Pacific Islands Forum's Contribution to the
Report of the United Nations Secretary-General on the Sea-Level Rise and Its Impacts
Open-Ended Informal Consultative Process on Oceans and the Law of the Sea

to be held in New York from 22 – 26 June 2020

1.0 Introduction

The present contribution is a collective efforts from the Pacific region , including the Pacific Islands Forum Secretariat (PIFS), the Secretariat of the Pacific Community (SPC), the Secretariat of the Pacific Regional Environment Programme (SPREP) and the Office of the Pacific Ocean Commissioner (OPOC), as a Pacific Islands Forum (PIF) contribution to the United Nations Secretary-General's (UNSG) report to be elaborated in early 2020. The aim of the UNSG's report is to inform the preparations for the twenty-first session of the UN Open-ended Informal Consultative Process on Oceans and Law of the Sea (ICP), which will focus on the topic of "Sea-level Rise and Its Impacts," a major priority for the Pacific Islands Forum members.

The Ocean is central to the identity, culture, and sustainable development of PIF members. PIF members also take seriously their role as custodians and their responsibility for shared stewardship of the Ocean, a role that stems from many centuries of connection with and reliance on the Ocean.

While sea-level rise and other impacts of climate change on maritime zones may affect many States globally, the Pacific is particularly affected. The Pacific is home to the majority of the world's low-lying atoll States and States dependent on coral islands and cays. Sea-level rise threatens to devastate PIF members given the extent of their coastlines, their extensive use of low-lying features to generate maritime zones, and their economic reliance on the sea. As PIF members have consistently made clear, sea-level rise could therefore have significant consequences for statehood, national identity, sustainable development, and livelihoods in the Pacific. This is a particularly unjust and inequitable outcome, as sea-level rise and climate change are phenomena that small island States have done the least to cause.

This submission aims to provide information on the existing PIF declarations and frameworks relevant to the issue of sea-level rise, key policies and projects, and also general information on the impacts of sea-level rise on Pacific Small Island Developing States. Some of the existential threats in the region are impacts related to salinisation of fresh water supplies and agricultural soils; erosion of shorelines; inundation of coastal ecosystems, such as coral reefs, seagrass beds, and mangroves that are important for fisheries and subsistence; inundation of coastal areas, damage to coastal infrastructure, and social and cultural impacts through the interaction between sea-level rise and extreme events such as tropical cyclones (e.g., wave-driven inundation and storm surge); and the need to preserve existing maritime zones delineated in accordance with the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and the entitlements that flow from them, which is the priority of the PIF identified by our Leaders.

In addition to the impacts, it is expected that the ICP session also discusses current and potential activities, initiatives, and areas of cooperation to reduce, manage and mitigate the impacts of sea-level rise, at the global, regional and national levels. This discussion would canvas opportunities for scientific, policy, technical, technological and legal responses to the impacts of sea-level rise with a view to enhancing cooperation and coordination at all levels.

2.0 Presentation of the Blue Pacific

The PIF Leaders have coined the region they represent as the Blue Pacific, which comprises the area within the 200 nautical mile Exclusive Economic Zone (EEZ) boundaries circumscribing the member States, territories and the high sea pockets.[1]

- The region is spread over an area of around 42 million km2, representative of 30% of the world's EEZs with a population of approximately 40 million.
- The Blue Pacific is constituted by 98% of ocean among the Pacific Small Island Developing States. We are proud to be large ocean States.
- Our territory also comprises more than 2,000 islands and thousands of seamounts.

[1] The Pacific Islands Forum was founded in 1971, which comprises 18 members: Australia, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Nauru, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

- The mean area of an island is 90 km2 and over 50% of the population live within 1 km of the coast (excluding Australia, New Zealand, and Papua New Guinea).
- The Pacific has some 3500 km2 of mangroves that are essential for food security, coastal protection and carbon capture.
- The main sectors of the member States are maritime transports, fisheries (coastal fisheries for food security, offshore fisheries for sustainable development), tourism, and agriculture (agricultural land within 1 km of the coast). The cultural and creative industries are rapidly expanding sectors in the islands, with a growth rate of up to 7%.
- About 53% of the global tuna catches come from the Western and Central Pacific Ocean.
- 75% of our coastal communities earn their first income and 50% their second income from the fishery industry.
- Not only Pacific islands are extremely vulnerable to climate change, the Pacific Ocean is also a major driver of the global climate.

3.0 Key Policy Decisions and Frameworks

- <u>Forum Leaders Communique 2019</u>

  Para 25: PIF Leaders discussed progress made by members to conclude negotiations on maritime boundary claims since the Leaders meeting in Nauru 2018, and encouraged members to conclude all outstanding maritime boundaries claims and zones. Additionally, Leaders reaffirmed the importance of preserving members' existing rights stemming from maritime zones, in the face of sea-level rise, noting the existing and ongoing regional mechanisms to support maritime boundaries delimitation.

  Para 26: PIF Leaders committed to a collective effort, including to develop international law, with the aim of ensuring that once a Forum member's maritime zones are delineated in accordance with the 1982 UN Convention on the Law of the Sea, that the members maritime zones could not be challenged or reduced as a result of sea-level rise and climate change.

- Forum Leaders' 2019 Kainaki II Declaration for Urgent Climate Change Action Now – "Securing the future of our Blue Pacific"

  Para 1: We, the Leaders of the Pacific Islands Forum, meeting in Tuvalu see first-hand the impacts and implications of the climate change crisis facing our Pacific Island Nations.

  Para 2: Right now, climate change and disasters are impacting all our countries. Our seas are rising, oceans are warming, and extreme events such as cyclones and typhoons, flooding, drought and king tides are frequently more intense, inflicting damage and destruction to our communities and ecosystems and putting the health of our peoples at risk. All around the world, people affected by disaster and climate change-induced displacement are losing their homes and livelihoods, particularly the most vulnerable atoll nations.

  Para 11: As Leaders of the Pacific Islands Forum, we recognise that to lead is to act and acknowledge the action being taken by all our Members, but we know more needs to be done. To secure the future of our Blue Pacific, we have pursued and must continue to pursue, bold and innovative regional solutions recognising that each of our nation's futures, as well as the actions we choose to take, are interconnected.

  Para 14: We are committed to a collective effort, including to develop international law, with the aim to ensure that once a Forum member's maritime zones are delineated in accordance with the 1982 United Nations Convention on the Law of the Sea (UNCLOS), that the member's maritime zones could not be challenged or reduced as a result of sea-level rise and climate change.

- Forum Leaders' 2014 Palau Declaration on "The Ocean: Life and Future," Charting a Course to Sustainability

  Para 10: We call for strengthened regional effort to fix baselines and maritime boundaries to ensure that the impacts of climate change and sea-level rise does not result in reduced jurisdiction.

- Framework for Pacific Oceanscape 2010

  Strategic priority 1: Establishing jurisdictional rights and responsibilities over maritime zones. There are two actions under this priority: the first action (Action 1A) is for Pacific island countries and territories to formalize maritime boundaries and secure rights over their resources; the second action(Action 1B) is for regional efforts to fix baselines and maritime boundaries to ensure the impact of climate change and sea-level rise does not result in reduced jurisdiction (*see* box below).

Strategic priority 1 – Jurisdictional Rights and Responsibilities

"Together with our EEZs, the area of the earth's surface that most of our countries occupy can no longer be called small"

ACTION 1A – PICs formalise maritime boundaries and secure rights over their resources

PICs, as States Parties to UNCLOS, should in their national interest, deposit with the United Nations, base-point coordinates as well as charts and information delineating their maritime zones as a requisite to establishing and securing their rights and responsibilities over these large areas of ocean space.

ACTION 1B – Regional effort to fix baselines and maritime boundaries to ensure the impact of climate change and sea-level rise does not result in reduced jurisdiction of PICTs

Once the maritime boundaries are legally established, the implications of climate change, sea-level rise and environmental change on the highly vulnerable baselines that delimit the maritime zones of PICTs should be addressed. This could be a united regional effort that establishes baselines and maritime zones so that areas could not be challenged and reduced due to climate change and sea-level rise.

4.0 Sea-Level Rise and Climate Change in the Pacific Context

- Potential sea-level rise trends (linked to RCP 8.5), could be devastating for the Pacific as we are predominantly communities in close connection with coastal environments and the ocean. There is medium confidence that "multi-meter" sea-level rise could occur in the long term (100+ years):[2]
  i. Local sea levels that historically occurred once per century (historic centennial events) become at least annual events in the region by midcentury and low-lying small islands communities and cities at almost all latitudes will experience severe events annually by 2050.

[2] According to the Intergovernmental Panel on Climate Change (IPCC) reports, science-based evidence indicates that: "Global Warming of 1.5°C. An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty" (SR1.5); "Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems" (SRCCL); and "Special Report on the Ocean and Cryosphere in a Changing Climate"(SROCC).

ii. High confidence for wave heights to increase in the tropical Eastern Pacific if emissions remain at current levels (RCP 8.5) – observed sea-level rise in this region is also higher than global averages.

iii. Extreme sea-level events such as surges from cyclones will increase with sea-level rise and marine heat waves (10-fold increase) – cyclone season also coincides with the king tides season.

iv. Even under low emissions scenarios, atoll nations will face moderate to high risks. Many coastal regions will face adaptation limits. Without adaptation, sea-level rise associated with a 2-degree warmer world could displaced 280 million people by 2100 globally, which included up to 50% of the population in Pacific Island countries and territories. A 1.5-degree warmer world would have a significant decrease in that number of displaced people.

- Causes of sea-level rise: adverse impacts caused by climate change, such as warming causing expansion of the water column and increase in sea level due to melting of ice caps, ocean acidification and impact on coral reefs, human coastal developments that contribute to accelerating erosion and increasing the vulnerability of coasts.
- Current and future effects: Some figures on the projection of sea-level rise in the region can be found at https://www.pacificclimatechange.net/countries.
- Current/future impacts and responses: Impacts related to salinization of fresh water supplies and agricultural soils, impact of sea-level rise on different coastal geologies, inundation of coastal ecosystems like coral reefs and mangroves that are important for fisheries and subsistence, loss of low lying atolls that are important breeding sites for seabirds and loss of marine turtle breeding beaches, interaction between sea-level rise and other phenomena (e.g., storm surges), damage to coastal homes, communities and infrastructure, impacts on stability and security of affected countries, coastal retreat and social and cultural impacts (including impacts on the transmission and application of traditional knowledge about the Ocean and coastal areas), or legal impacts such as on maritime boundaries. In addition, these impacts cannot be looked at in isolation, as there are compounding effects of impacts occurring simultaneously, in parallel or in succession.

- Climate change impacts are not limited to sea-level rise but include a complex interplay of factors, which include increasing ocean acidification, rising sea surface temperature, higher intensity of tropical cyclones, and deoxygenation. These factors and compounding impacts will have a severe impact on tropical coral reefs in the Pacific.
    i. The tropical Pacific region holds approximately 25% (about 66,000 km^2) of the global coral reef area and these coral reefs provide shoreline protection, food, and income for around 50% of the population in the Pacific.
    ii. The impact of rising sea surface temperatures in particular leads an increase in frequency and severity of coral bleaching. Projections suggest that in the near future most reefs in the Pacific will be subject to bleaching events every year.[3]
    iii. Ocean acidification is also proven to slow the growth of coral skeletons, and may significantly affect reef growth at large scales, and almost all warm-water coral reefs are projected to suffer significant lasses of area and local extinctions, even if global warming is limited to 1.5°C.[4]

- There is high confidence for wave heights to increase in the tropical Eastern Pacific if emissions remain at current levels (RCP 8.5), and the average intensity of tropical cyclones (the proportion of category 4 and 5 tropical cyclones) and their associated extreme waves and storm surge is projected to increase. For example, Tuvalu is an atoll nation, and these impacts were highlighted when large swells generated by tropical cyclone Pam in March 2015 forced ocean water over reefs and islands, leading to extensive damage of infrastructure, crops and freshwater lenses. Overall loss and damage at the national level is estimated to around 10% of GDP.[5]
- A list of specific impacts of sea-level rise on small islands can be found in the chapter 4 of the *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* at: https://www.ipcc.ch/site/assets/uploads/sites/3/2019/11/08_SROCC_Ch04_FINAL.pdf

[3] Further details can be found at: STATUS AND TRENDS OF CORAL REEFS OF THE PACIFIC (Moritz Charlotte et al. eds., 2018).
[4] *See* Special Report on the Ocean and Cryosphere in a Changing Climate at: http://www.ipcc.ch/report/srocc).
[5] Tauisi Taupo & Ilan Noy, *At the Very Edge of a Storm: The Impact of a Distant Cyclone on Atoll Islands*, 1(2) ECONOMICS OF DISASTERS AND CLIMATE CHANGE 134-66 (2016).

5.0 Focus on the Legal Implications of Sea-Level Rise

The legal (and political) implications of sea-level rise on maritime boundaries might be one of the most significant issues to address when considering the wide range of impacts. Reassurance needs to be provided that the permanent inundation of land features due to sea-level rise and climate change that generate maritime zones in accordance with the UNCLOS should not result in reductions of maritime zones and associated entitlements. Any resulting loss of maritime zones and jurisdiction would have far-reaching consequences, in particular for the Blue Pacific region and its people.

There are 48 shared or overlapping boundaries between countries in the Pacific region. As of February 2019, 35 of these boundaries have been formalised, and there are 13 outstanding bilateral and nine high seas boundaries remaining to be declared. In 2019 at their 50th annual meeting, the PIF Leaders noted with concern the threat posed by sea-level rise to securing the Blue Pacific and reaffirmed their commitment to conclude negotiations on all outstanding maritime boundaries claims and zones. Blue Pacific members are aided in this endeavor by the Pacific Islands regional maritime boundaries project coordinated by the Pacific Community.

PIF Leaders reaffirmed the importance of preserving members' existing rights stemming from maritime zones, in the face of sea-level rise, and committed to a collective effort, including developing international law, with the aim of ensuring that once a Forum member's maritime zones are delineated in accordance with the UNCLOS, that the members' maritime zones could not be challenged or reduced as a result of sea-level rise and climate change. This call was reiterated by Pacific Islands Parliamentarians in the Taraho'I Declaration in September 2019.

PIF Members' Commitment to Maritime Entitlements in the Face of Sea-Level Rise

Preservation of existing maritime zones and the entitlements that flow from PIF members is essential for global stability and to ensure the sustainable development of the states in the Blue Pacific region. As early as 2010, PIF Leaders committed to preserving PIF members' existing rights stemming from maritime zones in the face of sea-level rise.

UNCLOS does not explicitly deal with the impact of climate change, including sea-level rise, on maritime zones. Drafters of UNCLOS did not foresee the challenges posed by this phenomenon on the order created under UNCLOS. It is important that UNCLOS is applied in such a way that respects the balance of rights and obligations in the Convention, including the rights of island states to their maritime zones.

PIF Leaders have registered their concern at the threat posed by sea-level rise to securing our vision for the Blue Pacific. Leaders have committed to a number of actions to combat the threat, including through concluding maritime boundary treaties and defining the outer limits, in accordance with UNCLOS, of PIF members' continental shelves beyond 200 nautical miles from the baselines from which the breadths of their territorial seas are measured.

At their August 2019 meeting in Tuvalu, PIF Leaders also committed all PIF members to a collective effort, including to develop international law, with the aim of ensuring that once a PIF member's maritime zones are delineated in accordance with UNCLOS, that members' maritime zones could not be challenged or reduced as a result of sea-level rise and climate change.

PIF members also favour stable maritime zones for practical reasons. Acquiring baseline data, and then generating and declaring baselines and the outer limits of maritime zones, requires substantial time and resources. This reality precludes regular review, which in any event is not required under UNCLOS, as it is the responsibility of the coastal State to mark or to show baselines and establish outer limits of maritime zones, including via "large-scale charts officially recognized by the coastal State." Regular review would impose a significant burden on States, is administratively costly and disruptive, and leads to more uncertainty about maritime zones and their entitlements. This would defeat an important purpose of UNCLOS.

The Role of UNCLOS in Promoting Stability and Good Order of the Ocean

For PIF members, UNCLOS is critically important in establishing an effective legal regime for Ocean governance, in particular through UNCLOS's establishment of a regime for certain, stable, and durable maritime zone designations. UNCLOS was established as a comprehensive and enduring legal order for the Ocean. The Preamble to UNCLOS notes that Ocean issues are "closely interrelated and need to be considered as a whole" and that UNCLOS should "contribute

to the realization of a just and equitable economic order." The United Nations General Assembly has recognized UNCLOS's contribution to sustainable development in successive resolutions.

In turn, PIF members have planned their national and regional development in reliance on the legal order under UNCLOS, including the sovereignty, sovereign rights and jurisdiction generated by its regime of maritime zones.

PIF members have invested significant resources to pursue best practices for determining their national baselines and establishing outer limits of maritime zones in accordance with UNCLOS. PIF members have concluded maritime boundary treaties and, in accordance with UNCLOS, have defined the outer limits of their maritime zones, including continental shelves beyond 200 nautical miles. PIF members have also established regional agreements, including on the conservation and sustainable use of their fisheries, in reliance on the stability and order generated by the UNCLOS regime of maritime zones.

The Role of Maritime Boundary Agreements and Continental Shelf Limits in Providing Stability for Maritime Zones

PIF members have undertaken a sustained effort to conclude, where necessary, maritime boundary agreements in the region. Maritime boundaries play an important role in promoting stability in the face of sea level rise, recognising the unique status of boundary treaties under the Vienna Convention on the Law of Treaties. Recent practice in maritime boundary agreements negotiated by PIF members include the description of boundary lines by reference to geographic coordinates, which also promotes stability and certainty.

PIF members have also pursued stability of maritime zones by defining the outer limits of their continental shelves beyond 200 nautical miles through reference to neutral decision-making processes under UNCLOS. PIF members have made ten submissions to the Commission on the Outer Limits of the Continental Shelf (CLCS). It is important to note in this context that Article 76(8) of UNCLOS provides that the outer limits of the continental shelf established by a coastal State on the basis of CLCS recommendations shall be final and binding.

Designation of Maritime Zones by Geographic Coordinates

Recently, State practice from among PIF members has shifted from using nautical charts as the sole or primary method to show the location of the normal, strait, or archipelagic baseline and the outer limits of maritime zones to the use of geographic coordinates specifying points on the baseline and outer limits. This method allows States to use modern and credible technology to apply principles of hydrographic practice. Describing baselines and maritime zone limits in this way is more accurate and certain with regard to the rights and responsibilities of coastal and third States. Benefits include easier legal compliance and enforcement (e.g., fisheries, especially as modern vessels rely on digital positioning systems to locate themselves within licensed areas); assistance in resource exploration and exploitation; and management of area-based tools (e.g., location of shipping lanes or marine protected areas).

Examples of this practice published on the United Nations Division for Oceans and the Law of the Sea website include the maritime zones legislation of Kiribati, the Republic of the Marshall Islands, Niue, Samoa, the Federated States of Micronesia and Tuvalu. Australia followed this approach in its Seas and Submerged Lands (Continental Shelf) Proclamation 2012, and Papua New Guinea's Maritime Zones Act 2016 follows the same practice. The Solomon Islands and Fiji are also working towards using geographic coordinates.

In connection with the deposit of its lists of geographical coordinates of points with the UN Secretary-General in late 2019, the Federated States of Micronesia included a set of observations stressing, among other things, its understanding that it is not obliged to keep under review the maritime zones reflected in the deposit and that it intends to maintain those maritime zones in line with that understanding, notwithstanding climate change-induced sea-level rise.[6] This represents the first time that a State Party to UNCLOS has officially lodged such an observation in connection with its deposit of charts and/or lists of geographical coordinates of points.

[6] *See https://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/DEPOSIT/communicationsredeposit/FSM_Observations.pdf.*

6.0 Existing Projects on Sea-Level Rise in the Pacific

Climate and Oceans Support Program in the Pacific (COSPPac)

The Climate and Oceans Support Program in the Pacific (COSPPac) operates and maintains 14 tide gauges in 13 Pacific island countries.[7] The projects work with partner organisations and Pacific Island counterparts to build tools to forecast and report on climate, tides, sea levels and ocean conditions, amongst other things. At the same time, COSPPac works to determine how best to communicate this information to communities, businesses and governments to improve preparedness and decision-making. Tide gauge products and sea level data can be accessed through the Pacific Ocean Portal at: https://oceanportal.spc.int. The tide stations have been operating since the early 1990s and an associated geodetic measurement program determines the shift in the vertical of the sea level sensors due to local land movement.

The Pacific Sea Level and Geodetic Monitoring Project

The Pacific Sea Level and Geodetic Monitoring (PSLGM), operates under the Climate and Oceans Support Program in the Pacific (COSPPac). It is a continuation of the 20-year South Pacific Sea Level and Climate Monitoring Project (SPSLCMP). The 14 Pacific Island countries participating in the project are the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

The primary goal of the project is to generate an accurate record of variance in long-term sea level for the Pacific region. The project also provides information about the processes, scale and implications of sea-level rise and variability of extreme events on South Pacific communities. It also makes sea-level data more readily available and usable to support management of coastal infrastructure and industries.

Thirteen of the participating countries host a permanent tide gauge facility, which provides information on sea levels and tides. Palau does not have a permanent facility, so the project provides tidal predictions using information derived from other sources.

[7] *See* more details at: https://gem.spc.int/projects/cosppac.

In addition to its system of tide gauge facilities, the Pacific Sea Level and Geodetic Monitoring network also includes a network of earth monitoring stations for geodetic observations, implemented and maintained by Geoscience Australia. The earth monitoring installations provide Global Navigation Satellite System (GNSS) measurements to allow absolute determination of the vertical height of the tide gauges that measure sea level.

Resilient Boundaries for a Blue Pacific

The Resilient Boundaries for a Blue Pacific project is designed to support the implementation of the Framework for a Pacific Oceanscape, particularly priority one, and is also aligned with the Forum Leaders Communique of 2019 mentioned above. The project covers fourteen Pacific Island Countries, namely Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Republic of Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. The project seeks to mainstream considerations for climate change into maritime boundaries programme of work, and to improve the Pacific region's capacity to make technical, legal and policy decision to strengthen their resilience.

Australia-funded ICT for Spatial Information

The Pacific region includes some of the world's lowest-lying countries. However, most climate adaptation activities in the Pacific are not informed by the fundamental data required to identify the magnitude of, and communities at risk from, coastal flooding. Adaptation to future sea-level rise to build resilience in communities requires a sound understanding of the potential impacts and risks associated with coastal inundation and erosion.

To address the lack of ICT awareness and use by key government decision makers, the project focused on creating intuitive and user-friendly applications that would optimize use and availability. The Australian Department of the Environment, the CRC for Spatial Information (CRCSI) and NGIS Australia (NGIS) spent four years working with Tonga, Samoa, Vanuatu and Papua New Guinea, to build capacity in spatial information modeling and decision making through Airborne Light Detection and Ranging (LiDAR) and aerial imagery surveys, geographic information systems (GIS) training and the provision of hardware and software.

The project provided fundamental information, reports and analytics that have enabled the countries to clearly identify the communities most at risk of sea-level rise and to then facilitate effective planning and decision making to increase climate change resilience.

Fit-for-purpose capacity building was delivered for each country with a focus on long-term sustainability. Upgrades to GIS for each government were performed where necessary to ensure the data could be accessed, managed and stored. The hardware and software upgrades ensured a seamless integration with existing non-spatial business systems upon project completion.

Open platforms were delivered to optimize the availability and access of the accurate datasets and sea-level rise models to implement effective community engagement and to maximize the cross-government cooperation with respect to climate change mitigation. Since the delivery of the Vanuatu Globe, the platform has been viewed more than 15,000 times by hundreds of users to deliver the most accurate and up to date modelling and information across Vanuatu. A key strategy was to use Google-based mapping technology, which was already familiar to the end users.

Through the provision of current, accurate foundation information and coastal risk assessments the governments of Tonga, Vanuatu, Samoa and Papua New Guinea have been able to include predicted climate change impacts in planning and policy decisions.

The governments of Tonga, Vanuatu, Samoa and Papua New Guinea have been able to include predicted climate change impacts in planning and policy decisions. These governments are now implementing a range of measures to mitigate the impacts of storm surge and inundation including sea walls and mangroves. For example, design specifications for a proposed bridge were modified based on the accurate positioning of modeled inundation for predicted sea-level rise. Data was also used for other projects. For example, the World Bank is now using the data for its tsunami modeling.

To make the project more replicable the CRCSI and NGIS designed and developed the Coastal Risk Dashboard. The dashboard provides a platform that automates the generation and availability of both the communication platform and key knowledge products. The Coastal Risk Dashboard greatly reduces costs by providing a fit-for-purpose, flexible product for analyzing and presenting coastal risk and exposure. For example, a user can map the number of building,

land area and roads affected by different climate change inundation scenarios. Thereby, putting this information and analysis directly in the hands of the decision maker for adaptation outcomes.

Pacific Marine Climate Change Report Card 2018 (Commonwealth Marine Economies Programme, SPREP and SPC)

The report card provides an easy-to-read, scientifically robust summary of what we know about marine and coastal climate change impacts in the Pacific, and explores some of the actions that are needed to respond to these impacts. It can be used as evidence to support policy, programme and project development and is relevant to the following key initiatives:

- Sustainable Development Goals (SDG) for Oceans (SDG14 – Life under Water) and Climate Change (SDG13 – Climate Action). The activities of the Pacific SDG Taskforce and development of the Pacific Roadmap for Sustainable Development.
- Regional policies, such as the SAMOA Pathway, the Framework for Pacific Ocean Space, the Framework for Pacific Regionalism and The Blue Pacific.
- The Fiji COP23-led initiative "Ocean Pathway," which proposes a stronger integration of ocean into the United Nations Framework Convention on Climate Change (UNFCCC) processes, recognizing this intricate relationship of impact, mitigation solution and adaptation options between ocean and climate.
- Framework for Resilient Development in the Pacific (FRDP) 2017 – 2030, an integrated approach to address climate change and disaster risk management.
- Joint National Action Plans (JNAP), combining both climate change and disaster risk management strategies.

The evidence in this card can support these policies to ensure adaptation and resilience-building initiatives adopt collective and systematic cross-sectoral approaches which bring benefits across people, planet and prosperity. The information provided is applicable to the wider Pacific island region, with specific case studies drawn from countries which fulfil criteria for the Commonwealth Marine Economies Programme. These countries are Fiji, Kiribati, Nauru, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

Support for a Regional Approach to BBNJ and Maritime Boundaries Project: MFAT/Office of the Pacific Ocean Commissioner (OPOC)

This project is being delivered by the OPOC in coordination and collaboration with other regional organisations and is aligned to what the PIF leaders have agreed in mobilising all relevant Forum mechanisms to advance negotiations for a new International Legally Binding Instrument under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ) and securing the region's maritime boundaries in the face of sea-level rise, including those with international partners are priorities for the Pacific Region. Outputs of this project include:

- A series of regional workshops for regional officials to increase understanding of BBNJ and impacts of sea-level rise on maritime boundaries, including the potential impacts of negotiated outcomes.
- Clear coordinated policy advice and support to PIF officials in New York on regionally agreed negotiating positions and approaches (where appropriate).
- Participation in regional workshops for officials to consider the options to secure maritime boundaries in international legal frameworks, with a view to providing clear and considered advice to PIF Leaders.

7.0 Conclusion

The Pacific is a region that is committed to UNCLOS and has relied heavily on its regime of maritime zones to ensure regional security, prosperity and development. As indicated by Leaders' Communiques, we are also a region that is, and will be, particularly affected by climate change-induced sea-level rise. The threat posed by sea-level rise, including potentially to our maritime entitlements under UNCLOS, is an issue of serious concern to Pacific Leaders.

PIF members are taking both political and legislative steps to preserve existing rights stemming from our maritime zones in the face of sea-level rise. PIF members' consistent State practice for coping with sea-level rise has been in favour of maintaining maritime zones before further sea-level rise; settling outstanding maritime limits as soon as possible, including through agreements,

neutral decision-making; and fixing geographical coordinates of maritime baselines and outer limits of maritime zones.

PIF members consider that there are good grounds to work towards ensuring that, once maritime zones are delineated in accordance with UNCLOS, those maritime zones should not be challenged or reduced as a result of sea-level rise and climate change.