THE EXISTENTIAL THREAT:

CLIMATE SECURITY IN THE PACIFIC

by
the Pacific Regional Security Hub team
University of Canterbury

Climate change poses an existential security threat to the Pacific region and the certainly whole planet. Existential? Indeed, because it impacts on the very basis of our survival including our land, economy, culture, governance, wellbeing, infrastructure, health, environment and everything else in between.

Pacific islands are most at risk because of their physical size and being surrounded by the largest ocean on Planet Earth and are consistently subjected to extreme climate-related calamities including cyclones, coastal erosion, flooding, loss of biodiversity, coral bleaching, drought, fresh water salination and sea level rise, amongst others. They are disproportionately impacted by climate change, although their carbon emission is, by world standard, very small.

In recognition of the significance of climate security, the Pacific Island Forum leaders endorsed the 2018 Boe Declaration, which pronounced that "climate change remains the single greatest threat to the livelihoods, security and wellbeing of the peoples of the Pacific" (PIFS, 2018).[1] This is reaffirmed by the *2050 Strategy for the Blue Pacific Continent*, which highlights the theme of "resilience and wellbeing" as critical in strengthen "the region's ability to address security threats, and quickly restore peace and security in insecure communities."[2]

In response to the need for more evidence based data and knowledge of climate security in the Pacific, a project called the Pacific Ocean Climate Crisis Assessment (POCCA) was put together as a partnership between the University of Canterbury and University of the South

[1] Pacific Islands Forum Secretariat (PIFS). 2024. BOE-document-Action-Plan.pdf. https://forumsec.org/sites/default/files/2024-03/BOE-document-Action-Plan.pdf.

[2] PIFS. 2022. PIFS-2050-Strategy-Blue-Pacific-Continent-WEB-5Aug2022-1.pdf. https://forumsec.org/sites/default/files/2023-11/PIFS-2050-Strategy-Blue-Pacific-Continent-WEB-5Aug2022-1.pdf., p21.

Pacific and supported by New Zealan's Ministry of Foreign Affairs (MFAT). It was interdisciplinary and evidence-based research study, which covered Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Republic of the Marshall Islands, Samoa, Solomon Islands, Timor-Leste, Tokelau, Tonga, Tuvalu and Vanuatu.

A number of fellows of the Pacific Regional Security Hub (PRSH), including Associate Professor of Practice Jose Sausa-Santos (Convenor of PRSH), were part of the approximately 100-strong team, co-led by Distinguished Professor Steven Ratuva (a founder of PRSH). It was the largest interdisciplinary and trans-national collaboration between Pacific Island experts ever assembled for a research project, in the areas of physical science, social science and Indigenous knowledge. It involved universities from across the Pacific, New Zealand, Australia, United States and beyond.

The final report was launched at the COP29 in Azerbaijan. A summary of some of the findings are presented here.

Ocean-climate nexus: Framing the science

a) The region's climate variability and exposure to climate extremes is due to the geographical isolation and diverse topography of the different countries but this varies from country to country. While climate science research is extensive, data relating to the Pacific region is limited, it is nevertheless growing, especially in terms of informing mitigation and adaptation strategies.

b) Geologically, the Pacific Ocean emerged approximately 250 million years ago because of the fragmentation of the Pangea supercontinent, arising from the Panthalassa Ocean surrounding the Pangaea landmass. Of the over 1,700 Pacific Islands, the majority of the islands are located in the southwest quadrant, while the fewest are found in the northeast quadrant. The distribution is dominated by small islands, with 67% (44) being less than 10 km² (1 km²) in area and a mere six percent are classified as large islands, those with an area greater than 100 km² (Nunn et al. 2016). The five key lithology types that compose Pacific islands are: volcanic, reef, limestone, composite, and continental. Volcanic islands are the most common, comprising 39% of the islands, followed by reef islands at 36%, limestone islands account (17%), composite islands (7%), continental lithologies (1%). Based on elevation, 45% of the islands are lower than 30 meters, with 27% less than five meters and 26% higher than 100 meters.

The climate of the Pacific region is very dynamic as it is influenced by various climatic modes of variability on different spatial and temporal scales. On intra-seasonal timescales, the dominant mode of variability in the tropical Pacific region is the Madden-Jullien Oscillation while on inter-annual timescales, the dominant mode of variability is the El Nino Southern Oscillation (ENSO) phenomenon. Other climatic features include the South Pacific Convergence Zone (SPCZ) and the Intertropical Convergence Zone (ITCZ).

c) Climate change presents several physical and ecological threats to the ocean ecology including threatened species such as giant clams, which are sensitive to changes in their marine environment. The primary threats caused by rising sea temperatures includes loss of zooxanthellae leading to bleaching, ocean acidification, thermal stress, decrease shell calsification for shellfish, disruption of biological functions, altered spawning and larvae distribution, destruction of reef habitat, restricted habitat range and unpredictable shifts in marine eco-systems, reduced growth of sea life, reproductive failure and increased mortality. These have direct impact on the Pacific people's food security.

d) Integration of traditional wisdom and modern adaptation strategies is crucial for addressing the dynamic and often unpredictable nature of climate change. Climate-associated shifts, such as changes in fisheries, marine heatwaves, and variations in ENSO, underscore the need for adaptive and integrated approaches. By leveraging both traditional and modern knowledge systems, Pacific Island communities can better navigate the uncertainties of a changing climate while preserving their cultural heritage and ensuring a sustainable future.

e) Integrating traditional practices with modern science is not only about improving weather forecasting, but also about enhancing resilience. Pacific communities can implement proactive measures to minimize socioeconomic disruption caused by climate change, strengthening resilience.

f) Due to varied topographies and environmental conditions in the Pacific region, different islands face unique challenges, often requiring localised adaptation strategies. There is a critical need for increased data collection, monitoring, and international cooperation to improve climate research and decision-making in the Pacific region.

PICTs as global norm entrepreneurs in the ocean-climate nexus

a) The PICTs have been active as global norm entrepreneurs in international and regional frameworks and in some cases have successfully manage the threats to their sovereign rights at the time of climate crisis. Through multiple multilateral groups and alliances (e.g. AOSIS, G77, LDC), PICTs have been able to influence international norms and policies at different frameworks of global governance in the international organisations. There are also significant capacity limitations that cannot be ignored when thinking about the role of small states in influencing the international climate and ocean laws and policies and these have been covered in relevant literature.

b) PICTs have been instrumental in developing the international norms of climate change and ocean governance, and below we will highlight four such instances, showcasing PSIDS as global norm entrepreneurs.

c) While UNCLOS brought significant changes into ways in which the Pacific traditionally approached the ocean as vast and open, it also provided important 'maritime sovereignty' through territorialisation at sea. The maritime zones recognised by UNCLOS, providing for territorial sovereignty at sea, transformed SIDS into significant political actors.

d) In 1991, when the *United Nations Framework Convention on Climate Change* was still being negotiated, Vanuatu on behalf of AOSIS proposed an article on permanent and irreversible loss and damage to be introduced to the new climate treaty (United Nations 1991). It took 20 more years before Article 8 on loss and damage was codified in the Paris Agreement in 2015.

e) In addition to loss and damage, the significant contribution of PICTs to the Paris Agreement was the inclusion of 1.5°C ('to stay alive') into Article 2. The goals for PICTs regarding the Paris climate conference were outlined in the *Suva Declaration*, adopted by the Pacific Islands Development Forum in September 2015. The *Suva Declaration* called for limiting the global average temperature increase to 1.5°C and demanded anchoring loss and damage as a standalone article, distinguished from adaptation measures.

f) Pacific Island Countries, through the PSIDS grouping at the UN, were instrumental in the inclusion of Sustainable Development Goals 13 (climate action) and 14 (life below water) in the *2030 Agenda for Sustainable Development*. They used their national and regional experience in ocean governance to lobby a stand-alone sustainable development goal on the oceans, positioning Large Ocean States as their global guardians.

g) Through PICTs lobbying, the United Nations General Assembly adopted, by consensus, in March 2023, resolution 77/276 requesting an advisory opinion from the International Court of Justice (ICJ) on obligations of states in respect of climate change (United Nations, 2023a). The resolution asks the ICJ to answer two questions regarding the relationship of climate change and human rights.

h) To secure their sovereignty, PICTs have taken some bold steps to guarantee their maritime boundaries regardless of sea level rise and changes in baselines. In 2021, the Pacific Islands Forum adopted the *Declaration on Preserving Maritime Zones in the Face of Climate Change-Related Sea-Level Rise.* A great concern for many PICTs is that climate change will irreversibly affect their legal entitlements regarding maritime territories.

i) In 2022, a group of Pacific parliamentarians united under the Pacific Parliamentarians Alliance on Deep Sea Mining, called for a moratorium. Recalling the high seas as the common heritage of humankind, the parliamentarians asked the Pacific leaders to join the more cautious ranks opposing such activities, as well as to provide support for those Pacific governments that have decided to explore this alternative.

j) The regional efforts to decarbonise the shipping industry have also been relevant, with sustainable transportation being a key focus area for the PICTs. At the IMO, Tuvalu, Kiribati, Vanuatu and the Solomon Islands have all actively participated in developing the strategy for decarbonization of the shipping industry.

Regional climate and ocean strategies, policies and frameworks – a stocktake of current status

a) There has been a mushrooming of declarations and projects on climate in the Pacific, which reflects the different levels and contexts of competition, collaboration and consensus and how these have shaped climate-ocean agenda in terms of policy development and implementation.

b) The types and level of effectiveness of these climate initiatives vary - some are for mobilizing public opinions, some are geared towards policy and strategy impact, some are focused on social and behavioural transformation and some tend to facilitate the explicit and implicit political interests of the external funders. Identifying these differences is crucial in understanding the Pacific climate action, strategy and policy space.

c) The institutional arrangements of the various organizations differ considerably across the different horizontal types of organizations as well as the different vertical tiers at the sub-national, national, regional and international levels. Some of these tiers are connected while are some are not in addressing issues of adaptation and resilience.

d) There needs to be democratisation of vertical alignment of community and sub-national action strategies with national, regional, and global frameworks and there is a need to emphasise the bottom-up approaches to ensure meaningful community participation.

e) The Pacific climate frameworks should maintain a sense of autonomy and not used as Trojan horse by external institutions and powers. For instance, climate finance must be depoliticized and focused on survival and well-being of Pacific communities, rather than being driven by economic and political interests.

f) For effectiveness of climate strategies, sustainable use of local expertise is needed to provide more robust voices for Pacific people. Where local expertise is lacking, there should be mechanisms for training and capacity building.

'We are the Moana': Notions of climate risks, vulnerability and resilience

a) Recognizing the Pacific Ocean as both a physical and cultural home for Pacific people is critical to understanding climate risks, narratives of vulnerability and indigenous resilience. The ocean influences weather patterns and plays a pivotal role in shaping Oceanic cultures and people's social habitat.

b) There is a notable ambiguity in disaster risk resilience and climate change adaptation strategies, underscoring the need for Pacific-Indigenous perspectives. Concepts like 'kinship resilience' rooted in family and community reliance, are not fully recognized or integrated into resilience frameworks.

c) There are opportunities to integrate Indigenous knowledge and science into contemporary climate hazard models. These new techniques can produce more inclusive and reliable evidence to inform adaptation and resilience strategies.

d) There are international instruments which support Indigenous resilience approaches and there is a need to align these with local initiatives. These include the indigenous rights declarations, human rights frameworks, SDGs and others.

e) Understanding and 'measuring' resilience should involve both quantitative and qualitative indicators and evidence from communities, resilience practitioners, and

contemporary scientific experts, while respecting the multilingual nature of Pacific communities.

f) Ancestral knowledge in relation to resilience is culturally embedded and sustaining it requires understanding of what it is and how modern day mechanisms such as education, publications etc, can be used for transmitting and preserving past knowledge.

g) Building resilience requires knowledge equity, recognition of local voices, respect for self-determination and understanding of multiple aspects of community life. These can be important in responding effectively to climate change.

h) There should be long term investment in innovative methods for incorporating Indigenous Knowledge (IK) and Traditional Ecological Knowledge (TEK) into modern hazard risk modelling; recognizing the innovative adaptation strategies of Pacific communities; role of the Pacific diaspora; supporting community-driven, culturally responsive resilience initiatives that are citizen-based; promoting research approaches that align with community priorities and produce actionable knowledge; and developing educational strategies that integrate climate change and ocean literacy into practical, real-life experiences.

Climate crisis narratives: Perceptions, civil society and education

a) Contemporary perceptions, narratives, and voices of Pacific peoples in relation to climate change are diverse and, in many cases, are grounded in their deep connection to land, ocean, and environmental stewardship. It is important to decolonize perception of climate change in the contested space of climate discourses.

b) Pacific community narratives are based on a holistic understanding of the interconnectedness between land, ocean, sky, animals, and people, with land seen as an ancestor and vital to identity and heritage.

c) There is a need to shift the existing climate change narratives within academia and the media to one that is inclusive and emphasize Pacific agency. This includes a critical examination of the environmental, social, cultural, political, and economic impacts of climate change on Pacific communities.

d) There needs to be recognition of the critical role of Pacific villages and community groups as first responders during natural disasters and there is a need to provide these local agencies with financial aid and necessary equipment. This challenges the

traditional ‘fly in and fly out’ approach to disaster response, emphasizing the need to compensate and support local efforts.

e) A bottom-up approach to building civil systems is relevant and needed, to support localization and long-term resilience. This approach empowers local communities to determine their immediate needs and develop innovative development models that align with their priorities.

f) Effective and meaningful community consultation is crucial, particularly within the Pacific diaspora. Policies should be guided by community perspectives, allowing Pacific individuals and communities to actively participate in climate change decision-making processes.

g) There is a pressing need for climate change civic and citizenship education to be integrated into school curricula across the Pacific. This includes prioritizing early childhood education through storytelling and play, ensuring that climate change content is accessible and relevant from a young age.

Solwara, moana, ocean and local communities—the social, cultural and economic connections

a) The lives of Pacific people have deep connections with the ocean, their islands, and the social, cultural, and economic systems they developed to thrive in these environments. Pacific communities have, over the years, adapted to the rapid changes caused by climate change using community innovation and practices with modern strategies to build climate resilience.

b) To adapt to the oceanic environment, Pacific peoples have, over generations, developed sophisticated social, cultural and economic systems that enabled them to survive and thrive in small island and big ocean environments. The Pacific people’s cosmology, customs, and traditions are deeply tied to the ocean, which is essential for their livelihood, culture, and identity.

c) Pacific communities are facing severe challenges due to climate change, and there is a need for strategies that empower and support them to build resilience and adapt to these changes.

d) Full recognition and support of land and resource rights are essential for effective conservation and sustainable management of the region's biodiversity.

e) A multisectoral and rights-based approach involving local communities is crucial for the sustainable governance of ocean resources and addressing historical and current inequities.

f) There is a need to frame coastal development policies focused on adaptation and resilience and integrating local innovation with scientific approaches to address the climate crisis in the region.

g) Strengthening the socio-economic capacity of Pacific communities through technical and financial resources is vital for ensuring their ability to live secure and prosperous lives amidst the ongoing environmental challenges.

Safeguarding biodiversity through indigenous and local knowledge for climate change resilience

a) Biodiversity in the Pacific region is deeply intertwined with cultural survival and sustainable living. With the profound impacts of rapid climate change, this now poses serious challenges to the social and ecological systems of Pacific countries threatening livelihoods.

b) The Pacific is internationally recognized to include several unique biodiversity hotspots; its biodiversity is essential for life and well-being of the Pacific people and needs protection because it is the lifeblood of our planet as well as a major contributor to climate change mitigation and resilience.

c) Globally, loss of biodiversity is at crisis point and impacting on the functioning of our planet and in turn the welfare of our culturally diverse Pacific people. Biodiversity, ecosystems and communities in Pacific Islands are seriously and uniquely impacted by climate change. Rising seawater temperatures, sea-level rise, changes in ocean chemistry - acidification, increasing human populations, loss of biodiversity and loss of cultural connections are some of the main threats to Pacific communities.

d) Climate change adaptation and mitigation are already happening in the Pacific Islands region, underpinned by local and indigenous culture, knowledge and practice.

e) Biodiversity in the Pacific Islands region is intertwined with, and not separate from, people and culture. There is a strong ancestral and spiritual bond between Pacific communities and their natural environment.

f) Policy responses will need to integrate across climate, biodiversity and other economic and social policy areas. These will need to integrate public and private

sector finances and stakeholders, but in ways that serve the needs of Pacific peoples and ecosystems.

g) Biodiversity policy and governance should thus put Pacific peoples and cultures at the heart of efforts to conserve biodiversity and build climate resilience. A revision of outdated environmental regulations and a new vision of resilient ecosystem conservation in harmony with indigenous and local knowledge is the way forward to adapt to the threats facing Pacific Islands in the 21st century and beyond.

Water security and climate crisis

a) Water security, climate change and development are closely connected since the availability, accessibility, and quality of water are impacted by climate change and other human activities. Thus water security should involve an integrated, collaborative and context-specific approaches which consider both climatic and non-climatic stressors.

b) PICTs have scarce water resources due to their small land mass and reliance on fragile freshwater systems like shallow water lenses in atolls. Climate change exacerbates water scarcity, making the protection and management of these resources critical. These vary from country to country and island to island depending on the type of island (high islands vs. atolls) and the specific water resources available.

c) One-dimensional, top-down approaches to water security governance are insufficient. Effective strategies must integrate traditional knowledge systems, local governance structures, and national policies to build resilience against climate and non-climate stressors. Successful examples of water security governance often involve collaboration between national governments, local communities, and traditional leaders. These partnerships help align priorities, mobilize resources, and integrate climate change adaptation into water security planning.

d) More research is needed to understand the relationship between climate change impacts and water security, particularly regarding the progress of SDG 6 (clean water and sanitation). Improved data collection, monitoring, and evaluation are essential for assessing water quality and the effectiveness of interventions.

e) To enhance water security in Pacific island communities, further research should focus on the effectiveness of integrating traditional knowledge with modern governance, documenting local resilience strategies, and developing bio-indicators

for water quality. Strengthening the capacity to monitor and evaluate water security interventions is crucial for ensuring healthy water resources for people and the environment.

f) There needs to be a comprehensive review of water security policies at national and subnational levels to better align stakeholder needs, integrate governance systems, and address resource constraints. There is also a need for policies that integrate climate change adaptation into water security strategies.

Safe livelihoods & social protection in a climate crisis

a) The role of social protection in addressing the climate crisis needs serious consideration because of its role in providing support for victims of natural disasters such as cyclones, droughts, sea-level rise and other climate change-related events. Social protection is also important in ensuring sustainable livelihoods and human security for communities.

b) Apart from state-based and formal social protection systems, there are also local and participatory social protection systems based on kinship networks, reciprocity and other redistributive norms, which people are familiar with. Kin-based relationships, deeply rooted in Pacific communities and expressed through cultural practices like totems, dance, and artistry, play a vital role in ensuring sustainability. These connections, both tangible and intangible, have historically enabled communities to adapt to environmental changes.

c) Social protection in Pacific communities involves a blend of formal, informal, and hybrid adaptation processes. These mechanisms, which include indigenous and cross-border forms of protection, challenge conventional notions of national borders and are often gendered, reflecting the complex social dynamics within these communities.

d) Locally-led decision-making in social protection needs further development as climate change stress on communities increase. To sustain this, there is a need for capacity building in local leadership and skills, as well as increased financial investment in adaptation efforts.

e) Current funding for social protection and livelihoods in Pacific communities is limited and fragmented, with high transaction costs that can undermine rather than support efforts in addressing human security. There is a critical need for more coordinated

and substantial investment to ensure the long-term sustainability of social protection mechanisms in the face of ongoing climate crises.

COVID-19, community health, and mitigating climate crisis

a) There is an urgent need for integrated climate and health interventions and the need for a multisectoral approach to climate resilient planning and climate financing to protect at-risk populations.

b) Climate change impacts health through three primary pathways: direct effects from extreme weather, indirect effects mediated through natural systems like disease vectors and pollution, and effects mediated by human systems, including occupational hazards, undernutrition, and mental stress.

c) The increase in global temperatures, particularly over land surfaces, has led to increased heat stress, illness, and food insecurity due to crop failures. The climate crisis is exacerbating existing health challenges, particularly in vulnerable communities.

d) Climate change has increased the prevalence of vector-borne diseases like dengue and malaria, and worsening air pollution, which contributes to respiratory and cardiovascular diseases. These effects are particularly pronounced in Pacific Island nations.

e) The health impacts of climate change disproportionately affect disadvantaged communities, including women, children, the elderly, and those with disabilities. Pre-existing social inequities, such as poverty and limited access to resources, exacerbate these impacts, particularly in the Pacific.

f) Women and girls are more vulnerable to climate change due to existing gender inequalities. In the Pacific, women's livelihoods are heavily impacted by climate-related disruptions to agriculture, further entrenching their marginalized status.

g) Community-based health practices and knowledge should be incorporated into the climate change adaptation strategies. These practices offer culturally appropriate, resilient responses to health challenges, and should be integrated with scientific approaches to effectively mitigate climate-related health risks.

h) Addressing the health impacts of climate change requires a holistic, multisectoral approach that includes strengthening healthcare systems, promoting climate-resilient urban planning, and integrating environmental education. Collaboration

between governments, communities, and individuals is essential for effective preparedness and response.

i) Climate financing is crucial for supporting health adaptation and mitigation efforts. Allocating financial resources to build resilient healthcare systems and prepare communities for climate-related health challenges is vital for reducing the vulnerability of at-risk populations.

Climate crisis, food security & resilience

a) Climate variability and extreme events impact food production, nutrition, and health in the PICTs and there is a need for resilience-building strategies. Agriculture plays a crucial role in the livelihoods and food security of Pacific communities, yet it is highly vulnerable to climate change. We need to recognize the importance of addressing research gaps to effectively manage the food systems and improve health outcomes in the face of climate challenges.

b) The PICTs encompass more than 20 countries including some of the smallest and most isolated islands, creating diverse challenges in managing resources and ensuring food security. Agriculture is vital for food security, employment, and cultural identity in the PICTs, with most farming systems being rain-fed and highly dependent on favourable climatic conditions.

c) The region's agricultural systems are highly susceptible to climate-related extreme events such as droughts, cyclones, and rising sea levels, which threaten food production and livelihoods.

d) Climate change exacerbates malnutrition and non-communicable diseases by reducing local food production and increasing reliance on imported, ultra-processed foods.

e) Changes in food systems due to climate impacts are leading to decreased food sovereignty and increased food insecurity, particularly in rural and low-lying island communities.

f) There is a need for more research on cost-effective capacity-building strategies, interdisciplinary knowledge, and improved governance to enhance resilience in the PICTs' food systems. Integrating indigenous knowledge with modern practices, along with targeted research and capacity building, is essential for developing sustainable and resilient food systems in the Pacific.

g) Strengthening governance and decentralized decision-making in food security is critical for effective policy implementation and adaptation strategies in response to climate change.

Climate crisis, geopolitical vulnerability, transnational crime and mitigation response

a) The Pacific is facing three critical and intersecting security challenges posed by climate change, transnational crime and geopolitics. These challenges create multiple dilemmas. At times they converge in ways which amplify or exacerbates existing threats and drivers of insecurity and instability. At other times they inadvertently compete, for example, with funding prioritised to address one challenge at the expense of addressing the other.

b) The relationship(s) between climate change, a systemic risk to the Pacific, the geopolitical vulnerability of the Pacific region as a persistent threat, and transnational crime as an enduring threat pose a critical set of challenges today. For policymakers, researchers and communities on the frontlines of these challenges, understanding the nexus between climate change, transnational crime and geopolitics will become increasingly vital.

c) Climate change, transnational crime and geopolitics are identified as distinct – and at times, direct - challenges to the vision of a 'resilient Pacific Region of peace, harmony, security, social inclusion and prosperity, that ensures all Pacific peoples can lead free, healthy and productive lives' (Pacific Islands Forum 2022).

d) Climate change and transnational crime are often felt most acutely in 'settings where public institutions are already failing to meet the population's needs'. Moreover, geopolitics is increasingly regarded as a 'disruptor' in the Pacific threatening to overwhelm and 'undermine…peace and security efforts' (Pacific Islands Forum, Pacific Security Outlook 2022-25)

e) However, climate change, transnational crime and geopolitics are cascading and converging threats with the ability to create vulnerability across societies and nations. The implications of this snowball – or threat multiplier - effect is under-appreciated.

f) As a consequence, researchers and policymakers have inadvertently siloed the three issues and in doing so failed to recognise the areas of potential convergence and mitigation responses. A more nuanced understanding of the intersection between

climate and transnational crime will require the prioritisation and allocation of funding across funding streams.

g) To address this, further research to map and understand the patterns and convergence of climate change and transnational crime in the Pacific. This would allow for the identification of existing points of friction and the projection and trajectory of future possible flashpoints.

h) The failure to understand and respond to the intersection of climate change and transnational crime will not be readily mitigated against with profound implications for Pacific societies and states. For example, climate insecurity is often felt most acutely in contexts where public institutions are already struggling to meet the population's needs; transnational crime contributes to governments already under duress, is fuelled by corruption and contributes to elite capture, undermines governance and contributes to the erosion of the state.

i) Managing the intersection of climate change and transnational crime with the geopolitical agendas and ambitions of partner countries will becoming increasingly challenging as competing regional architectures challenge regional unity.

Loss, damage and compensation

a) Pacific Island leaders and climate campaigners have long advocated for the establishment of a Loss and Damage (L&D) fund to address the severe impacts of climate change on vulnerable communities. Despite the formal endorsement of such a fund at COP28, the funds committed and accessible are far below the necessary levels, leaving Pacific Island communities to contend with mounting and unavoidable losses. It delves into case studies highlighting the struggle of farmers, fisherfolks and Micro and Small Enterprise (MSEs) as they cope with climate-induced damages and calls for the urgency for better documentation of these experiences for improved access to financial resources to help communities recover and adapt to climate crisis.

b) Pacific Island communities face severe and unavoidable loss and damage due to the increased frequency and intensity of extreme weather events and irreversible impacts like sea level rise. These climate-related disasters lead to ongoing financial hardships, particularly for farmers, fishers, and micro and small enterprises (MSEs), who struggle to recover due to limited resources.

c) There is a significant lack of documentation on the real experiences of loss and damage at the household level. This chapter addresses this gap by presenting case

studies that highlight the unavoidable losses suffered by local communities, particularly focusing on the agricultural and fishing sector.

d) Households in the Pacific Islands employ various coping mechanisms to recover from disasters, such as using limited savings, remittances, and traditional knowledge. However, these resources are often insufficient, leading to prolonged recovery periods and a state of perpetual recovery due to the frequent occurrence of climate-related disasters.

e) Pacific leaders have been at the forefront of global climate advocacy, pushing for the inclusion of L&D in international climate agreements. Their efforts culminated in the recognition of L&D in Article 8 of the Paris Agreement, but funding commitments have fallen short, with developed countries hesitant to provide adequate financial support.

f) The operationalisation of the L&D fund remains challenging, with early pledges amounting to only a fraction of the estimated needed. Issues such as unclear allocation mechanisms, vague guidance in the Governing Instrument, and reliance on voluntary contributions highlight the ongoing difficulties in ensuring sufficient and accessible funding for affected communities.

g) There is an urgent need to increase the availability and accessibility of funds to avert, minimize, and address loss and damage. New financing mechanisms should be established to ensure that resources reach national governments, NGOs, SMEs, and local communities, allowing them to rebuild their lives and livelihoods after disasters.

h) Key priorities include improving the documentation of loss and damage experiences, developing better methodologies for evaluating adaptation efforts, and increasing research on the effectiveness of adaptation strategies in the Pacific Islands. These efforts are essential to support global negotiations and mobilize additional resources to address the ongoing impacts of climate change in the Pacific region.

Impacts on socio-economic and infrastructural development

a) The socio-economic and infrastructure development challenges and opportunities in the Pacific need to consider the complex interrelationship between Indigenous and mainstream economic perspectives. Climate crisis impacts on key economic sectors such as agriculture, fisheries, tourism, and infrastructure, while also showcasing the resilience, innovation, and solidarity embedded in Indigenous responses.

b) There needs to be a more inclusive approach to development that acknowledges the value of community-based economic systems alongside mainstream economic practices and offers recommendations for policy and research to support a just and sustainable transition.

c) The climate crisis is affecting key economic sectors in the Pacific, particularly agriculture, fisheries, tourism, and infrastructure, with mainstream approaches often underestimating the full scope of these impacts. Mainstream approaches tend to focus on measurable economic activities, overlooking the significance of non-monetary economic practices that sustain Pacific communities.

d) Local responses to the climate crisis, characterized by innovation, solidarity, and resilience, offer alternative pathways for adaptation and mitigation. The intersection of Indigenous and mainstream economic perspectives provides opportunities for more comprehensive and inclusive development strategies.

e) There is also a need to understand the gendered nature of economic practices, emphasizing the importance of integrating gender perspectives into climate and economic policies.

f) It is important to engage in interdisciplinary assessments of climate impacts on key economic sectors, with a focus on supporting or transitioning these sectors through just and sustainable means.

Climate crisis and cultural heritage: conversations

a) Using the story telling approach, the chapter explores the resilience and adaptability of Pacific Island communities in the face of climate change, emphasizing the role of traditional cultural practices, knowledge systems, and heritage in disaster preparedness and recovery. It highlights how these long-held practices, such as traditional gardening, food storage, and kinship-based support networks, serve as vital tools for mitigating the impacts of climate change.

b) Climate change poses significant threats to cultural heritage and there is a need to integrate Indigenous knowledge and cultural practices into broader climate adaptation strategies.

c) Pacific Island communities utilize traditional practices like customary gardening, food storage, and kinship systems to prepare for and recover from natural disasters, demonstrating resilience in the face of climate change. Traditional building

techniques, such as the construction of nakamal (meeting houses), have proven effective in protecting communities during extreme weather events like cyclones.

d) Artistic and cultural expressions, such as storytelling, song, and dance, play a crucial role in raising awareness, educating communities, and fostering activism for climate change preparedness and resilience.

e) There is a need to incorporate traditional knowledge and cultural practices into climate adaptation strategies, recognizing the value of these practices in building sustainable and resilient communities.

f) Land and sea are seen as forms of cultural wealth in the Pacific, providing a crucial shield against the impacts of climate change. Protecting these resources is essential for the survival and well-being of Pacific Island communities.

g) Pacific Islander youth and contemporary artists have used cultural expressions to demand climate justice on the global stage, exemplified by movements like 'We are not drowning, we are fighting,' which highlight the determination and agency of Pacific peoples in the face of the climate crisis.

Climate mobilities and adaptation

a) The issues of climate mobility and immobility are complex and in the Pacific, it is important to emphasize the importance of understanding these phenomena through the lens of Pacific peoples' cultural, spiritual, and historical contexts.

b) Studies of climate mobility should highlight the resilience and agency of Pacific communities needs to be more nuanced, recognizing the importance of voluntary immobility, cultural connections to land, and the need for bottom-up, community-driven relocation strategies that respect Pacific worldviews and values.

c) Pacific Islanders have a long history of mobility as great oceanic navigators, and contemporary climate-related mobility must be understood within this cultural and historical framework.

d) Voluntary immobility, or the decision to remain in place despite climate pressures, is an important coping mechanism rooted in cultural and spiritual connections to land, which current migration theories often overlook.

e) Climate mobility in the Pacific is highly context-specific, and policies must reflect the diverse experiences, worldviews, and socio-cultural realities of Pacific communities. Effective climate mobility strategies should integrate local experiences and

knowledge, customary governance mechanisms, and community-driven approaches to ensure they are culturally appropriate and sustainable.

f) **T**he emerging categories of 'trapped populations' and involuntary immobility, where individuals or communities are unable to move despite a desire to do so, and the stress this causes needs some emphasis.

g) The concept of cultural statelessness, or the loss of cultural identity and connection to land due to displacement or migration, is critical and requires greater attention in policy and legal frameworks.

h) There needs to be bottom-up approaches to relocation, involving Pacific elders, women, and other marginalized groups in decision-making processes, and calls for a continuum-based understanding of mobility and immobility that respects Pacific peoples' connections to land, ocean and cultural systems.

Climate finance and carbon market: Implications on local communities in the Pacific

a) The climate finance space can be contested with multiple stakeholders (including donors, development partners and other intermediaries) competing for customer influence, impact and legitimacy. This has potential to create unease amongst local governments and stakeholders, who in some cases may be expected by the competing donors to make choices which may not be in the best interest of local development priorities and needs.

b) Framing climate finance is often shaped by political imperatives. For instance, rebranding normal aid program as being climate-related can be a way of ticking the global good citizenship box as well as contribute to a donor's carbon reduction pledge in a strategic way.

c) Climate finance project designs can be cumbersome and, in many cases, do not take into consideration the local technical capacities, local needs, socio-cultural environment, community structures and cultural norms. A common practice is to hire expatriate experts and consultants to design, manage and implement climate projects.

d) Because some of the climate mitigation ideas and techniques are new, Pacific countries have sometimes been used to pilot some new approaches. The idea of

piloting new projects has both a positive feel (in terms of being a pioneer) and a negative connotation (being a guinea pig) by donors and development partners.

e) A significant portion of the Green Climate Fund is in the form of loans, apart from the actual grant component. For instance, the GCF finance for utilities is often in the form of loans. The co-financing principle ensures that partners such as the ADB will provide loans. This adds more debt burden to Pacific countries, which are already shackled with excessive debt.

f) The model based on co-financing and public-private partnership can lead to transfer of public money to private hands, which enables corporations to profit from the climate finance. This is a concern since it can reinforce the process of corporate 'greenwashing.'

g) A key concern is how what is perceived to be performative and 'ticking the box' development strategy by some donors' affect real emission reduction efforts on the ground. Equally important are the risks associated with long-term commitment of donors to the future sustainability of climate projects, especially when donors are more focused on the limited "lifespan" of usually around five years or so.

h) Although the GCF policy on indigenous people talks about engagement with communities, climate projects are often state-driven and issues such as unfamiliar bureaucratic processes, government development priorities, local elite interests and political patronage often get in the way of people-to-people relationships and connection with grassroots local indigenous communities.

i) Understanding the complex interconnection between land and culture and development is important for the success of climate finance. Engaging with landowners and other community stakeholders in a meaningful and sustainable way, will go a long way in ensuring that the beneficial returns and success of projects are realized. Political, bureaucratic, technical and economic decisions which dismiss local cultures as archaic and irrelevant usually create conflict which undermine the success of community projects.

j) Local communities must be part of the climate-based projects at the planning, implementation and review stages rather than just the final implementation stage. They need to provide informed, free, fair and prior consent for the use of their land and resources. They also need to feel empowered with a sense of sovereignty over their land, resources and the benefits derived from these.

k) At the moment, there is no finance targeted specifically at strengthening local traditional knowledge and cultural innovation, especially in cases where the private sector is involved in projects. This focus of climate finance allocation should be on deepening and strengthening community resilience, as this will be a more cost-effective and sustainable approach.

l) There should be more transparency in the way money and resources are allocated and disbursed from the international level, within the region, at the national level and at the local level. While there are some initiatives in place to monitor quantifiable financial flows, these are not enough to monitor more implicit and deceptive practices of questionable contracting (based on political patronage, kinship links and professional connections) at the local level.

m) Carbon trading in the Pacific is limited and not well developed and organized in terms of market structures, trading processes, legislations and policies. Some countries such as Fiji, Vanuatu, Solomon Islands and Papua New Guinea have community-based projects linked to carbon trading, but often external players define the protocols and distribution of money.

n) Given the increasing interests in the Pacific carbon market, it will be timely to set up a regional climate forum for landowners and communities to provide a strong and representative platform for their interests and voices. The collective regional forum should advise and carry out ongoing consultations with national governments, regional bodies and international bilateral and multilateral donors on the best way forward.

o) In the broader scheme of things, carbon trading may induce local communities in the Pacific to protect their forests and earn some money from carbon credits. There are consequences as well in terms of restricted access to their traditional land designated as protected for the purpose of planting, hunting, gathering firewood, extracting medicinal plants and collecting building materials. The amount they receive is often very small. On the other hand, big corporations reap the benefits of purchasing credits through intermediary players to offset the greenhouse gases they emit; thus, carbon trading directly subsidize the emitters.