

## Barriers and Limits to Climate Security in the Pacific

**Timothy Bryar**

### **Abstract**

Climate change remains the single greatest security threat to the Pacific Islands region. With emissions gaps persisting and agreements on mitigation efforts remaining contested, enabling opportunities for adaptation is now more crucial than ever for Pacific Island countries to meet their climate security ambitions. However, it is increasingly recognised that there may be particular limits beyond which adaptation to climate change will no longer be possible. This policy brief seeks to examine the key barriers and limits preventing the Pacific from achieving its climate security goals through adaptation and what options might exist for the Pacific to overcome such constraints.

### **Introduction**

Climate change remains *the* defining issue endangering the livelihoods and wellbeing of Pacific peoples and undermining the full realisation of a peaceful, secure and sustainable future for the region. The severity of the threats posed by these changes has led Pacific Island governments to repeatedly reaffirm “that climate change remains the single greatest

threat to the livelihoods, security and well-being of the peoples of the Pacific”.<sup>1</sup> Within this broader emphasis on climate security are a range of non-traditional security threats that are anticipated from a changing climate, including impacts on health, energy, and national economies through impacts on tourism and the region’s tuna fisheries. Pasisi<sup>2</sup> identifies five key climate risks from climate change facing the Pacific as (1) displacement and forced migration; (2) blue economy (oceans, coasts, fisheries, tourism); (3) health, food and water security; (4) coping capacity and natural disasters; and (5) impacts of sea-level rise on maritime zones and boundaries. Hauger<sup>3</sup> identifies the major and direct threats to human and non-traditional security in the Pacific as access to fresh water (due to changes in rainfall patterns and saltwater intrusion); local food supply (damage to coral reefs, declining fisheries, and impacts on agriculture); and infrastructure damage (through rising sea levels, other flooding and storm damage). He further identifies a range of what he calls ‘second order consequences’ arising from these direct impacts, including economic loss, declining revenues from tourism, relocation, and the existential threat of climate change.

While such research draws our attention to key risks, relatively few references are made to explicit climate security **goals** of the Pacific Islands, which are critical if we are to understand the challenges faced by the region in pursuing its climate security. The [Boe Declaration Action Plan](#), under Strategic Focus Area 1 (Climate Security), action 1(i), provides an explicit, collective security goal for the region—‘Securing our sovereignty and territorial integrity in the face of the impacts of climate change’—while action 1(ii) suggests a set of underpinning values supporting the realization of this goal – Maintaining the dignity and well-being of our communities in the face of the impacts of climate change<sup>4</sup> (Pacific Islands Forum 2019: 10). During his [opening remarks](#) at the Pacific Climate Security Dialogue held in Suva on August 2022, Pacific Islands Forum Deputy Secretary General Dr Filimon Manoni reinforced this goal when he stated, “In adopting the Boe Declaration on Regional Security, Leaders asked that we unify our efforts behind **one priority cause**: securing our sovereignty and territorial integrity in the face of the impacts of climate change.” It is *this* goal that is at the heart of this policy brief.

There is no doubt that effective mitigation will be crucial to securing Pacific Islands countries’ sovereignty and territorial integrity in the face of the impacts of climate change. Indeed, the Pacific was instrumental in pressing for a global temperature limit of 1.5C to be enshrined in the Paris Agreement, in recognition of evidence that temperatures above this threshold will raise the likelihood of exceeding tipping points which could make many low-lying islands uninhabitable.<sup>5</sup> Nonetheless, despite COP27 reaffirming the commitment to limit global temperature rise to 1.5C, the United Nations Environment Program’s 2022

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1. Pacific Islands Forum, “Boe Declaration on Regional Security”, 6 September, 2018, <https://www.forumsec.org/2018/09/05/boe-declaration-on-regional-security/>.

2. C. Pasisi, “Climate fragility risk brief: The Pacific Islands Region”, Adelphi Research, 12 November 2019.

3. S. J. Hauger, “Climate change challenges to security in the Pacific Islands Region and opportunities for cooperation to manage the threat”, in *Regionalism, Security & Cooperation in Oceania*, eds. R. Azizian and C. Cramer (Honolulu: Asia Pacific Center for Security Studies, 2015).

4. Pacific Islands Forum, “Boe Declaration Action Plan”, 16 August 2019, <https://www.forumsec.org/wp-content/uploads/2019/10/BOE-document-Action-Plan.pdf>.

5 P. Pringle, “Effects of Climate Change on 1.5° Temperature Rise Relevant to the Pacific Islands. Pacific Marine Climate Change Report Card, *Science Review* (2018):189-200.

Emissions Gap Report concludes that there is ‘no credible pathway to 1.5C in place’.<sup>6</sup> Therefore, *adapting* to the changing climate is crucial if the Pacific is to avoid irreversible loss and damage and protect national and regional security. However, it is increasingly recognised that there are a range of barriers to effective adaptation, as well as certain limits beyond which adaptation to climate change may no longer be possible.<sup>7</sup> The purpose of this policy brief is to examine the key barriers and limits preventing the Pacific from achieving its climate security goals through adaptation and what options might exist for the Pacific to overcome such constraints. More specifically, the policy brief seeks to:

- Briefly summarise the concepts of barriers and limits to adaptation;
- Examine how and why barriers and limits to adaptation emerge, in particular looking at key drivers in the Pacific Islands region;
- Explore the concept of transformational adaptation as a potential approach for overcoming barriers and limits to adaptation; and,
- Apply the findings from the points above to case examples from the Republic of the Marshall Islands (RMI) and Tuvalu.

It should be noted up front that barriers and limits to adaptation exist across scales, from households and communities to the global level. This policy brief does not discuss barriers and limits operating at the household and community level, for which there is growing evidence that processes to develop deliberative and inclusive adaptation pathways that are responsive to the diverse values within communities offer a feasible, low cost and effective policy option for addressing barriers and limits to adaptation.<sup>8</sup> Rather, this policy brief emphasises regional and global structures driving barriers and limits to realising the collective climate security goal of the Pacific through adaptation. Indeed, evidence suggests that financial, institutional and governance barriers to adaptation that operate at a global scale<sup>9</sup> are also prominent in the Pacific.<sup>10</sup> Furthermore, such constraints typically arise in contexts where there is a need for more extensive or transformative attempts at adaptation, a context in which the Pacific finds itself as a result of existing and anticipated climate change impacts.

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<sup>6</sup> United Nations Environment Program, “Emissions Gap Report 2022: The Closing Window — Climate crisis calls for rapid transformation of societies, 2022, <https://www.unep.org/emissions-gap-report-2022>.

<sup>7</sup> W. N. Adger, et al., “Are there social limits to adaptation to climate change?” *Climatic Change* 93 (2009): 335-354.

<sup>8</sup> J. Barnett, et al., “A local coastal adaptation pathway”, *Nature Climate Change* 4 (2014): 1103-1108, <https://doi.org/10.1038/nclimate2383>; S. J. Graham et al., “Local values for fairer adaptation to sea-level rise: A typology of residents and their lived values in Lakes Entrance, Australia”, *Global Environmental Change* 29 (2014): 41-52.

<sup>9</sup> A. Thomas et al., “Global evidence of constraints and limits to human adaptation”, *Regional Environmental Change* 21 (2021): 1-15.

<sup>10</sup> S. Robinson, “Climate change adaptation limits in Small Island Developing States”, in *Limits to Climate Change Adaptation*, eds. W. L. Filho and J. Nalau (Cham: Springer).

## Types of Barriers and Limits to Climate Change Adaptation

Research on barriers and limits to adaptation has grown since the Intergovernmental Panel on Climate Change (IPCC) first made brief reference to the barriers, limits and costs preventing more extensive adaptation actions while acknowledging there was no clear understanding of the issue.<sup>11</sup> Since then, evidence on barriers and limits remains somewhat uncertain, and research has tended to focus more on barriers and constraints than on the limits to adaptation.<sup>12</sup> One issue complicating an understanding of barriers and limits to adaptation is that these concepts have often been used interchangeably and can also be difficult to distinguish from similar concepts such as constraints, obstacles and loss and damage (see Table 1). For example, the IPCC has discussed adaptation constraints, obstacles, barriers and limits, while noting that barriers are synonymous with constraints.<sup>13</sup> The Small Islands chapter in the IPCC's fifth assessment report briefly examines barriers, constraints and limits in these countries but does not explicitly differentiate between these concepts.<sup>14</sup> Loss and damage is another concept that appears to have become synonymous with limits to adaptation, with both referring to the point at which the things people value most can no longer be secured through adaptive actions.<sup>15</sup> This policy brief will simply use the distinction between **barriers** as restrictions on adaptive capacity and the range of adaptation options available for implementation, **but that are nonetheless resolvable**; and **limits** as thresholds which if exceeded **result in irreversible changes for which adaptation is no longer an option**.<sup>16</sup>

Term	Definitions
Limits	The points at which adaptation actions fail to protect things that stakeholders value (Barnett et al. 2015). Limits to adaptation emerge when an actor's objectives and the things they value (or the needs of a natural system) cannot be secured from intolerable risks through adaptive actions (Klein et al. 2014; Barnett et al. 2015).
Barriers	Obstacles or constraints that make it harder to plan and implement adaptation actions or that restrict options but that nonetheless can be overcome with concerted effort, creative management, changed ways of thinking, political will, and re-prioritisation of resources, land uses and institutions (IPCC AR5; Barnett et

<sup>11</sup> International Panel on Climate Change "Summary for policymakers", in *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2014: 1-32. (Cambridge and New York: Cambridge University Press).

<sup>12</sup> Thomas et al, "Global evidence of constraints and limits to human adaptation".

<sup>13</sup> K. F. Dow et al., "Limits to adaptation", *Nature Climate Change* 3 (2013): 305-307.

<sup>14</sup> Robinson, "Climate change adaptation limits in Small Island Developing States".

<sup>15</sup> E. Roberts and M. Pelling "Loss and damage: an opportunity for transformation?" *Climate Policy* 20 (2020): 758-771.

<sup>16</sup> Government of the Republic of the Fiji, *Republic of Fiji National Adaptation Plan: A pathway towards climate resilience*, 2018 (Suva: Government of the Republic of Fiji).

	al. 2015; Moser & Ekstron 2012).
Soft Limits	Socially determined limits where options for adaptation may exist but are currently not available, and include technological, social and economic limits (IPCC 2022).
Hard Limits	When no adaptive options exist for species, communities or ecosystems to adjust to climate change (e.g., coral reefs affected by ocean warming and acidification).
Loss and Damage	The economic and/or non-economic consequences of extreme weather events and slow-onset climatic changes that go beyond what people can adapt to, or when options exist but a community doesn't have the resources to access them (SPREP; Warner et al. 2012; IPCC AR6).

For example, at a community level, disagreements over adaptation goals (such as over whether to relocate or to build a sea wall in order to remain at the same location) may prove to be a barrier to successful adaptation. Further, a lack of knowledge or information about available adaptation options could also serve as a barrier by restricting the adaptive capacity of communities. Nonetheless, such barriers can be resolved. Indeed, there is growing evidence of processes that develop deliberative and inclusive adaptation pathways and are responsive to the diverse values within communities which offer a feasible, low cost and effective policy option for addressing such barriers at a local level.<sup>17</sup> At a country level, access to adaptation financing is an ongoing barrier for many vulnerable countries but is one that many advocates believe can and should be resolved. For instance, at a two-day summit hosted by French President Emmanuel Macron in June 2023, developing nations called for a “transformation” of the world’s financial system in order better address risks of climate change and related disasters. In contrast, limits to adaptation are those constraints for which no solutions are available – for example, either due to a lack of knowledge or technology, or because existing solutions are no longer viable. For instance, sea temperature rise and ocean acidification increase risk of mass coral bleaching and mortality which can lead to irreversible loss of coastal ecosystems.<sup>18</sup> As will be seen with the examples later in this paper, where economic barriers cannot be overcome, they will eventually shift to become a limit (that is, no options exist for raising the necessary financing for certain adaptation options). In this context, it is questionable whether migration overseas should be considered successful adaptation, or if it is rather an indication that a country has reached a limit to successful adaptation. Table 2 below provides a description of some of the categories of limits to adaptation.

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<sup>17</sup> J. Barnett et al., “From barriers to limits to climate change adaptation: path dependency and the speed of change”, *Ecology and Society* 20 (2015): 5, <http://dx.doi.org/10.5751/ES-07698-200305>.

<sup>18</sup> R. J. T. Klein et al., “Adaptation opportunities, constraints, and limits”, in *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, eds. C.B. Field, V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White, 2013: 899-943 (Cambridge and New York: Cambridge University Press).

Limit	Descriptions
Ecological	Natural adaptation limits, related mainly to the natural environment, ranging from ecosystem thresholds to geographical and geological limitations, include ecological and physical limits. There is growing evidence that the resilience of socio-ecological systems will be influenced by both the rate and magnitude of change and the fact that some systems may not be able to adapt to changing climate conditions without having their functional status and system integrity changed dramatically. Lakes, coral reefs, forests and arid lands, for example, have shown that smooth adaptation to change can be disrupted by unexpected and drastic changes in state, implying that an ecosystem's ability to withstand disturbance has a limit.
Economic	In essence, economic limits to adaptation occur when adaptation costs exceed the costs of the averted impacts. The high cost of protecting cities from sea-level rise against the costs of damage from sea-level rise is an example. In general, implementing adaptation measures entails a significant financial investment. Economic limits may also include a cultural aspect as well as a broader social one. For individuals, communities, groups or society as a whole, adaptation may not be culturally desirable. Costs may include both monetary and non-monetary values and the consideration of benefits associated with non-climate change.
Technological	When the technology to adapt to climate change impacts is available but not on the scale required, or when its application on the required scale is practically unfeasible, technological limits to adaptation will take place. Protecting large-scale spatial areas from rising sea levels is one example. Another example could be hard engineering options such as sea walls and groynes with apparent limitations in technical options. If large-scale transplantation is planned, coral transplantation techniques are undoubtedly limited in technology considerations. The deployment location will determine the suitability of any given technology for adaptation, the degree of climate change and the country's or community's current social, economic and environmental conditions, as well as management practices. If non-climate factors that contribute to climate change vulnerability are not addressed, technological adaptation measures may only be partially effective. For example, improving a water supply system technologically to ensure water availability during dry spells will be of limited benefit to those who do not have access to it.
Social	The individual, social and cultural processes that govern how people react to climate variability and change are social limitations to climate change adaptation. Individuals or groups are prevented from seeking the most appropriate forms of adaptation by social limitations, various processes relating to cognitive and normative restrictions. In this context, the organisation and structure of social institutions are among the most important considerations, including belief systems, norms and behaviour, and organisational structure. Social institutions are diverse and can be seen in local farmers' collectives and indigenous knowledge institutions.

Most research on **barriers** to adaptation has considered the **type** of barriers that exist or may potentially arise. For example, Klein et al. provide a typology of barriers which include knowledge, awareness, technology, the physical environment, economic factors, human resources, socio-cultural factors, and governance and institutional process.<sup>19</sup> The large majority of evidence on barriers to adaptation emphasises inadequate governance and institutional structures, inequitable distribution and/or lack of access to financial resources, lack of information, and socio-cultural norms that constrain implementation of adaptation options.<sup>20</sup> **Limits** on the other hand typically consist of physical and ecological changes beyond which natural systems, communities or species cannot adapt (e.g., coral reefs affected by ocean warming and acidification). Such limits are perhaps more widely known as a result of the various IPCC reports and the predictions of certain thresholds. For example, evidence from IPCC (2022) claims that above 1.5C global warming level, restricted availability of freshwater resources poses potential limits for Small Islands.<sup>21</sup> The same report indicates that ecological limits of warm water coral reefs and some coastal wetlands may already have been reached or surpassed.

Research in Small Island Developing States (SIDS) indicates that planned adaptation initiatives primarily face institutional and economic barriers to implementation.<sup>22</sup> In the Pacific Islands region, prominent barriers include access to finance, institutional and governance factors, and access to knowledge. The economic dependencies of Pacific Island states mean that economic barriers to adaptation are an ever-present issue. For the Pacific Islands region, there are significant challenges to mobilising the necessary resources for adapting to the region's greatest security threat. When measured by aid inflows as a proportion of GDP, the Pacific remains the most aid-dependent region in the world.<sup>23</sup> Therefore, not only does the Pacific lack the requisite resources to meet the magnitude and severity of its most crucial security threat, it is reliant on others in order to meet its adaptation needs – not only in terms of financing and resources for adaptation, but also for stronger action on mitigation which will determine the magnitude of adaptation required. For example, Barnett claims that in Niue international aid is “the most critical factor in the availability of finance for adaptation to climate change, even if it constrains the way the money can be spent”.<sup>24</sup> The Solomon Islands has identified institutional (e.g., staff turnover rates, unclear roles and responsibilities) and knowledge development as two key barriers

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<sup>19</sup> Klein et al., “Adaptation opportunities, constraints, and limits”; Eisenack et al. “Explaining and overcoming barriers to climate change adaptation”.

<sup>20</sup> G. Biesbroek, J. E. M. Klostermann, C. J. A. M. Termeer, and P. Kabat, “On the nature of barriers to climate change adaptation, *Regional Environmental Change* 13 (2013): 1119-1129.

<sup>21</sup> International Panel on Climate Change, “Summary for Policymakers”, in *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, eds, H. O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama, 2022 (Cambridge and New York: Cambridge University Press).

<sup>22</sup> Robinson, “Climate change adaptation limits in Small Island Developing States”.

<sup>23</sup> A. Dayant, “Follow the money: how foreign aid spending tells of Pacific priorities”, *The Interpreter*. 17 April 2019, <https://www.lowyinstitute.org/the-interpreter/follow-money-how-foreign-aid-spending-tells-pacific-priorities>.

<sup>24</sup> J. Barnett, “The effect of aid on capacity to adapt to climate change: Insights from Niue”, *Political Science* 60 (2008): 48.



to adaptation.<sup>25</sup> In examining the root causes of issues and concerns relating to the management of climate change risks, the government of Kiribati identified a range of governance, institutional and legislative issues; a lack of data, knowledge and awareness of the science of climate change and vulnerability; and insufficient funding.<sup>26</sup> The Fiji National Action Plan includes a section on adaptation barriers which considers governance and institutions; economic barriers; information, knowledge and technology and natural and biological barriers and limits.<sup>27</sup> Interesting to note here, the term 'limits' is used only in the case of natural and biological adaptation, thereby implying that the others are considered to be barriers and therefore able to be resolved.

Both barriers and limits to adaptation differ across scales and are highly context specific. For example, finance, governance, policy and institutional barriers are more prevalent globally, while households typically face economic, informational and sociocultural barriers.<sup>28</sup> The importance of context emphasises that barriers are "relative to the specified adaptive actions that are considered, to the actors that may exercise them and to the specific situation in which they may be taken".<sup>29</sup> Therefore, barriers and limits that a community might face in adapting to climate change will differ from the barriers and limits faced by a regional political bloc attempting to address climate change as a collective security threat.

## Determinants of Barriers and Limits

The ways in which barriers and limits are framed influence how we understand what drives them and what options for adaptation remain viable. Scientifically predicted trajectories of climate change are typically used to make certain claims about the inevitability of ecological and physical limits and therefore the scope of opportunities for adaptation. For example, Storlazzi et al. argue that climate modelling is critical for understanding "**how climate change will determine** when these islands will no longer be able to support human habitation, **resulting** in an extensive displacement of human populations".<sup>30</sup> Questions of power, agency and structural violence remain irrelevant through such framings which see changes in the climate as inevitably leading to certain outcomes. Indeed, such claims about the inevitable impacts of ecological limits underpin the predominant international policy and media discourse on the fate of low-lying states becoming submerged due to sea level

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<sup>25</sup> Solomon Islands, Ministry of Environment, Climate Change, Disaster Management and Meteorology, *Solomon Islands Nationally Determined Contribution (NDC)*, 2021 (Honiara: Ministry of Environment, Climate Change, Disaster Management and Meteorology).

<sup>26</sup> Government of the Republic of Kiribati, *Republic of Kiribati Intended Nationally Determined Contribution*, 2016 (Tarawa: Government of the Republic of Kiribati).

<sup>27</sup> Government of the Republic of the Fiji, *Republic of Fiji National Adaptation Plan: A pathway towards climate resilience*.

<sup>28</sup> Thomas et al, "Global evidence of constraints and limits to human adaptation".

<sup>29</sup> K. Eisenack et al. "Explaining and overcoming barriers to climate change adaptation", *Nature Climate Change* 4 (2014): 868.

<sup>30</sup> C. D. Storlazzi et al, "Most atolls will be uninhabitable by the mid-21st century because of sea-level rise exacerbating wave-driven flooding", *Science Advances* 4 (2018): 6, DOI:[10.1126/sciadv.aap9741](https://doi.org/10.1126/sciadv.aap9741)



rise.<sup>31</sup> Within this discourse, relocation and migration appear as the most, if not only, plausible adaption response, rather than as a failure of adaptation.

Therefore, some researchers argue a reliance on scientifically predicted ecological limits tends to over-emphasise risks at the expense of the adaptive capacities of people and communities.<sup>32</sup> In contrast, an alternative frame to scientifically determined limits is one that draws attention to social and political barriers or limits to adaptation that emerge at points where adaptation fails to protect the things that stakeholders value most.<sup>33</sup> Such a perspective recognises that although ecological limits will impact on the range and viability of opportunities for adaptation, the prospects for the implementation of adaptation measures for many societies will be determined by a wide range of socio-economic and political barriers to adaptation.<sup>34</sup> For example, the IPCC identifies inequity, poverty, lack of knowledge and financial barriers as being key determinants of limits to adaptation.<sup>35</sup> Financial barriers are an ongoing point of contention in global climate negotiations, and while global climate financing has tracked upward in the last decade, it remains insufficient for implementation of adaptation options, especially in developing countries where more extensive forms of adaptation may be required.<sup>36</sup> Furthermore, of the estimated financial flows to date, only about 20% has targeted adaptation and even where promised levels of financing may have been achieved, the funds are often channelled through private banks, equity funds and corporations, aid agencies and multilateral institutions, few of which are controlled by developing countries.<sup>37</sup>

Such relations of unequal power and the economic dependencies arising from them can limit decision making power regarding adaptation planning and financing. For example, at COP27, Nauru's Minister of Climate Change and National Resilience, Rennier Stanislaus Gadabu, emphasised the failure of "people with real power" to avert the climate crisis.<sup>38</sup> Research undertaken in the RMI concluded that power differences create a disconnect between local adaptation goals and the priorities of donors that impede Marshallese from

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<sup>31</sup> J. Barnett, "The dilemmas of normalising losses from climate change: Towards hope for Pacific atoll countries", *Asia Pacific Viewpoint* 58 (2017): 3-13; C. Farbotko and H. Lazarus, "The first climate refugees? Contesting global narratives of climate change in Tuvalu". *Global Environmental Change* 22 (2012): 382-390.

<sup>32</sup> Adger, "Are there social limits to adaptation to climate change?"; W. L. Filho et al, "Climate change adaptation on small island states: An assessment of limits and constraints", *Journal of Marine Science and Engineering* 9 (2021): 1-22; K. P. Henrique and P. Tscharkert, "Everyday limits to adaptation", *Oxford Open Climate Change* 2 (2022): 1-16.

<sup>33</sup> Adger, "Are there social limits to adaptation to climate change?"; J. Barnett et al, "From barriers to limits to climate change adaptation: path dependency and the speed of change". *Ecology and Society*, 20 (2015): 5, <http://dx.doi.org/10.5751/ES-07698-200305>; Henrique and Tscharkert, "Everyday limits to adaptation".

<sup>34</sup> Climate Analytics, "EmBark - Temporal evolution of barriers to adaptation and their relevance for climate related loss and damage", 2021, <https://climateanalytics.org/projects/embark-temporal-evolution-of-barriers-to-adaptation-and-their-relevance-for-climate-related-loss-and-damage/>.

<sup>35</sup> International Panel on Climate Change, "Summary for Policymakers", 2022.

<sup>36</sup> Ibid; Roberts et al, "Rebooting a failed promise of climate change. *Nature Climate Change* 11 (2021): 180-182.

<sup>37</sup> Roberts et al, "Rebooting a failed promise of climate change".

<sup>38</sup> Islands Business, "Nauru laments failure from 'those with real power'", 16 November 2022, <https://islands-business.com/news-break/nauru-laments-failure-from-those-with-real-power/>.

pursuing the transformative adaptation required to achieve their climate security goals.<sup>39</sup> Therefore, historical political and economic processes that shape vulnerability, uneven distribution of power and resources, are key drivers of barriers and limits.<sup>40</sup> These issues are further compounded by the fact that mitigation pathways pursued by developed countries will also determine the magnitude of change required by human systems including the substantial social, cultural and economic costs of adaptation.

Another driver of barriers and limits to adaptation are time and path dependence, which manifest as resistance to changing the way things have typically been done and/or resistance to new and untried ideas, even when the status quo is maladaptive.<sup>41</sup> This resistance, which may already underpin barriers, can become a limit when it appears likely that the barrier will not be overcome. For example, Barnett et al. found that insufficient funding and progress on the construction of coastal defence is a barrier underpinned by long standing relations of unequal power, discrimination and dispossession between Torres Strait Communities and governments of Queensland.<sup>42</sup> As such, this barrier is more like a limit when viewed historically, and will indeed become one if the required investments are not forthcoming or are too slow. As raised earlier, such barriers and limits are more likely to arise where larger, more transformative scales of adaptation are necessary. Indeed, the existing landscape of global and regional institutions and mechanisms supporting development, climate change adaptation and financing are not at the scale to address adaptation at the magnitude required. Further, seemingly well-meaning institutional and financing rules, such as social and economic safeguards, can in fact present barriers to more transformative adaptation requirements. As will be seen later on in this report, the RMI and Tuvalu both face significant institutional and financial barriers to implementing large scale adaptation initiatives aimed at addressing climate security goals. Over time, where donors remain reluctant and/or the availability of foreign aid diminishes, or where institutions and mechanisms are unable or unwilling to shift, such barriers may become limits. Given such resistance is entrenched in social systems and structures built over time and include the development of laws and institutions, shifting path dependence will likely take considerable time. Therefore, barriers to adaptation may also become limits when the change required is slower than changes in the climate and its impacts.<sup>43</sup> The issue of the pace of shifting path dependencies is playing out currently in the context of decarbonisation and the transition to a post-fossil fuel global economy. While there is global consensus on the inevitability of this transition, the speed at which the transition must occur remains contested amongst major emitting states.<sup>44</sup>

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<sup>39</sup> A. S. Bordner, C. E. Ferguson and L. Ortolano, "Colonial dynamics limit climate adaptation in Oceania: Perspectives from the Marshall Islands", *Global Environmental Change* 61 (2020): 1-10.

<sup>40</sup> Ibid; J. Barnett, "Global environmental change III: Political economies of adaptation to climate change", *Progress in Human Geography* 46(2020): 1106-1116; S. A. Eriksen, A. J. Nightingale, H. Eakin, "Reframing adaptation: The political nature of climate change adaptation". *Global Environmental Change* 35 (2015): 523-533.

<sup>41</sup> Barnett et al., "From barriers to limits to climate change adaptation: path dependency and the speed of change".

<sup>42</sup> Ibid

<sup>43</sup> Ibid

<sup>44</sup> China, India and South Africa - an emerging Global South coal lobby - are trying to find an agreement within

## Overcoming Barriers and Limits

While knowledge of barriers and limits to adaptation is growing, there are few studies providing systematic evidence on opportunities for addressing barriers and limits, particularly at a scale required to address the increasing severity and magnitude of climate change.<sup>45</sup> The evidence that does exist indicates there is no one-size fits all approach, which is consistent with the highly contextual nature of barriers and limits.<sup>46</sup> Nonetheless, there is growing recognition that addressing the increasing severity and magnitude of climate change requires what is termed **transformational adaptation**.



Figure 1: Adaptation Dimensions and Frontiers

Currently, the majority of climate adaptation initiatives are ‘first frontier’ (see Figure 1), consisting of incremental, fragmented, and small-scale changes that prioritise immediate and near-term climate risk reduction. However, as the pace and magnitude of climate change continues to increase, incremental adaptation may not be sufficient and ‘second frontier’ initiatives will be necessary to avoid intolerable risks from climate change.<sup>47</sup>

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the G20 to allow countries to choose their own roadmap to reducing carbon emissions. Furthermore, during recent G7 gatherings, the UK and Canada pushed for a phaseout of coal by 2030, but they were blocked by the U.S., Japan and the EU. (see: <https://chinaglobalsouth.com/analysis/china-and-india-pushing-for-coal-friendly-language-in-g20/>)

<sup>45</sup> Klein et al., “Adaptation opportunities, constraints, and limits”; Eisenack et al. “Explaining and overcoming barriers to climate change adaptation”.

<sup>46</sup> Eisenack et al. “Explaining and overcoming barriers to climate change adaptation”.

<sup>47</sup> International Panel on Climate Change, “Summary for Policymakers”, 2022; L. Berrange-Ford et al. “A systematic global stocktake of evidence on human adaptation to climate change”, *Nature Climate Change* 11 (2022): 989-1000

New et al. highlight that the IPCC's AR6 special reports reinforce and build on previous evidence that "radical shifts in governance, knowledge development, technology application, finance and economics, and social norms" would be required to enable climate resilient development.<sup>48</sup> However, evidence suggests countries are finding it difficult to shift planning and development processes to focus more on second frontier, transformational adaptation.

For example, research found only 11 current NDCs explicitly mention the term transformative adaptation, while also finding no evidence of long-term planning for systemic change.<sup>49</sup> Furthermore, Holler et al. reviewed 50 National Adaptation Programmes of Action (NAPA) in the world's poorest nations and found that key aspects of the NAPA actually worked against transformational adaptation by emphasising cost-effectiveness, aligning with existing development and environmental policies to determine adaptation actions, and emphasising risk exposure over adaptive capacity.<sup>50</sup> Berrange-Ford et al. analysed adaptation responses against four transformational dimensions: depth (novelty), scope (geographical or sectoral breadth), speed (of implementation) and limits (the extent to which adaptation actions approach or overcome barriers or limits).<sup>51</sup> High transformational adaptation consists of novel adaptations implemented quickly and at large scales that overcome or reduce barriers or limits to adaptation, while low transformational adaptation involves largely localised and slow actions that involve incremental or small adjustments to business as usual and that remain constrained by barriers or limits.<sup>52</sup> For Small Island States, transformational adaptation is low, indicating a lack of evidence of actions seeking to challenge or overcome barriers or limits despite the increasing need for high transformational adaptation in the Pacific.<sup>53</sup> Nonetheless, as the case examples below will show, countries of the Pacific are indeed envisioning and planning transformational adaptation initiatives in pursuit of their climate security goals.

While transformational adaptation may help to address certain barriers and limits to adaptation, it can also lead to other barriers and limits. Therefore, on the one hand incremental adaptation may face fewer barriers to implementation, but it is increasingly seen to be insufficient in the face of the increasing severity and magnitude of climate change. On the other hand, transformational adaptation is deemed necessary to address the limitations of incremental adaptation in terms of scale and speed to address ecological

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<sup>48</sup> M. D. New et al., "Decision-Making Options for Managing Risk", in *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, eds H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama, (Cambridge and New York: Cambridge University Press): 2580.

<sup>49</sup> T. Fransen et al., "The state of Nationally Determined Contributions: 2022", *World Resources Institute*, 2022, <https://www.wri.org/research/state-nationally-determined-contributions-2022#:~:text=This%20report%20takes%20stock%20of,where%20further%20action%20is%20needed>; A. Dixit et al., "State of the Nationally Determined Contributions: enhancing adaptation ambition. Working paper", *World Resources Institute* 2022, <https://www.wri.org/research/nationally-determined-contributions-enhancing-adaptation-ambition>.

<sup>50</sup> J. Holler et al., "Transformational adaptation in Least Developed Countries: Does expanded stakeholder participation make a difference?", *Sustainability* 12 (2020): 1657.

<sup>51</sup> Berrange-Ford et al. "A systematic global stocktake of evidence on human adaptation to climate change".

<sup>52</sup> Ibid.

<sup>53</sup> Ibid.

changes yet is likely to be faced with greater barriers and limits to adaptation due to its challenge to the status quo and greater financial investments.<sup>54</sup> At larger scales of transformation, evidence indicates that addressing barriers and limits requires explicitly articulated high-level directives, inspired leadership that supports innovation and collaboration, and institutionalising climate change actions into standard operating procedures.<sup>55</sup> Further, the mobilisation of existing resources is believed to be crucial and requires addressing institutional path dependencies, organisational cultures and policy making processes that have historically underpinned failed patterns of climate change policy development.<sup>56</sup>

### Case Examples: The RMI and Tuvalu

Below is a consideration of the barriers and limits to achieving climate security goals through adaptation in the national contexts of the RMI and Tuvalu. Tuvalu and the RMI are both atoll nations at the frontlines of climate change and both have clearly articulated climate security goals that require transformational or second frontier adaptation rather than incremental or first frontier adaptation. The climate security goal of RMI is to mitigate climate change and adapt to its impacts in order to sustain a liveable territory. At the heart of this security goal the RMI recognises “the security of our people, the respect for their rights, and the protection of the territory we rely on”.<sup>57</sup> Tuvalu’s Long Term Adaptation Plan (L-TAP) seeks to safely accommodate the national population beyond 2100, even in the face of the worst-case climate change scenarios. Both countries have also explored transformative adaptation options at a scale necessary to meet the magnitude of the threat posed to their climate security goals.

### Self-Determination and Sovereignty in the Marshall Islands

The Republic of the Marshall Islands recognises climate change as the pre-eminent security threat facing the nation and its people. The climate security goals of the Marshall Islands are to sustain the habitability of its territory to ensure future generations can live and thrive on their ancestral atolls and to protect the rights of its citizens in all climate scenarios including those where habitability is compromised. These goals are grounded in the inalienable right for people to remain on their islands as well as the principles of self-determination and sovereignty. The Marshall Islands explicitly refers to these issues as security concerns, stating: “As we develop a plan for our future survival, we will continue to put the security of our people, the respect for their rights, and the protection of the territory we rely on, at the heart of our security policy”.

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<sup>54</sup> W. L. Filho et al., “Transformative adaptation as a sustainable response to climate change: insights from large scale case studies”, *Mitigation and Adaptation Strategies for Global Change*, 27 (2022): 20, <https://doi.org/10.1007/s11027-022-09997-2>.

<sup>55</sup> S. Burch, “Transforming barriers into enablers of action on climate change: Insights from three municipal case studies in British Columbia, Canada”, *Global Environmental Change* 20 (2010): 287-297.

<sup>56</sup> Ibid.

<sup>57</sup> Government of the Republic of the Marshall Islands, *Adaptation Communication - Republic of the Marshall Islands (RMI)*, (Majuro: Government of the Republic of the Marshall Islands, 2020): 26.

Beyond 2050, for all but the very lowest emission scenarios, communities in the RMI will need to adapt to coastal hazard events well beyond the current planning time ranges. The Marshall Islands' goal of maintaining sovereignty and habitability for its citizens is under threat from sea level rise, extreme tidal events, coastal erosion, and changes in rainfall patterns, including droughts and contamination of freshwater lenses.<sup>58</sup> These climate pressures interact with existing economic and social conditions that further determine the capacity for Marshall Islanders to take appropriate adaptation measures to meet its climate security goals. For example, the RMI economy is fragile and largely dependent on financial payments under the Compact for Free Association with the United States of America.<sup>59</sup> This economic context means that the RMI is heavily dependent on foreign aid to support the implementation of adaptation strategies. The National Strategic Plan 2020-2030 acknowledges the need to consider tipping points for habitability and multiple frontiers of adaptation and resilience building against coastal erosion and more frequent and extended droughts and contamination of freshwater lenses.

The government of the RMI has previously stated that it does not have the luxury to pick and choose from a wide range of options and adaptation pathways, and therefore at times, presents its adaptation options as a stark choice between relocation or finding other options to respond to the impacts of long-term sea-level rise. The RMI's National Communication under the UNFCCC states that, in response to this dilemma, "The RMI is considering whether to relocate all 55,000 citizens" (Government of the Republic of the Marshall Islands, 2020: 26). At other times it has made clear its ambition to avoid this situation altogether. As former Minister of Foreign Affairs Tony deBrum stated, "the prospect of displacement of communities and peoples is repugnant...an admittance of defeat before we are actually defeated".<sup>60</sup> Furthermore, research in the RMI found that local respondents believed migration to be inappropriate as it would lead to the loss of sovereignty and identity.<sup>61</sup>

The RMI, in partnership with the World Bank, has developed a concept for transformational adaptation based on 'reclamation, elevation, consolidation'. It outlines four potential adaptation responses: (1) protect and raise; (2) protect and reclaim; (3) protect and relocate; and (4) protect and migrate. While the pathways seem to present a somewhat linear and progressive sequence of adaptation options, the increased speed and magnitude of climate change and its impacts means the RMI may no longer have the luxury of time to sequentially implement actions as particular adaptation options become more urgent. Indeed, a transformational adaptation strategy that combines reclamation and raising is considered to be the only pathway that will enable the Marshallese stay on the atolls.<sup>62</sup>

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<sup>58</sup> Ibid.

<sup>59</sup> The Compacts of Free Association are a series of treaties between the United States, the Federated States of Micronesia (FSM), the Republic of Palau, and the Republic of the Marshall Islands (RMI) which provide direct U.S. economic assistance and extends U.S. domestic programs and federal services to these Pacific Island nations.

<sup>60</sup> T. deBrum, "Question and Answer Session. Response given at the World Leaders Forum: Christopher Jorebon Loeak, President of the Republic of the Marshall Islands", 25 September Youtube video, [www.youtube.com/watch?v=dU\\_hVpduok4](http://www.youtube.com/watch?v=dU_hVpduok4)

<sup>61</sup> Bordner, Ferguson and Orotlano, "Colonial dynamics limit climate adaptation in Oceania: Perspectives from the Marshall Islands".

<sup>62</sup> World Bank, "Adapting to rising sea levels in Marshall Islands: Understanding the Pacific atoll nation's adap-



Under the Compact for Free Association with the United States of America, citizens of the RMI are entitled to travel and apply for admission to the United States as non-immigrants without visas. Therefore, at the same time as seeking to implement its transformative adaptation concept, the RMI is able to maintain migration as an open adaptation option for its citizens.

The ambitious goal of protecting and sustaining Marshallese sovereignty, self-determination and identity through 'reclamation, elevation, consolidation' already recognises the hard ecological limits that exist on the not-too-distant horizon. But it also refuses to cede to inevitable loss and damage and to see migration and relocation as the only viable response. The major barrier to achieving the RMI's security goal is the cost of implementation. However, the cost barrier is more than simply access to finance; rather it is underpinned by the unequal relations of wealth and power between donors and the RMI that often lead to divergence between the adaptation goals of the country and the priorities of the donor entities upon which it relies.<sup>63</sup> One government official observed that donors come with their own agendas and objectives, thereby not listening to the what the people of RMI want.<sup>64</sup> While much work has been undertaken with the support of the World Bank to produce the adaptation pathways for 'reclamation, elevation and consolidation', to date, comprehensive consultation of the 'reclamation, elevation, consolidation' strategy has not been undertaken. Furthermore, building consensus on adaptation pathways and timelines, including with the leaders in the RMI, remains an ongoing and crucial challenge. Such challenges may already be a barrier to enabling transformational adaptation and could become a limit should the speed of decision-making fail to keep up with the changes in the climate and its impacts.

### **The Costs of Staying in Tuvalu - From Millions to Billions**

Tuvalu is one of the countries in the world most vulnerable to the impacts of climate change. By 2050, it is estimated that half the land area of the capital will become flooded by tidal waters and by 2100, 95% of land will be flooded by routine high tides.<sup>65</sup> Furthermore, climate change poses extreme risks to drinking water, food security, and energy supply. Loss and damage and relocation have typically been at the forefront of considerations of adaptation to climate change in Tuvalu. Tuvalu's Long-Term Adaptation (L-TAP) plan seeks an alternative future for Tuvalu, one where the entire population can remain safely in Tuvalu, even in the worst-case sea level rise scenario beyond 2100.<sup>66</sup>

Tuvalu's L-TAP, 'Te Lafiga o Tuvalu' (Tuvalu's Refuge), which was officially launched by the Government of Tuvalu at COP27 in Egypt, is an exemplary case of using anticipated loss and

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tation pathways to build resilience to sea level rise and climate change", 22 October 2022, <https://story-maps.arcgis.com/stories/8c715dcc5781421ebff46f35ef34a04d>.

<sup>63</sup> Bordner, Ferguson and Orotlano, "Colonial dynamics limit climate adaptation in Oceania: Perspectives from the Marshall Islands".

<sup>64</sup> Ibid.

<sup>65</sup> Government of Tuvalu, "Tuvalu unveils Long-Term Adaptation Plan at COP27, a vision for a safe, climate-resilient future", 14 November 2022, <https://tcap.tv/news/2022/11/14/tuvalu-presents-long-term-adaptation-plan-ltap>

<sup>66</sup> *ibid*



damage as an opportunity to both address the root causes of vulnerability and pre-empt a range of possible barriers and limits. Developed by the Government of Tuvalu with the support of UNDP, L-TAP presents a new approach to adaptation, designed to provide comprehensive solutions beyond 2100.<sup>67</sup> While UNDP continues to provide a range of technical support to develop L-TAP, perhaps the most crucial intervention was the flexibility and willingness of UNDP to re-orient from the initial Tuvalu Climate Adaptation Project (TCAP) to the L-TAP, or, 'from project scale of 10's of millions to billions'.<sup>68</sup> That is, building on the conversations taking place under the TCAP within Tuvalu, the UNDP supported local understandings of the temporal scales of sea level rise impact which led to local urgency to investigate transformational adaptation plans (L-TAP) of the magnitude required to meet Tuvalu's climate security ambitions. While acknowledging the extensive time and effort required to achieve this outcome, the flexibility of UNDP in this situation provides an example of how potential institutional barriers and path dependencies can be overcome to support the climate security goals of particular countries.

The L-TAP itself also contains an important level of flexibility regarding adaptation options that helps to address potential social barriers and limits to adaptation associated with different goals and values of actors. For example, following comprehensive dialogue, it acknowledges that younger generations may have different aspirations than older people: the latter may prefer to stay on their home islands and be more open to maintaining traditional aspects of living, while younger people may well want secure housing with access to modern technology, while maintaining the possibility of migration for work and education. Both sets of goals and values are valid, and the L-TAP enables a range of options to be realised based on the different goals of different stakeholders.

Nonetheless, even with a well-planned and consultative transformational approach to adaptation, the economic dependencies of Tuvalu mean that financing the implementation of the L-TAP remains a barrier that, in time, may become a limit. Indeed, the current landscape of global and regional institutions and mechanisms providing support for both development and climate change adaptation to operate at a level inappropriate to match the scale and magnitude of support required to enable transformational adaptation strategies such as the Tuvalu L-TAP. Where institutional change is not forthcoming, overcoming these barriers will require the Government of Tuvalu to think outside the typical mechanisms and institutions and seek innovative means of support to realise their climate security ambitions. Current efforts at the global level to identify innovative financing include debt for climate swaps<sup>69</sup> and a [tax on extreme wealth](#). Should these efforts ultimately fail, and financing the L-TAP becomes an economic limit, then relocation may be the most viable option.

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<sup>67</sup> *ibid.*

<sup>68</sup> Key informant interview, 10 November 2022

<sup>69</sup> A. Thomas and E. Theokritoff, "Debt-for-Climate swaps for small islands", *Nature Climate Change* 11 (2021): 889-893.

## Conclusions and Actions

The examples of Tuvalu and the RMI show that Pacific Island countries are indeed visioning and planning transformative adaptation initiatives at the scale and speed required to realise their climate security goals now and into the future. However, the assessment above indicates that the implementation of such adaptation initiatives faces barriers and limits which may lead to undesirable climate security impacts in the Pacific Islands region. While there are indeed anticipated ecological limits beyond which climate security goals of the Pacific may well be threatened, such limits are not insurmountable. Awareness of future limits can motivate action in the present to develop approaches aimed at preventing undesirable outcomes. More importantly, in addition to ecological limits, there are a range of political and economic barriers which are currently constraining, or may in the future constrain, efforts at transformative adaptation, including global economic inequalities and the path dependencies of global and regional institutions and processes. In particular, the current landscape of institutions and mechanisms that exist to address climate change adaptation are not of the scale to match the magnitude of the threat to the climate security ambitions of PIC, in particular atoll nations like Tuvalu, Kiribati and the RMI. The question is whether this presents a limit or only a barrier. Even if one accepts that it is a barrier rather than a limit, then—notwithstanding the example of UNDP in the Tuvalu case discussed above—achieving the necessary institutional change is likely to be a slow and difficult process. Where the speed of institutional change is slower than climate change, then these barriers may become limits that will prevent the realisation of Pacific climate security goals.

Within this context and acknowledging the significant challenges of overcoming the structural nature of the barriers and limits to adaptation impacting on Pacific climate security, the following actions are offered in an attempt to support the capacities of Pacific Island countries to realise their climate security ambitions.

- (1) **G20 Nations must commit to phasing out fossil fuels by 2030:** Although ecological limits are not insurmountable, the magnitude of global temperature rise has implications for the scale of adaptation required. Therefore, one of the key strategies for overcoming barriers and limits to adaptation must be stronger and more rapid action on the elimination of fossil fuels. Indeed, the Pacific is already leading the way. For example, in May of this year, Pacific church leaders [argued](#) “that climate finance for adaptation, mitigation, loss and damage, and relocation by polluting countries is akin to receiving ‘30 pieces of silver’ for the betrayal of Pacific Islanders who seek, **first and foremost, a rapid phase out of fossil fuels.**” In March 2023, Ministers from six Pacific Island countries [agreed](#) on the Port Vila call for a just transition to a fossil-fuel-free Pacific, including calling for a global Fossil Fuel Non-Proliferation Treaty. Therefore, the best way for non-Pacific governments to support efforts to overcome barriers and limits to climate security through adaptation in the Pacific is to agree to hard commitments to phasing out fossil fuels. **Development partners** can play a role by supporting Pacific climate leadership to drive decarbonisation and limit warming to 1.5C.

- (2) **The governments of Kiribati, the RMI and Tuvalu re-instigate a regular Pacific atoll nation dialogue:** Atoll nations of the Pacific are most vulnerable to the impacts of climate change. Tuvalu, Kiribati and the RMI have all specified climate security goals related to the protection of sovereignty, habitability and cultural identity. It is recommended that regular dialogue amongst Pacific atoll nations be re-instigated with the aim of sharing experiences and exploring opportunities for joint actions in pursuit of these shared climate security goals. Building on the success of Tuvalu in shifting institutional path dependencies towards support for its L-TAP, Pacific atoll nations can work together, as well as build broader coalitions, to advocate for the removal of institutional barriers to transformative adaptation. Where appropriate and necessary, the dialogue process and any agreed upon actions should be supported by regional organisations and development partners.
- (3) **Pacific Islands Forum Economic Ministers should commission the Council of Regional Organisations in the Pacific to undertake research on transformative economic opportunities for Pacific Island countries:** Access to financial resources necessary for implementing adaptation strategies at the scale required to meet the magnitude of climate change impacts is a key barrier in the Pacific. This barrier is likely to worsen with future levels of assistance predicted to decline as the costs of domestic adaptation in donor countries rises.<sup>70</sup> Research on transformative economic opportunities is urgently required to identify possibilities for overcoming the economic dependencies that drive financial barriers to adaptation in the Pacific. Potential opportunities include debt-for-climate swaps<sup>71</sup>, intemerate accounting based on environmental-credit swaps,<sup>72</sup> and the pooling of resources by Pacific nations.
- (4) **Council of Regional Organisations in the Pacific and/or International Organisations should support the identification of transformational adaptation pathways through scenario and foresight workshops with Pacific governments and civil society:** The increasing speed and magnitude of climatic changes necessitates a shift from incremental approaches to adaptation to transformational adaptation. While Tuvalu and the RMI have taken steps to envisage and plan for transformative adaptation responses, evidence indicates that transformational adaptation actions are low in the Pacific and that significant challenges exist for countries to reorient planning in such a manner. Therefore, Pacific Island countries could benefit from support from development partners and regional and international organisations to identify transformative adaptation pathways, map the transformative potential of adaptation actions, and link their NDC with long-term strategies.<sup>73</sup> Towards this end, evidence indicates that engaging in the use of scenarios and foresight approaches can catalyse robust dialogue on transformative adaptation as well as barriers and limits to adaptation.<sup>74</sup> For example, Hadarits et al. found that when actors are able perceive the

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<sup>70</sup> P. D. Nunn and R. Kumar, "Cashless adaptation to climate change: Unwelcome yet unavoidable?", *One Earth* 1 (2019): 31-34, <https://doi.org/10.1016/j.oneear.2019.08.004>.

<sup>71</sup> Thomas and Theokritoff, "Debt-for-Climate swaps for small islands".

<sup>72</sup> A. Saiki, *Ecological-Economic Accounts: Towards Intemerate Values*, (Suva: Pacific Theological College, 2020).

<sup>73</sup> Dixit et al, "State of the Nationally Determined Contributions: enhancing adaption ambition. Working paper".

<sup>74</sup> M. Hadarits et al., "The interplay between incremental, transitional, and transformational adaptation: a case

passing of certain thresholds, it can facilitate identification of transformational adaptation options.<sup>75</sup> Therefore, dialogues in support of transformational adaptation should aim “to push the envelope of thinking about adaptation, exploring all ideas and possibilities for innovative and creative solutions and implementing strategies that build on evidence of success and create hope for present and future generations”.<sup>76</sup> Given that clearly articulated goals and directives is key to transforming barriers into enablers of action on climate change,<sup>77</sup> key outcome of these dialogues should be to support Pacific countries to identify clear climate security goals, rather than working off generalised climate risks and priorities.

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study of Canadian agriculture”, *Regional Environmental Change* 17 (2017): 1515-1525; M. H. N. Stege, “Atoll habitability thresholds”, in *Limits to Climate Change Adaptation*, eds W. L. Filho and J. Nalau (Cham: Springer, 2018).

<sup>75</sup> Hadarits et al., “The interplay between incremental, transitional, and transformational adaptation: a case study of Canadian agriculture”.

<sup>76</sup> J. Barnett, “The dilemmas of normalising losses from climate change: Towards hope for Pacific atoll countries”: 11.

<sup>77</sup> Burch, “Transforming barriers into enablers of action on climate change: Insights from three municipal case studies in British Columbia, Canada”.

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## The Author

**Dr Tim Bryar** has over 15 years of experience in the Pacific Islands region and has expertise in the areas of geopolitics, strategic policy, policy analysis, peace and conflict, and human rights. He was a senior policy advisor at the Pacific Islands Forum Secretariat and has established networks with government and non-government agencies, academics, and activists. Tim has a PhD from the University of Sydney and has published on aspects of peace and nonviolence theory, philosophy, and psychoanalysis.

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### Contact Us

Toda Peace Institute  
Samon Eleven Bldg. 5<sup>th</sup> Floor  
3-1 Samon-cho, Shinjuku-ku, Tokyo 160-0017, Japan  
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