

Concept Note

Project/Programme Title: **Waste Water and Sanitation – Me Te Vai Ki Te Vai Project**

Country(ies): Cook Islands

National Designated Authority(ies) (NDA): Climate Change Cook Islands

Accredited Entity(ies) (AE): Ministry of Finance and Economic Management & another AE (not yet identified)

Date of first submission/
version number: 13/02/2019

Date of current submission/
version number: [YYYY-MM-DD] [V.0]



Notes

- The maximum number of pages should **not exceed 12 pages**, excluding annexes. Proposals exceeding the prescribed length will not be assessed within the indicative service standard time of 30 days.
- As per the Information Disclosure Policy, the concept note, and additional documents provided to the Secretariat can be disclosed unless marked by the Accredited Entity(ies) (or NDAs) as confidential.
- The relevant National Designated Authority(ies) will be informed by the Secretariat of the concept note upon receipt.
- NDA can also submit the concept note directly with or without an identified accredited entity at this stage. In this case, they can leave blank the section related to the accredited entity. The Secretariat will inform the accredited entity(ies) nominated by the NDA, if any.
- Accredited Entities and/or NDAs are encouraged to submit a Concept Note before making a request for project preparation support from the Project Preparation Facility (PPF).
- Further information on GCF concept note preparation can be found on GCF website [Funding Projects Fine Print](#).

A. Project/Programme Summary (max. 1 page)			
A.1. Project or programme	<input checked="" type="checkbox"/> Project <input type="checkbox"/> Programme	A.2. Public or private sector	<input type="checkbox"/> Public sector <input checked="" type="checkbox"/> Private sector
A.3. Is the CN submitted in response to an RFP?	Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, specify the RFP: _____	A.4. Confidentiality¹	<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Not confidential
A.5. Indicate the result areas for the project/programme	<p>Mitigation: Reduced emissions from:</p> <input type="checkbox"/> Energy access and power generation <input type="checkbox"/> Low emission transport <input type="checkbox"/> Buildings, cities and industries and appliances <input type="checkbox"/> Forestry and land use <p>Adaptation: Increased resilience of:</p> <input checked="" type="checkbox"/> Most vulnerable people and communities <input checked="" type="checkbox"/> Health and well-being, and food and water security <input checked="" type="checkbox"/> Infrastructure and built environment <input type="checkbox"/> Ecosystem and ecosystem services		
A.6. Estimated mitigation impact (tCO₂eq over lifespan)		A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)	100%
A.8. Indicative total project cost (GCF + co-finance)	Amount: USD 350,000	A.9. Indicative GCF funding requested	Amount:
A.10. Mark the type of financial instrument requested for the GCF funding	<input checked="" type="checkbox"/> Grant <input type="checkbox"/> Reimbursable grant <input type="checkbox"/> Guarantees <input type="checkbox"/> Equity <input type="checkbox"/> Subordinated loan <input type="checkbox"/> Senior Loan <input type="checkbox"/> Other: specify _____		
A.11. Estimated duration of project/ programme:	a) disbursement period: 3-5 years b) repayment period, if applicable:	A.12. Estimated project/ Programme lifespan	20+ years
A.13. Is funding from the Project Preparation Facility requested?²	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other support received <input type="checkbox"/> If so, by who:	A.14. ESS category³	<input checked="" type="checkbox"/> A or I-1 <input type="checkbox"/> B or I-2 <input type="checkbox"/> C or I-3
A.15. Is the CN aligned with your accreditation standard?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	A.16. Has the CN been shared with the NDA?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A.17. AMA signed (if submitted by AE)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, specify the status of AMA negotiations and expected date of signing:	A.18. Is the CN included in the Entity Work Programme?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A.19. Project/Programme rationale, objectives and approach of programme/project (max 100 words)	Increased rainfall intensity (as per evidence attached from the Cook Islands Meteorological Office) has led to an increased risk of flooding in the Cook Islands. The impact of flooding on sanitation systems is causing an increase in the overflow of sewage/solid waste into the lagoon. Without a reticulation system, nutrients will continue to wash into the lagoon more frequently, which is currently happening. If we do not take action, the marine life will be at risk and so will our community livelihoods (for source of food) from contamination.		

¹ Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy ([Decision B.12/35](#)) and the Review of the Initial Proposal Approval Process ([Decision B.17/18](#)).

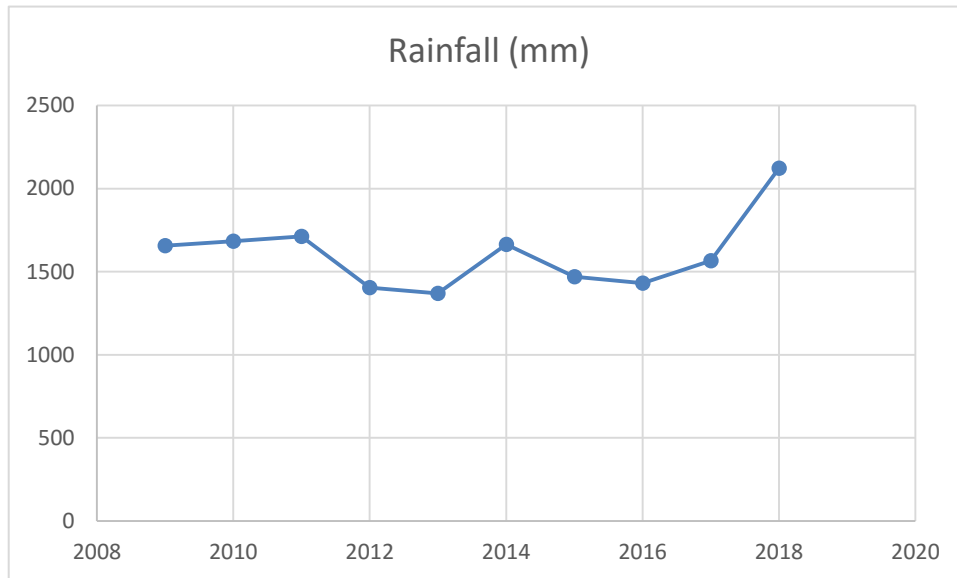
² See [here](#) for access to project preparation support request template and guidelines

³ Refer to the Fund's environmental and social safeguards ([Decision B.07/02](#))

B. Project/Programme Information (max. 8 pages)

B.1. Context and baseline (max. 2 pages)

The Cook Islands are 15 low lying islands scattered over almost 2 million square kilometers of Pacific Ocean. Forecasts by the Intergovernmental Panel on Climate Change indicate that the country will be impacted by rising annual mean and extreme high daily temperatures; more extreme rain events, continued rising sea-level, more intense tropical cyclones and assumed increased level of ocean acification. It is anticipated that this will result in increased impact of flooding in the Cook Islands. Rainfall patterns provided from the Meteorological office from the past 10 years are clearly indicating an increase in the rainfall in the Cook Islands and the current level of rain fall is quite high.



The programme is focused on implementing a reticulation system to reduce contaminated water from seeping into the lagoon as a result of the impacts of flooded septic tanks caused by increase rainfall.

The proposed programme contributes towards the realization of Goal 13 of the Cook Islands National Sustainable Development Plan to 'Strengthen resilience to combat the impacts of climate change and natural disasters.

It also contributes to the Joint National Action Plan for Climate Change and Disaster Risk Management under

- STRATEGY 3: ENVIRONMENTAL SUSTAINABILITY to Promote sustainable land use practices for the protection and conservation of our environment and the efficient management of waste with particular reference to
- Action 10 Improve the conservation and management of marine and terrestrial biodiversity, to the impacts of climate change.
- Action 12 Improve and promote solid and hazardous waste management systems to address environmental and climate related risks.
- Action 13 Strengthen sanitation infrastructure to address health, environmental and climate related risks on all islands.

Describe the main root causes and barriers (social, gender, fiscal, regulatory, technological, financial, ecological, institutional, etc.) that need to be addressed.

B.2. Project/Programme description (max. 3 pages)

Climate change can affect the livelihood of our communities and marine life through a range of mechanisms. These include relatively direct effects of hazards floods and storms as a result of increased intense rainfalls that we in the Cook Islands have experienced over the past recent years.

The programme is clearly designed for a paradigm shift. The overall paradigm shift objective of the programme is to mitigate the risk of nutrients seeping into the lagoon to protect our marine life and community livelihoods (for source of food) from contamination.

An environmental investigation into sources of pollution in Muri Lagoon has been undertaken for the Cook Islands Government and a Concept Design has been produced based on the findings of the investigation.

The Concept Design identifies two technically feasible solutions from a range of options available. These represent the most practicable technical solutions to provide sanitation in the Muri area and reduce pollution in the Muri Lagoon. The report is intended to assist in future consultation work and to inform a Detailed Design phase following a decision by the Government on the preferred option.

Two shortlisted Concept Designs for reticulation, treatment and disposal have been prepared for Government consideration. Both are technically feasible, with each having specific advantages and disadvantages which will need to be considered in deciding on the preferred option to be taken forward for Detailed Design. Two reticulation options were considered:

- A gravity reticulation system concept is recommended to be taken forward to the Detailed Design stage. This is common for all treatment and disposal options. Whilst more expensive than other possible reticulation systems, this reticulation concept is well proven, robust and low maintenance and is best suited to the Rarotongan context in which it would operate.
- A pressure sewer system, whilst cheaper from a capital expenditure perspective, requires a higher level of maintenance and operation management and householder responsibility for maintenance. As a result this option would have a higher level of risk associated with long term operation and maintenance.

The results of these investigations have confirmed that the current waste treatment system in Muri is contributing to the degradation of the Muri Lagoon. A current wastewater management system based on on-site systems discharge to ground.

Previous reports that have determined that this discharge to ground is likely to be contributing to the high nutrient load in the lagoon through groundwater pathways, and a reticulation system in Muri collecting the current wastewater being produced is likely to contribute to reducing this high lagoon nutrient loading by reducing further nutrients entering the groundwater pathways.

A permanent wastewater infrastructure intercepting, treating and safely disposing of this residential and commercial wastewater effluent would therefore contribute to mitigating these water quality issues.

The environmental investigation identified that the shallow groundwater aquifer, within the coral sand terrace that forms the beach interacts with streams and swamps and receives considerable recharge from rainfall. Groundwater from this aquifer discharges into the lagoon close to the shore.

During summer months, when rainfall intensity is highest, groundwater levels increase and the streams receive groundwater as well as run-off. This groundwater, in built up areas, is contaminated by discharges from the septic tanks and contributes to pollution in the lagoon.

Nutrient concentrations are very elevated in the shallow aquifer adjacent to wastewater treatment systems, but decrease with distance from the systems. However, in the northern section of Muri Beach adjacent to the areas of greatest development, nutrient concentrations remain elevated in groundwater discharging at the beach.

The risk of further contaminated water flowing into the lagoon from flooded septic tanks will be reduced by the construction of a reticulated system

The programme is made up of 4 components as follows:

Component 1: Project Design – develop detailed architectural plans of the Waste water Infrastructure

Component 2: To implement the design of Reticulation System

Component 3: To implement the design of Secondary Treatment System

Component 4: Discharge/Disposal options – Land Disposal or Ocean Outfall Disposal

B.3. Expected project results aligned with the GCF investment criteria (max. 3 pages)

The GCF is directed to make a significant and ambitious contribution to the global efforts towards attaining the goals set by the international community to combat climate change, and promoting the paradigm shift towards low-emission and climate-resilient development pathways by limiting or reducing greenhouse gas emissions and adapting to the impacts of climate change.

Provide an estimate of the expected impacts aligned with the GCF investment criteria: impact potential, paradigm shift, sustainable development, needs of recipients, country ownership, and efficiency and effectiveness.

B.4. Engagement among the NDA, AE, and/or other relevant stakeholders in the country (max ½ page)

The AE and NDA have been in constant communication regarding the project proposal idea. Both parties agreed to put the idea forward to the Infrastructure Committee for endorsement to put the programme concept note draft through to the GCF for consideration.

Stakeholder and community engagement has been ongoing throughout the options development phase, beginning with the July 2017 workshop. Engagement methods have included meetings; presentations; publishing regular newsletters; keeping the project website up-to-date; media relations; posting to the project Facebook page and publishing a disposal guide. We have provided stakeholders and the community with information to inform them about the options development process, the viable infrastructure options, and the results of environmental and scientific investigations.

The Cook Islands Government and PMU jointly presented the disposal options content at a public workshop on 6 December 2017. While this workshop attracted a smaller group of people than previous workshops, attendees included representatives from some key interest groups including plumbing industry, tourism industry, Aronga Mana and environmental groups. Workshop attendees were highly engaged in the content presented.

Based on comments and questions raised, there was some indication that sentiment appears to have shifted to some degree from strong opposition to ocean outfall as a disposal option, to a more balanced view. Attendees acknowledged the challenges of locating and acquiring suitable land for a land-based option.

Land treatment systems for wastewater can be very successful, but there is often a need to demonstrate their efficacy on a limited local scale to allay fears and misconceptions. Adding a land treatment component to the ocean outfall may also reduce some of the resistance to an outfall option, while at the same time giving the opportunity to use the land treatment system for demonstration to the community, and potentially proving its value for safe and reliable agriculture. Hybrid Option 2B also builds on recent discussions with the public and their potential interest in the commercial re-use of seaweed harvested from the lagoon, and possibly the biosolids (wastewater sludge).

We will need to test this with stakeholders and the community to understand whether recycled biosolids could be used on food crops. The trial would respond to concerns raised by the community about the lack of water for irrigation in the Avana valley (and elsewhere). It will also help confirm (in the longer term) the viability in terms of operation and maintenance requirements.

The Cook Islands Government have engaged a consultancy company to undertake the social cultural impact assessment which commenced in November 2018 and is scheduled to be complete by the 28th March 2019.

The central concern of social impact assessment is understanding what people value, and how changes in the future will affect what they value (Vanclay et al., 2015). What people value is sometimes termed ‘social values’. Social values can vary between communities, and within communities (e.g., some individuals within a community may value certain things more than other individuals).

Engagement with these key stakeholder groups have taken place to develop the social-cultural impact assessment report.

- Vulnerable peoples/communities: Attention will be given to obtaining the perspectives and opinions of vulnerable people. This includes identifying needs of older people, people with disabilities and young people resident in the Ngatangia area
- The Aronga Mana: It is crucial that the Aronga Mana of Ngatangia are consulted given their significance to decision making processes involving their matakeinanga (tribes) and as primary custodians of natural resources of their specific areas.
- Business interests: The Ngatangia business community will also be consulted. This consultation will not only be with the large business owners but also the smaller and more informal business operators, particularly those of Cook Islands descent within the community.

Further engagement will be undertaken as the concept is developed into a funding proposal.

C. Indicative Financing/Cost Information (max. 3 pages)

C.1. Financing by components (max ½ page)

Please provide an estimate of the total cost per component/output and disaggregate by source of financing.

	Indicative cost	GCF financing	Co-financing
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Component/Output	(USD)	Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
Project Design – develop detailed architectural plans of the Waste water Infrastructure	50,000,000					
To implement the design of Reticulation System	100,000,000					
To implement the design of Secondary Treatment System	100,000,000					
Discharge/Disposal options – Land Disposal or Ocean Outfall Disposal	100,000,000					
Indicative total cost (USD)	350,000,000					

For private sector proposal, provide an overview (diagram) of the proposed financing structure.

C.2. Justification of GCF funding request (max. 1 page)

The proposed programme is fully in line with the GCF's focus on promoting transformational change. The programme will benefit the entire Cook Islands population by sustaining the current state of the lagoon which is used for community recreation and survival as a means of food security. The programme will also protect the marine life and mitigate the risk of contaminated water seeping into the lagoon.

If contaminated water continues to seep into the lagoon as a result of flooded septic tanks, the effects on Human Health will become an issue in the future.

The Cook Islands government will be looking to seek funding from the Green Climate Fund to blend with other sources of funding as the overall cost of this programme is large to bear on one source of finding alone. The Cook Islands government will also fund a portion of this vital programme.

The proposed programme contributes towards the realization of Goal 13 of the Cook Islands National Sustainable Development Plan to 'Strengthen resilience to combat the impacts of climate change and natural disasters.

It also contributes to the Joint National Action Plan for Climate Change and Disaster Risk Management under

- STRATEGY 3: ENVIRONMENTAL SUSTAINABILITY to Promote sustainable land use practices for the protection and conservation of our environment and the efficient management of waste with particular reference to
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- Action 13 Strengthen sanitation infrastructure to address health, environmental and climate related risks on all islands.

Climate change projections for the Cook Islands suggest rising temperatures, more extreme rain events with declining rainfall in the northern islands, increasing prevailing southeasterly trade winds, anticipated increasing ocean acidification, rising sea levels, more extreme tropical cyclones. This will result in increased impacts on Human and Marine Life.

C.3. Sustainability and replicability of the project (exit strategy) (max. 1 page)

The monitoring of this programme to ensure it is sustained will be at the cost of the Cook Islands Government to maintain.

D. Supporting documents submitted (OPTIONAL)

- Map indicating the location of the project/programme
- Diagram of the theory of change
- Economic and financial model with key assumptions and potential stressed scenarios
- Pre-feasibility study
- Evaluation report of previous project
- Results of environmental and social risk screening

Self-awareness check boxes

Are you aware that the full Funding Proposal and Annexes will require these documents? Yes No

- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous people if relevant
- Gender assessment and action plan
- Operations and maintenance plan if relevant
- Loan or grant operation manual as appropriate
- Co-financing commitment letters

Are you aware that a funding proposal from an accredited entity without a signed AMA will be reviewed but not sent to the Board for consideration? Yes No