

TRADITIONAL KNOWLEDGE AND CLIMATE CHANGE: LESSONS OF RESILIENCE FROM THE PACIFIC

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"We are not drowning, we are fighting". The Pacific Climate Warriors chant emphasises the resilience and collective capacity of communities in the Pacific. This article focuses on the importance of indigenous and traditional knowledge (ITK) in informing responses to climate change. Rather than concentrating on the vulnerability and isolation of Pacific island countries, this article seeks to highlight the resilience of the Pacific in adapting to climate change and the rich sources of knowledge that should be listened to and have a role to play in informing climate change. This article will focus on Kiribati, a country commonly identified as one of the most vulnerable to the impacts of climate change.

"Nous ne nous noyons pas, nous nous battons". Le chant des 'Pacific Climate Warriors' illustre la capacité de résilience collective des communautés du Pacifique face au changement climatique. Cet article, prenant pour exemple la situation du Kiribati, souligne l'importance des savoirs traditionnels dans l'élaboration de réponses adaptées au changement climatique. Plutôt que de se concentrer sur la vulnérabilité et l'isolement des pays insulaires du Pacifique, l'auteur détaille les éléments qui expliquent la capacité de résilience des communautés du Pacifique qui ont su s'adapter en dépit des défis posés par les conséquences engendrées par les changements climatiques. Il dresse la liste des connaissances traditionnelles des communautés du Pacifique et le rôle qu'elles pourraient jouer dans la collecte d'informations sur les conséquences du changement climatique.

I INTRODUCTION

Pacific island countries are widely known to be most at risk of the impacts of climate change. They are characterised as small, vulnerable and isolated islands

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helpless to the incoming and ongoing effects of climate change.¹ However, in the words of Epeli Hau'ofa, "smallness is a state of mind".² Pacific peoples have a history of voyaging and seafaring.³ Navigating Oceania would have required a complex understanding of ocean swells and sea level changes among other factors.⁴ Wayfinding relying on the stars, clouds and marine environment tells a story of a people who understood and prepared for changes in weather patterns.⁵ Through courage, skill and a rich knowledge of the environment, Pacific peoples were able to navigate their way through extreme weather, in search of new lands. Upon finding new homes, settlement and habitation did not take place in a static environment.⁶ The remote location of the islands meant that Pacific settlers relied on the art of self-sufficiency which has translated to a complex knowledge system of natural resource availability and conservation.⁷ Extensive maritime networks have long been a feature of the Pacific and the indigenous and traditional knowledge (ITK) of the ecological surroundings has and continues to be invaluable. This article seeks to highlight the strength and resilience of the Pacific, with particular regard to Kiribati, as shown by an interconnected "sea of islands" which have been responding and adapting to climate variability since the beginning of settlement.⁸

ITK encapsulates indigenous knowledge systems relating to resource management, social norms, spiritual beliefs, sociocultural governance structures, and

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- 1 Hannah Fair "Their Sea of Islands? Pacific Climate Warriors, Oceanic Identities, and World Enlargement" (2020) 32 *The Contemporary Pacific* 341.
 - 2 Epeli Hau'ofa "Our Sea of Islands" in *We are the Ocean: Selected Works* (University of Hawai'i Press, Honolulu, 2008) 27 at 31.
 - 3 PV Kirch "Peopling of the Pacific: A Holistic Anthropological Perspective" (2000) 39 *Annual Review of Anthropology* 131.
 - 4 HL McMillen, T Ticktin, A Friedlander, SD Jupiter, R Thaman, J Campbell, J Veitayaki, T Giambelluca, S Nihmei, E Rupeni, L Apis-Overhoff, W Aalbersberg, and DF Orcherton "Small islands, valuable insights: systems of customary resource use and resilience to climate change in the Pacific" (2014) 19(4) *Ecology and Society* 44.
 - 5 At 49.
 - 6 At 49.
 - 7 At 44.
 - 8 Above n 2; Patrick Nunn "Sea-Level Changes over the Past 1,000 Years in the Pacific" (1998) 14 *Journal of Coastal Research* 23; J Byrant-Tokalau "Pacific responses to and knowledge of climate change" in *Indigenous Pacific approaches to climate change: Pacific Island Countries* (Birkhauser Verlag AG, Basel, 2018) at 17.

local environmental knowledge.⁹ This knowledge held in Pacific communities has and largely continues to play a crucial role in informing resource use and management, environmental conservation and cultural practices. From flooding patterns and seasonal calendars, to crop cultivation and water management, Pacific peoples have a strong understanding of their local ecosystems.¹⁰ Resilience and connectivity has enabled the Pacific to adapt and live in harmony with their environments since early settlement. However, while Western scientists and world leaders debate climate change and appropriate responses, Pacific peoples are left to experience its effects firsthand. ITK of the Pacific has an essential role in informing the adaptability and capacity to respond to changing environmental conditions.¹¹ With the threat of climate change rapidly increasing, it is time for indigenous experts to lead the discussion in climate spaces.¹²

II KIRIBATI – A CASE STUDY

A Background

Kiribati is geographically unique and made up of 33 low-lying atolls in the South Pacific.¹³ I-Kiribati depend on land and ocean resources for survival and value *te toronibwai* (self-reliance).¹⁴ Indigenous plants such as coconut and pandanus are an important resource for food and traditional constructions.¹⁵ In Abaiang, for example, 97% of households depend on firewood and coconut shells for cooking.¹⁶ Fisheries and rich marine resources in the surrounding waters of atolls are vital to the local

9 Nalau, Becken, Schliephack, Parsons, Brown and Mackey "The Role of Indigenous and Traditional Knowledge in Ecosystem-Based Adaptation: A Review of the Literature and Case Studies from the Pacific Islands" (2018) 10 *Weather, Climate and Society* 851.

10 Above n 9, at 858.

11 At 852.

12 Lofa Totua "Why the Pacific Climate Warriors are Fighting for Climate Action in the Pacific" *Viva* (16 September 2020).

13 Government of Kiribati *National Adaptation Program of Action (NAPA)* (Ministry of Environment, Land and Agricultural Development, Tarawa, January 2007) at 4.

14 At 1; South Pacific Regional Environment Programme (SPREP) *Whole of Island Approach, Abaiang atoll, Kiribati: Integrated Vulnerability and Adaptation Assessment – a Synthesis Report* (Apia, Samoa, 2016) at 10; Government of Kiribati *Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Management (KJIP) 2014-2023* (Secretariat of the Pacific Community, 2014) at 17; Frank R Thomas "Remodeling Marine Tenure on the Atolls: A Case Study from Western Kiribati, Micronesia" (2001) 29(4) *Human Ecology* 401.

15 Government of Kiribati *NAPA*, above n 13, at 4.

16 SPREP *Whole of Island Approach*, above n 14, at 9.

economy and for consumption.¹⁷ The geographical uniqueness and extent of biodiversity in Kiribati is somewhat overshadowed by the harsh nature of atolls. Atolls are not conducive to an easy lifestyle and carry only limited freshwater resources with poor-quality soil.¹⁸ Effective resource management and groundwater lenses are essential to livelihood¹⁹ yet lenses are particularly vulnerable to seawater contamination, erosion and animal waste.²⁰ The existence of natural resources depends on a healthy environment, and stable climate.²¹ With the projected devastation of climate change, Kiribati is continually subject to the 'sinking islands' narrative.²²

B Te Katei ni Kiribati – a Kiribati Worldview

Marin abara or a healthy environment and ecology is crucial to living a full and good life in Kiribati.²³ In *te katei ni Kiribati*, respect for the environment and the importance of its preservation is therefore valued.²⁴ I-Kiribati have a history of customary environmental management practices and ITK has been essential to living off the land.²⁵

The ocean is an important source of both sustenance and connection, and has shaped the development of ITK in Kiribati.²⁶ ITK of the marine environment and resources remains crucial for survival and traditional fishing practices are highly respected. Bonefish are a traditionally important source of food for communities in

17 SPREP *Whole of Island Approach*, above n 14, at 10; Thomas, above n 14, at 404-405.

18 At 263; Thomas, above n 14, at 403.

19 Government of Kiribati *Kiribati Climate Change Policy* (Office of Te Beretitenti, 2019) at 14.

20 At 9.

21 Government of Kiribati *NAPA*, above n 13, at 4.

22 "Kiribati island: Sinking into the sea?" *BBC* (online ed, 25 November 2013); Iberdrola "Kiribati, the first country rising sea levels will swallow up as a result of climate change." Available at <<https://www.iberdrola.com/environment/kiribati-climate-change#:~:text=Kiribati%2C%20the%20first%20country%20rising,for%20islands%20and%20coastal%20regions/>>.

23 Pasefika Proud *Boutokaan te mweeraoi: A Conceptual Framework for enhancing I-Kiribati wellbeing* (July 2015). Available at <<https://www.pasefikaproud.co.nz/assets/Resources-for-download/PasefikaProudResource-Nga-Vaka-o-Kaiga-Tapu-Pacific-Framework-Kiribati.pdf>>.

24 Dejo Olowu "Environmental Governance Challenges in Kiribati: an agenda for legal and policy responses" (2007) 3/3 *Law, Environment and Development Journal* 259, 265; Government of Kiribati *Kiribati Climate Change Policy*, above n 19 at 13.

25 Joshua Drew "Use of Traditional Ecological Knowledge in Marine Conservation" (2005) 19 *Conservation Biology* 1286.

26 Annika Dean "Kiribati: The island at the edge of the world" *Al Jazeera* (September 2014).

Kiribati, and elders possess valuable information about their behaviour, abundance, spawning and migration patterns.²⁷ Each island village in Kiribati had its own rules about when, how and where to fish based off learned patterns of behaviour recorded by lunar months.²⁸ Johannes and Yeeting saw ITK of elder fishers in Kiribati as having an essential role in setting the foundations for contemporary marine resource management.²⁹ For example, knowledge of species' behaviour and best locations for productive fishing in the lagoon could help with developing future use and management plans. Further, much of the knowledge held by fishers in Tarawa was "unknown to fisheries biologists" which speaks to the importance of ITK.³⁰ The depletion of fishing stock as a result of large commercial fishing operations and the impacts of climate change poses a threat to the preservation of ITK which is passed through generations.³¹

Despite the depth of ITK held by I-Kiribati, the Kiribati National Capacity Self-Assessment identified that there has been "limited use of traditional knowledge and practices in environmental management".³² This lack of implementation of ITK in environmental responses may be influenced by the "inadequate" legal environmental framework in Kiribati.³³

C Legal Environmental Framework

Environmental law in Kiribati is governed by the Environment Act 1999 which seeks to provide the "protection, improvement and conservation of the environment".³⁴ A number of international agreements have been implemented

27 RE Johannes and Being Yeeting *I-Kiribati Knowledge and Management of Tarawa's Lagoon Resources* (Atoll Research Bulletin No 489, June 2000) at 19.

28 At 3.

29 At 9.

30 At 9.

31 Dean, above n 26.

32 Ministry of Environment, Lands and Agriculture Development of the Government of Kiribati National Capacity Self Assessment Project: Assessing the capacity of the Republic of Kiribati to implement the United Nations Convention on Biological Diversity (UNCBD), United Nations Convention to Combat Desertification (UNCCD) and the United Nations Framework Convention on Climate Change (UNFCCC) (n.d.) at executive summary. Available at <<https://www.undp.org/content/dam/undp/library/Environment%20and%20Energy/Integrating%20Environment%20into%20Development/ncsa/final%20report%20and%20action%20plan/english/ncsa-kiribati-fr-ap.pdf>>.

33 Olowu, above n 24, at 267.

34 SPREP *Kiribati: Review of natural resource and environment related legislation* (January 2018) at 2.1.

through the Environment (Amendment) Act 2007 including; the Convention for the Protection of the World Cultural and National Heritage, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, and the Convention on Biological Diversity. The United Nations Framework Convention on Climate Change entered into force for Kiribati in May 1995. Despite the numerous environmental conventions, environmental law in Kiribati has been criticised for providing an inadequate framework to manage the increasing environmental issues as perpetrated by climate change.³⁵

A few Acts make specific reference to ITK in environmental decision-making practices. For any decision made under the Environment Act, the decision-maker must "have due respect for the culture and traditions of the people of Kiribati"³⁶ and:³⁷

4B(c) ...consider, where appropriate, the retention and use of the traditional knowledge, innovations and practices of the people of Kiribati relevant to the conservation and sustainable use of the biological diversity of Kiribati.

Under the Fisheries Act 2010, fisheries management plans must take into account "any relevant traditional fishing methods and practices".³⁸ There is no Act which specifically protects or preserves ITK in Kiribati.

D Climate Change Impacts More than a "Sinking Island"

As a low-lying Pacific island country, Kiribati has experienced the brunt of anthropogenic climate change impacts despite its minor contributions to greenhouse gas emissions.³⁹ The impacts of climate change remain ongoing in Kiribati and the urgency for action is growing.⁴⁰ The low-lying topography of atolls in Kiribati creates a higher risk of flooding, storm surges, and erosion.⁴¹ Sea-level rise is one of the biggest challenges with two uninhabited islands already consumed by rising

35 Olowu, above n 24, at 267.

36 Environment (Amendment) Act 2007, s 4B(a).

37 Environment (Amendment) Act 2007, s 4B(c).

38 Section 6(2)(g).

39 Rana Balesh "Submerging Islands: Tuvalu and Kiribati as Case Studies Illustrating the Need for a Climate Refugee Treaty" (2015) 5 EELJ 78 at 88.

40 NIWA "Kiribati plans for climate change." Available at <<https://niwa.co.nz/kiribati-plans-for-climate-change/>>; Jeremy Kelly "Climate Change and Small Island States: Adrift in a Raising Sea of Legal Uncertainty" (2011) 11(2) Sustainable Development Law & Policy 56.

41 Government of Kiribati *NAPA*, above n 13, at 11.

waters.⁴² Storm surges and coastal erosion discussed earlier are exacerbated by climate change.⁴³ Increased air and sea temperatures raise concern for marine resources and fisheries that are central to the local economy and food supply for communities.⁴⁴

There is no denying that climate is a serious issue which requires urgent action, but the resulting narrative is that Kiribati is a helpless small island, in the vast Pacific sea.⁴⁵ On one hand, a focus on vulnerability may help increase urgency in international action, and could even influence the extent of financial aid and resources granted. On the other hand, focusing only on hopelessness does not capture the full story of Kiribati and does not accommodate the "we are not drowning, we are fighting" kaupapa.⁴⁶ Focusing solely on the vulnerability of Kiribati overshadows the Pacific agency and the action taken by I-Kiribati to fight climate change on a daily basis.⁴⁷ It minimises the value of ITK and place of indigenous Pacific experts in informing international climate action.

E Informed Responses: ITK and Climate Change

To manage the extreme weather risks exacerbated by climate change, ITK has long been applied to inform I-Kiribati responses. Food preservation techniques, and the operation of *bubuti* (exchange based on non-refusable requests) reflect a sharing of knowledge and resources between *kainga* (household groups).⁴⁸ *Te buibui* (seawalls) are constructed and maintained by community members to protect the land.⁴⁹ However, *te buibui* are now failing to keep out the rising waters, and the cost of repairing them is becoming too great for communities.⁵⁰ Even song has been form

42 Kelley, above n 40, at 56.

43 Government of Kiribati *NAPA*, above n 13, at 10.

44 Government of Kiribati *Kiribati Climate Change Policy*, above n 19, at 8.

45 Candice Steiner "A Sea of Warriors: Performing an Identity of Resilience and Empowerment in the Face of Climate Change in the Pacific" (2015) 27 *The Contemporary Pacific* 147 at 149.

46 See CDV Fiji "350 Kiribati – Pacific Climate Warriors Training" (4 July 2014) <https://youtu.be/D0_z4jaAYRk/>.

47 Fair, above n 1, at 342.

48 Thomas, above n 14, at 413.

49 At 410.

50 Government of Kiribati *Kiribati Climate Change Policy*, above n 19, at 11; Government of Kiribati *NAPA*, above n 1, at 28.

of response to spread awareness of the impacts of climate change.⁵¹ The egalitarian values underpinning *te aba* (culture) inform approaches to these resource management and environmental response strategies, with a focus on social networks and reciprocity.⁵² Cultural identity is a source of strength in responding to climate change in Kiribati and drives the fight for survival. The traditional methods employed by I-Kiribati to protect and preserve their environment exhibit strength and community resilience. I-Kiribati are not passive victims of climate change and there is a lot to learn from ITK of I-Kiribati.

F Further Projected Loss of Traditional Knowledge - Climate Change

Risk projections of climate change typically have a strong Western scientific focus on the projected environmental devastation. However, one often overlooked aspect is what impact a changing climate may have on the cultural identity of I-Kiribati, *te aba*. Limited availability of food has led to an increased consumption of imported foods.⁵³ While this may work to meet needs, the traditional knowledge surrounding food preparation and preservation suffers.⁵⁴ Traditional medicines prepared from indigenous plants will no longer be accessible if there are no resources to utilise.⁵⁵ If marine habitats are compromised through intense climate variability, there is a risk that traditional fishing techniques will be lost.⁵⁶ Local methods employed to detect erosion may become unreliable due to the new intensity of erosion, and thus may be disregarded.⁵⁷ Increasing relocations in response to extensive erosion have been a source of conflict for land tenure issues over resettled land.⁵⁸ Relocating to urban atolls like Tarawa, has disconnected some I-Kiribati from their traditional ecological systems and caused further environmental issues due to

51 See Hermann and Kempf "'Prophecy from the Past': Climate Change Discourse, Song Culture and Emotions in Kiribati" in T Crook and P Rudiak-Gould (eds) *Pacific Climate Cultures: Living Climate Change in Oceania* (De Gruyter, Berlin, 2018) 21 for a full discussion of the song "Koburake!".

52 Thomas, above n 14, at 413; Nathan Jon Ross "Climate Change Risks to Representative Government in Kiribati" (2014) 20 NZACL Yearbook 91 at 97.

53 Government of Kiribati *Kiribati Climate Change Policy*, above n 19, at 9.

54 At 9.

55 Government of Kiribati *NAPA*, above n 13, at 14.

56 Government of Kiribati *KJIP*, above n 14.

57 Government of Kiribati *NAPA*, above n 13, at 11.

58 Government of Kiribati *NAPA*, above n 13, at 11; Government of Kiribati *Kiribati Climate Change Policy*, above n 19, at 9.

overpopulation.⁵⁹ Total displacement and climate refugees is another issue not discussed here. There is an urgent need for ITK to be passed on to younger generations and preserved as an important aspect of I-Kiribati identity.⁶⁰

The potential effects of climate change on the culture of I-Kiribati and their connection to the environment are severe. It is important, however, not to leave this as a message of hopelessness and inevitable doom. In the words of the Pacific Climate warriors, "while they are aware of the realities of climate change, they are not defined by it".⁶¹ Traditional knowledge of I-Kiribati and of the Pacific is invaluable and could play an important role in forming the foundations of new policy and legislative responses to climate adaptation. This would work to preserve traditional knowledge, encourage the continued resilience of Kiribati, and ensure a strategic approach that is community-driven and culturally led.

III CONCLUSION

Responding to climate change will not be a "one size fits all solution".⁶² However, it is clear that there is a lot to be learnt from the adaptive and responsive actions from the Pacific informed by their close relationship with the environment.⁶³ It is important to acknowledge that ITK is often cast aside for failing to fit within Western modes of understanding. While Western knowledge is considered 'scientific', indigenous knowledge is classed in the 'other', inferior category.⁶⁴ However, ITK is an equally valid source of knowledge which can provide an invaluable information to inform more holistic approaches to climate action.⁶⁵ Linda Tuhiwai Smith highlights how knowledge taken from research into indigenous communities is frequently used to benefit Western agendas without addressing the needs of the indigenous communities themselves.⁶⁶ Incorporating ITK to the climate change

59 Thomas, above n 14, at 415.

60 Ministry of Environment, Lands and Agriculture Development of the Government of Kiribati, above n 32, at 4.6.

61 Fenton Lutunatabua "Kiribati and Climate Change: The Fight You Don't Read About" (8 July 2014) 350 Pacific <<https://350.org/kiribati-and-climate-change-the-fight-you-dont-read-about/>>.

62 J Byrant-Tokalau "Conclusion: What Can Pacific Island Countries Teach Others About Climate Change?" in *Indigenous Pacific approaches to climate change: Pacific Island Countries* (Birkhauser Verlag AG, Basel, 2018) at 85.

63 J Byrant-Tokalau, above n 8, at 13; J Byrant-Tokalau, above n 62, at 87.

64 Linda Tuhiwai Smith *Decolonizing Methodologies: Research and Indigenous Peoples* (2nd ed, Otago University Press, Dunedin, 2012).

65 861.

66 Above n 60.

discussion therefore must ensure that ITK is respected and preserved in a cultural appropriate way.

The Pacific is a connected sea of islands fighting against climate change every day. This is the resilience of the Pacific.