

CONCEPT IDEA NOTE FOR CLIMATE RELATED ACTIVITIES THAT MAY BE FUNDABLE BY THE GREEN CLIMATE FUND AND OTHER FINANCIAL SOURCES

This Concept Idea Note is based upon the GCF Concept Note. It is designed to prepare any Concepts or Project Ideas with GCF financing in mind, however, can also be applicable to other financial institutions. Once the Concept Idea Note is completed please send to the CCCI office (as the GCF National Focal Point), where an assessment will be undertaken as to whether the Concept could be eligible for funding under the GCF or other financial source, or both. CCCI will then communicate the result of the assessment back to the proponent, and outline what will next happen to the Concept Idea Note, such as require more information to make a clearer assessment, the submitted Concept is GCF eligible for funding and the next steps, or a determination that outlines the Concept is not eligible for GCF funding but may get funding from another source.

Title of Concept OR Project Idea:

CPU Foreshore Protection

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<p>Indicate the areas for the Concept, which is based upon the CKI Country Program thematic areas</p>	<p><u>Mitigation:</u> Reduced emissions from:</p> <ul style="list-style-type: none"> <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><u>Adaptation:</u> Increased resilience of:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Most vulnerable people and communities <input 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
<p>Indicative total project cost</p>	<p>Amount: NZD 18,000,000.00</p>

Project/Programme rationale, objectives and approach of programme/project (max 100 words)

Brief summary of the problem statement and climate rationale, objective and selected implementation approach, including the executing entity(ies) and other implementing partners.

We are losing our beaches to coastal erosion and expect to see more loss in the future with the rising sea-levels due to climate change. This project aims to combat this and potentially reverse those effects long-term using a Cook Island designed product and technology, proven to work over 20 years ago, to protect and even grow a beach.

The product can be manufactured in-Country but not without the much-needed cooperation and support of external funding, the Government and its Agencies.

This is an opportunity to address a regional and possibly even a global problem.

Context and baseline (max. 2 pages)

Describe the climate vulnerabilities and impacts, GHG emissions profile, and mitigation and adaptation needs that the prospective intervention is envisaged to address.

Please indicate how the project fits in with the country's national priorities and its full ownership of the concept. Is the project/programme directly contributing to the country's INDC/NDC or national climate strategies or other plans such as NAMAs, NAPs or equivalent? If so, please describe which priorities identified in these documents the proposed project is aiming to address and/or improve.

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

Where relevant, and particularly for private sector project/programme, please describe the key characteristics and dynamics of the sector or market in which the project/programme will operate.

The issue.

In news, as recent as this week, the world has seen a once sandy atoll that was important to maintaining the endangered green turtle and seal population of Hawaii, disappear under the sea. This is just the most recent example of the shrinking islands caused by the rising sea levels because of Climate Change. For the past few months and even years, our neighbours in Kiribati and Tuvalu have been threatened with similar experiences, but instead of it affecting turtle or other sea creature populations, it is affecting their very own lives. These realities are reason enough to recognize the importance and potential this project has, to benefit our region today.

Competing technology.

There is no other invention or technology, tailored to solve the coastal erosion problem of the small Pacific Islands, by protecting and rebuilding its low-lying coastal areas through harnessing the elements from its natural environment. Currently, the Cook Islands uses rock revetments and retaining walls. This method loses sand, not keeps sand on our beaches and must be rebuilt every few years due to the sand loss underneath the structures causing the rocks to fall over. The sand loss underneath the structures is due to the negative energy of the wave not being pacified and instead met with more negative energy rather than a pacifier. This is a high cost, high maintenance band-aid for the protection of land, but in no way, is it addressing the issue of erosion.

Other alternatives available elsewhere in the world include concrete structures of various odd shapes as offshore breakwater protection, something we naturally have by way of our coral reefs. These solutions would not be ideal for use in the reef protected Cook Islands however, as they, much like rock revetments and walls, do not address erosion of sand from our coastal areas.

Background.

CPU stands for Coastal Protection Units and is the brainchild of coastal engineer Mr. Don Dorrell, a Cook Islander. It is a technology designed in a time when Climate Change was not the developed concept that it is today, and certainly wasn't a concern of the Cook Islands and its people. The CPU was built in response to the failures of rock revetments and retaining walls to effectively save our coastal properties from erosion and there not being any engineer in the field with a solution to coastal erosion.

The goal when it was being invented, was to preventing the eroding of and to "regrow" the sandy beaches of Rarotonga. The concept was tested in a wave pool by scientists at Victoria University, Melbourne. They found this technology could diffuse the negative energy of a wave and stop any sand from returning out through it once the wave carried it through.

This was proven correct when a long line of CPU units in a "pilot test" if you will, joint funded by NZAid and the private sector, successfully protected and rebuilt around 300m of white sandy beach along the shoreline at The Rarotongan Beach Resort and Spa in Aroa, Arorangi. These units were later removed at the direction of the Hotels management in the 1990's and within 3 years of being removed, the Hotel's beach was in a much worse state than it had ever been prior to the installment of the CPU units. Several units were saved from destruction by the Titikaveka Community and can be seen protecting and re-building parts of the Titikaveka coastline today. The Hotel's beach and neighbouring properties however, are battling with the erosion of their sand.

Design.

A single CPU unit is made of concrete measuring about 2mx1mx1m and is placed directly on the seabed, in the lagoon, side by side, and parallel to the shoreline to which it will shelter. The distance that it will sit into the lagoon can be measured by the natural gradient of the beach or where the shoreline "used to be".

The design of these units was once patented by Mr. Dorrell but are now available to whomever is willing to work with it for the benefit the community at large. This opens the door incidentally for the Cook Islands to lead the region in coastal protection as we have a solution already proven to work. Mr. Dorrell has not made money from the technology as it was never meant to for profit and was deeply discouraged by the huge opposition from individuals both private and in Government and its Agencies.

This design is meant to be a permanent structure as nature doesn't take breaks. Maintenance is minimal as the concrete technology of the current age is much longer lasting than what was available 20+ odd years ago when the first units were built.

Obstacles.

The biggest obstacles to this project, as it was all those years ago, is the regulatory and political barrier. These two tend to twist together as politics strongly influences, maybe even unintentionally, the regulatory bodies. These bodies are the Government Agencies and Ministries setup to protect our interests as the People, such as The National Environment Services, Infrastructure Cook Islands, even The Ministry of Marine Resources and perhaps The Cook Islands Tourism Corporation.

In response to these obstacles, there is only one solution; that these Ministries, their officials and engineers, when reviewing/considering for approval/making decisions/forming an opinion or simply playing their respective parts in this project, must remain objective, neutral of any political influence and let the research and results speak for themselves.

The other major obstacle will be the social barrier. These are things such as the ego's, narrow minds and those not particularly inclined towards the invention itself, its inventor or even we, who hope to recreate this invention for the benefit of the People. From previous experience, there will be much opposition to its physical presence or how much of an eyesore it will be. There will be questions, maybe even rumours unfortunately about what stands to be gained monetarily, socially and even politically by the implementer. These cannot be

helped as most a personally formed opinions, but we can aim to educate these people and raise awareness to the issue it addresses by involving our communities from the beginning.

Implementation.

The writer of this submission will also act as the implementer as he has at his disposal the facilities to manufacture the product and an established relationship with the inventor. The target area is Titikaveka, where an estimated 6km of shoreline has been observed to have disappeared to erosion or is quickly losing sand to erosion. There is potential to expand once the original target area is covered to the western side of the island which will have suffered to some extent from coastal erosion.

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

Please describe how engagement among the NDA, AE and/or other relevant stakeholders in the country has taken place and what further engagement will be undertaken as the concept is developed into a funding proposal.

The implementer has thus far engaged with the inventor for several years, working on the history, the research, the results and the recreating the units. It has finally reached the fund search stage after so long, due to the negative experiences the inventor had with progressing the first trial, although successful, many years ago.

A particular push to get here has been the personal requests from individuals on Rarotonga who want to have CPU units placed at their properties as they have seen it benefit other properties. Of recent months there has been regional interest from Samoa and the Federated States of Micronesia direct to the implementer.

Next step will be to approach the relevant Government Ministries to ensure unified support and endorsement of the project for the least troublesome experience. The community must be consulted around this time to ensure maximum awareness and education to address the social barriers.

Research is being made into suitable suppliers of the materials required to manufacture the product and the most efficient way to do this

During the manufacture of the product, there will need to be a regular engineer checks. For the duration of the project, progress updates must be made to both the Government Agencies, the community and importantly the fund that allows this project to be a reality.

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

Please explain how the project/programme sustainability will be ensured in the long run and how this will be monitored, after the project/programme is implemented with support from the GCF and other sources.

For non-grant instruments, explain how the capital invested will be repaid and over what duration of time.

This project produces a product that is made for the long run. No maintenance is needed for any of the products for at least the two decades, by then some products may break. With the concrete technology of this age, there is hopes this will not happen until well into the third or fourth decade of its use.

After this initial project, the implementer is looking to build a permanent workshop that can manufacture this product for the demand in the region.

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Assessed By and Date:

Recommendation: