



CLIMATE-FRAGILITY RISK BRIEF

THE PACIFIC ISLANDS REGION

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Climate-Fragility Risk Brief: The Pacific Islands Region

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The **climate diplomacy initiative** is a collaborative effort of the German Federal Foreign Office in partnership with adelphi. The initiative and this publication are supported by a grant from the German Federal Foreign Office.

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Published by:
adelphi research gGmbH
Alt-Moabit 91
10559 Berlin
Germany
www.adelphi.de

Date: 12 November 2019

Editorial responsibility: adelphi

Layout and design: Stella Schaller, adelphi

Infographics: Stella Schaller, adelphi & Katarina Schulz, adelphi



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SUMMARY

Pacific leaders have continually made clear, most recently in their Boe Declaration and Action Plan, that climate change represents the single greatest threat to the livelihood, security and wellbeing of Pacific people. The threat is increasing at a time when the Pacific region is already facing complex geopolitical dynamics and multifaceted security risks.

A range of critical climate-fragility risks are emerging in the Pacific region, and they will require greater examination, monitoring and coordinated action by various stakeholders at the national, regional and international levels. Among the major risks are increased displacement and forced migration due to sea-level rise and reduced productivity of marine and land resources. All SIDS are at risk of losing land and thus resources from their shrinking exclusive economic zones, while the lowest-lying atolls are at risk of complete inundation.

Ocean resources such as coral reefs and fish stocks, which are the backbone of national economies and vital for sustaining traditional livelihoods, are under threat, driving up food insecurity and geopolitical tensions. Moreover, the Pacific is one of the most exposed regions in the world to natural disasters and one of the least insurable. Crime and violence often spike in the immediate aftermath of disasters, when nearby partners and security forces struggle to respond.

Without a doubt, scaled-up ambition and adequate commitments under the Paris Agreement are paramount to addressing the root causes of these climate security risks. In addition, urgent adaptive action is required to avoid reaching tipping points of irreversible fragility, which present existential threats for Pacific people and indeed the very existence of many small and low-lying atoll nations. In order to be effective, responses must be tailored to the unique circumstances of Pacific Small Island Developing States (SIDS), to their development status, culture, environment - and they should be delivered through the region's own systems wherever possible. This report seeks to highlight some of the most critical emerging risks that - without informed and early action - could exacerbate security challenges in the region and for its most vulnerable people. It also suggests immediate, concrete responses to these challenges.



1. GEOGRAPHICAL, SOCIO-ECONOMIC AND POLITICAL CONTEXT

98% of the Pacific region is covered by ocean. It is home to some of the most extensive coral reefs in the world, globally important fisheries, and unique biodiversity, landforms, cultures and languages, (Slade, 2010). Scattered throughout the ocean are 14 geographically and culturally diverse independent SIDS with a combined population of about 10 million. The region is home to three of the world's lowest lying atoll nations.¹ There are still a number of territories of France², United States³ and New Zealand⁴ peppered throughout, which retain colonial governance structures but are nevertheless tightly woven into the Pacific family of islands through a complex and mature regional architecture and cultural heritage.⁵

The Pacific region is also very vulnerable to natural hazards and at the frontline of existential threats and impacts of climate change, sea-level rise, ocean acidification and extreme weather events (PIFS, 2018a: i). The small and limited economic base of Pacific Island Countries (PICs) limits their ability to increase employment opportunities and improve social safety nets for the vulnerable and elderly. Critical domestic challenges for almost all PICs include: creating employment opportunities for the youth; reducing vulnerability and promoting sustainable enterprises; enhancing the impact of remittances from labour migration schemes; and enhancing gender equality.

¹ Tuvalu, Kiribati, Marshall Islands, and Tokelau.

² French Polynesia, New Caledonia, Wallis and Futuna.

³ American Samoa, Guam, Northern Mariana Islands.

⁴ Tokelau - also a low lying atoll nation.

⁵ The 14 independent Pacific SIDS include the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu. These nations together form the focus of this brief.

	Total population <i>(2018 estimate in thousands)⁶</i>	Surface area <i>(2015 estimate, square km)⁷</i>	Exclusive economic zone <i>(square km)⁸</i>	Value added from agriculture, forestry & fishing <i>(2017 estimate, % of GDP in us\$ 2010 prices)⁹</i>	Tourism earnings <i>(2017 estimate, % of GDP)¹⁰</i>	Average annual loss from natural disasters relative to GDP ¹¹
COOK ISLANDS	18	236	1,976,459	4.4	69.1	-
MICRONESIA	113	702	3,023,481	27.9	25.9	2%
FIJI	883	18,272	1,288,135	8.7	40.3	3.4%
KIRIBATI	116	726 ¹²	3,455,259 ¹³	26.9	5.5	0%
MARSHALL ISLANDS	58	181	2,009,620	15.5	5.3	0.1%
NAURU	11	21	310,645	3.6	2.8	-
NIUE	2	260	319,089	-	41.0	-
PALAU	18	459	617,449	3.3	6.7	5.7%
PAPUA NEW GUINEA	8606	462,840	2,409,920	19.0	2.3	1.1%
SAMOA	196	2,842	130,973	9.2	20.4	1.8%
SOLOMON ISLANDS	653	28,896	1,611,839	27.6	10.4	4.1%
TONGA	103	747	667,957	16.7	18.2	7.5%
TUVALU	12	26	756,313	18.7	6.9	-
VANUATU	293	12,189	625,530	20.5	46.1	6.7%

Table 1: Socio-economic indicators of the 14 Pacific Island Countries (PICs) and annual loss from natural disasters.

A number of countries in the region have moved from an agriculture-based economy in the 1970's to one focused on services. Tourism is an important sector of growth and development in the Pacific, providing foreign exchange earnings, employment and income-earning opportunities for many Pacific islanders, including women. The South Pacific Tourism Organisation (SPTO, 2018) estimates that tourism contributes significantly to the islands' gross domestic product (GDP), ranging from 2.3% of GDP in Papua New Guinea (PNG) to over 40% of the GDP of Fiji, Vanuatu and Niue to around 70% in the Cook Islands. Tourism also provides 25-35% of total employment in the Cook Islands, Niue, Vanuatu and the Federated States of Micronesia (FSM) (PIFS, 2018a: x). Fisheries remain an important part of the economy and food security of PICs, and for six Pacific SIDS in the region, tuna contributes between 30 and 100% of government revenue (SPC, 2019).

⁶ UN DESA Population Division 2019: 2019 Revision of World Population Prospects, Retrieved 9.8.2019 from <https://population.un.org/wpp/>.

⁷ UN Data: Retrieved 9.8.2019 from <http://data.un.org/Default.aspx>.

⁸ Marineregions.org 2018: World Exclusive Economic Zones, version 10 (February 2018), Retrieved 9.8.2019 from <http://www.marineregions.org/eezsearch.php>.

⁹ FAOSTAT 2019: Macro Indicators, Retrieved 9.8.2019 from <http://www.fao.org/faostat/en/#data/MK>.

¹⁰ SPTO 2018: Annual Review of Visitor Arrivals in Pacific Island Countries 2017.

¹¹ United Nations International Strategy for Disaster Reduction. Global Assessment Report on Disaster Risk Reduction 2015 - Data. Retrieved 15.08.2019 from <https://www.adb.org/sites/default/files/institutional-document/387696/drm-cps-practical-guide-main.pdf>, p. 31; other assessments arrive at somewhat different numbers, but also show small island developing states hugely affected; see e.g. https://www.preventionweb.net/files/55938_120998.pdf, p. 17.

¹² Excluding 84 sq km of uninhabited islands.

¹³ Sum of Kiribati EEZ for Gilbert Islands, Line Islands and Phoenix Islands.

2. REGIONAL/NATIONAL SECURITY OVERVIEW

The Pacific Islands are highly diverse in terms of their political and governance maturity, population, development, migration prospects, and potential for instability (Firth, 2018). In the Boe Declaration 2018 and the subsequent Action Plan 2019, Pacific leaders stressed that climate change is the single greatest threat to the security of their region and agreed on an expanded concept of security that included climate change alongside traditional hard security issues. They also noted the “increasingly complex regional security environment driven by multifaceted security challenges and a dynamic geopolitical environment leading to an increasingly crowded and complex region” (PIFS, 2018b: 3).

Surrounded by the continental giants of Asia, the Americas and Australia, and peppered with territories of France, New Zealand and the United States, the Pacific Islands Blue Continent is very familiar with the turbulent and changing tides of global political and evolving security interests. The Deputy Secretary General of the Pacific Island Forum Secretariat (PIFS) recently said of the Pacific-US relationship that “great power competition is back! The post-cold war architecture which has provided security and stability is undergoing fundamental change driven by a range of players. Our region finds itself inextricably at the centre of this due to our geography and the strategic value of our Blue Pacific Continent” (PIFS, 2019). At the same time, Pacific Nations are maturing in terms of independence and self-governance, having gained independence between 57 years (Samoa) and 25 years ago (Palau). With this comes a growing appetite and capacity for self-determination, which is significantly influenced by each nation’s ability to expand diplomatic relations, development partnerships and security alliances in the region.

China’s growing influence globally and in the region is a key factor shaping the security, foreign policy, development and climate change programmes of large longstanding development and political partners¹⁴ and island countries in the Pacific. Almost a decade ago, Cleo Paskal highlighted how climate change impacts could potentially impact the region’s security landscape. She provided insightful analysis of the uncertainty of maritime boundaries and sovereignty of islands that may disappear as a result of climate change and the resulting power play between China and the US, noting that the Pacific is “a geostrategic buffer zone between Asia and the United States” (Paskal 2010). Today, as these climate change predictions become a scary reality, Island Leaders see their partners’ commitments to the UNFCCC’s Paris Agreement and its financing mechanisms as critical for regional security.

However, some of their closest political and traditional defence allies have changed their positions on these key agreements and arrangements. Notably, in the last couple of years the United States has announced it would pull out of the Paris Agreement and renege on contributions to the latter’s largest financing mechanism. In addition, Australia’s recent change in government has hindering the country’s mitigation efforts - the new government is focussed on propping up the coal industry. It has also announced that it will no longer contribute to the Green Climate Fund, drawing sharp criticism from Pacific Leaders, e.g. at their most recent Pacific Islands Forum Leaders Meeting September 2019 in Tuvalu. In noticeable contrast, China now has one of the most progressive decarbonisation policies in the world and has expressed interest in increasing its contributions to key climate financing arrangements.

Analysts observe heightened international security tensions in the whole region, possibly as a result of China’s growing engagement through the Chinese Belt and Road Initiative, which includes support to Pacific Island countries (Fry, 2019). This could also explain the reported mass surveillance of Pacific Island Countries and increased presence of various surveillance vessels and aircrafts supported by the militaries of Australia, New Zealand, and the United States (Anon, 2018; Greenfield, 2019; Panda, 2015)¹⁵.

¹⁴ Australia, New Zealand, United States, European Union, Japan, France, China, Republic of Korea.

¹⁵ As cited in Fry (2019).

While the long evolutionary histories of most PICs include an element of significant conflict over land and resources, the Pacific Region has been relatively peaceful for the last half a century. The risk of armed conflicts within most countries is low, but there are precedents and some risks in PNG, the Solomon Islands and Fiji (Barnett, 2019).

Gender-based violence remains a challenge in the region. Assessments undertaken following a number of disasters such as cyclones show that vulnerable groups including women, children and people with disabilities are particularly at risk due to the impacts of climate change and conflict (CARE, 2015; UNFPA, 2015).

3. CLIMATE CONTEXT

For more than a decade, Pacific Islands Forum Leaders have reaffirmed in their annual leaders communiqués “that climate change presents the single greatest threat to the livelihood, security and wellbeing of Pacific people”. Impacts range from sea-level rise to ocean acidification, changes in precipitation, and extreme weather events. These strong impacts contrast sharply with the fact that the Pacific SIDS collectively emit only around 0.03% of global greenhouse gas emissions (PIFS, 2018a).

3.1. Current climate situation

Given the variability of the geology, topography and size among islands, climate impacts and risks vary considerably across the region. These vary from volcanic “high islands” to coral atoll “low-lying islands”, each with distinct characteristics. In the case of high islands, high precipitation and erosion risk represent the biggest climate-related challenges. Low islands, on the other hand, suffer from low rainfall and drought and must also contend with the pressing risks of sea-level rise and shoreline erosion. While all islands in the Pacific share a tropical climate, there are variations regarding seasonal temperature and precipitation change among them (USAID, 2018). Tropical cyclones are experienced mostly by island countries in the tropical cyclone belt, including Fiji, Samoa, Tonga and Vanuatu, although cyclones are increasingly starting to impact higher latitude regions, just recently Tuvalu and Kiribati. The inhabitants of the Pacific Islands are already experiencing rising sea level and temperatures, erratic rainfall patterns and more frequent and intense climatic events, and further and more extreme changes are expected long into the future (CSIRO, Australian Bureau of Meteorology and SPREP, 2015).

3.2. Climate change projections and impacts

The IPCC 1.5°C Special Report for Policy Makers estimates with high confidence that about 1.0°C of the global warming above pre-industrial levels has been caused by human activity, with the likely range from 0.8°C to 1.2°C. If the current rate of global warming¹⁶ continues, the IPCC reports a likely temperature rise of 1.5°C between 2030 and 2052 (IPCC, 2018).

‘1.5 to Stay Alive’ is a well-known slogan that Pacific SIDS have championed in the UNFCCC process. Supporting this, the IPCC 1.5°C Special Report in 2018 noted, amongst other things, that “[t]he medium and long-term implications of exceeding 1.5°C for Pacific communities [are] stark; above this threshold there is a significant increase in the likelihood of exceeding tipping points which will make many low-lying islands uninhabitable, leading to mass, and permanent migration” (Pringle, 2018a, p. 198). Pringle (2018b) further points out that a 0.5°C difference in temperature rise is crucial for SIDS, as some coral reefs could adapt to a 1.5°C but have barely any chance of surviving at 2°C. The death of coral reefs would seriously damage the fisheries and livelihoods that depend on them. 70-90% of corals are at risk of long-term degradation at 1.5°C - a figure that rises to 99% at 2°C.

¹⁶ Present level of global warming is defined as the average of a 30-year period centered on 2017, assuming the recent rate of warming continues.

In comparison to 2°C, 1.5°C is associated with reduced rainfall intensity during cyclones, as well as lower water stress and less exposure to rising sea level. Similarly, limiting warming to 1.5°C would spare the homes of at least 60,000 people in the Pacific from inundation. Less internal migration and displacement will occur at 1.5°C as compared to 2°C. Many limits to adaptation will be reached at 2°C, leading to significant loss and damage. At 2°C, erosion, flooding, and salinization from sea-level rise will persist well beyond 2100 and may leave several atoll islands uninhabitable (IPCC, 2018; Pringle, 2018).

Climate change is already having and will continue to have a significant impact on Pacific communities, including on their “human health, infrastructure, coastal resources, disaster management, fresh water availability, agriculture, fisheries, forestry, marine ecosystems and tourism” (CSIRO, Australian Bureau of Meteorology and SPREP, 2015; see Figure 1. USAID, 2018). It will also undermine traditional response capacities in and for the region (New Zealand Ministry of Defence, 2018).

In the last few years, the Pacific has faced a number of disaster events that have caused significant economic impacts, injuries and loss of life. Post-disaster need assessments indicated significant damages and losses. These amounted to 30% (Fiji in 2016) and 64% (Vanuatu in 2015) of national GDPs respectively (PIFS, 2018a). These events have long-term effects on livelihoods, economies and fiscal balances because they require immediate reconstruction spending and lead to fiscal shocks and long-term impacts on tourism and agriculture.

Although countries in the Pacific are as exposed to these dangers as any country in the world, they have severely limited resources with which to prepare for and respond to them (ADB, 2018). Of the top 30 countries with the highest average annual losses as a percentage of GDP, 10 are located in the Pacific (World Bank, 2018).

For more detailed summaries on impacts across infrastructure, health, water, tourism, biodiversity, food, and natural resources in the region and individual country profiles, see: Hopkins, Mandy; Gooley, Geoff; Pearce, Karen. Climate in the Pacific: a summary of new science and management tools. https://www.pacificclimate.changescience.org/wp-content/uploads/2013/06/Climate-in-the-Pacific-summary-48pp_WEB.pdf

Climate projections: Pacific Region



Projected increase of temperature of 1°C to 2°C by 2050



Increased precipitation variability



Increased uncertainty and intensity of extreme weather patterns

Key climate impacts:

Coastal Zones

- Saltwater intrusion into habitats
- Loss of ocean biodiversity
- Damage to coastal infrastructure



Agriculture

- Decreased crop yield and food security
- Increased drought frequency/duration
- Groundwater salinization



Health

- Decreased water quality and availability
- Decreased nutrition & food security
- Shifts in disease patterns



Livelihoods and Tourism

- Decreased economic output
- Reduced interest in ecotourism
- Damage to coastal ecosystems



Water Resources

- Salinization of drinking water sources
- Decreased water availability for crops
- Reduced hygiene and sanitation



Energy and Infrastructure

- Increased energy costs
- Damage to key infrastructure
- Decreased economic output



From the **top 30 countries** with the highest annual disaster losses as a percentage of GDP, **10 are located in the Pacific**



Decreases in the amount of **tuna** could result in losses of up to **15%** per year for eight SIDS by 2050

Cost for adaptation for coastal protection in Pacific islands:

\$234m (per year by 2020)

\$285m (per year by 2040)

Percentage of global **coral reefs** at risk of **degradation** at different degrees of global warming:



70-90% at 1.5°C

99% at 2°C

4. CLIMATE-FRAGILITY RISKS

The following risks were identified by reviewing the available literature and verified by a number of interviews and consultations with practitioners, experts and government representatives from the region.¹⁷

4.1. Displacement and forced migration

Displacement and forced migration have emerged as critical, global human security issues. In its most recent publication, the International Organisation for Migration (IOM) draws attention to the issue and examines relevant global frameworks that accept the reality that migration increases as the impacts of climate change, environmental degradation and disasters pile up. It further notes that for SIDS we can “no longer be satisfied with urging national disaster adaptation. Climate change is a matter of national security and stability for SIDS. It is a matter of physical survival” (IOM 2019, p. 5-6). The challenges are particularly pronounced for indigenous people whose livelihoods, wellbeing and resource tenure systems are intimately bound up with their ecosystems, as is the case in much of the Pacific (Ervin, 2018). Long before the land disappears beneath the ocean, it will become unproductive due to salt water intrusion, erosion and reef degradation - and in the absence of ambitious adaptations, this will force thousands of people to migrate.

This is already happening in the Pacific region, both within and between countries. For example, in 2007, the Papua New Guinean government, together with the autonomous Bougainville government, agreed to resettle the 6000 inhabitants of the Carteret and three other atolls to Bougainville, which is much larger. The primary causes of resettlement were increasing land loss, salt water inundation and growing food insecurity (Displacement Solutions, n.d.). While the resettlement plan has yet to be fully implemented, one of the displaced women from the Carteret Islands recently shared her experience with climate change authorities in PNG: *“We are being named and called ‘drifters’ and it hurts because we have a home which does not exist anymore, because of climate change. Until such time we do get resettled, what do we fall under - ‘climate refugees’ or political orphans?”*. PNG is finding it extremely challenging to get the necessary resources, land and buy-in from local land owners and communities for this mammoth undertaking.¹⁸ Under these circumstances, there is a real danger of conflict and violent outbreaks

Forced migration and displacement in the Pacific increases the potential for conflict and fragility of communal systems, though it is of course highly site specific. One key risk factor is the complex nature of land tenure and resource ownership systems. These often do not provide certainty in land acquisition or simply support the influx of newcomers without considerable advanced consultation or working with and through traditional systems of governance and key sub-national stakeholders, who have entrenched and long-standing community relationships. This is especially worrisome because unequal distribution of resource ownership and ethnic conflicts have often been root causes for outbreaks of violence in PICs, for example in the Solomon Islands (1998-2003), where the Regional Assistance Mission to the Solomon Islands (RAMSI) was launched in response to the violence. Related tensions between Chinese immigrants and locals in the Solomon Islands, Tonga and PNG in 2006 and 2016 forced China to evacuate some of its citizens and brought about short-lived interventions by Australia and New Zealand (Firth 2018).

Other challenges that may result in tension and conflict include: strong cultural practices (e.g. resource harvesting methods and religious practices) that migrating or receiving communities do not always understand; the lack of available land for relocation; creating jobs, education and social support systems for displaced people; and complicated immigration requirements throughout the Pacific region and associated limited transportation routes. For example, to travel from one island country to another, many

¹⁷ Also, see acknowledgements.

¹⁸ Quote from anonymous woman in the displaced community, provided by Ruel Yamuna, Managing Director of PNG’s Climate Change and Development Authority. Interviewed March 2019.

Pacific Island citizens cannot avoid transiting through Australia and New Zealand, yet obtaining visas for this purpose is challenging and often unsuccessful.

4.2. Blue economy (oceans, coasts, fisheries, tourism)

Many Pacific SIDS economies are heavily dependent on the revenues generated from fisheries and tourism - often referred to as the 'blue economy'. As outlined above, the IPCC's 1.5°C Special Report notes that globally 70-90% of corals are at risk of long-term degradation at 1.5°C, and 99% are at risk at 2°C (Pringle, 2018b). The decline of corals will have significant effects on ocean productivity and the stability of coastal infrastructure, as well as reduce the marketability of the Pacific's important and growing tourism industry.

Marine-focused tourism accounts for a significant part of regional economies, for some smaller islands in excess of 60% of GDP and 25-35% of employment (SPTO, 2018). Beautiful coral reef ecosystems, clear coastal waters and associated cultural practices of the Pacific are unique pull factors that attract tourists from around the world. Yet much of the infrastructure underpinning the marine-based tourism market is located along the coastline of islands and is exposed to sea-level rise, coastal erosion and wave inundation. The anticipated impacts of climate change on the region's coral reefs are expected to reduce tourism earnings by 30 percent (PIFS 2018).

Climate change also threatens to permanently alter the fishing industry in SIDS. The Western and Central Pacific Ocean is home to over half the world's tuna stocks (GEF, 2019), and several Pacific SIDS are extraordinarily dependent on tuna. Six Pacific SIDS derive between 45% and 98% of all government revenue from tuna fishing licence fees (see Figure 2).

Tuna fishing alone employs about 6-8% of the labour force, and often a higher percentage of women. According to the IOM, "[a]s temperatures increase, marine species such as tuna are gradually moving away to seek colder water [...], threatening the livelihoods of many people directly employed in the fishing sector" (IOM, 2019, p. 24) and creating uncertainty around dwindling fish stocks in some exclusive economic zones (EEZs).

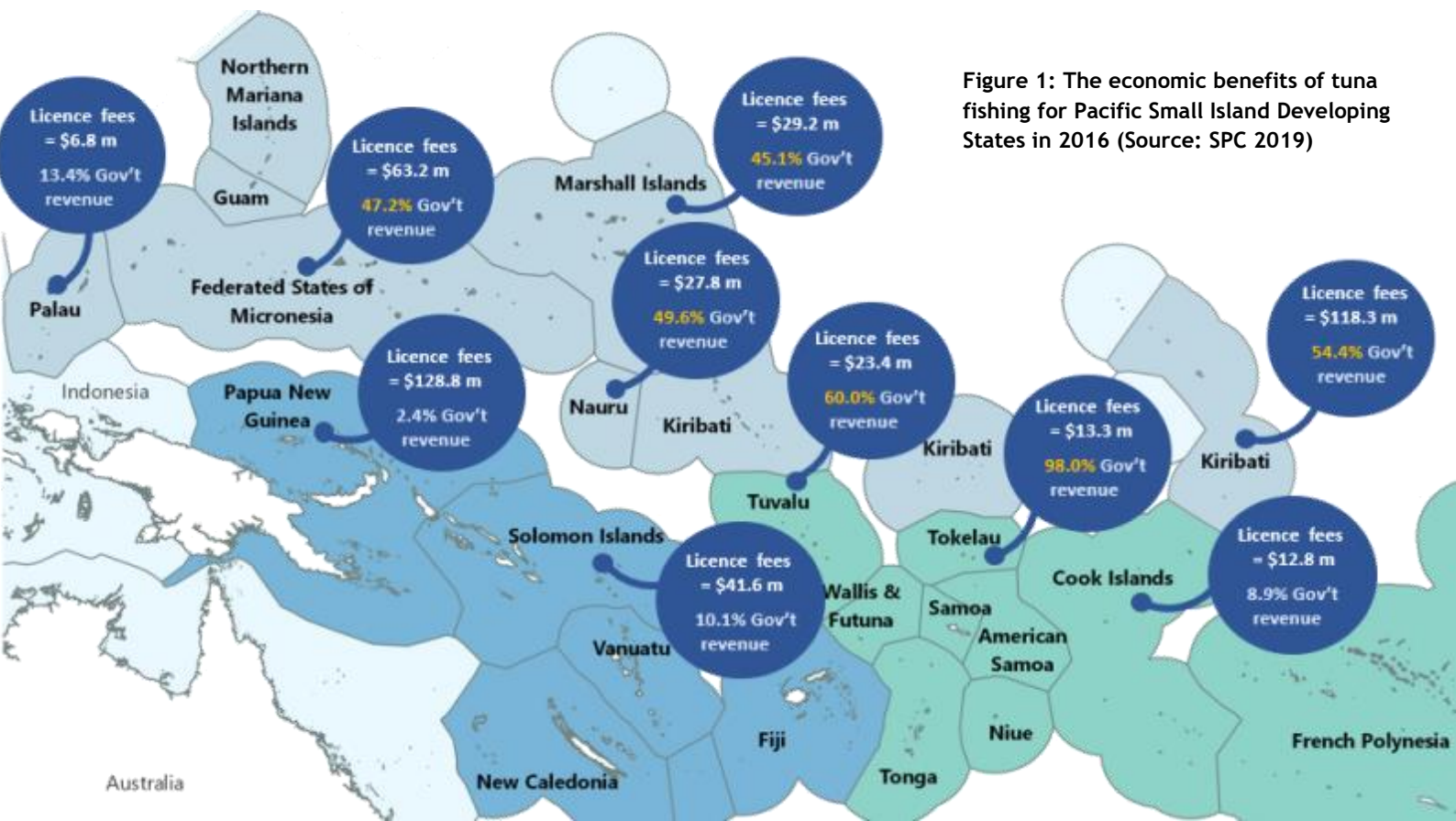


Figure 1: The economic benefits of tuna fishing for Pacific Small Island Developing States in 2016 (Source: SPC 2019)

The latest ecosystem modelling undertaken by the Pacific Community (SPC) predicts that climate-driven eastward redistribution of tuna will significantly reduce the amount of this valuable fish available for capture by both industrial and small-scale tuna fisheries in the Western and Central Pacific Ocean. The best available information on the projected redistribution of tuna, and thus income earned by Pacific SIDS from tuna-fishing license fees, indicates that the shifts in tuna biomass could result in losses of total government revenue of up to 15% per year for eight SIDS by 2050 (SPC, 2019; FFA, 2017).

The projected changes in tuna distribution - and associated loss of government revenue and other opportunities to generate more wealth from tuna - are causing concern among countries in the region because they will disrupt the well-established regional arrangements for managing the tuna resources shared by Pacific SIDS. The management of the industrial purse-seine fishery, which accounts for 70% of tuna caught within the combined EEZs of Pacific SIDS, is a case in point. In this fishery, fishing rights (allocated as fishing effort in terms of vessel days) are based on historical catches in the respective EEZs of the eight SIDS where most of the fish are caught. The predicted movement of tuna from EEZs into the adjacent high seas, and from the EEZs of Pacific SIDS in the west to some of those in the east, complicates the calculation of fishing effort rights and agreements and may create winners and losers (SPC, 2019; FFA, 2017).

Although the redistribution can be expected to cause some tensions among Pacific SIDS as they grapple with how to cope equitably with the implications of shifting resources, the greatest potential tensions will be between Pacific SIDS and the distant water-fishing nations. At present, these countries fish mainly within the EEZs of the Pacific SIDS, but they will fish more frequently in high-seas areas in the future. Pacific SIDS are concerned about the prospect of such an inequitable future: their extraordinarily tuna-dependent economies and communities will be diminished, while distant water fishing nations, which have produced the vast majority of greenhouse gases, will be able catch tuna on the high seas at a lower cost and will no longer have to pay license fees to SIDS.

Taken together, these climate impacts threaten the revenues from the blue economy and can become threat multipliers for coastal communities and national economies. Countries in the Pacific are facing significant losses in revenues at a time when their expenditures on recovery and adaptation is rising. Indeed, some SIDS are already spending up to 20% of their national budgets on climate change investments, despite having made only minimal contributions to greenhouse gas emissions. These expenses shrink the available budget for development, social services, peace, and law and order.

4.3. Health, food and water security

Climate impacts are beginning to undermine Pacific peoples' quality and length of life, thereby impairing their ability to contribute productively to their economies and families. Health systems in the region are under enormous stress and unable to cope. The potential erosion of healthy, traditional and affordable food sources for local communities is particularly alarming.

Indeed, the main pillars of food security in the Pacific - availability, access, and consumption of nutritious food - are being eroded by a range of issues including rapid population growth, spikes in global food and fuel prices and climate impacts such as shortages of arable land in atolls and coastal fisheries degradation (SPC, 2015). Unpredictable seasons, changes in precipitation, and the impacts of extreme weather events are undermining agricultural production. As a result, there is an increasing dependency on imports with low nutritional value like noodles, rice, flour and mutton flaps. This occurs against a backdrop of troubling trends in the prevalence of Non Communicable Diseases (NCDs) such as diabetes, obesity, cancer, and heart disease in the region. Pacific countries have among the highest NCD rates in the world: these diseases are responsible for 70 - 75% of deaths and 1 in 3 Pacific children suffer from stunted growth. Increased water-borne diseases like typhoid, dysentery, dengue and malaria are additional threats: increases in temperature and rainfall threaten to expand outbreaks to new areas in the region.

Inundation, salt water intrusion and droughts threaten fresh water supplies for low-lying atolls and have already caused some countries to declare states of emergency, for example the Republic of the Marshall Islands (RMI) in 2016. Already struggling to cope, these governments often cannot afford expensive, essential solutions like capture, storage, desalination and sanitation.

These trends and risks combine to put at risk the basic needs and health of Pacific people and their ability to positively contribute to their communities and economies, resulting in increased fragility with the potential for instability.

4.4. Coping capacity and natural disasters

The vulnerability of Pacific SIDS has increased while their ability to invest in coping capacity has not. The Pacific SIDS are situated in one of the regions most exposed to natural disasters (tropical cyclones, droughts and floods) (NCD Alliance, 2014) and least insurable (Brot für die Welt, 2015). About 3/4 of the reported disasters between 1950 and 2004 in the Pacific region were cyclones, each averaging USD 75.7 million in damages (IOM, 2019). In the last three years, single tropical cyclone events have caused losses of up to 64% of GDP for some Pacific Island nations.

Crime and violence often spike in the immediate aftermath of disasters (Roy, 2010). Successive impacts over time, with shortening recovery periods in between, present significant fragility risks and potential for short-term conflict and longer-term deterioration of development gains. Traditional defence force responders (New Zealand and Australian militaries) are already indicating that this may strain their capacity to respond effectively and support Pacific nations' resilience and recovery efforts.

Key coastal infrastructure and associated industries are also exposed to climate change. According to the World Bank Pacific Possible 2017 Report, in a best-case scenario, adaptation costs for coastal protection in Pacific Island Countries and Territories (PICTs) will reach USD 234 million per year by 2020, and USD 285 million per year by 2040 (World Bank, 2017). Port augmentation and reconstruction is already underway in a number of Pacific SIDS, but many countries in the region are unable to access the necessary finance due to debt levels and capacity limitations. It will be essential to provide access to additional climate finance in order to co-finance investments in critical infrastructure.

4.5. Impacts of sea-level rise on maritime zone and boundaries

Maritime boundaries are critical for governance, security, law enforcement, and natural resource management within a country. Among other things, they enable enforcement of fisheries' rights and a range of marine resource management approaches. Having certainty over maritime boundaries also enhances a country's ability to prosecute crimes committed at sea and effectively implement border-control, customs and biosecurity arrangements.

Unfortunately, climate change and sea-level rise can alter the seemingly permanent marine features (low elevation reefs, islands and sand banks) that define maritime zones in the Pacific. All SIDS are at risk of losing land, and the lowest-lying atolls are at risk of complete inundation. The associated possible impacts and the implications under international law of the inundation of national territories of small-island and low-lying states, as well as their depopulation, is the subject of considerable debate and concern for Pacific SIDS (ILA, 2018; SPC, 2019).

Boundary delimitation efforts are ongoing¹⁹ and require concerted negotiations between island countries and larger neighbouring countries with territories in the region. Pacific leaders want to ensure that their peoples' rights to their countries' resources are protected

¹⁹ See figure 3 for latest status of Pacific maritime boundaries (SPC, 2019).

in the future. At present there is a considerable debate about the best options to fix boundaries and prevent countries from losing their legal rights to EEZs.

The Pacific Oceanscape Framework, endorsed by Forum Leaders in 2009, notes the importance of fixing boundaries to ensure the jurisdiction of Pacific Island Countries and Territories is not reduced by the impacts of sea-level rise and climate change. Leaders reiterated “the urgency and importance of securing the region’s maritime boundaries as a key issue for the development and security of our region, and thereby for the security and well-being of the Blue Pacific Continent” at their Pacific Islands Forum leaders’ meeting in September 2018 (PIFS, 2018b). At their most recent meeting in August 2019, Pacific leaders committed to urgently conclude maritime boundary negotiations and to make a collective effort, including developing international law, to ensure that, once a Forum Member’s maritime zones are delineated in accordance with the 1982 Law of the Sea Convention (LOSC), they can no longer be challenged or reduced as a result of sea-level rise and climate change (PIFS, 2019b)

5. POLICY AND INSTITUTIONAL CONTEXT

At the regional level, responses to environmental change and climate policies are developed in a well-conceived policy development arrangement and institutional architecture. One of the key strategy documents setting out regional priorities and processes for regional cooperation is the 2014 Framework for Pacific Regionalism (FPR).

The Pacific Islands Forum²⁰ is the paramount decision-making body. It is complemented by eight intergovernmental regional organisations, which meet in the Council of Regional Organisations of the Pacific (CROP)²¹ and cover technical and related policy matters across all sectors including health, fisheries, geosciences, environment and natural resources, climate change, etc.. Furthermore, UN agencies, regional law enforcement agencies and many other development and civil society organisations (CSOs) and private sector stakeholders support informed discussion and programmes in the region - and report in some way to the Pacific Islands Forum Leaders’ annual meetings.

This is clearly not a region lacking in policy and partners. The challenge in such a crowded space is ensuring effective coordination and equitable benefits for all involved.

All members of the Pacific Island Forum endorsed the Boe Declaration on Regional Security in September 2018, the most relevant statement on regional security cooperation. It expands the concept of regional security to cover climate change, environment and resources, including issues such as human security, humanitarian responses and transnational crime.

At their meeting in August 2019, regional leaders adopted the ‘Action Plan to Implement the Boe Declaration on Regional Security’ and established the Forum Officials Sub-Committee on Regional Security Cooperation. They envisage this becoming a comprehensive framework and architecture for implementing the declaration - one important aspect is a regional security coordination mechanism that builds on existing architecture, including law enforcement secretariats, regional organisations and country ownership.

The Framework for Resilient Development in the Pacific (FRDP) and associated partnership arrangement is the key mechanism for addressing climate change and disaster management through regional approaches. It seeks to support the mainstreaming of climate change and disaster management into national planning and budgetary processes and support the implementation of Nationally Determined Contributions (NDC), among other things.

²⁰ Consisting of the Leaders of the 14 independent Pacific SIDS, New Zealand, Australia, New Caledonia and French Polynesia. <https://www.forumsec.org/forum-leaders/>

²¹ Council of Regional Organisations of the Pacific: PASO, PIFS, SPREP, SPC, SPTO, FFA, USP, PIDP, PPA.

Securing the necessary resources from the various financing streams (including development, disaster, and climate finance) to implement this effectively remains a challenge. At their most recent meeting in August 2019, Pacific leaders endorsed the concept and transitional arrangements for the establishment of the regionally owned and led Pacific Resilience Facility and encouraged each other and partners to mobilise the requisite resources for its capitalisation (PIFS, 2019b).

The region's meteorological departments and disaster management bodies are currently working together to strengthen early warning systems (EAWS). Meanwhile, partnerships between the World Meteorological Organization (WMO), United Nations Environment Programme (UNEP) and Secretariat of the Pacific Regional Environment Programme (SPREP) are linked to the broader regional systems of decision making, support and collective coordinated effort. There are still problems with capacity at all levels, and with capturing and managing sufficiently granular information for localised preparedness, resilience-building and response. This information needs to include not only scientific data for modelling but also traditional knowledge of historical events, seasonality and coping strategies.

Regional collaboration on the response to disasters in Pacific SIDS is very important: it builds on and stems from historical ties between respective islands and their metropolitan colonial States. The collaboration between New Zealand, Australia, and France under the FRANZ Agreement of 1992 has been an effective civilian-led and defence force-backed approach to coordinated disaster reconnaissance and relief assistance in the Pacific when requested by partner countries. It operates on the basis of respect for the sovereignty and leading role of affected countries in responding to disasters (MFAT, 2014).

Regional collaborative responses to peace and security challenges in the Pacific Islands Forum region have been based on the Biketawa Declaration of 2000. It established the principles of operation and collaboration among Pacific Island Forum Members seeking to uphold good governance, peace and security. It was the basis for the successful collective regional assistance provided to the Solomon Islands in 2003. The Regional Assistance Mission to the Solomon Islands (RAMSI) is one of the region's success stories in terms of curbing violence in a Pacific SIDS. Now that the region's platform for collaboration on security has expanded its scope under the Boe Declaration, this kind of coordinated collaborative approach could potentially be replicated in climate-related disaster responses.

At the national level, all PICs have extensive climate change, disaster and security-related policies. National Development Plans and Strategies increasingly reflect the importance of climate change, including mitigation targets and activities under NDCs and adaptation in National Adaptation Plans (NAPs), strategies and programming (see [Pacific Climate Change Portal](#) for profiles on each Pacific SIDS and associated policy frameworks listed). Pacific SIDS were also amongst the first to develop Joint NAPs - combining approaches to resilience-building (adaptation) and disaster management efforts. This process helped bring together, at the country level, bodies of practice in the climate change, disaster and security space, with the goal of informing risk and resilience-building priorities as well as effective response mechanisms.

The uncertainty about the future viability of climate change-threatened islands and communities has led some Pacific leaders to call for more options for their people to migrate with dignity to larger neighbouring metropolitan countries. This position has helped to support the progression of labour mobility schemes and trade agreements between a number of Pacific Island countries and New Zealand and Australia over the last decade. Considerable investments in technical and vocational training institutes in the region are also being supported by a number of development partners, partly as a way to upskill potential migrants.

At the same time, Pacific Island countries are developing displacement policies that identify resource ownership, land tenure and impacts of climate change as critical factors in human security. A recently released IOM report notes that "building local resilience, creating global, regional and national partnerships and defining an international governance

structure for climate migration are essential in order to secure the lives and rights of millions of people in island states” (IOM, 2019, p. 23).

State, regional and global level partnerships play a leading role, but it is well appreciated in the Pacific region that many traditional and cultural systems of governance and practice at sub-national levels could well provide the most lasting and impactful vehicles to deliver peaceful solutions and hope to these communities. Any actors defining and addressing climate-fragility risks in Pacific societies should ensure that their process includes representatives and institutions from the non-state civil society and customary societal sphere. For example, traditional chiefs, elders, community leaders, and the church continue to play an important part in community-level governance, resource management, conflict prevention and resilience-building. Understanding and addressing issues at a sufficiently granular level must be part and parcel of the solutions for these to be well informed and sustainable.

Many Pacific SIDS have undertaken comprehensive Climate and Resilience Finance Assessments [see [PIFS website on PICFAFF](#)] in an attempt to better harness additional resource opportunities aligned with their own domestic resources available in this space. Accessing timely, predictable and flexible finance for climate change priorities is a significant challenge for all, as the complexities of climate finance sources still outweigh the available capacities to access and make use of the funds.

Pacific SIDS also face challenges understanding, accessing and aligning the right sources of finance to implement the range of relevant policy frameworks in a programmatic fashion. Accessing climate finance is complex and actors require significant dedicated capacity to understand, harness, implement, monitor and report on it. The differentiation of climate finance from disaster, development, humanitarian, security and other sources of finance remains an important accountability measure for tracking climate finance commitments and eligibility criteria. However, this can also create complications for those who want to combine these resources at the point of implementation for scaled-up interventions with multiple benefits in resilience-building, response, development and security.



6. ENTRY POINTS FOR ADDRESSING CLIMATE-FRAGILITY RISKS

Despite the challenges, Pacific people are traditionally resilient and determined to survive and thrive. Pacific Leaders recently endorsed the Boe Declaration on Regional Security 2018 and the Boe Declaration Action Plan 2019 and established a Sub-Committee of the Forum Officials' Committee on Regional Security. This brings to bear the collective arsenal of leadership, policy and capacities for addressing climate security in the expanded context of security challenges in the region. Although it will take time for implementation to strengthen and evolve, there are a number of responses to the challenges that can be supported now:

- 1. Support the universal implementation of the Paris Agreement.** To achieve the goals set out in the agreement, ambitious and united global leadership supporting deep cuts in greenhouse gas emissions is essential. The UN system must amplify the voices of the most vulnerable and lead a coordinated and collaborative global effort; the UN Secretary-General's climate action summit, UN General Assembly, UN Security Council, and the G7 and G20 have critical roles to play.
- 2. Deliver ambitious mobilisation of resources through fit-for-purpose modalities.** A range of sources of finance and resources is required to address risks and build resilience. These should draw on expertise from the climate change, disaster, humanitarian, development and security avenues and be delivered in a coordinated manner. Channelling resources through Pacific SIDS' own country systems and resilient private sector and non-state actors, and using existing regional arrangements wherever possible, will help reduce transaction costs and administrative burdens. Scaled-up climate finance is critical in this regard, as are grants and highly concessional finance options. The region needs tailored, simplified modalities of delivery to accommodate the unique capacities and institutional arrangements of SIDS.
- 3. Accelerate international cooperation and efficient development programmes to reduce and better manage climate change-induced migration and create sustainable and resilient island states.** Support for the development of local vulnerability assessments, plans and displacement policies is critical for giving more certainty and security to climate change-induced displaced persons and communities affected by this migration. Furthermore, international actors must accelerate their efforts to secure effective international agreements to protect migrants forced to leave their countries due to climate change.
- 4. Address Pacific SIDS' concerns about the potential implications of climate change for maritime jurisdictions and associated resources.** It is vital to develop suitable proposals for progressive international law and associated technical approaches and capacities to support Pacific SIDS in addressing this issue. International partners should support Pacific SIDS efforts through UNCLOS and the International Law Association (ILA) Committee on International Law and Sea Level Rise, and build on efforts already underway by the region, including boundary fixing and delimitation programmes, and fish stock assessments of the Pacific Community (SPC) and Forum Fisheries Agency (FFA).
- 5. Strengthen data collection, monitoring and early warning systems and improve understanding and knowledge of localised impact and risk.** It is important to gather sufficiently robust and granular data and information, including extensive traditional and cultural knowledge, around some of the key climate fragility issues and solutions in the region. This will help to inform policy, resilience-building and responses at all levels, thus reducing risk profiles across all sectors and stakeholders and enabling a better understanding of the nexus between climate and security for the Pacific.
- 6. Help Pacific SIDS maintain the essential contributions fisheries make to their economies** by funding improved data for tuna-climate models and applied science

necessary to better understand the impacts of climate change on Pacific fisheries with more accuracy. The relevant actors should also explore means to retain present benefits received from tuna, regardless of climate change driven redistribution of stocks (SPC, 2019; FFA, 2017).

- 7. Develop or strengthen swift, regional/sub-regional pre-approved response systems for climate impacts, disasters and conflicts.** The region should prepare for multiple response scenarios and factor in comprehensive recovery planning. This could help strengthen collaborative peacebuilding efforts and expand them to include the existing diverse geopolitical interests operating in the region. The region has successful examples of applicable models, for example the Regional Assistance Mission to the Solomon Islands (RAMSI).
- 8. Ensure there is a clear, coordinated and efficient UN support system for the region and country-specific situations.** A coordinated multilateral system approach and informed climate security assessment framework should complement the region's efforts to implement the Boe Declaration and its Action Plan. The climate security assessment approach could draw on some of the listed climate-fragility issues, but it needs to be field-tested at different levels by drawing on the multifaceted nature of challenges facing Pacific peoples. In the process, decision-makers should support and build on the existing regional frameworks and facilities established and endorsed by Pacific Leaders and at country level, which bring together bodies of practice across the climate, disaster, security and development space.
- 9. Appoint a special adviser on climate change and security.** In their 49th Leaders Communiqué, the Pacific Leaders requested that the UN Secretary-General appoint a special adviser on climate change and security and called on the UN Security Council to appoint a special rapporteur to produce a regular review of global, regional and national security threats caused by climate change (PIFS, 2018b). Focused efforts to better understand and report on the unique climate-fragility and security challenges faced by SIDS should be captured in this reporting to ensure the UN is well placed to effectively respond.

ACKNOWLEDGEMENTS

Sincere thanks to the many supportive colleagues who contributed resourcing, ideas, editing, information, advice and feedback that informed the development of this Report, in particular: adelphi, the German Federal Foreign Office, the Climate Security Mechanism, Climate Security Experts Network, the Pacific Community (SPC), Pacific Islands Forum Secretariat (PIFS), Secretariat of the Pacific Regional Environment Programme (SPREP), Forum Fisheries Agency (FFA), UNDP, ANCORS UOW, Professor Jon Barnett, Doctor Ian Fry, Volker Boege; Benjamin Pohl, Lukas Ruettinger, Sylvie Goyet, Espen Ronneberg, Viliame Wilikilagi, Joanna Harvey, Tony Edwards, Bailey and Reign Pasisi.

The key climate fragility issues and entry points covered in the draft report and associated fact sheet were also the subject of presentation, discussion and feedback at the following meetings: Climate and Security Expert Network Workshop April 8 2019; the Tuna Climate Justice Think Tank meeting 4-5th July; Climate Security Technical Experts Meeting 9th August 2019; The Climate Change Saluataga - Securing our Future in the Pacific, Tuvalu 12 August 2019; the Climate Security in the Pacific Validation Workshop (8-11 Sept 2019); and the Climate Change and Conflict in the Pacific workshop at Toda (11-13 Sept 2019).

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