Concept Note

Project/Programme Title:	xxxxxxxxxxxxxxxxxx
Country(ies):	Nauru
National Designated Authority(ies) (NDA):	Department of Climate Change and National Resilience
Accredited Entity(ies) (AE):	_____
Date of first submission/ version number:	*[YYYY-MM-DD] [V.0]*
Date of current submission/ version number	*[YYYY-MM-DD] [V.0]*

GREEN CLIMATE FUND

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"CN-[Accredited Entity or Country]-YYYYMMDD"

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.
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A. Project/Programme Summary (max. 1 page)			
A.1. Project or programme	☒ Project ☐ Programme	**A.2. Public or private sector**	☒ Public sector ☐ Private sector
A.3. Is the CN submitted in response to an RFP?	Yes ☐ No ☒ If yes, specify the RFP: _____	**A.4. Confidentiality[1]**	☐ Confidential ☐ Not confidential
A.5. Indicate the result areas for the project/programme	Mitigation: Reduced emissions from: ☒ Energy access and power generation ☐ Low emission transport ☐ Buildings, cities and industries and appliances ☐ Forestry and land use Adaptation: Increased resilience of: ☒ Most vulnerable people and communities ☒ Health and well-being, and food and water security ☐ Infrastructure and built environment ☐ Ecosystem and ecosystem services		
A.6. Estimated mitigation impact (tCO2eq over lifespan)	6,484.00 tCO-2e annually	**A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)**	10,000+
A.8. Indicative total project cost (GCF + co-finance)	Amount: USD 53,500,000	**A.9. Indicative GCF funding requested**	Amount: USD 42,500,00
A.10. Mark the type of financial instrument requested for the GCF funding	☒ Grant ☐ Reimbursable grant ☐ Guarantees ☐ Equity ☒ Subordinated loan ☐ Senior Loan ☐ Other: specify_____		
A.11. Estimated duration of project/ programme:	30 years	**A.12. Estimated project/ Programme lifespan**	40 years
A.13. Is funding from the Project Preparation Facility requested?[2]	Yes ☐ No ☐ Other support received ☐ If so, by who:	**A.14. ESS category[3]**	☐ A or I-1 ☐ B or I-2 ☐ C or I-3
A.15. Is the CN aligned with your accreditation standard?	Yes ☐ No ☐	**A.16. Has the CN been shared with the NDA?**	Yes ☒ No ☐
A.17. AMA signed (if submitted by AE)	Yes ☐ No ☐ 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 ☐ No ☐
A.19. Project/Programme rationale, objectives and approach of programme/project (max 100 words)	Nauru is vulnerable to the impacts of climate change, especially in terms of water scarcity and food security. Nauru is also highly dependent on fossil fuels for its energy needs. Even with the development of variable renewable energies, Nauru will require flexibility measures in energy generation. This project proposes to address Nauru's outlined vulnerabilities by developing an OTEC plant on the Island and supporting the uptake of resilient practices in agriculture and aquaculture. The OTEC plant will be developed under a PPP scheme, and provide 1MW of electricity to the grid, while at the same time catering Nauru's water needs.		

[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)

As with other small island nations, Nauru is particularly vulnerable to the impacts of climate change, including sea level rise, droughts, and the impact that an increase in temperature will have on marine resources and already stressed water and vegetative resources. Nauru has developed a number of development strategies and policy instruments as a response to climate change since 2005. These include the NSDS 2005-2025 (rev 2009); Nauru's Utility Sector-A Strategy for Reform; National Energy Policy Framework; National Energy Roadmap (NERM) 2014-2020; Nauru Utilities Cooperation Act, the Intended Nationally Determined Contribution (NDC), second national communication and RONAdapt, among others. However, the country still needs to implement most of the actions identified in these documents. With a population of 11,690 inhabitants as of 2020,[4] Nauru has very limited capacity to respond to a global threat of this magnitude.

In Nauru, most sectors are interconnected and interdependent, and adaptation actions have significant mitigation co-benefits. Nauru's energy sector is key to achieving most of Nauru's objectives in terms of adaptation. It is crucial to secure energy security, as Nauru mainly relies almost exclusively on foreign fossil fuel imports, with 99 percent of its needs imported[5] for its electricity and other energy needs. Electricity production is mostly powered by diesel and accounts for 6 to 7 million liter a year. The energy sector represents 13.34 Gt CO_2e (68 percent of total GHG emissions of the country), more than half of which is used for electricity generation (36 percent). Transitioning to renewable energy is thus a priority for the country, as shown by Nauru's NDC and NERM. The key mitigation intervention is to replace a substantial part of the existing diesel generation with a large scale grid connected solar photovoltaic (PV) system which would assist in reducing the emissions from fossil fuels.

However, to rely on solar PV generation and other sources of variable renewable energy such as wind, Nauru will need to invest in technologies that will enable the power grid to supply a base load of energy to end-users, as well as to account for the high night time electrical load on the island. Energy storage systems remain expensive and their lifecycle, including recycling and waste management, may prove challenging for a small country such as Nauru. The country will thus require diversifying its energy mix by investing in other technologies. This includes ocean energy technologies, such as wave energy, tidal energy, and ocean thermal energy conversion energy. Ocean energy is predictable across a longer period of time compared to other renewable energy. This makes it one of the best choices to be coupled with solar PV and wind power generation capacities, to stabilize power output to the grid and limit variability.

In addition to the energy sector, Nauru is also extremely vulnerable in terms of water availability. Nauru lacks significant surface water resources; desalination plants and groundwater are its only potable water sources. Water scarcity is already affecting human health. Climate change and disasters will exacerbate these existing challenges of meeting demand for potable water, posing threats to basic livelihoods and constraining opportunities for economic development. Projections indicate Nauru may receive more rainfall in the future, but within shorter periods of intense rain. This could therefore reduce the sustainability of the country's groundwater resources, the health of its population, and the persistence of a vegetation ecosystem. Enhancing water security is therefore both a key national development priority and also fundamental to reducing vulnerability to climate change and to potential disaster events.

Currently, Nauru relies on rainwater harvesting, groundwater, bottled water, and desalinated water. Rainwater harvesting is an important resource for water resilience in Nauru. However, the country can experience extended droughts, some of them during up to 36 months.[6] Reduced rainfalls mean that all households will run out of water and will be entirely dependent on other drinking water sources during this period. In addition, the latest census identified that water storage capacities varied between households, and that 15 percent of all households did not have a water storage tank available. Groundwater is mainly used for toilet flushing, laundry and drinking water after boiling. The groundwater at Nauru is however very contaminated due to the widespread damage to septic tanks as well as seepage from cesspits.

Apart from the rainwater harvesting and groundwater utilization, the only other large water source (excluding bottled water) that can be provided to meet future demand is desalinated water. Desalinated water supplies 68 percent of the total household water demand in Nauru.[7] The desalination plants are energy-intensive and high demand for water thus presents additional burden on the government budget.

This emphasizes the significant relationship between the energy sector and other sectors in Nauru. In addition to its relationship with water, the energy sector may also be related to the agriculture sector, which requires water, produced by energy. Food insecurity is a major risk for Nauru, given the island's dependence on imported foods and its geographic isolation.

Due to the lack of any sustainable agriculture in Nauru, 90 percent of the island's food is imported. For example, Nauru consume less than 25kg/year per capita of proteins, which is equivalent to one third of recommended protein intake but they supplement their diets with imported protein sources.[8] Nauru's strained financial situation makes the high costs of imported food an even greater burden. To make up for these high costs, Nauru imports cheaper, processed food, creating a severe shortage of healthy food in the diets of Nauru's inhabitants. Increased consumption of unhealthy food led to obesity, in turn causing a rise in non-communicable diseases, threatening the health and lives of the people. In Nauru,

obesity rates (BMI>30) exceed 56 percent in women and 46 percent in men. Similarly, the prevalence of anemia in children aged 6-59 months and pregnant women is high in Nauru, with the prevalence of anemia exceeds 40 percent.

Improving water security specifically for agricultural production is a key need, particularly since previous government initiatives; such as Grow and Green, have stalled because of inadequate water.

Energy supply is thus at the center of Nauru's resilience needs. A resilient energy supply will enable the country to reduce its fossil fuel consumption and imports, thus alleviating strain on the government budget. It would also enable the country to address its other needs, such as in water supply and food security. There are several options to achieve this, such as combining solar PV generation capacities with energy storage solutions and desalination plants. However, ocean energy can bring this combination without using energy storage, in addition to helping mitigate climate change. For example, ocean thermal energy conversion (OTEC) technology produces fresh water either from evaporated warm seawater or through condensation. Ocean energies are thus extremely relevant to Nauru's challenges.

The enormous potential of ocean energy in Nauru is long known. The world's first pilot plant for OTEC was set up in Nauru by the Japanese Tokyo Electric Power company in 1981. It was the highest power generation capacity for an OTEC plant ever operational and the first and last to feed power to an operating commercial grid. Due to extreme weather events, this OTEC plant is not operational anymore because of the damage made to the plant pipes.

Since the installation of the OTEC pilot plant in 1981, there have been significant improvements in OTEC technology and design, with side benefits such as the production of large amounts of fresh water. With the very rapid drop-off beyond the reef in Nauru, there is an opportunity for OTEC energy development in the country. Construction techniques have now also improved to become climate-proof.

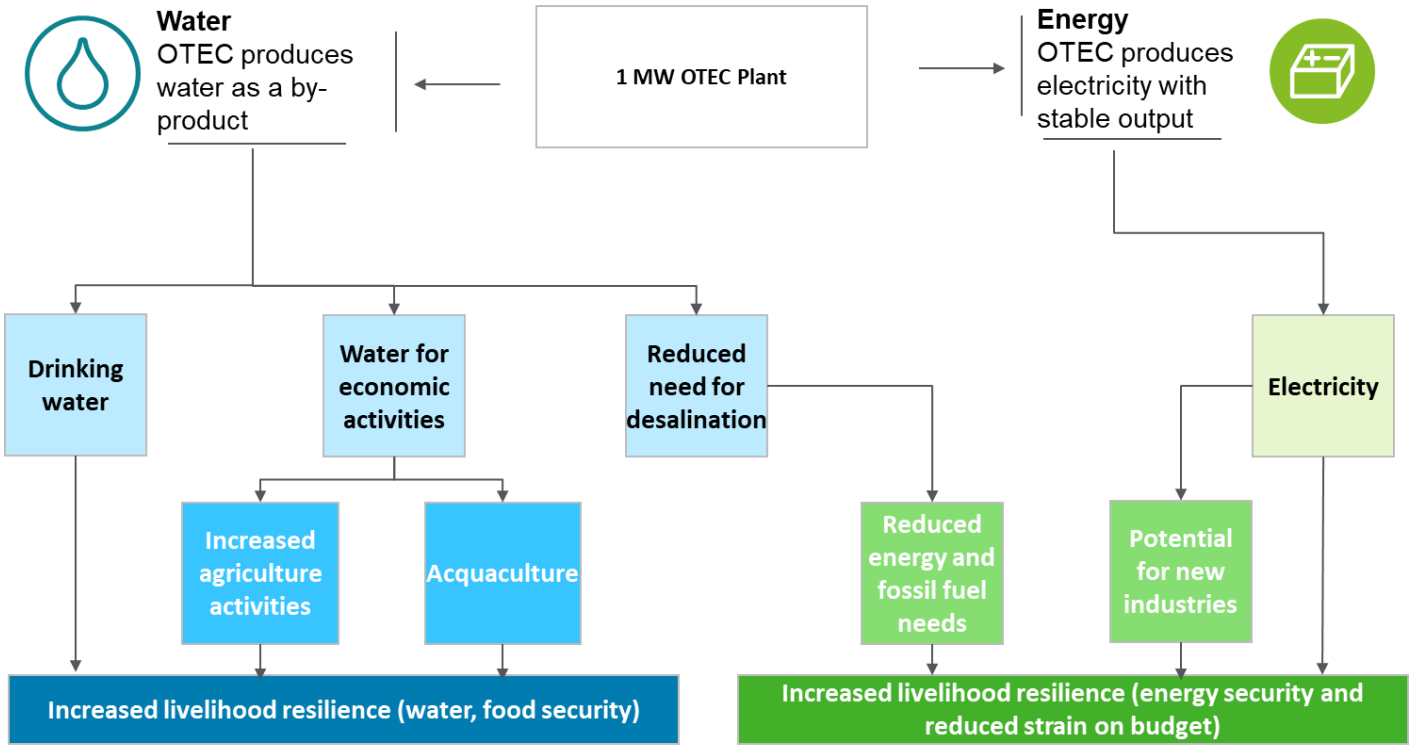
The proposed project plans to contribute to Nauru's resilience by providing a stable, low-carbon supply of fresh water to the country, while at the same time becoming an enabler for the development of economic sectors such as agriculture and food production in the island. The project will also contribute to providing a stable electric output to the grid, thus providing a baseload to supplement solar PV generation capacities.

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

To ensure the resilience of Nauru, the project will address the country's energy needs, while at the same time providing a stable supply of water. Given the current state of agricultural activities and aquaculture in Nauru, the project will also include a capacity building component related to supporting livelihoods of producers with sustainable practices, by providing crosscutting solutions. To achieve this, the project will focus on two main interventions. The interventions will aim at increasing the country's resilience by increasing the supply of clean energy and fresh water, and by providing adaptation solutions to the adverse impacts of climate change.

The first component will aim to provide financing to a 1MW OTEC plant in Nauru. The financing will aim at supporting private sector participation, while at the same making sure that the project can be viable on the long term. The OTEC plant will contribute to providing electricity and fresh water to the island. The second components will aim at improving food security by leveraging the excess supply of water supplied by the OTEC plant. The following figure details the relationship between the OTEC plant and the expected impact of the project.

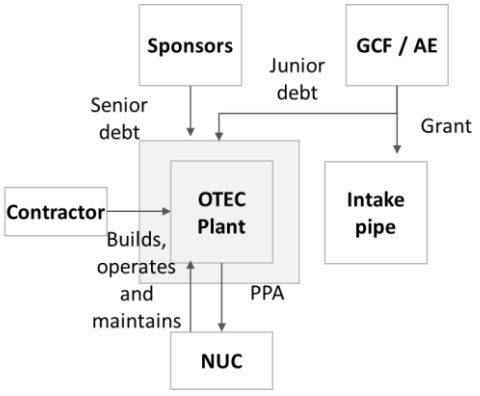
[4] Pacific Community, Statistics for Development Division
[5] Nauru, 2015. Second National Communication
[6] Nauru, 2021. Nauru water and sanitation master plan
[7] Ibid
[8] WFP, 2018. Regional food security Atlas of the Pacific



The detailed activities for each component are provided below.

Component 1: Livelihood resilience through the installation and operation of an OTEC plant
OTEC technology harnesses the temperature gradient between the sea surface water and the colder, deep seawater – generally at depths below 1,000 meters to generate electricity through a thermal cycle. A temperature difference of around 20°C is necessary for such a conversion cycle to work. Since the temperature of deep seawater stays constantly around 4°C at 1,000 meters depth, the temperature of surface seawater must be at least 24 °C. Nauru is one of the best locations for an OTEC plant, as it possesses an ideal temperature difference between deep and surface seawater, and as its nearby seabed has a steep inclination. More detailed information on Nauru's capacity to accommodate an OTEC plant is detailed in the pre-feasibility study in the annex.

OTEC provides a stable output of electricity, with a capacity factor between 90 and 95 percent. OTEC is also able to provide co-benefits such as freshwater output. Depending on the OTEC process, fresh water is produced as a by-product from evaporated warm seawater or it can be obtained through condensation.



This component proposes to install and operate a 1MW OTEC plant in Nauru. It is proposed that the OTEC plant is installed under a Public Private Partnership (PPP) agreement, wherein a private sector contractor would build, operate and maintain the OTEC plant. The intake pipe, which is required to provide deep sea water to the plant, will be financed through grants. The justification and rationale of the proposed structure is further developed in sections C1 and C2.

This will be achieved through the following activities.

1.1 Project development & preparatory work
This activity encompasses work related to the final development phase of the project until financial close of the debt financing and subsequent initiation of construction. This component includes pre-PPA development costs in order to maintain the viability of the project while preparing to PPA negotiations. Costs and activities at this stage include financial and engineering advisory services, staff and general administrative and permitting costs. The project will build upon the pre-F/S (completed) and full fledged feasibility study (to be completed), which will detail the design of the plant, among others.

This phase is important, as the project aims at leveraging financing from commercial sources, such as commercial banks, in addition to concessional financing sources such as GCF.

1.2 Project construction
This activity entails the entire construction process of the OTEC plant until reaching start-up of commercial operation (including construction and commissioning). NUC, in close coordination with the project contractor, will implement the activity including EPC work procurement based on the NUC's and the AE's procurement policy. This implementation will mainly focus on engineering procurement and the construction of the 1MW OTEC plant. The OTEC plant will be connected to the island's grid to supply power to NUC.

Component 2: Technical assistance to improve livelihood resilience through resilient agriculture practices and aquaculture
The OTEC plant will be able to supply more water than Nauru's current demand. This will support the development of livelihood activities, such as agriculture and aquaculture. As detailed in section B1, the majority of food and protein sources are imported in Nauru. This is a major threat to the country's resilience and food security. As most lands are unsuitable for farming, it is important to leverage the remaining lands to improve food security as efficiently as possible. Water scarcity was a major challenge to ensure that sufficient yields could be achieved in Nauru, which explains the lack of development in the sector.

With the availability of water, Nauru has the unique opportunity to develop a climate resilient agriculture from scratch. This involves, first of all, the identification of vulnerabilities and adaptation actions for the agriculture sector. Based on this assessment, potential producers can be trained to ensure that agriculture and aquaculture practices are sustainable and climate resilient, thus contributing to improving resilience for Nauru's population.

2.1 Development of an enabling environment for food security
At this stage, the enabling environment for food security, agriculture and aquaculture in Nauru is limited. The vulnerability of Nauru's food security and agriculture to climate change needs to be better understood. The impact of water scarcity on agriculture and the impact of imported food produces with high prices is well understood. However, there is yet to be an examination of how the food sector will be affected by climate change to provide an adequate evidence base to inform adaptation measures. Under this activity, vulnerability assessments will be conducted to generate specific actionable information for targeting, prioritizing, and selecting project beneficiaries and project intervention sites. This component will also allow for the gathering of baseline data for staple crops in Nauru. The results will help Nauru inform future food security planning. This will enable Nauru to plan sustainable agriculture development based on the relevant climate information.

2.2 Enhance the food security of vulnerable households by introducing climate resilient agriculture practices
This activity will build on the research conducted under activity 2.1 as well as successful interventions that have been undertaken in communities in other Pacific islands. Practices may include the introduction of climate resilient species, enhanced farming and land use techniques facilitating soil and water conservation, organic farming techniques, and food storage and processing techniques, among others.

2.3 Climate change-resilient aquaculture development and management
Activities will promote resilient aquaculture with positive or low environmental impact in selected vulnerable communities as an additional or alternative source of proteins and income. This will include activities to kick-start aquaculture in Nauru, such as the development of facilities, such as laboratories, hatcheries, and farming infrastructure. Producers will be trained in using the facilities.

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

Impact potential: The proposed project is cross-cutting and has both mitigation and adaptation potential. In terms of mitigation potential, the GHG emission potential from the activities related to electricity generation is presented in the table below:

Component 1: Livelihood resilience through the installation and operation of an OTEC plant	Total GHG Emission savings
Electricity generation	5,549.94 tCO_2e annually
Desalination	934.06 tCO_2e annually

It is important to emphasize that Nauru currently uses desalination plants to satisfy its demand in fresh water. The need for desalination plants will disappear after the OTEC plant is in service. This will impact energy demand significantly and thus the use of fossil fuels.

The proposed project will also contribute to increasing the resilience and enhanced livelihoods of the most vulnerable people and communities in Nauru. Given the level of food imports in Nauru, the project will impact the whole population by providing additional local food. This will impact 10,000+ people in Nauru in terms of water availability and food security.

Paradigm shift potential: In the absence of the project, Nauru would have to rely on fossil fuels or other energy storage options to ensure the stability of its power grid though a stable baseload. In addition, without the project, desalination powered by fossil fuels would still happen, which will lead to additional GHG emissions and limited water availability. In this scenario, water scarcity remains because of the availability and prices of fossil fuels for Nauru. This will also mean less food security, as food imports would remain stable.

The resilience model based on clean energy and water supply proposed by the project provides an answer to the resilience needs of Nauru, but more largely of remote islands with limited access to energy resources and water as well. It will bring a transformative impact by demonstrating that this model and OTEC plants lead to an overall improvement of resilience in Pacific islands, compared to traditional models. By demonstrating this, the project will not only achieve transformational change in Nauru, but also provide an example to replicate and scale-up for other Pacific countries and countries with remote islands. SIDS in the Pacific and countries such as Indonesia and the Philippines, among others, are potential candidates for replication.

Sustainable development: The project will contribute to the following co-benefits:

- *Economic co-benefits*:

The project will bring several economic benefits. The project will enable Nauru to save approximatively 490,000 litres of diesel yearly with the introduction of the OTEC plant, or between 423,000 to 493,000 USD yearly depending on oil prices. Saving this amount would enable Nauru to address other needs, such as agricultural development, water needs and other development needs in the island. In addition to savings on fuel, Nauru will save on desalination costs and water supply. The average kWh usage for water production over the last year is 116,717kWh per month, which is the equivalent of approximatively 346,684 litres of diesel per year. This could enable Nauru to save between 300,000 USD to 350,000 USD yearly. Combined with the above savings, this corresponds to 0.72% of Nauru's GDP. Nauru will not need to maintain its desalination plants throughout the island and will be able to focus on the OTEC plant alone.

Additionally, the proposed project will generate revenues for producers in Nauru. Producers will be able to address some of the food demand of the island, thus generating jobs and income.

- *Social co-benefits*:

The supply of clean energy and water to benefit to the whole population, including low-income communities in Nauru. Providing access to a reliable and stable supply of energy and water is essential to ensure energy and water security, which are basic essential needs. In addition to this, the project will support agricultural and aquaculture production on the island. This will provide supplementary and alternative sources of income to households in Nauru, that will be utilized by poor families for essential social needs, such as education and health.

The project will improve the knowledge and understanding of climate risks and hazards among local communities and planners for food production and thus will empower communities to make informed decisions on which crops to produce, and how to produce them. A particular attention will be paid to secure access to climate risk information and economic opportunities for women and to women empowerment throughout the project.

- *Environmental and health co-benefits*:

The provision of clean energy will reduce the use of fossil fuels in Nauru. This will lead to less air pollution and thus important environmental co-benefits. Reducing air pollution also has important health co-benefits, such as reduced lung diseases, among others. In addition to this, using OTEC as a clean source of energy also reduces the need to rely on energy storage (batteries) to support the introduction of solar PV capacities in the country. Nauru has no capacity to recycle batteries. In the best-case scenario, batteries would be sent to another country for recycling or repurposing. However, it is likely that batteries would be disposed of in Nauru, leading to significant pollution and contamination.

As of now, households rely partly on groundwater resources for toilet flushing, but also sometimes for drinking purposes. Groundwater in Nauru is contaminated and is not fit for drinking, even after boiling. Providing a safe supply of water for the whole island will thus have important health co-benefits, by reducing the consequences of drinking contaminated water.

In addition, the project will have long term impact on food security. Food security is linked with addressing malnutrition, which is already a challenge for some children and pregnant women in the country. If designed well, agricultural production will also support addressing the country's obesity challenges.

- *Gender-sensitive development impact*:

Climate change has differential impacts on men and women due to their differing gender roles, social and cultural norms, and as a result, power relations. Women in the context of this project are more vulnerable than their male counterparts in terms of food security, access to water, income and health. The project will actively involve women in all activities, including income generating activities for agriculture and aquaculture. The project will therefore directly contribute to improving the resilience of women in Nauru.

Needs of recipients: Nauru is highly vulnerable to climate change, especially in terms of water scarcity. Addressing climate change adaptation in Nauru is critical. At the same time, Nauru has catered its energy needs by important significant volumes of fossil fuels. This constitute both a risk, as fossil fuel prices are volatile, and an important strain on the budget. The project will address key issues for climate change adaptation, climate change mitigation and agriculture in Nauru.

Nauru is one of the world poorest countries in terms of many human development factors, including the following:[9]

- Life expectancy at birth is estimated to be 60.4 years;
- Infant mortality is estimated to be 33 per 1000 births;
- Youth employment is estimated to be 45%, with overall unemployment at 22.9%
- 24 % of the population and 6.8% of households were living below the basic needs poverty line[10]

At the same time, the diet of Nauru's people has deteriorated in recent years. An estimated 25 percent of daily intake consists of rice and raw sugar, and only 30 food items comprise around 85 percent of daily calories consumed. Farming is practiced only on a very small scale on nutrient-poor land and is energy-dense. This has pushed the national levels of obesity and diabetes (type II) to great heights, and 27 percent of newborns have a reported low birthweight.[11]

The project will have a significant impact on nutrition, as well as other vulnerability determinants, such as energy security, food security and water security.

Country ownership: The introduction of clean energy and addressing water scarcity is the focus of Nauru's national initiatives:

Nationally Determined Contribution (NDC): Nauru submitted its updated NDC in October 2021. The NDC emphasizes water security and food security, as well as energy security. Renewable energy objectives are set at 50 percent of Nauru's power generation.

National Sustainable Development Strategy (2005–2025) (NSDS) aims at achieving a future where individual, community, business and government partnerships contribute to a sustainable quality of life for all Nauruans. This includes the development of domestic food production, including agriculture and aquaculture production. The NSDS also aims at achieving 50 percent of energy demand provided by alternative sources of energy, including through renewable sources.

The Nauru Energy Road Map (NERM) 2014 - 2020 (NERM) was developed during 2013 and built upon the energy sector development agenda outlined in the NSDS. An updated version of NERM (2018 to 2020) was developed in 2017/2018. It reaffirms Nauru's objective of achieving 50 percent of renewable energy in its power generation, through the introduction of solar PV and other renewable energy sources.

The Climate Change Technology Transfer and Needs Assessment report (TNA) further identifies potential energy sources for the energy sector. Technology options include OTEC, pumped hydroelectric storage, biogas and grid-connected rooftop solar. OTEC is the technology prioritized in the sector.

Nauru water and sanitation master plan proposes to increase water production in desalination plants.

This project is aligned with Nauru's objectives and commitments. In addition, it is important to emphasize that Nauru's NDA and utility (NUC) have been involved from the project idea stage of this project. Nauru has driven the idea and ensured the project is aligned with its policy objectives.

Efficiency and effectiveness: Based from the total project cost for the component related to energy generation of USD 48,500,000, of which USD 37,500,000 are contributions from the GCF, and the potential GHG emission reductions that the project can achieve over the project lifetime of 40 years, it is estimated that the project's efficiency and effectiveness in terms of cost per ton of CO_2 equivalent reduced and removed amounts to USD 186.99/tCO_2e (USD 144.59/tCO_2e for GCF contributions alone). It is expected that the volume of finance to be leveraged from the private sector will amount to USD 11,000,000.

It is important to emphasize that the OTEC component is crucial for the development of resilient agricultural practices and aquaculture in the country. Without the water supplied by the OTEC plan, it is unlikely that such practices can be

[9] UNDP
[10] Household Income and Expenditure Survey in 2013
[11] UNICEF. Nauru—Statistics.

encouraged in Nauru. Both components will benefit the whole population of Nauru (10,000+) in terms of energy, water and food security.

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

This project has been developed in close collaboration with Nauru's NDA and NUC. The concept note is a result of stakeholder engagement in Nauru and of a pre-feasibility study on ocean technologies for Nauru.

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

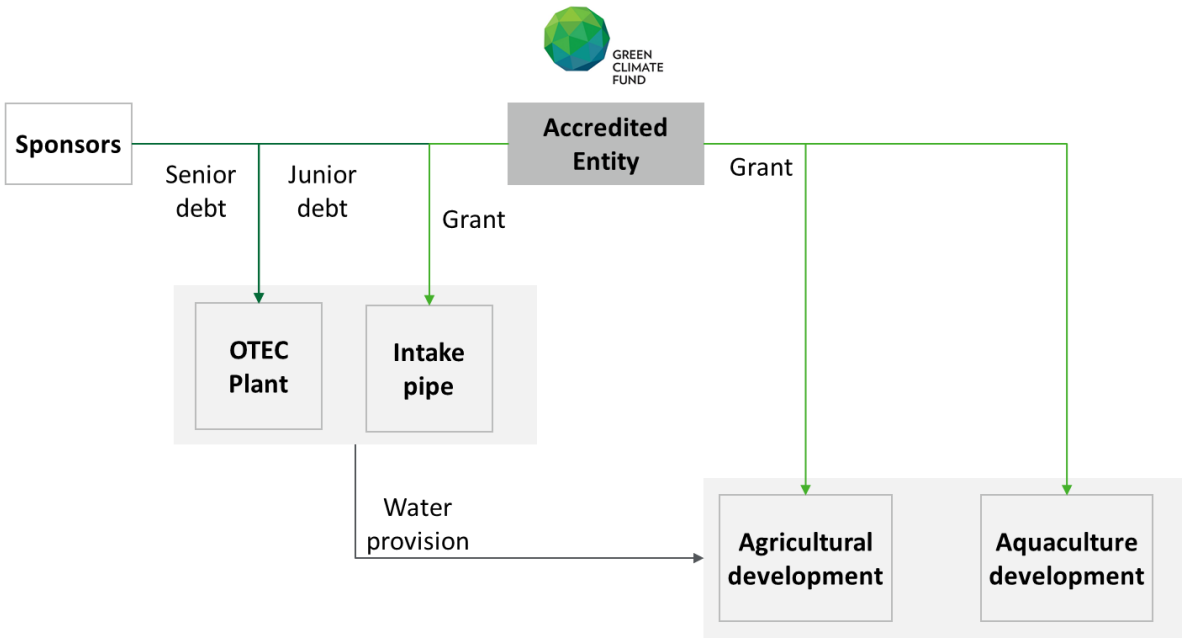
C.1. Financing by components (max ½ page)

The proposed project will be financed by a combination of grants and loans. Grants provided by the GCF will be used for technical assistance, such as the development of resilient agricultural practices and aquaculture, as well as to support the viability of the overall project by financing the intake pipe, considered as public infrastructure.

The OTEC plant itself will be financed by the GCF, the AE and commercial finance institutions. The GCF and the AE will provide loans, which will allow to attract commercial investors for the plant.

Component/Output	Indicative cost (USD)	GCF financing		Co-financing		
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
Component 1: Livelihood resilience through the installation and operation of an OTEC plant	48,500,000	27,500,000 10,000,000	Grant Loan	11,000,000	Loan	TBD
Component 2: Technical assistance to improve livelihood resilience through resilient agriculture practices and aquaculture	5,000,000	5,000,000	grant			
Indicative total cost (USD)	53,500,000	42,500,000		11,000,000		

The financing structure is presented below:



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

The proposed project targets interventions related to energy security, water security and food security. While the project has significant mitigation benefits, it mainly focuses on improving resilience in Nauru. For the OTEC plant, sovereign debt and private sector have been considered by the proponent.

Given Nauru's challenges in relation with public debt, public financing through sovereign debt or financing on the government budget is not possible. The remaining options include commercial loans, the bond market and private equity. Possible sources also include concessional financing from IFIs (including, but not limited to, the GCF). The factors considered to choose a preferred option include criteria such as flexibility to accommodate change over the life of the project, the suitability of the expected tenors and interest rates to the requirements of the project's revenues and debt profile and risk and return expectations (risk appetite).

To avoid constraints in leveraging debt from the public sector, the structure will be based on a PPP agreement or on a PPA basis. In both cases, a long-term contract agreement will be required for service provision to NUC in electricity and water. Given the current risk of operating in Nauru, financing the project through equity is complex. This means that the project company will have to find the majority of its financing in debt. However, given the country's risk profile, it is likely that bond issuance may not enable the project company to receive the financing required for the project at an acceptable rate. To avoid refinancing, it is preferable for the project company to request (and achieve) a longer tenor for the project, such as 25 to 30 years. It is likely that commercial banks may not be able to provide such tenor for a project in Nauru. In this case, the involvement of GCF or other concessional co-financing sources, including Multilateral Development Banks (MDBs) is crucial to finance the project.

In addition, the OTEC plant include two components. The energy generation component and the intake pipe, which enables the plant to leverage deep sea water. The energy generation component has two main income generation streams, through the sale of electricity and water. However, the intake pipe does not provide any cashflows and its financing is unlikely to be provided by commercial sources. It thus requires highly concessional financing (grants) and the involvement of GCF.

Component 2 is related to technical assistance. There are no potential funding sources for this component, for which GCF's involvement is thus crucial.

The GCF involvement is therefore critical to triggering a true and sustainable shift in resilient practices in Nauru. There are no alternative sources to finance the OTEC plant and agriculture development. The scale of financing required for the OTEC plant, as well as the tenor required and the lack of technological sustainable alternatives emphasize the importance of accessing GCF financing for Nauru. The GCF financing will provide the catalyst to leverage commercial financing for the remaining part of the project.

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

The proposed project ensures long-term sustainability in the deployment of renewable energy in Nauru. For the OTEC plant component (component 1), the plant will be owned, managed and operated by a private contract in a PPP framework. The GCF loan is requested to address the financial barrier to attract private investors' participation in the project. Once the concessional loan and private investment on Component 1 have been secured, the plant can be sustainably operated for 40 years. Private sector participation ensures that the expertise required for the operation and maintenance of an OTEC plant and intake pipe can be secured.

For the second component, the proposed project will ensure long-term sustainability in the deployment of resilient agriculture and aquaculture practices in Nauru, enabling for long-term improvements in food security. The first approach used to ensure sustainability will be the development of an enabling environment for resilient agricultural production in Nauru. This will be done through demonstration farming and technical assistance by local authorities. Producers interested in Nauru, including first time producers, will be able to see how crops can be produced under resilient practices to maximize outputs in the context of climate change. This approach ensures that producers are not simply provided with inputs or new technologies, but are trained in how to use, implement and maintain the new technologies and practices on their own.

The main factor to ensure the sustainability of the agricultural and aquaculture activities practices is to ensure that there will be off takers for the crops and produce produced, during and after the project. As Nauru currently imports most of its food needs, there is already a sufficient market in the country. The products will need to be priced at a more reasonable price than imported products to ensure that demand can be sustained.

A majority of SIDS, not only limited to Nauru, are experiencing similar challenges in having to rely heavily on imported fuels for energy demands. The proposed project, hence, has an opportunity to provide practical examples and role model

in how they could implement ocean energy to the overall energy mix and how such a strategy could be implemented within the national policy framework. The proposed project will also aim to create a best practice scenario in which energy supply is at the center of a resilience model for remote islands. The proposed project will show to what extent OTEC can be leveraged to decrease strain on the public budget while securing a secure supply of water, thus contributing to agriculture and aquaculture development and food security.

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 ☐