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Title:	Progress of the proposal to the Green Climate Fund on adapting tuna-dependent Pacific Island communities and economies to climate change
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Summary/short description/key points:

Following discussion of the benefits of preparing a proposal on ‘Adapting Pacific Island tuna fisheries to climate change’ for the Green Climate Fund (GCF) at HoF10 and HoF11, Conservation International, SPC, FFA, FAO and SPREP submitted an official Concept Note for this important work to GCF in June 2019.

In response to feedback from GCF, the Concept Note has now been revised substantially. This Information Paper summarises the revisions to the Concept Note suggested by GCF, and explains the changes that have been made to the design of priority activities. Importantly, the revised Concept Note includes all 14 Pacific Island countries eligible for support from GCF and now represents a regional programme with multi-country benefits. In keeping with the major revisions that have been made, the revised Concept Note is entitled ‘Adapting tuna-dependent Pacific Island communities and economies to climate change’.

Recommendations:

Heads of Fisheries are kindly requested to:

1. Read the revised Concept Note for the regional tuna programme and participate in the virtual meeting to discuss the revised document on 15 May, 2020;
2. Suggest any essential changes needed to the revised Concept Note before it is submitted to CGF, on the understanding that the details of activities to be implemented in each participating country will be discussed in detail with country representatives during development of the Full Proposal;
3. Endorse submission of the revised Concept Note to the GCF Secretariat;

4. Consider providing a letter of support to GCF for the regional tuna programme; and
5. Inform their GCF National Designated Authority by 15 June about the revised Concept Note for the regional tuna programme, and the plans to submit the document to GCF by the end of June.

Introduction

1. At HoF10 and HoF11, Conservation International (CI) and SPC led discussions about the potential benefits of applying to the Green Climate Fund (GCF) for support to assist communities and economies across the Pacific Island region with a high dependence on tuna to adapt to climate change (see information papers HoF10 IP9 and HoF11 IP5). The rationale for the project was based on two widely expected impacts of climate change on the region's fisheries sector: i) accelerating degradation of coral reefs due to ocean warming and acidification, resulting in the need for small-scale fishers to catch more tuna for the food security of growing coastal communities; and ii) the need for Pacific Island economies to adapt to reduce the risks and capitalise on opportunities associated with climate-driven redistribution of tuna to the east.
2. Initially, the proposed GCF project was limited to eight countries (Cook Islands, Fiji, Kiribati, Nauru, Papua New Guinea, Solomon Islands, Tuvalu and Vanuatu) for the reasons explained in HoF11 IP5. Following general endorsement of the proposed project from HoF11, and letters of support from fisheries agencies in all eight countries, the Accredited Entity for the project (CI), submitted an official Concept Note to GCF in June 2019, entitled 'Adapting Pacific Island tuna fisheries to climate change'
3. The purpose of this Information Paper is to summarise the feedback received from GCF on the Concept Note, explain the changes that have been made in response to the comments from GCF to produce a revised Concept Note entitled 'Adapting tuna-dependent Pacific Island communities and economies to climate change', and outline the actions to be taken by HoF to enable the revised Concept Note to be submitted to the GCF Secretariat by the end of June 2020.

Comments on the Concept Note received from GCF

4. Feedback on the submitted Concept Note was received from GCF both in writing and during the course of subsequent meetings that CI and SPC had with GCF to discuss the project. The main comments from GCF related to the need to:
 - Strengthen the climate change rationale for some of the proposed activities;
 - Increase the number of countries that would benefit from the activities in Component A (*Adaptations to harness tuna for food security as the climate continues to change*) and Component B (*Adaptations to reduce risks to Pacific Island economies from climate-driven tuna redistribution*) to create a regional programme with multi-country benefits;
 - Identify the full range of barriers currently preventing (i) widespread, increased access to tuna for the food security of coastal communities as coral reefs continue to be degraded by climate change and for urban communities as industrial tuna-fishing

operations shift to the east; and (ii) development of an information system to provide tuna-dependent Pacific Island economies with reliable information on the projected effects of climate change on future tuna catches in their exclusive economic zones;

- Specify how the project will dismantle the barriers, and how the information system will be used by Pacific Island countries to strengthen the resilience of their economies in the face of climate change;
- Limit the scope of the project to focus on core activities;
- Provide persuasive evidence that sustainable financing and policy mechanisms can be implemented by Pacific Island countries to maintain (i) increased access to tuna for local food security, and (ii) operation of the information system, at the conclusion of the project; and
- Reduce the budget substantially.

Revisions to the Concept Note

5. The project partners (CI, SPC, FFA, FAO and SPREP) have now revised the Concept Note to address the feedback received from GCF with the assistance of consultants (Marine Change) commissioned by CI. The revisions address the requests made by GCF in a way that reconciles the need to increase the number of countries involved with reductions to the budget, while still enabling the core set of activities to be implemented at the necessary levels. The title of the Concept Note has also been changed to 'Adaptations for tuna-dependent Pacific Island communities and economies to climate change' to reflect the regional nature of the programme.
6. The main revisions made to the original Concept Note to address feedback from GCF are summarised below.

Stronger climate change rationale: Key findings from the IPCC *Special Report on the Oceans and Cryosphere in a Changing Climate* have been added to Section B1 to strengthen the evidence for the expected effects of climate change on coral reefs and the distribution of tuna in the Pacific Island region.

Increase the number of countries to create a regional programme: All 14 Pacific Island countries eligible for GCF support have now been included (i.e., Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu).

Identify barriers preventing adaptation:

Component A

Section B1 of the Concept Note has now been expanded to describe the barriers preventing increased access to tuna for domestic food security in more detail. These barriers are:

insufficient resources to implement the ‘National FAD Programmes’ recommended by SPC effectively; lack of information needed to align investments to increase access to tuna and bycatch from industrial fishing vessels for urban communities with future hubs of industrial fishing activity as tuna are redistributed further east; traditional preferences for consumption of reef fish; lack of community awareness of the projected shortage of reef fish due to climate change and the need to diversify fish consumption for food security; lack of infrastructure to support supply chains; and absence of incentives for industrial fishing companies to assist in increasing access to tuna for domestic consumption.

Component B

Section B1 has also been revised to demonstrate that the main barriers to economies adapting to climate-driven tuna redistribution centre around the uncertainty associated with the existing modelling of changes in the distribution of tuna due to climate change, which will prevent governments from negotiating with confidence to retain the rights to traditional levels of tuna catch in their EEZs as the distribution of tuna shifts to the east. Uncertainty will be reduced by modelling the response of tuna to climate change at higher resolutions (integrating tuna connectivity, stock structures and meso-scale oceanography); assessing the effects of climate change on the food webs that support tuna much more accurately and including these effects in the tuna models; and incorporating ocean forcings for all greenhouse gas emission scenarios in the models. Barriers preventing industrial tuna vessels from collecting and sharing data on sea surface temperature, ocean currents and tuna food webs to improve tuna-climate models also need to be identified and dismantled so that all stakeholders gain a better understanding of the effects of climate change on the distribution and abundance of tuna. In addition, there are few clear pathways for high-level international negotiations to achieve equitable solutions for tuna-dependent economies when redistribution of tuna occurs.

Specify how the project will dismantle the barriers:

Component A

To demonstrate how the regional programme will overcome the barriers to building resilience of tuna-dependent communities to climate change, the programme has been revised to increase the supply of tuna for Pacific Island communities by i) strengthening National FAD Programmes to empower small-scale fishers to progressively transfer much of their fishing effort from coral reefs to tuna; and ii) identifying pathways to secure access to the quantities of tuna required for food security of rapidly-growing urban populations from industrial fishing operations. Importantly, these adaptations will also ensure that coastal communities are equipped with the training and technology needed to fish around FADs safely and effectively; build the capacity of national fisheries administrations and coastal communities to prepare for and respond to climate-related natural disasters; and support fishers and communities to

access local markets and add value to catches. The specific adaptation activities to be implemented in Component A are summarised below.

Component B

Where appropriate, the activities in this component of the programme have been revised to provide tuna-dependent Pacific Island governments with reliable information on the extent and timing of climate-driven tuna redistribution. This work focuses on developing an ‘advance warning system’ (AWS) to inform government about adaptations to reduce risks and capitalise on opportunities. The specific activities to be implemented to build the AWS are described below. Taken together, these activities will produce an information system that will provide robust, spatial forecasts of tuna abundance in 1–10-year timeframes, rather than the existing 30–50-year range, enabling countries to predict changes in the distribution of tuna across the tropical Pacific Ocean with confidence.

Limit the scope of the project to focus on core activities: The revised set of activities to be included in the regional programme are given below (the organisation/s with the main responsibility for executing these activities are shown in brackets):

Component A

A1. Strengthen management of National FAD Programmes to sustain transfer of fishing effort from coral reefs degraded by climate change to tuna by making FADs part of the national infrastructure for food security. This major activity has many inter-related sub-activities, which are listed separately below:

- (i) Establishment of specialised sections within fisheries agencies to design and implement sustainable National FAD Programmes, based on the guidelines provided by SPC (Annex 3), for example, dedicating staff and shore-based facilities for construction, installation and maintenance of FADs; developing protocols for procurement and storage of FAD materials; allocating suitable vessels for deploying FADs and/or providing incentives for industrial fishing companies to engage in public-private partnerships (PPP) to assist with deployment and maintenance of FADs; establishing/strengthening fishers’ associations as vehicles to help deliver all aspects of National FAD Programmes; developing codes of conduct for harmonious use of FADs by multiple stakeholders; and monitoring programmes to determine how to continually improve the effectiveness of FADs¹ (SPC).
- (ii) Increase the training of small-scale fishers in safe and effective FAD-fishing methods, and provide these fishers with boating safety equipment, so that they can make the transition to fishing further offshore with confidence and safety (SPC).

¹ SPC (2019) Fisheries Newsletter 160 <https://coastfish.spc.int/en/component/content/article/508>

- (iii) Ensure that fishers have access to adequate vessel designs to enable safe and efficient fishing operations further from shore, and to increase the value of the catch, limit waste and reduce GHG emissions (FAO).
- (iv) Strengthen the capacity of national administrations to manage the risks posed by the increasing effects of climate-driven natural disasters to small-scale fishers using FADs, by ensuring that the administrations have the tools needed to forecast disasters, assess impacts from disasters, develop recovery plans, and train communities in disaster preparedness and risk mitigation (FAO).
- (v) Assist cyclone-prone countries to store spare FAD materials (and protect boats needed to deploy FADs) so that communities are well prepared to replace lost FADs and resume fishing for tuna quickly following a cyclone, when land-based food resources have often been devastated (CI, SPC).
- (vi) Train vulnerable coastal communities in remote locations without refrigeration in simple post-harvest methods (e.g., drying and smoking, home canning) to increase the storage life of tuna caught around FADs and, where appropriate, providing similar training to small-scale enterprises distributing tuna offloaded from industrial fishing vessels in regional ports (see Activity A3 below) (SPC).

A2. Develop pathways to minimise climate-driven disruption to supply of tuna and bycatch from transshipping operations in regional ports to urban/peri-urban communities (FFA and SPC).

A3. Improve infrastructure for distributing tuna and bycatch during transshipping operations, and for the supply chains needed to deliver tuna caught by small-scale fisheries, to urban/peri-urban communities to facilitate the participation of small and medium enterprises (SME) in increasing access to tuna for domestic food security (FFA).

A4. Develop campaigns for coastal communities to raise their awareness about the effects of climate change on supply of coral reef fish and the need to consume more tuna for good nutrition, and harmonise these campaigns with stronger regulations on fishing for reef fish and incentives for regional tuna-processing companies to increase the supply of tuna products with greater local appeal, e.g. canned products based on dark tuna meat (SPC and FFA).

Component B

B1. Design and implement an AWS to assess the effects of climate change on the abundance and distribution of tuna within the EEZs of Pacific Island countries and high-seas areas to inform necessary adaptations for tuna-dependent economies (the AWS will also inform activity A2 in Component A). Development of the AWS centres around a new paradigm for reducing uncertainty in assessing the likely effects of ocean warming on tuna by establishing tuna 'resource maps' based on the distributions of self-replenishing tuna populations (stocks),

and modelling the effects of climate change on each tuna stock. The key investments needed to build and operate the AWS are:

- i) Collection of samples by observers (placed on all purse-seine fishing fleets operating across the Pacific Ocean under regional management arrangements) for use in genetic analyses to identify the stock structure of the four main tuna species (skipjack, yellowfin and bigeye tuna and South Pacific albacore) (SPC);
- ii) State-of-the-art genetic analyses to produce ‘resource maps’ showing the number and distribution of all stocks comprising each species of tuna within its range in the Pacific Ocean (SPC);
- iii) Tuna-tagging programmes to verify the distribution, size and behaviour of all tuna stocks (SPC);
- iv) Integration of the projected effects of climate change on each tuna stock to produce robust assessments of the recommended sustainable catch from the WCPO expected to be caught in the EEZs of Pacific Island countries, and in high-seas areas, in the years ahead (SPC); and
- v) Collaborations with industrial fishing companies operating in the WCPO to collect data on sea surface temperature and ocean current velocity to inform and validate global climate models (FFA, SPC, SPREP), and acoustic data to assess responses of tuna prey to climate change to improve models predicting the responses of tuna species to ocean warming (SPC). These collaborations will identify appropriate protocols for use of these data.

B2. Identify avenues to assist Pacific Island countries to retain the right to manage the historical levels of tuna catch taken in their waters where modelling predicts a redistribution of tuna biomass from their EEZs to high-seas areas. This assistance will be for negotiations within the Western and Central Pacific Fisheries Commission (WCPFC), for example, through the process for allocation of fishing rights in high-seas areas under development by WCPFC, and for negotiations by these tuna-dependent nations to retain jurisdiction over historical catch levels as a development issue in relevant international development forums (FFA, SPC & CI).

Sustainability of adaptations: Section C3 has been revised to provide a range of possible mechanisms and suggested supporting policies for the consideration of participating countries to sustain the gains made during the regional tuna programme, once support from GCF comes to an end. Participating countries will need to identify the most practical mechanisms and supporting policies during development of the Full Proposal to meet GCF’s requirement for sustaining established activities.

Reduced budget: The request for grant funding from GCF has been reduced from \$116 million in the original Concept Note to ca. \$85 million in the revised Concept Note. Although the

budget remains substantial, it has to support large-scale food security activities in 14 countries over a 7-year period, and the development of a sophisticated regional advance warning system.

Recommendations

7. Heads of Fisheries are kindly requested to:

- I. Read the revised Concept Note for the regional tuna programme and participate in the virtual meeting to discuss the revised document on 15 May, 2020.
- II. Suggest any essential changes needed to the revised Concept Note before it is submitted to CGF, on the understanding that the details of activities to be implemented in each participating country will be discussed in detail with country representatives during development of the Full Proposal;
- III. Endorse submission of the revised Concept Note to GCF;
- IV. Consider providing a letter of support to GCF for a regional tuna programme,
- V. Inform their GCF National Designated Authority by 15 June about the revised Concept Note for the regional tuna programme, and the plans to submit the document to GCF by the end of June.