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TERMS OF REFERENCE (TOR)

Title: Capacity Development to Address Risks in the Coastal Zones Associated with Climate Change

CTCN request reference number 2017000008

Countries: Kiribati, Marshall Islands, Palau, Solomon Islands

1 BACKGROUND INFORMATION

The Climate Technology Centre and Network (CTCN) is the operational arm of the United Nations Framework Convention on Climate Change (UNFCCC) Technology Mechanism and co-hosted by the United Nations Environment (UN Environment) in collaboration with the United Nations Industrial Development Organization (UNIDO) and supported by 11 partner institutions with expertise in climate technologies. The mission of the CTCN is to promote accelerated development and transfer of climate technologies at the request of developing countries for energy-efficient, low-carbon and climate-resilient development.

These requests for Technical Assistance (TA) are being submitted to the CTCN by the National Designated Entity (NDE) of the respective country. Eligible requests are processed by a group of selected experts who develop a Response Plan. The scope of services under these Terms of Reference shall be executed based on a restricted solicitation process where only accepted Members of the CTCN Network, are eligible to submit proposals.

In case you are not a CTCN network member yet, you may bid for implementation of the technical assistance, subject to the condition that you submit your completed application for CTCN Network membership before the last date of the bid closure and the same is acknowledged by the CTCN. Furthermore, the contract award – should your bid be selected – is conditional to your network membership application having been successfully approved by the Director of CTCN. The requirement to join the CTCN network is only relevant to the main bidder and no sub-contractors.

The maximum estimated budget for this contract is USD **\$338,850** and subject to a competitive bidding.

2 PROJECT CONTEXT

Palau, Marshall Islands, Solomon Islands and Kiribati are low lying island states and amongst the most vulnerable communities in the world to the impact of climate change, especially with regards to sea level rise. A thorough understanding of the impact of sea level rise on these countries is required. At present the coastal terrain products for developing inundation models and assessing risks are inconsistent, incomplete or absent. It is essential to develop comprehensive tools that can be used to support hazard, risk and vulnerability analysis, the development of coastal and urban policy and emergency management planning.



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At the Secretariat of the Pacific Community (SPC) managed Maritime Boundaries project meeting, held in Sydney from November 23 to December 2016 a scoping mission was undertaken. The meeting attended by technical and policy personnel from 12 Pacific States, identified the development of coastal terrain products, through training and capacity building, as a priority. It was recognised that a large number of bathymetric and coastal surveys have been conducted in the region over many years, using single beam, multibeam and LIDAR survey techniques. This has created an extensive archive of data that is accessible to countries for use in coastal zone management and risk assessment. Some of this data has been used in maritime boundary delimitation including the determination of territorial sea baselines, claims for extended continental shelf and hydrographic services. However, to date there has been no coordinated effort to support countries in producing standard products utilizing this valuable existing data for climate change adaptation.

The compilation, processing and integration of existing data sets into a standardized product for use in climate risk management by the proponent countries is required to effectively understand, and plan for, coastal inundation, storm surges, tropical cyclones and contemporary shoreline processes. Approaches for coordinated efforts to produce standardized products have been piloted in many other regions, including Norway and European Union (EMODNet). Building on these experiences, Palau, the Republic of the Marshall Islands, Solomon Islands and Kiribati, together with the Secretariat of the Pacific Community (SPC), are requesting support to make the best use of the data already available and translate it into ready-to-use products for decision makers to build effective early warning systems and climate risk response plans. This understanding can form the basis of early warning systems as well as inform the design of responses to reduce exposure to climate-induced risk.

3 AIM OF THE CONTRACT

The objective of this TA is to **provide technical support and training for personnel from the four target countries to collate available data and information, develop standardised metadata for bathymetric and coastal surveys, and integrate these data into products (standardised bathymetric grids and digital elevation grids) with appropriate quality control and identify any data gaps.**

The technical assistance will support local technical personnel to apply standardized data analysis methodologies in order to undertake assessments of inundation risk to key settlements and infrastructure from sea level rise. This activity will select and use the data collected by the states, the regional agency SPC and others, and translate it into two data products that can identify climate change adaptation and risk mitigation measures.

Specifically, the objectives are to:

1. Develop implementation planning and communication documents
2. Organise a kick-off meeting and initial data analysis
3. Develop standardised metadata and bathymetric grid and case study area data



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4. Provide technical training to develop and make use of coastal zone climate change risk management products based on available data
5. Disseminate results and informing a GCF proposal and the Pacific Resilience Program

Scope and activities of the proposed contracted services

Once this contract is signed, the CTCN will organize a kick-off call among all relevant parties involved in the request to introduce the Contractor to the NDEs and Proponent, to present the activities, their timeline and clarify roles and responsibilities.

To get a better understanding of the objectives of the request for technical assistance, the work elaborated beforehand by CTCN, as well as the necessary collaboration with the request proponent and National Designated Entity, it is recommended that the bidder refer to the complete Response Plan **2017000008** available here: <https://www.ctc-n.org/technical-assistance/projects/capacity-development-address-risks-coastal-zones>. Particular attention should be paid to the following sections: Linkages to relevant parallel ongoing activities, intended contribution to impact over time, main in-country partners, Gender and co-benefits. Regarding section 4 of the response plan, please take into consideration that the estimated budget breakdown is presented on an indicative basis.

IMPORTANT: The intervention strategy of the technical assistance will be based on the negotiation and development of partnerships and memoranda of understanding / contacts with the various projects and programs in progress, presented in section 8 of the response plan to define the framework, cooperation (roles, responsibilities, financial commitments), to make the various interventions more efficient and effective and to avoid duplication of activities of the same kind in the same countries or areas.

It is mandatory for the implementer(s) to allocate at least 1% of the budget to integrate a gender-approach to the activities. Please refer to the CTCN Gender Mainstreaming Tool for Response Plan Development for guidance at <https://www.ctc-n.org/technologies/ctcn-gender-mainstreaming-tool-response-plan-development>.

The Contractor is expected to undertake the following activities:

Output 1: Planning and communication documents

Activity 1: Development of implementation planning and communication documents

A 1.1: A work plan detailing activities, respective deliverables, outputs, timelines and responsible persons/organisations and detailed budget to implement the Response Plan, meeting the requirements of the Response Plan.

A 1.2: Monitoring and evaluation plan with specific, measurable, achievable, relevant, and time-bound indicators used for timeliness and appropriateness of the implementation. The plan should apply



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selected indicators from the Closure and Data Collection report template and enable the lead implementer to complete the CTCN Closure and Data collection report at the end of the assignment (refer to item iv below and section 14 in the Response Plan)

A1.3: A two-page CTCN Impact Description formulated in the beginning of the technical assistance and update/revised once the technical assistance is fully delivered based on the template provided by CTCN. The template will be provided by CTCN.

A1.4: A Closure and Data Collection report completed at the end of the technical assistance as indicated to be completed and delivered in 4th month in timeline. The template will be provided by CTCN in the beginning of the activity.

A 1.5: Need based technical backup support, as and when required during the TA.

Deliverables 1

D 1.1: Detailed work plan

D 1.2: Monitoring and evaluation plan

D 1.3: CTCN Impact Description

D 1.4: Closure and Data Collection template and report

D 1.5: Summary of technical support (backstopping) provided during CTCN TA, if any.

Output 2: Initial analyses and support

Activity 2: Organisation of a kick-off meeting and initial data analysis

All coastal terrain and bathymetric data available for Palau, Marshall Islands, Solomon Islands and Kiribati will be assembled and catalogued. PACGEO professional staff will be actively involved in this activity and make available all data and metadata. Deliverables of this activity will be used for all further activities. It may also highlight gaps in existing data coverage in order to prioritise future mapping efforts.

A 2.1: Organization of a 2-days kick-off meeting with 16 expert representatives from Palau, Marshall Islands, Solomon Islands and Kiribati

A 2.2: Preparation of a data acquisition and a data catalogue (high resolution bathymetry data acquisition from data providers)



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Deliverables 2

D 2.1: Minutes from the kick-off meeting

D 2.2: Report on high resolution bathymetry data acquisition from data providers and a data catalogue related to project areas

Output 3: Data standardization and grid development

Activity 3: Development of standardised metadata and bathymetric grid and case study area data

Based on the collated available data and information in Activity 2, standardised metadata for bathymetric and coastal surveys will be gathered and processed to be integrated into two products - standardised bathymetric grids and digital elevation grids for the four island states to effectively understand coastal inundation, storm surges, tropical cyclones and contemporary shoreline processes. The methods of standardisation need to be carefully considered as the quality of data across the four countries could vary considerably. As standardisation is the goal, the lowest common standard (resolution, data completeness, data validation) across the four countries can be defined as the accepted standard, if it is of usable quality.

A 3.1: Develop high-resolution bathymetric and coastal elevation grid

During this activity, a high-resolution bathymetric and coastal elevation grid (10-25m resolution) will either be identified or developed focused on shore and shallow coastal waters (less than 200m depth) to provide input into inundation models and to inform planning and management related mitigation of risks associated with climate change.

A 3.2: Develop a medium resolution bathymetric grid

During this activity, a medium resolution bathymetric grid (100-200m cell size) covering the entire marine jurisdiction of each country will be developed. This medium resolution grid will be used to support marine management and the sustainable development of the blue economy (including fishing, transport, resource development and conservation) at a national jurisdiction scale.

Deliverables 3

D 3.1: High and medium resolution bathymetric grids developed, and their availability defined

D 3.2: Technical manuals on the development of high and medium resolution bathymetric grids

Output 4: Training of experts

Activity 4: Technical Training to develop coastal zone climate change risk management products



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During this activity a group of technical experts from Palau, Marshall Islands, Solomon Islands and Kiribati will receive focused technical training to develop coastal zone products, including supporting the development of inundation models and risk assessment for coastal communities and infrastructure. The training will also focus on using the data and results of models for risk assessments related to climate change impacts. Initial training will target marine and coastal zone managers, fisheries experts, urban planners, and disaster risk managers.

This activity focuses on providing training in data processing to produce terrain models as well as in the development and interpretation of wave inundation models. It will utilize existing data and aims to build capacity for the incorporation of any new data as it continues to be collected for a range of activities and incorporation into PACGEO as it becomes available. The activity will also build training capacity within the region.

A 4.1: Review of wave models for case studies areas

A 4.2: Preparation of training materials including designing a course curriculum for 5-days of full time training focusing on the development of coastal zone products such as terrain models and wave inundation models, management of existing data and incorporation of new data to coastal zone products and use of data and results of models for risk assessments related to climate change impacts.

A 4.3: 5-days training workshop for 16 key experts from four countries (3-5 trainees from each country)

Deliverables 4:

D 4.1: Report on wave models for case studies areas

D 4.2: Report on the technical training to develop coastal zone climate change risk management products, containing the training materials, agenda, detailed presentations, list of resource persons, list of participants etc.

D 4.3: Training manuals and course material

Output 5: Result dissemination and planning for further financing

Activity 5: Dissemination of results and informing a GCF proposal and the Pacific Resilience Programme

The trainees will share the lessons learnt and disseminate the results of the conducted technical assistance, including generating best practice for supply of data generated by external organisations and informing a clearly defined Green Climate Fund (GCF) proposal. The activity will also support the dissemination of the results to other relevant ministries and departments responsible for disaster risk management.

A 5.1: Report of best practices and lessons learnt



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Development of a best practice guidance for the supply of data collected by external organisation in the exclusive economic zone (EEZ) of these states (tied to the Marine Scientific Research (MSR) licensing as a requirement of United Nations Convention on the Law of the Sea 1982 (UNCLOS)). The activity will also be able to highlight gaps in existing data coverage in order to prioritise future mapping efforts.

A 5.2: Dissemination of results through report targeted to SPC online communities

A 1-day evaluation and dissemination workshop will be held for 8 participants including relevant stakeholders and organizations in Palau, Marshall Islands, Solomon Islands and Kiribati (identified and contacted in cooperation with SPC and NDEs) with the aim of creating awareness and developing a best practice guidance for the supply of data collected by external organisations. Furthermore, the assistance will support the development of linkages and pathways to use the developed products in risk assessments related to climate change. This activity builds on the data collected by the states and the regional agency SPC. SPC translates it into a product that can be used to develop climate change adaptation and risk mitigation measures.

A5.3: Informing a Green Climate Fund Readiness proposal

The results of the assistance will inform the development of a GCF proposal - The Pacific Data Cube, which will be a Pacific wide initiative. The Pacific Data Cube project will utilise high-resolution satellite data to assess and monitor changes in sea level, coastal morphology, and coral reef, mangrove and sea grass extent and distribution. The current status of the Pacific Data Cube GCF proposal needs to be established. In collaboration with NDAs, relevant information needed for the proposal will be made available in line with the GCF reporting requirements.

The results of the technical assistance will also feed into the Pacific Resilience Program funded by the World Bank and the Climate Investment Fund CIF. The objectives of the Pacific Resilience Program are to) strengthen early warning and preparedness to natural hazards such as cyclones, coastal and riverine flooding, volcanic eruptions, tsunamis, and earthquakes; 2) support resilient investments such as the retrofitting of public buildings; and 3) strengthen the financial protection to disaster events.

Deliverables 5

D 5.1: Report on evaluation and dissemination workshop, containing workshop materials, agenda, detailed presentations, list of resource persons, list of participants etc.

D 5.2: Report of best practices and lessons learnt

D5.3: Report informing a GCF proposal and the Pacific Resilience Program

4 GENERAL TIME SCHEDULE

The activities under this contract should follow the timeline presented for each deliverable and are expected to be completed within a period of twelve (12) months from signing the contract. Bidders are promoted to propose their realistic timeline given the various activities that need to be accomplished.



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5 PERSONNEL IN THE FIELD (PROFESSIONAL EXPERIENCE AND QUALIFICATIONS)

The bidder shall as a minimum present the following qualifications of the team. Please note the requirement to have national experts in the team. Additional qualifications and experts may be added to the proposal.

Experts required	Brief description of required profile
Data modelling expertise	<ul style="list-style-type: none">● Proven experience in oceanographic modelling, bathymetric data modelling, in depth expertise in inundation modelling● Proven experience in conducting data inventory and acquisition, analysis and processes, and for conducting surveys
Climate change risk management expertise	<ul style="list-style-type: none">● Proven experience in climate change data and risk assessment in Pacific Island countries● Proven experience and in-depth expertise in risk assessments, for national disaster management
Capacity building expertise	<ul style="list-style-type: none">● Proven experience in conducting training for staff in this field of work, and in conducting stakeholder consultations● Proven experience developing curricula on technical issues related to data and modelling
Project management expertise	<ul style="list-style-type: none">● Proven experience in project coordination and facilitation, preferably in the Pacific● Capacity to works closely with the national counterparts● Very good conceptual, analytical and writing skills● Very good networking and facilitation skills● Experience with the Pacific government institutions and data holders
Gender and vulnerable groups expert	<ul style="list-style-type: none">● Proven experience in gender-mainstreaming● Proven experience in mainstreaming the needs of different groups of people● Proven experience with climate change related projects● Very good conceptual, analytical and writing skills

The CVs of the respective experts assigned to this project by the Contractor must be provided.

6 LANGUAGE REQUIREMENTS

The working language for the purposes of this project is English, thus an excellent command of English is required of the proposed personnel. The final deliverables must be submitted in English. The technical and financial proposal under this tender must also be submitted in English.

All delivered documents must be of such a quality that no further editing will be required.



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7 DELIVERABLES SCHEDULE

The table below details the indicative schedule for this assistance.

Deliverables	Delivery date
Deliverable 1.1: Detailed work plan	1 month after signing contract
Deliverable 1.2: Monitoring and evaluation plan	1 month after signing contract
Deliverable 1.3: CTCN impact description	1 month after signing contract
Deliverable 1.4: Summary of technical support (backstopping) provided during CTCN TA, if any	12 months after signing contract
Deliverable 1.5: Closure and data collection report	12 months after signing contract
Deliverable 2.1: Minutes from the kick-off meeting	4 months after signing contract
Deliverable 2.2: Preparation of a data acquisition and a data catalogue (high resolution bathymetry data acquisition from data providers)	4 months after signing contract
Deliverable 3.1: High and medium resolution bathymetric grids developed, and their availability defined	6 months after signing contract
Deliverable 3.2: Technical manuals on the development of high and medium resolution bathymetric grids	6 months after signing contract
Deliverable 4.1: Report on wave models for case studies areas	10 months after signing contract
Deliverable 4.2: Report on the technical training	10 months after signing contract
Deliverable 4.3: Training manuals and course material	10 months after signing contract
Deliverable 5.1: Report on evaluation and dissemination workshop	12 months after signing contract
Deliverable 5.2: Report of best practices and lessons learnt	12 months after signing contract
Deliverable 5.3: Report informing a GCF proposal and the Pacific Resilience Program	12 months after signing contract