



OFFICE OF THE
**PALAU AUTOMATED LAND AND RESOURCE
INFORMATION SYSTEM**

MINISTRY OF PUBLIC INFRASTRUCTURE, INDUSTRIES AND COMMERCE

March 22, 2016

Climate Technology Centre and Network (CTCN)
ctcn@unep.org

To whom it may concern,

The threat of climate change related impact of sea level rise is a major concern for many Pacific island nations. Risks and impacts associated with sea level rise are poorly understood due to lack of or limitations of coastal terrain data sets to support risk and vulnerability analysis. With this in mind, several Pacific countries convened a meeting during a Secretariat of the South Pacific (SPC) sponsored maritime boundary workshop to discuss and develop the enclosed proposal.

If you should have any questions or comments please do not hesitate to contact me at the following email address: davididip@gmail.com.

Sincerely

David K Idip Jr.
Republic of Palau CTCN NDE
Senior GIS Analyst/Program Manager
Palau Automated Land and Resources Information System
Bureau of Budget and Planning, Ministry of Finance
Republic of Palau

Please fill in the form in the grey spaces, by following the instructions in italic.

Requesting country:	<i>Palau, Republic of the Marshall Islands, Solomon Islands and Kiribati</i>
Request title:	<i>Capacity development to address risks in the coastal zone associated with climate change.</i>

Contact information:

{Please fill in the table below with the requested information. The request proponent is the organization that the request originates from, if different from the National Designated Entity (NDE).}

	National Designated Entity	Request Applicant
Contact person: Position: Organization: Phone: Fax: Email: Postal address:	<i>Mr David Idip Chief of Staff Palau Automated Land and Resource Information System Office (PALARIS), Ministry of Finance Palau +680 488-6654 +680 775-3283 davididip@gmail.com P.O. Box 10052, Koror, Palau 96940</i>	<i>Mr Jens Kruger Manager – Ocean and Coastal Geoscience Secretariat of the Pacific Community Tel: +679 3381377 Fax: +679 3370040 jensk@spc.int SOPAC Division Private Mail Bag Suva FIJI ISLANDS</i>
Contact person: Position: Organization: Phone: Fax: Email: Postal address:	<i>Ms. Rina Keju, Director Ministry of Foreign Affairs Marshall Islands +692 625 7944 +692 625 7945 rmtareo@gmail.com P.O. Box 2, Majuro, Marshall Islands 96960</i>	
Contact person: Position: Organization: Phone: Fax: Email: Postal address:	<i>Mr. Douglas Yee Director Climate Change Ministry of Environment, Climate Change, Disaster Management and Meteorology Solomon Islands +677 24074 d.yee@met.gov.sb PO Box 21, Honiara Solomon Islands</i>	
Contact person: Position: Organization: Phone: Fax: Email: Postal address:	<i>Ms. Taare Uriam Aukitino, Deputy Secretary Office of the President (Te Beretitenti) Kiribati +686 21183 +686 97463 taarea@ob.gov.ki P.O. Box 462, Bairiki Tarawa</i>	

Technology Needs Assessment (TNA):

{Select one of the three boxes below:}

- One of the requesting countries,*
- The requesting country is currently conducting a TNA*
- The requesting country has never conducted a TNA*

{If the requesting country has completed a TNA, please indicate what climate technology priority this request directly relates to. Please indicate reference in TNA/TAP/Project Ideas.}

CTCN Request Incubator Programme:

{Please indicate if this request was developed with support from the Request Incubator Programme:}

- Yes*
- No*

Geographical focus:

{Select below the most relevant geographical level for this request:}

- Community-based*
- Sub-national*
- National*
- Multi-country*

{If the request is related to the sub-national or multi-country level, please indicate here the areas concerned (provinces, states, countries, regions, etc.)}

National and Western Pacific region

Theme:

{Select below the most relevant theme(s) for this request:}

- Adaptation to climate change*
- Mitigation to climate change*
- Combination of adaptation and mitigation to climate change*

Sectors:

Coastal zone management, transport, coastal fisheries, infrastructure/human settlement, tourism, early warning/disaster reduction

Problem statement (up to one page):

As a result of climate change, sea level rise and increased storm activity are already impacting low-lying coastal states in the Pacific. The Pacific Island communities have been identified as amongst the most vulnerable communities in the world, with documented examples of increasing coastal inundation (e.g. [Anebok Is.RMI](#)). A thorough understanding of the impacts and risks associated with sea level rise is required to build resilience and maintain sustainable livelihoods in these communities. 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.

At the recent Secretariat of the Pacific Community (SPC) managed [Maritime Boundaries project meeting](#), held in Sydney from November 23 to December 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. However, to date there has been no coordinated effort to support countries in producing standard products utilizing this valuable existing data.

The proposed project aims to enhance the capacity of some of the most vulnerable islands in the region - Palau, Republic of the Marshall Islands, Solomon Islands and Kiribati, building resilience to climate change. The compilation, processing and integration of existing data sets into a standardized product is required to effectively understand coastal inundation, storm surges, tropical cyclones and contemporary shoreline processes. It will support local technical personnel to undertake assessments of inundation risk to key settlements and infrastructure from sea level rise. Coordinated efforts to produce standardized products have been conducted in many other regions of the world, including [Norway](#) and Europe ([EMODNet](#)).

Past and ongoing efforts (up to half a page):

Past and ongoing initiatives that support this activity include:

- *Bathymetric data held by the states, SPC and other agencies. These data have been collected using a variety of techniques and formats. There are also ongoing bathymetric surveys being carried out by these institutions.*
- *Coastal mapping data also held by States, SPC and other agencies. The 4 states and SPC are also currently involved in drone mapping of selected coastal areas.*
- *There is a wave inundation model – [WACOP](#) an EU/SPC project to understand the wave climate in the Pacific*
- *There is one wave rider buoy in the region located in the [Marshall Islands](#)*
- *There is a Pacific [regional tidal gauge network](#)*
- *There are a number of regional groups that support the development of geospatial tools including the [Pacific Geospatial and Surveying Council](#)*
- *SPC has also been working to make data available to states via the marine data portal – PACGEO. PACGEO is an open source platform for data sharing and discovery. SPC has had a number of GIS workshops that have included the use of PACGEO in maritime planning. The development of PACGEO is an ongoing activity in the Pacific and the products developed through this proposed activity should be able to be delivered to the states via PACGEO and national versions of PACGEO.*
- *The four states are part of a consortium led by SPC, aimed at obtaining high-resolution satellite derived bathymetry.*

Assistance requested (up to one page):

Assistance is requested to provide technical support and training for personnel from the four target states 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.

The states require 2 products:

- *a high-resolution bathymetric and coastal elevation grid (10-25m resolution) 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; and*
- *a medium resolution bathymetric grid (100-200 m cell size) covering the entire marine jurisdiction of each country. 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.*

The assistance required involves:

1. *Technical support to assemble and catalogue all the available coastal terrain and bathymetric data – the data and metadata will be made available in the Pacific marine cadastre - PACGEO*
2. *Technical training in data processing to produce terrain models. This utilises the existing data to build capacity for the incorporation of new data as it continues to be collected for a range of activities and incorporation into PACGEO as it becomes available.*
3. *Technical training in the development and interpretation of wave inundation models*
4. *Developing linkages and pathways to use these products in risk assessments related to climate change*
5. *Developing a best practice for the supply of data collected by external organisation in the EEZ of these states (tied to the MSR licencing as a requirement of UNCLOS).*

This activity builds on the data collected by the states and the regional agency SPC, and translates it into a product that can be used to develop climate change adaptation and risk mitigation measures. The activity will also be able to highlight gaps in existing data coverage in order to prioritise future mapping efforts.

{Please describe here the scope and nature of the technical assistance requested from the CTCN and how this could help address the problem stated above and add value vis-à-vis the past and on-going efforts. Please note that the CTCN facilitates technical assistance and is not a project financing mechanism.}

Expected benefits (up to half a page):

{Please outline here the medium and long-term impacts that will result from the CTCN technical assistance, including how the assistance will contribute to mitigate and/or adapt to climate change.}

Medium impact: *In the medium term the multi-country approach supports the development of an informed community of practice and knowledge sharing amongst these big-ocean developing states. It supports the sustainable development goal 13 through:*

- *Strengthening resilience and adaptive capacity to climate-related hazards and natural disasters*
- *Integrating climate change measures into national policies, strategies and planning*

- *Improving education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning*
- *Promoting mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and Small Island Developing States, including focusing on women, youth and local and marginalized communities.*

The capacity building activity will build on the skills and knowledge developed through the Pacific maritime boundaries project, which has established a group of technical experts with skills necessary to benefit from focused technical assistance to develop coastal zone products. These products feed into management to support the development of inundation models and risk assessment for coastal communities and infrastructure. These models are highly relevant given the already occurring events and prediction of increasing catastrophic events related to climate change in the region.

Long-term impact: *The technical assistance will increase the capacity in the countries to utilise the existing bathymetric information. Collecting bathymetric data is labour intensive and expensive – the proposed activity will build capacity within the countries to develop products that support sustainable development. As the states pursue long term economic development, particularly in the blue economy, it is crucial that they can assess the inherent risks from climate change on society, business (e.g. tourism, transport etc.) infrastructure and marine biodiversity (including fisheries).*

Post-technical assistance plans (up to half a page):

The results of the CTCN technical assistance will help the states to develop coastal elevation and bathymetric products that will be used in ongoing risk assessment, including inundation modelling and national disaster management. Assistance for these activities will sought from SPC (who have an ongoing Disaster Risk Assessment Programme (PCRAFI), Geosciences Australia the University of Sydney and GRID- Arendal (through applications for financial and capacity building support from the Australian Government and the Norwegian Ministry of Foreign Affairs. The results of the technical assistance will also be used to develop a Green Climate Fund proposal – The Pacific Data Cube - that 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 technical capacity will help ensure the continued development and expansion of PACGEO. The products developed with the technical assistance will be available to the states through PACGEO making them easily available for use in the risk assessment modelling. This includes incorporation into the Pacific Disaster Risk Assessment project (PCRAFI), which provides 15 countries with disaster risk assessment tools to help better understand, model, and assess exposure to natural disasters.

The project will support local Lands and Survey Departments in sustainability and networking by supporting the ongoing efforts of planners and policy makers to mainstream climate considerations into strategies, in the face of considerable uncertainty.

{Please describe here how the results of the CTCN technical assistance will be concretely used by the applicant and national stakeholders, to pursue their efforts of resolving the problems stated above after the completion of the CTCN intervention (list specific follow-up actions that will be undertaken).}

Comment [EB1]: This section is maybe a bit weak

Key stakeholders:

{Please list in the table below the main stakeholders who will be involved in the implementation of the requested CTCN technical assistance, and what their role will be in supporting the assistance (for example, government agencies and ministries, academic institutions and universities, private sector,

community organizations, civil society, etc.). Please indicate what organization(s) will be the main/lead counterpart(s) of CTCN experts at national level, in addition to the NDE.}

Stakeholder	Role to support the implementation of the assistance
<i>Add as many lines as needed</i>	
<i>The Secretariat of the Pacific Community</i>	<i>SPC will provide data and oversight for the project including terms of reference, deliverables, and timelines.</i>
<i>Kiribati Ministry of Fisheries and Marine Resources</i>	<i>Responsible for project oversight, selection of technical personnel and post project planning and implementation.</i>
<i>Marshall Islands Marine Resources Authority</i>	<i>Responsible for project oversight, selection of technical personnel and post project planning and implementation.</i>
<i>Palau Automated Land and Resource Information System Office (PALARIS), Ministry of Finance Palau</i>	<i>Responsible for project oversight, selection of technical personnel and post project planning and implementation.</i>
<i>Solomon Islands Ministry of Environment, Climate Change, Disaster Management and Meteorology and Solomon Islands Ministry of Mines, Energy & Rural Electrification</i>	<i>Responsible for project oversight, selection of technical personnel and post project planning and implementation.</i>
<i>National Lands Survey, Hydrographic, Climate Change and National Disaster entities in each state.</i>	<i>The appropriate Government departments and officers in each state will provide coastal zone and bathymetric data</i>

Alignment with national priorities (up to half a page):

{Please demonstrate here that the technical assistance requested is consistent with documented national priorities (examples of relevant national priorities include: national development plans, poverty reduction plans, technology needs assessments (TNAs), LEDS, NAMAs, TAPs, NAPs, sectorial strategies and plans, etc.). For each document mentioned, please indicate where the priorities specifically relevant to this request can be found (chapter, page number, etc.).}

*The project aligns with the regional [Oceanscapes Framework](#), endorsed by leaders in 2010 looks to address six strategic priorities identified for immediate implementation, including **facilitating adaptation to a rapidly changing environment**.*

The Pacific Island countries have made numerous commitments at national, regional and international levels. They have ratified multi-lateral environmental agreements and developed companion regional policy instruments for disaster risk reduction¹ and climate change².

Other relevant documents outlining regional and national priorities include:

¹ Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters www.unisdr.org/eng/hfa/hfa.htm; A Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters; An Investment for Sustainable Development in the Pacific Island Countries; Disaster Risk Reduction and Disaster Management – refer <http://www.pacificdisaster.net/pdnadmin/data/original/mr0613.pdf>

² United National Framework Convention for Climate Change – refer http://unfccc.int/essential_background/convention/ and Pacific Framework for Action on Climate Change – refer <https://www.sprep.org/Publications/pacific-islands-framework-for-action-on-climate-change-2006-2015-2nd-ed>

- *Solomon Islands Climate Change policy*
- *Republic of the Marshall Islands Joint National Action Plan for Climate Change Adaptation & Disaster Risk Management 2014 – 2018*
- *Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Management*

Palau has completed and adopted a Climate Change policy and Action Plan for climate and disaster resilient low emission development.

Refer: <http://www.pacificclimatechange.net/index.php/eresources/documents?task=view&id=2405&catid=247>

Development of the request (up to half a page):

{Please explain here how the request was developed at the national level and the process used by the NDE to approve the request before submitting it (who initiated the process, who were the stakeholders involved and what were their roles, and describe any consultations or other meetings that took place to develop and select this request, etc.)}

The proposal was developed at the 14th SPC Maritime Boundaries working session in Sydney Australia from November 23 to December 4 and during subsequent discussions between technical personnel, CTCN focal points and SPC.

Expected timeframe:

12 to 18 months from inception

Background documents:

{Please list here relevant documents that will help the CTCN understand the context of the request and national priorities. For each document, provide weblinks if available, to attach to the submission form while submitting the request. Please note that all documents listed/provided should be mentioned in this request in the relevant question(s), and that their linkages with the request should be clearly indicated.}

- *Pacific Oceanscapes Framework*
<http://www.forumsec.org/resources/uploads/embeds/file/Oceanscape.pdf>
- *Solomon Islands Climate Change Policy*
http://www.gcca.eu/sites/default/files/catherine.paul/si_climate_change_policy.pdf
- *Solomon Islands National Development Strategy 2011-2020 (Objective 7)*
<http://www.adb.org/sites/default/files/linked-documents/cobp-sol-2015-2017-sd.pdf>
- *Republic of the Marshall Islands Joint National Action Plan for Climate Change Adaptation & Disaster Risk Management 2014 – 2018*
- *Republic of the Marshall Islands: National Report*
http://www.sids2014.org/content/documents/216Marshall%20Is%20SIDSReport_endorsed-Final%20May%2012%202013.pdf
- *Marshall Islands Disaster Risk Financing and Insurance, February 2015*
<http://reliefweb.int/sites/reliefweb.int/files/resources/Country-Note-Marshall-Islands.pdf>
- *Marshall Islands Strategic Plan 2015-2017 (Priority 9)*
<http://www.adb.org/sites/default/files/linked-documents/cobp-rmi-2016-2018-ld-04.pdf>
- *Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Management -*

<http://reliefweb.int/sites/reliefweb.int/files/resources/KJIP-BOOK.pdf>

- Kiribati Development Plan (Key priority Area 3; Table 7) <https://dfat.gov.au/about-us/publications/Documents/kiribati-development-plan-2012-2015.pdf>
- Palau – Pacific Climate Change Portal - ongoing climate change adaptation activities. <http://www.pacificclimatechange.net/index.php/palau-adaptation>
- Palau CBD Strategy and Action Plan (Chapter 7 Information Gaps – support for habitat mapping) <https://www.cbd.int/doc/world/pw/pw-nbsap-01-en.pdf>

Monitoring and impact of the assistance:

{Read carefully and tick the boxes below.}

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the assistance provided by the CTCN. I understand that these processes will be explicitly identified in the Response Plan in collaboration with the CTC, and that they will be used in the country to monitor the implementation of the CTCN assistance.

I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country.

Signature:

NDE name: David K Idip Jr

Date: March 22, 2016

Signature:



THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

Need help? The CTCN team is available to answer questions and guide you through the process of submitting a request. The CTCN team welcomes suggestions to improve this form.

>>> Contact the CTCN team at ctcn@unep.org