the NGO in the project area. However, like the requirement of an oversight committee, also applies to ensuring the project remain sensitive to gender and equity issues throughout the stages of implementation, from planning to fieldwork/consultations and reporting.

Project Results and Achievements

Component/ Outcomes/ Outputs	Indicate the appropriate name of the component, the desired outputs, and activities	Indicate the Status of Implementation
Component 1		
<i>Outcome 1.1</i>	<i>Enabled Muri community motivation.</i> - <i>Workshop and follow-up presentation show community interest in IW R2R major work stream in drainage/stormwater.</i>	<i>Completed.</i>
Output 1.1.1	Identify needs for environmental awareness - Communications Strategy developed.	Completed.
Output 1.1.2	Implementation of outreach and comm's strategy including the participation of Muri management. - Workshop and follow-up community meeting carried out and it is understood that community understanding and appreciation for stormwater work is high.	Completed.
<i>Outcome 1.2</i>	<i>Muri Community Mobilized for ICM</i>	<i>Completed.</i>
Output 1.2.1	Identification of priority areas for community action for MEC Group. - Riparian planting identified to be carried out by MEC. The beach planting exercise was completed in Feb 2019. A second project is in the planning stages for a section of one stream in partnership with a New Zealand NGO. Stream planting is encouraged at a community meeting following the stream reconstruction. - MEC and ICI agreement on riparian planting for community action. - Presentation prepared and presented to contractors in 2017.	Completed
<i>Outcome 1.3</i>	<i>National uptake of sustainable pig waste management methods</i>	<i>Completed</i>
Output 1.3.1	Draft a commercial piggery waste management policy.	Completed
Output 1.3.2	Ministry of Health to submit to the cabinet	Partly completed
Component 2	Establishing public-private partnerships for tourism sector investment in ICM in Muri	
<i>Outcome 2.1</i>	<i>Cross-sectoral coordination was established to explore the feasibility of a PPP for tourism sector investment in ICM in Muri</i>	<i>Completed.</i>
Output 2.1.1	Recommendation for PPPs for tourism sector investment in Muri. - Recommendation completed. - A large ADB project was carried out for PPP and ICI was an involved party and took initiative for Component 2 from this work. Supersedes IW R2R PPP work.	Completed.

Output 2.1.2	Muri Environment Care Partnership formalized.	Partly completed. The partnership was not formalized however, IW R2R staff engaged with MEC on beach planting project and stormwater feasibility workshop preparation. 80% completed??
Outcome 2.2	<i>Accepted mechanisms for PPPs for the tourism sector in ICM were established.</i>	Completed. <i>Several consultations and discussions on partnerships for the tourism sector in ICM took place, however not formally accepted, and established. 70% completed.</i>
Output 2.2.1	Review National and Regional PPP partnership arrangements.	Completed Note this was a desktop review only and tourism operators were not consulted. See outcome 2.3 below.
Output 2.2.2	Develop guidelines for PPP for the tourism sector in ICM	Completed
Output 2.2.3	Endorsement from public and private ICM stakeholders	Not complete. See outcome 2.3 below.
Outcome 2.3	<i>PPPs for tourism sector investment in ICM established</i>	<i>Not Completed</i> Completed Not Completed
Output 2.3.1	Seek partnerships with tourism operators.	Change in scope therefore this outcome was ignored
Output 2.3.2	PPPs for the tourism sector are formalized.	Due to the nature and size of the PPPs, it was decided (with SPC) that PPPs are out of the scope of the IW project. With the timing of implementation of the developed designs for the stormwater network, it was decided that it was better to wait for the stream work to be completed before riparian planting would take place, which was done at a later stage. Tourism was sector encouraged to plant stream banks after stream work in a community meeting to present the designs.
Component 3	Increasing knowledge-base and capacity for effective environmental stress reduction measures and integrated catchment management in Muri	
Outcome 3.1	<i>Ecological health of Muri lagoon characterized, and land-based contamination processes established for key ICM planning and investment.</i>	<i>Completed.</i>
Output 3.1.1	RapCA report	Completed
Output 3.1.2	Endorsed MTVKTV environmental investigation report. - Submitted to SPC in 2019.	Complete
Output 3.1.3	R2R planning response to address and mitigate contaminants – Erosion and Sediment Control guide.	Complete

Outcome 3.2	Increased local community understanding of the development process.	Completed.
Output 3.2.1	Conduct gap analysis	Completed
	- Prepare booklet on Permits and Consents process with tips on sustainable development.	Draft of permitting booklet is completed but not yet published.
Outcome 3.3	Improved integrated catchment management via monitoring and evaluation of existing stress	Partly completed
Output 3.3.1	Feasibility for stormwater carried out and design developed	Completed
Output 3.3.2	Develop an information base of land features (GeoMap).	Partly completed. Covid 19 travel restrictions have caused delays however, this work will be followed up by ICI

Financial Summary

This section of the report provides a short account of the status of fund utilization. This should only cover the planned and actual financial expenditures for the reporting period. This section should just highlight the fund's utilization rate and description of the financial inputs during the implementation period.

SPC-R2R Financial Contribution

Amount	Total Amount Spent	Utilization Rate ¹ (Percentage)
US\$200,000	US\$177,033.34	88.5%

Note: The total funds transferred was USD 177,033.34 which was fully utilized by the project. The 88.5 % is calculated based on the amount spent (USD 177,033.34) divided by the amount allocated (USD200,000) multiplied by 100 i.e. $(177,033.34/200000*100)$.

Any other discrepancies in the amounts could be due to the exchange rate differences and the bank fees which are not reflected in the narrative report but are taken into consideration in the Final Financial Report

Materialized Co-financing

Status of the contributions of the Partner Organization/s (e.g., Agency, department, etc.), and other stakeholders. Both cash and monetized in-kind contributions should be reported. Kindly refer to the GEF policy on co-financing for further guidance. In principle, all non-GEF financial resources that are used for producing outputs of this project could be reported as co-financing.

Name of Co-financer	Type of Co-financing ²	Amount ³ (USD)
Infrastructure Cook Islands	In-kind	7,724.3

¹ Amount spent divided by amount budgeted/planned multiply by 100.

² Grant or In-kind

³ Total cash and monetized in-kind contributions.

Implementation Progress Ratings

1. **Inputs:**

The planned inputs with respect to project funds from the regional office in Suva and technical skills locally available have been supplied mostly sufficiently. However, there were delays experienced in project implementation because of both internal and external timely provision of financial and technical inputs. For instance, technical advice for preparing the RAPCA TOR sought from SPC was delayed. The local consultant was not able to complete the RapCA and Diagnostic reports, in which the SPC R2R project team finished and published the reports. Also, there were further delays experienced in the finalization and submission of the TOR, which is explained by having the TOR budget exceeding that agreed allocation in the project budget. This resulted in revising the TOR and scaling back specific tasks. Moreover, feedback on the piggery policy delayed a final draft and the GeoMap was delayed due to travel restrictions.

2. **Outputs:**

Effectively, the Cook Islands IW R2R project successfully completed fourteen (14) out of eighteen (18) project outputs. ICI assessed that the planned outputs have been mostly achieved with some delays. These delays included stormwater design/ modelling delays which not just affected the contracted works but also the overall project completion date.

The Cook Islands RapCA report is published following the successful completion of technical work by the local consultant. The baseline data collected, and indicators established would be useful in future monitoring to ascertain the extent of the impacts of land-based runoffs and discharge on coastal/ marine habitats and resources. Also, the report is a useful technical reference to inform the development of future integrated coastal management plans or ICZM or coastal fisheries plans. The results will be added to the current databases in the country that house environmental and natural resource management data.

However, at least four (4) outputs were partly (or not) completed. For instance, the GeoMap has not been able to be progressed due to border closures caused by the Covid 19 epidemic. The piggery waste management policy has experienced delays in feedback from MOH and NES. The permitting booklet needs information put back which has caused a delay in getting them printed.

3. **Objectives:**

The Cook Islands IW R2R project completed seven (7) out of nine (9) project outcomes thereby successfully delivering on the project objectives. ICI believes that the outputs have contributed greatly to the project objective (“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 stormwater work along with the Erosion and Sediment Control Guideline contributes to climate resilience and integrated land management in Muri/Avanna catchments, and with implications for future R2R investments and ICM planning. Moreover, the project’s interventions which cover the production of the Permit Booklet, GeoMap, stormwater workshop and riparian planting efforts assist in capacity building and aim to help preserve ecosystem services.

4. **Sustainability** of the project results:

It is believed that the work under Component 3 is sustainable as it will be continued under the auspices of ICI and NES permits. In particular, the ICI will use the knowledge products from the R2R IW project which includes stormwater designs and model outputs, geo-maps, permitting policy, erosion/sediment control guide and RapCA report. However, sustainability in elements of Component 1 (piggery policy) and 2 (PPP’s/agreements) are not so much attributed to ICI so has no control over them except for the riparian planting following the stream work. This includes using the project products and outputs to sustain efforts in establishing public-private partnerships and increase local capacity for waste management and environmental protection.

5. Risks/Assumptions/Conditions:

Context	Specify the identified Conditions, Assumptions and Risks	Provide your assessment in this column
Conditions	The project area has comparatively many investigations and projects conducted, a highly recognisable area due to its aesthetic qualities, and dense tourism population.	RAPCA has provided more information on the project site. This information will benefit future work and studies.
Assumptions	Communities, community leaders, the private sector and the government remain engaged and motivated. Effective awareness material.	The community did remain interested in the stormwater work. This could be attributed to the severe flooding that has been occurring since April 2018.
Risks	No interest from the community, community leaders, or private sector.	The community did remain interested in the stormwater work.

Also, assess the overall risk factors (internal or external) to the project which may affect implementation or prospects for achieving project objectives. Use the following scale in rating the risks:

High Risk (H)	There is a probability of greater than 75% that assumptions may fail to hold or materialize, and/or the project may face high risks.
Substantial Risk (S)	There is a probability of between 51% and 75% that assumptions may fail to hold and/or the project may face substantial risks.
Modest Risk (M)	There is a probability of between 26% and 50% that assumptions may fail to hold or materialize, and/ or the project may face only modest risks.
Low Risk (L)	There is a probability of up to 25% that assumptions may fail to hold or materialize, and/ or the project may face only modest risks.

Low Risk – Physical implementation works are already underway for the stormwater/drainage network upgrades, funded by Cook Islands Government. Muri Environment Care is active in the village, and it is foreseen that the group will continue to encourage the community after stream work is completed and revegetate the stream banks. Additionally, from the community consultation, ICI is confident that it has the support of the community for the riparian planting post-stream works. The Erosion and Sediment Control Guidelines will be required under development permits and consent. The piggery policy is expected to be finalized and submitted to Cabinet under the auspices of the Ministry of Health.

7. Overall Implementation Progress Rating

Provide an overall rating of the implementation progress. Also, provide (in 1-2 sentences) the basis of your rating. For the rating, use the following rating definition:

Highly Satisfactory (HS)	Implementation of all components is in substantial compliance with the original/formally revised implementation plan for the project. The project can be presented as “good practice”.
Satisfactory (S)	Implementation of most components is in substantial compliance with the original/formally revised plan except for only a few that are subject to remedial action.
Moderately Satisfactory (MS)	Implementation of some components is in substantial compliance with the original/formally revised plan with some components requiring remedial action.

Moderately Unsatisfactory (MU)	Implementation of some components is not in substantial compliance with the original/formally revised plan with most components requiring remedial action.
Unsatisfactory (U)	Implementation of most components is not in substantial compliance with the original/formally revised plan.
Highly Unsatisfactory (HU)	Implementation of none of the components is in substantial compliance with the original/formally revised plan.

The overall implementation progress rating corresponds with the successful completion of project outputs and activities to achieve targets and outcomes. Effectively, the Cook Islands IW R2R project successfully completed fourteen (14) out of eighteen (18) project outputs, thereby delivering on seven (7) out of nine (9) outcomes. Therefore, the project host agency ICI assessed that project performance has been relatively high or ‘moderately satisfactory.’

ICI underscores the importance and significance of Component 3 partly because of its relevance to the work of the agency. The Cook Islands was far behind properly managing stormwater and the regulating authority had very little in the way of addressing erosion in development. These pieces of work enhance ecological protection and along with the gaps analysis as part of the permitting booklet, work has been a significant contribution to the Environment Act 2003 review. The GeoMap will also greatly contribute to facilitating the work of permitting authorities and education purposes.

Project Contributions to the Regional IW R2R Program Outputs and Outcomes

1. National demonstration to support R2R ICM/IWRM approaches for island resilience and sustainability. Specifically, an account of the status of:

1.1 Successful pilot projects testing innovative solutions involving ICM, IWRM and CCA (linked to the STAR via a larger Pacific R2R network).

The identified innovations of integrated catchment and coastal management measures across the ecosystems from land to sea should lead to a reduction of stresses and improved catchment management. The stormwater designs and model outputs offer useful technological innovations to reduce the fast flow of sediment export from upstream and downstream. The project interventions encourage both innovative technologies involving ICM, IWRM and CCA as well the focus on soft or green solutions to managing stormwater, this is a more sustainable solution as opposed to hard engineering solutions. The Cook Islands IW R2R successfully delivered its target 600ha catchment protection measures exceedingly and achieved 1374ha, instead. The cumulative project contributions of national demonstrations including Cook Islands IW R2R to the Regional IW R2R Program resulted in the actual end of project targets of 26,007ha in the catch, which exceeded the updated original targets of 15,206ha.

1.2 National Diagnostic analysis for ICM conducted for prioritizing and scaling up key ICM/IWRM reforms and investments.

The status of the conduct of diagnostic analysis for priority coastal areas establishes the environmental state and socio-cultural information. Six priority issues came out of the diagnostic consultations: - (i) deterioration of water quality; (ii) stress on ground and surface water resources; (iii) deforestation, riparian, and vegetation clearance; (iv) ecosystem degradation; (v) eutrophication of coastal waters; and (vi) solid and liquid waste management. The IW R2R project at the end of revising the initial logframe chose to focus on catchment management which in a way supports scaling up key ICM/IWRM reforms and investments.

The diagnostic analysis is one step of the R2R Science to Policy Strategic Framework, which starts by collecting baselines and data, preparing diagnostics analysis and state of the coast report, and using the science to inform the preparation of policies and legislations – Strategic Action Framework (SAF) & Plan (SAP).

The results of the RapCA study suggest that Muri Lagoon is heavily over-exploited, and habitats dominated by algae signal the need to reverse stresses from upland use activities, including sediment export and pollution from downstream rivers and other non-point sources discharging directly into the lagoon. Land-based activities and impacts on the streams and river systems within the catchment areas can then be analysed and further advise the assessment of the health of the lagoon. Gender inclusive approaches and sex disaggregated analyses of activities will enable targeted management or regeneration activities that target men, women, and other sectors of the communities. Ongoing monitoring is a key consideration that will benefit all stakeholders. For instance, ecological surveys are scheduled annually so that an empirical dataset is established to verify the remote sensing and the imagery information for mapping long-term changes for decision making.

1.3 Multi-stakeholder leader roundtable networks established for strengthened ‘community to cabinet’ ICM/IWRM.

This area was not explored within the Cook Islands IW Project activities mostly because the activities and outputs relative to waste management and partnerships were practically based out of the Ministry of Health. The IW R2R project provided support to the Ministry of Health in implementing relevant activities in these areas under components 1 & 2. Despite having no steering committee for reasons set out above, the IW R2R project assisted with consultations and meetings towards to production of piggery waste management policy and supporting green solutions for replanting work. Generally, there were limited opportunities for the IW R2R project to contribute to the Regional IW R2R targets including encouraging multi-stakeholder leader networks and strengthening the community-to-cabinet approach.

2. Island-based investments in human capital and knowledge to strengthen national and local capacities for R2R ICM/IWRM approaches, incorporating climate change adaptation

1.1 National and local capacity for ICM and IWRM implementation build to enable best practices in integrating land, water, forest and coastal management and climate change adaptation.

The Cook Islands IW & STAR R2R projects benefited from the R2R post-graduate training course offered at James Cook University, with at least five (5) students graduating with Graduate Certificates and Diplomas. The course plus other informal training strengthened national and local capacities for R2R ICM/IWRM approaches, incorporating climate change adaptation.

Generally, the project’s interventions and activities based on improved stormwater management, improving piggery waste management, improving land development, and communication best practices should lead to the improved national, local, and individual capacity for best practices i.e., ICM and IWRM approach. Climate change adaptation is at the forefront of stormwater management as well as the permitting guide with best practices that can educate developers large and small on things, they can do to reduce negative impacts on the environment. The gaps analysis conducted within the scope of the development of the permitting booklet has assisted the National Environment Service with the review of the Environment Act 2003.

1.2 Incentive structures for retention of local R2R expertise and inter-governmental dialogue on human resource needs for ICM/IWRM initiated.

In relation to 2.1 and the other capacity-building activities conducted by this project, delivered on improving national human capacities in R2R. The graduates continued to work in relevant sectors in the country and others ended up with international positions abroad. This partly responded to the outcomes of the Regional IW R2R project that seeks to increase ICM/IWRM management capacities for better-scaling efforts in future R2R investments and ICM planning.

ICI believes that there is an improved realisation of the need to better manage stormwater. It would have been beneficial to include a detailed training component for compliance officers as part of the IW Project but there were not enough funds to do this. Discussions with STAR Project personnel on this have seen an agreement that it needs to happen.

Since the Muri Stormwater Feasibility, the same feasibility work is now being carried on in other catchments so for ICI personnel, human capacities within the same area have improved and it is a goal to continue feasibility work in each catchment over time.

3. Mainstreaming of R2R ICM/IWRM approaches into national development planning

1.1 National and regional strategic action frameworks for ICM/IWRM endorsed nationally and regionally

The Cook Islands IW R2R project contributed to the Regional IW R2R project in mainstreaming of R2R ICM/IWRM approaches into national development planning. There are functioning Inter-Ministerial Committee in the country whose ToR covers natural resource management. However, there was none established specifically for the IW R2R project for reasons outlined earlier. The project did not fully follow the R2R Science to Policy Strategic Framework; however, it was able to complete steps relative to the collection and documenting baseline data and information (RapCA report) and production of a diagnostic report. The project was not able to produce the 'State of the Coasts/ Islands' and Strategic Action Framework (SAF) and Plan (SAP) reports as a basis for decision-making and R2R investments. The priority policy reforms and actions offered through the diagnostic analysis and RapCA reports would be useful starting points for mainstreaming R2R ICM/ICM/CCA approaches into national development planning.

Notwithstanding, the Erosion and Sediment Control Guidelines will be used as conditions required under permits and consent. So here, this approach is a part of the ICM approach to go hand in hand with other existing and new standards that will come out of the current review process of the Environment Act. It is not clear whether the dry litter piggery method will be encouraged by the sector. This line of work is outside the responsibility of ICI.

1.2 Coordinate approaches for R2R integrated land, water, forests and coastal management and climate change adaption

As above, no inter-ministerial committees have been formed. However, because some Outputs (ESC Guidelines, permitting booklet) are now a standard part of the land development process, coordination is formally required.

Project contributions to the GEF Focal Areas, SDGs including Special Themes

This Chapter provides snapshots of the contribution of the national demonstration project contributions to the GEF Focal Areas such as International Waters, Biodiversity Conservation, Land Degradation, Sustainable Forest Management, and Climate Change Adaptation. Provide response only to the appropriate GEF Focal area/s where your project contributes to. Delete those that are not applicable or relevant.

GEF Focal Areas

1. **International Waters**

Through initiating proper planning and designing of drainage management systems, a major contribution to stream and lagoon degradation will be attended to through the retention and attenuation of sediment (nutrient) laden floodwaters. With the permitting booklet aiming to encourage sustainable practices, it is hoped that developers will prioritise riparian planting where appropriate while the tourism sector is also encouraged to riparian plants along stream banks that border their properties.

2. **Biodiversity Conservation**

The Cook Islands Ridge to Reef IW Project contributes to reducing stressors to the lagoon ecosystem and therefore biodiversity of the lagoon by working to prevent/reduce the sedimentation contributions to the marine environment. The remnant of the beach planting undertaken by Muri Environment Care helps to enhance Biodiversity in that area.

3. **Sustainable Forest Management**

No contribution.

4. **Land Degradation**

The Erosion and Sediment Control Guidelines specifically target land degradation. The permitting booklet may also contribute to reduced land degradation through its encouragement of sustainable practices in land development and everyday living.

5. **Climate Change Adaptation**

The Cook Islands IW R2R Projects output of development designs for stormwater/drainage management directly attends to increasing resilience to the impacts of climate change. With proper implementation of the design, green solutions in terms of land-based attenuation of floodwaters and stream improvements are a long term-based adaptation measure. The community will also benefit from this work through better protection from flood waters. These measures also contribute to economic gains through avoidance of damaging effects caused by floods/intense rainfall as has been occurring since April 2018. It is estimated that hundreds of thousands of dollars were spent in clean-up efforts during the first April 2018 severe flooding.

Sustainable Development Goals (SDGs)

The project was expected to contribute to 11 of the 17 SDGs. These are SDG 1 – No poverty, SDG 2 – Zero hunger, SDG 3 – Good health and well-being, SDG 4 – Quality education, SDG 5 – Gender equality, SDG 6 – Clean water and sanitation, SDG 12 – Responsible production and consumption, SDG 13 – Climate action, SDG 14 – Life below water, SDG 15 – Life on land, SDG 17 – Partnerships for the goals. Please use the table below to briefly (in 2-3 sentences) indicate your project’s contribution to the relevant SDGs. Please respond only to the appropriate SDG that your project is contributing to.

SDG	Project contributions
SDG 1 – No Poverty	None
SDG 2 – Zero hunger	None
SDG 3 – Good health and well-being	Yes – protect the built environment and lagoon degradation
SDG 4 – Quality education	Yes – permitting booklet, GeoMap
SDG 5 – Gender equality	None
SDG 6 – Clean water and sanitation	None
SDG 12 – Responsible production and consumption	None
SDG 13 – Climate change	Yes – Adaptation measures for increased rainfall
SDG 14 – Life below water	Yes – reduction in sediment to the lagoon (ESC Guidelines, stormwater management)
SDG 15 – Life on land	Yes – protection for homes and public infrastructure, soil retention
SDG 17 – Partnerships for the goals	N/A

Special Themes

1. Gender Mainstreaming

No gender-based work took place recognising the project carried out workshops, training, and the like. A summary table or list of all the training conducted indicates the number of participants and the number of males/females. With this summary sheet, please attach the attendance sheets as a complete annex to this final report).

Lessons Learned (Innovations and Catalytic Impacts)

ICI has reported on Lessons Learned in a separate report, and therefore briefly referenced them here in this report. The key lesson relates to the multiple agencies hosting the project and responsible for delivering project outputs. ICI came in halfway through project implementation therefore unable to carry out the activities under the initial results framework as they were the responsibilities of other Government agencies/ Ministries. This practice is relatively costly and inconvenient and should be avoided in the future.

Innovative aspects

Overall lessons and new learnings have been a hugely positive step toward integrated catchment management. With the streams of work currently underway - Environment Act 2003 review and Infrastructure Act 2019 and Regulations enactment - the IW R2R attends to areas that need to be attended to.

Strategy

There is a Sustainable Land Management Implementation Plan for the Cook Islands. The IW R2R contributes to progressing sustainable land management as well as catchment management including the movement towards green solutions rather than hard engineering solutions as is becoming increasingly where the professional world is moving towards.

Cooperation and Processes

The IW R2R has contributed to land development compliance through the Erosion and Sediment Control Guidelines and the Permitting Booklet, and the Gaps Analysis conducted to produce the Permitting Booklet.

Steering

The project went through a significant overhaul as ICI personnel could see that there was a better way to utilise the project for positive change. ICI was developing an Infrastructure Bill (enacted in 2019) and drafted regulations for drainage, and the project results were a useful reference. Due to the drainage standards already being drafted, ICI engineers recommended targeting erosion and sediment control for funding under the IW R2R.

Catalytic impacts

The Cook Islands IW R2R demonstration project's specific results on the feasibility work on stormwater/drainage designs and modelling are already started to be deployed to other catchments on Rarotonga. From the workshop held and follow-up community presentation, there was significant interest from the community in this type of work (stormwater/drainage management). Ongoing intense rainfall is repeatedly highlighting the dire need for improved stormwater management and the community understands and prefers green solutions over hard engineering solutions.

The Erosion and Sediment Control Guideline is the first of its kind in the Cook Islands. The guideline is a detailed description of what to do and how to go about doing it and why the work should be done. An additional beneficial task not accounted for at the beginning of the project was to train compliance officers in erosion and sediment control methods.

Annexes

Annexes	Title of the document
Annex 1	IW R2R LogFrame - Cook Islands 2019 https://www.pacific-r2r.org/resource-library/iw-logframe-cook-islands-2019-updated-20191126 Results Framework DRAFT v.02 20190712
Annex 2	https://www.pacific-r2r.org/resource-library/results-framework-draft-v02-20190712
Annex 3	MYCWP_CookIslands_20191120v2 https://www.pacific-r2r.org/resource-library/mycwpcookislands20191120v2
Annex 4	Cook Islands Q4 2020 IWR2R Quarterly Workplan FINAL https://www.pacific-r2r.org/sites/default/files/2022-06/Cook%20Islands%20Q4%202020%20IWR2R%20Qrterly%20Workplan%20FINAL.pdf
Annex 5	Cook Islands Asset External Transfer Form - signed https://www.pacific-r2r.org/sites/default/files/2022-06/Asset%20External%20Transfer%20Form%20-%20signed.pdf
Annex 6	National R2R Programme Document https://www.pacific-r2r.org/sites/default/files/2020-03/Cook%20Islands.pdf
Annex 7	Memorandum signed between SPC and Cook Islands – IW R2R project https://www.pacific-r2r.org/sites/default/files/2022-06/Memorandum%20of%20Understanding%20%28MoA%29%20-%20signed.pdf
Annex 8	Memorandum signed between IW R2R project and Muri Environment Care
Annex 9	IW R2R National Project Extension Letter of Variation Cook Islands 2 https://www.pacific-r2r.org/sites/default/files/2022-06/IW%20R2R%20National%20Project%20Extension%20Letter%20of%20Variation%20CookIslands%2020191....pdf
Annex 10	IW R2R National Project Extension- Letter of Variation Cook Islands 3 https://www.pacific-r2r.org/sites/default/files/2022-06/IW%20R2R%20National%20Project%20Extension-%20Letter%20of%20Variation3-Cook%20Islands.pdf
Annex 11	Piggery Waste Management Policy
Annex 12	Public-Private Partnerships Inf. Recommendation for PPPs in the tourism sector in ICM in Muri Review of National and Regional PPPs Guidelines for PPPs Ridge to Reef – a public-private partnership https://www.pacific-r2r.org/sites/default/files/2022-06/Appendix%203b_Ridge%20to%20Reef%20-%20public-private%20partnerships.pdf
Annex 13	COO Final Report 2018 Technical Assistance Consultant’s Report ADB TA – 9292 REG https://www.pacific-r2r.org/sites/default/files/2022-06/Appendix%203a_TA-9292%20COO%20Final%20Report_Oct%202018.pdf
Annex 14	Cook Islands Private Partnership Policy https://www.pacific-r2r.org/sites/default/files/2022-06/Cook%20Islands%20Private-Private%20Partnership%20Policy_Final%20Aug%202018.pdf

Annex 15	Rapid Assessment of Priority Coastal Area and Lagoon of Muri Catchment, Rarotonga, Cook Islands https://www.pacific-r2r.org/sites/default/files/2021-10/Cook%20Islands%20Muri%20RapCA%20Report.pdf
Annex 16	Muri Rapid Coastal Assessment presentation - Consultant https://www.pacific-r2r.org/sites/default/files/2022-06/Muri%20Rapid%20Coastal%20Assessment%20presentation%20-%20Consultant.pdf
Annex 18	Cook Islands Ridge to Reef Island Diagnostic Analysis Technical Report https://www.pacific-r2r.org/sites/default/files/2021-08/Cook_Islands_IDA%20Report.pdf
Annex 19	IW R2R and American Samoa EPA Regional Knowledge Exchange: Improved Domestic Pig Waste Management – Workshop Summary Report https://www.pacific-r2r.org/sites/default/files/2020-03/workshop-summary-report_0.pdf
Annex 20	IW R2R Project Most Significant Change Poster – Community ownership is key https://www.pacific-r2r.org/sites/default/files/2020-03/MSC_Poster_Layout_Cook_Islands_IW.pdf
Annex 21	MTVKTV Muri Environmental Investigation Report Summary – seaweed problem https://www.totatouvai.co/post/muri-seaweed-problem-highlights-need-for-centralised-wastewater-system
Annex 22	MTVKTV Muri community meetings https://www.totatouvai.co/files/ugd/596eb4_0a1a43690bda454cb1a61019944adcb6.pdf
Annex 23	MTVKTV Wastewater disposal options https://www.totatouvai.co/files/ugd/596eb4_0a1a43690bda454cb1a61019944adcb6.pdf
Annex 24	MTVKTV Muri-Avana environmental investigation https://www.totatouvai.co/files/ugd/596eb4_83f9a54592134bc194eec9e56999f11b.pdf
Annex 25	Erosion and Sediment Control Standards Guidelines for the Cook Islands https://chm.cbd.int/api/v2013/documents/B63E7679-3021-D4C6-9E51-67575CF0AB8E/attachments/213267/Erosion%20and%20Sediment%20Control%20Guidelines%20for%20the%20Cook%20Islands_Final.pdf https://www.pacific-r2r.org/sites/default/files/2022-06/Erosion%20and%20Sediment%20Control%20Guidelines%20for%20the%20Cook%20Islands_Final.pdf
Annex 26	Permitting Process Guide, Supporting Information & GAP analysis https://www.pacific-r2r.org/sites/default/files/2022-06/Permitting%20Process%20Guidelines%20-%20Gap%20analysis%20report%2010.07.19.%20draft%20for%20client%20review.pdf
Annex 27	Cook Islands Land Development Guide https://1wxnz61u8jvq403py51p5ugp-wpengine.netdna-ssl.com/wp-content/uploads/2021/08/Cook-Islands-Development-Guide.pdf
Annex 28	Muri Stormwater Management Feasibility study report final https://www.pacific-r2r.org/sites/default/files/2022-06/Muri%20Stormwater%20Management%20Feasibility%20study%20report_final.pdf
Annex 29	Stormwater Management Solutions Detailed Muri-Aroko-Avana Drainage Design https://www.pacific-r2r.org/sites/default/files/2022-06/Appendix%201_Stormwater%20Management%20Muri%20%26%20Aroko%20Drainage%20200903.pdf
Annex 30	Map Muri-Aroko-Avana Drainage Improvement https://www.pacific-r2r.org/sites/default/files/2022-06/Appendix%202%20MAP%20Muri%26Aroko%20Drainage%20Improvement.pdf

Annex 31	Cook Islands International Waters Ridge to Reef Project – Results and Lessons Learned Report https://www.pacific-r2r.org/sites/default/files/2022-05/LL_CI_01_lessons%20learned_Cook%20Islands_updated%20%282%29%20%281%29.pdf
Annex 32	Cook Islands Land Development Guide https://www.pacific-r2r.org/sites/default/files/2022-06/Cook%20Islands%20Land%20Development%20Guide.pdf
Annex 33	Final Cook Islands Building Code https://www.pacific-r2r.org/sites/default/files/2022-06/Final%20Cook%20Islands%20Building%20Code%202019_1.pdf
Annex 34	Cook Islands EOI TOR Technical Assistance R2R FINAL https://www.pacific-r2r.org/sites/default/files/2022-06/EOI%20TOR%20Technical%20Assistance%20R2R%20FINAL%20V1.0%20070119.pdf
Annex 35	Cook Islands IW R2R RapCA newspaper article Cook Islands IW R2R RapCA facebook article https://www.pacific-r2r.org/sites/default/files/2022-06/Appendix%204%20RapCA%20FB.jpg Cook Islands IW R2R Muri Community meeting https://www.pacific-r2r.org/sites/default/files/2022-06/Appendix%205%20Muri%20community%20meeting.jpg
Annex 36	MAP Ngatangia Lagoon ICI Survey 151127 https://www.pacific-r2r.org/sites/default/files/2022-06/MAP%20Ngatangia%20Lagoon%20ICI%20Survey%20151127.pdf
Annex 37	Request-for-Quotation-RapCA-RFQ-130520 https://www.pacific-r2r.org/sites/default/files/2022-06/Request-for-Quotation-RapCA-RFQ-130520.pdf
Annex 38	
	Cook Islands News
Annex 39	Fixing drainage in flood prone Muri https://www.pacific-r2r.org/news/fixing-drainage-flood-prone-muri Infrastructure Cook Islands is conducting a coastal investigation off Avana and Muri. https://www.pacific-r2r.org/news/infrastructure-cook-islands-conducting-coastal-investigation-avana-and-muri
Annex 40	Project page https://www.pacific-r2r.org/partners/member-countries/cook-islands
	Publications
Annex 41	COOK ISLANDS INTERNATIONAL WATERS RIDGE TO REEF PROJECT RESULTS AND LESSONS LEARNED https://www.pacific-r2r.org/sites/default/files/2022-05/LL_CI_01_lessons%20learned_Cook%20Islands_updated%20%282%29%20%281%29.pdf
Annex 42	Rapid Assessment of Priority Coastal Area and Lagoon of Muri Catchment, Rarotonga, Cook Islands https://www.pacific-r2r.org/sites/default/files/2021-10/Cook%20Islands%20Muri%20RapCA%20Report.pdf
Annex 43	Cook Islands Ridge to Reef Island Diagnostic Analysis Technical Report https://www.pacific-r2r.org/sites/default/files/2021-08/Cook_Islands_IDA%20Report.pdf
Annex 44	MSC Poster Cook Islands IW Most Significant Change https://www.pacific-r2r.org/sites/default/files/2020-03/MS_Cook_Islands_IW.pdf

Annex 45. List of Personnel Supporting the Cook Islands IW R2R Project Implementation:

Infrastructure Cook Islands

Diane Charlie-Puna – Former Secretary
Gareth Clayton – Senior Engineer
Paul Maoate – Senior Engineer
Jaime Short – Project Manager
Teresa Manarangi-Trott – Former Programme Coordinator
Pehau Browne – Finance Manager
Vaipo Mataora – Director, Hydrography Division

Tonkin and Taylor Ltd

Chris Purchas – Project Manager
Sarah McCarter – Senior Planner
Sharon Parakal – Senior Infrastructure Environment Consultant

Muri Environment Care

Mii Kauvai – Chairperson
Mata Hetland – Committee member
Anne Tierney – Committee member
William Kauvai – Committee member

Pacific Divers

Stephen Lyon – Contract Lead, RapCA

National Environment Service

Hayley Weeks – R2R STAR Project Manager
Muraai Herman – R2R STAR Project Officer
Maria Tuoro – former R2R STAR Project Manager
Louisa Karika – Deputy Director, NES

Ministry of Health

Teokotai Nooapii – Sanitation Officer
Tata Vaeau - Sanitation Officer
Claytoncy Taurarii – Health Protection, Compliance Officer