The Pacific's Nuclear Legacy in the Context of the Climate Crisis

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Abstract

The Pacific region was used as an atomic testing site by the world's nuclear powers for five decades. This testing has left behind a wide range of severe impacts, from continuous health complications to contaminated land and increased food insecurity. Today, the region is also at the frontline of climate change. This paper maps out some consequences of atomic testing in the Pacific region and their relationship to climate change threats. It argues that by seeking global recognition for both nuclear and climatic existential threats, the Pacific Island Countries and Territories (PICTs) make a strong case for the compensation owed to them by the international community – especially, by the powers that intentionally chose these territories as their nuclear playground.

Introduction

In 2021, Japan announced its plan to release over a million tonnes of radioactive wastewater into the Pacific Ocean from the damaged Fukushima Daiichi Nuclear Power Plant. Industry groups and nuclear scientists at the time had assured that similar discharges have been released into oceans before with minimal environmental impact. However, anti-nuclear activist groups and neighboring countries, especially the small island states in the region, immediately raised concerns.[1]

Two years later, Japan is going ahead with these plans in 2023, despite ongoing diplomatic talks with the Pacific Island Countries (PICs) and Territories (PICTs) that oppose the initiative. In an opinion piece published in The Guardian at the beginning of the new year, Henry Puna, the Secretary-General of the Pacific Islands Forum, highlighted past and present Pacific experience with nuclear contamination and the continuing negative impact of radioactive waste on island communities. If Japan's wastewater dump was to progress without guarantees of safety to the Pacific peoples, Puna stressed, "the region will once again be headed towards a major contamination disaster at the hands of others."[2]

1 Dennis Normile, "Japan Plans to Release Fukushima's Wastewater into the Ocean" ***Science***, April 13, 2021, https://www.science.org/content/article/japan-plans-release-fukushima-s-contaminated-water-ocean?cookieSet=1.

2 Henry Puna, "Japan Must Work with the Pacific to Find a Solution to the Fukushima Water Release Issue – Otherwise We Face Disaster," ***The Guardian***, January 4, 2023, https://www.theguardian.com/commentisfree/2023/jan/04/japan-must-work-with-the-pacific-to-find-a-solution-to-the-fukushima-water-release-issue-otherwise-we-face-disaster.

After further negotiations with the PICs in February, Japan promised to postpone the waste disposal until scientists appointed by the Pacific Islands Forum have determined if it is safe to do so.[3] When placed in the context of recently revealed historical abuses, Puna's concerns are not ill-founded. The Pacific region has a tragic nuclear legacy that continues to impact the lives and livelihoods of its people. Japan's plan to release the radioactive waste into the Pacific waters evokes the anxieties and trauma experienced in the island communities since the Second World War. Over a half-century, from 1946 to 1996, the UK, the US, and France detonated 318 nuclear devices in the region. Major test sites were located in Australia, Marshall Islands, Kiribati, and Maohi Nui (French Polynesia), with devastating fallout experienced throughout the region.

The PICTs, then, continue to face the negative impacts of radioactive fallout, and are now experiencing a threat multiplier in climate change. The history of atomic testing continues to have an effect on the environment, health, and livelihoods of Pacific islanders. It also affects their ability to respond to climate change due to already jeopardised food and water security, contaminated land that can no longer be safely lived on, and ubiquitous and continuous health complications. Climate change poses a threat to livelihoods and increases the risk of irreversible changes in the environment. There are different forms of permanent and irreversible loss and damage to which the PICTs are trying to give voice and therefore, gain recognition and compensation at the international climate negotiations. Contemporary climate insecurities in the PICTs are exacerbated by the radioactive contamination that have been caused by atomic testing in the past. One cannot, therefore, meaningfully consider climate security in the region without critically confronting the history of atomic testing.

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3 Lydia Lewis, "Japan Assures PIF Nuclear Waste Discharge will be Safe," ***RNZ Pacific***, February 14, 2023, https://www.rnz.co.nz/news/pacific/483879/japan-assures-pif-nuclear-waste-discharge-will-be-safe.

The Pacific is also at the centre of increased geopolitical contestations between the world's nuclear powers. While the PICTs have, since the Second World War, been a particularly vocal part of the anti-nuclear movement and the first countries to sign the United Nations Treaty for the Prohibition of Nuclear Weapons (TPNW), the two existential threats – nuclear and climate – remain a part of their reality. These two existential threats are inseparably intertwined in the Pacific context. In order to successfully respond to the threat of climate change, which is considered by Pacific communities as the greatest security threat of all, engaging honestly and openly with the repercussions of nuclear testing is a necessity. The continuous nuclear presence in the region stands in stark contradiction with the commitment of PICTs to global nuclear disarmament, thereby undermining the right of these communities to keep their territories nuclear-free. It also violates the right of individuals to a safe, healthy, and sustainable environment.

As a part of an evolving research program on linkages between nuclear legacy and climate justice, this paper maps out some consequences of atomic testing in the Pacific context and their relationship to climate change threats. By seeking global recognition for both nuclear and climatic existential threats, the PICTs make a strong case for the compensation owed to them by the international community – especially, by the former colonial powers that intentionally chose these territories as their nuclear playground.

Impacts of Nuclear Weapons Testing on Pacific Health, Livelihoods, and Environment

The Pacific region was allegedly selected as the atomic test site due to its vastness and geographical remoteness from the powers conducting the tests. As Stewart Firth demonstrates in his 1987 book Nuclear Playground, "the men who decided to test nuclear bombs in the Pacific and Australia live in Washington and London and Paris, not in the Marshall Islands, the Tuamotu Archipelago of French Polynesia, or the Great Victoria Desert of South Australia, the places chosen by those men for their explosions."[4]

As the Pacific scholar Epeli Hau'ofa has pointed out, the colonial conception of Pacific as "a place faraway" played a crucial role in the selection of test locations by the nuclear powers. Discussing the atomic testing in the Marshall Islands directly, Hau'ofa powerfully demonstrates the normative importance of imperial spatial thinking behind the political decisions to use the Pacific:

> Belittlement in whatever guise, if internalised for long, and transmitted across generations, may lead to moral paralysis, to apathy, and to the kind of fatalism that we can see among our fellow human beings who have been herded and confined to reservations or internment camps. People in some of our

4 Stewart Firth, *Nuclear Playground* (Sydney: Allen & Unwin, 1987), x.

> islands are in danger of being confined to mental reservations, if not already to physical ones. I am thinking here of people in the Marshall Islands, who have been victims of atomic and missile tests by the United States.[5]

During his visit to Maohi Nui (French Polynesia) in 2021, French President Emmanuel Macron admitted the role of remoteness in selecting the sites for French atomic testing. He acknowledged that France had chosen to conduct the tests in Maohi Nui because the sites were "lost in the middle of the Pacific." There was, therefore, less political pressure in Paris regarding the negative impacts of these tests. Macron went as far as to declare that France "owes a debt" to French Polynesia, affirming that the tests were not "clean."[6]

In addition to the alleged remoteness, racism and imperialism played important roles in choosing the test sites. A distinction was made between "civilised" military personnel of nuclear powers and "primitive" indigenous people living in the colonies.[7] The affected communities were rarely asked for permission to conduct tests in their territories, and the scientific details of the tests and their consequences were concealed from local populations. The indigenous peoples inhabiting the islands were, without hesitation, treated as second class human beings to whom harm could be legitimately inflicted for the "greater good for humanity."[8] Thanks to colonial power, the indigenous peoples could not only be removed from their homes without their consent, but those who stayed could also be used as guinea pigs for further studies on the impacts of nuclear fallout.

Perhaps the most notorious of such studies was Project 4.1, conducted by the US government in the Marshall Islands. According to the Marshall Islands National Nuclear Commission's 2019 report:

> The U.S. nuclear weapons testing program and its accompanying medical experimentation program, Project 4.1, resulted in numerous, and often violent health impacts among our Marshallese communities, including death. In addition to the direct exposure to radiation from the detonations, some our people are born and live on islands with residual contamination, and therefore, are exposed to chronic, low-dose radiation on a daily basis.[9]

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5 Epeli Hau'ofa, "Our Sea of Islands," reprinted in Hau'ofa, ***We are the Ocean: Selected Works*** (Honolulu, HI: University of Hawai'i Press, 2008), 31.

6 Macron referred to in Denise Fisher, 'Macron's Indo-Pacific vision: "Woe betide the small and isolated"' (Discours du Président Emmanuel Macron depuis Papeete.),***The Strategist*** August 20, 2021, https://www.aspistrategist.org.au/macrons-indo-pacific-vision-woe-betide-the-small-and-isolated/ (https://www.france24.com/en/asia-pacific/20210728-without-apologising-macron-says-paris-owes-debt-to-french-polynesia-over-nuclear-tests).

7 See Nic Maclellan, "The Nuclear Age in the Pacific Islands," ***The Contemporary Pacific*** 17 no.2 (2005): 363-372.

8 For an excellent study on the ethics of nuclear weapons, see Thomas E. Doyle, ***Nuclear Ethics in the Twenty-First Century: Survival, Order, and Justice*** (London: Rowman & Littlefield, 2020).

9 The Marshall Islands National Nuclear Commission, ***Nuclear Justice the Marshall Islands: A Strategy for Coordinated Action FY2020-FY2023***, 14.

The “Baker” explosion, part of Operation Crossroads, a nuclear weapon test by the United States military at Bikini Atoll on 25 July 1946 (Credit: US Department of Defense)

Similarly, the British military documents reveal that one of the main purposes of the tests was to study the effects of explosions on human beings.[10] The French nuclear test programme, in contrast, has been associated with “an extreme level of secrecy about all its aspects and initially categorical denial of any health or environmental impacts.”[11]

It is now acknowledged by the scientific community that every stage of atomic weapon production involves severe risks to environment and health, with significant environmental damage caused by both atmospheric and underground/underwater tests. The early tests conducted on the surface of lagoons resulted in high levels of radioactive fallout, with extensive physical damage to atolls and reef systems occurring as well. During the clean-up process, nuclear waste was often dumped directly into the ocean. In relation to underground tests, the whole range of environmental impacts remains unstudied today. What is particularly concerning is that whether the tests were conducted above or below the ground, or in the ocean, the radioactive and other nuclear waste will persist for an extremely long time.

The health issues related to atomic testing are wide-ranging and include not only radiation exposure, but a wealth of social and physical harms.
In the words of Tilman A. Ruff:

10 Tilman A Ruff, “The Humanitarian Impact and Implications of Nuclear Test Explosions in the Pacific Region,” ***International Review of the Red Cross*** (2015), 787.

11 Ibid., 789.

> The social impacts of disempowerment; victimization; abuse of basic human rights; disruption of traditional communities, ways of life and means of sustenance; displacement; justified concern about unpredictable long-term health impacts extending to future generations; and concern about transmitting genetic mutations to one's children can all have profound and long-term direct and indirect physical and mental health consequences.[12]

The immediate exposure presented symptoms now typically linked to radiation poisoning, including vomiting, skin burn, hair loss, sore eyes, skin rashes, etc. Later, the victims of radiation started to develop different kinds of cancers, especially thyroid-related, and women reported miscarriages and births of deformed babies – in some cases, for several generations.

The exposure of atolls to radiation also had a direct impact on livelihoods and food security in the PICTs that were used as test sites. In his comprehensive study on the health and environmental impacts of atomic testing by the British, French and Americans in the Pacific region, Ruff notes that:

> For indigenous people such as Marshall Islanders, Maohi islanders in French Polynesia and indigenous Australians, it has been shown that traditional lifestyles, in close physical contact with a natural environment contaminated by nuclear testing, sustained by gathering and hunting of traditional local foods and living in housing made of local materials, are associated with increased radiation exposures.[13]

One example of the continuing impact of radiation exposure on environment, livelihoods, and food security in Maohi Nui and the Marshall Islands are the outbreaks of ciguatera fish poisoning. Ciguatera is the most common type of food-borne illness caused by eating reef fish that contain toxins, and is occurring globally. There is evidence that higher levels of ciguatera were observed during the French testing in Moruroa and Mangareva.[14] In their field work conducted in Maohi Nui in 2021, Vehia Wheeler and her team observed the continuous fear in relation to poisoned seafood:

> Every interviewee said, we can't eat the fish. We had ciguatera before the CEP [Centre of Pacific Experimentation], before the 60's (sic), but we knew where it was and we wouldn't fish in those areas. After the CEP, people were getting sick and dying. We would put the old people in wheelbarrows and wheelbarrow them to the hospital. We then learned that we couldn't eat the fish, especially the big fish. Now, we fish, but for the little fish because they carry less toxicity.[15]

12 Ruff, "The Humanitarian Impact," 801.

13 Ibid., 804.

14 Ibid., 792.

15 Unpublished research manuscript, referenced with the permission of the author.

Atomic testing in the Pacific Islands has rendered some areas completely unusable for agriculture and harvesting of reef resources, not only for the present but for an indefinite future.[16] A telling statistic about the long-term environmental and health impact of nuclear radiation is that some northern atolls in the Marshall Islands have been declared off-limits for the next 24,000 years.[17]

Despite clean-up efforts undertaken by the nuclear powers at different test sites, various locations have such a high degree of contamination that they can never be properly restored.

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Relocation of inhabitants from the most affected places to other atolls has increased the density of population in these locations, burdening the limits of sustainable food production. Limited local food supplies make communities increasingly dependent on imported, imperishable food items such as canned tuna and beef. In their study on the Marshall Islands,[18] Ingrid Ahlgren, Seiji Yamada and Allen Wong outline several dietary impacts of the nuclear legacy, noting that it is estimated that an astonishingly high 90% of all Marshallese food is currently imported.[19] Changes in diet from traditional food items, such as fish and root vegetables sourced locally, to processed goods has contributed to both poor nutrition in children and diabetes in adults.[20] The Pacific region in general suffers from high levels of non-communicable diseases, and radiation exposure, jeopardising food and water security, it is adding to these health challenges through an increasing dependency on foreign, imported, often low-nutrition food.

16 See also a recent study by E.M. Nalley et al., "Trophic and Spatial Patterns of Contaminants in Fishes from the Republic of the Marshall Islands in the Equatorial Pacific," ***Chemosphere 314*** (February 2023).

17 Ruff, "The Humanitarian Impact," 797.

18 Ingrid Ahlgren, Seiji Yamada, and Allen Wong, "Rising Oceans, Climate Change, Food Aid, and Human Rights in the Marshall Islands," ***Health and Human Rights Journal*** 16/1 (2014), 69-80.

19 Food and Agriculture Organization of the United Nations, ***Climate Change and Food Security in Pacific Islands Countries*** (Rome: 2008), ch 3 (as cited in Ingrid Ahlgren, Seiji Yamada, and Allen Wong, "Rising Oceans," 69-80).

20 Ingrid Ahlgren, Seiji Yamada, and Allen Wong, "Rising Oceans," 69-80.

Climate Change: A Threat Multiplier

On 24 January 2023, the Bulletin of the Atomic Scientists published its latest Doomsday Clock. The Clock estimates the world's proximity to nuclear catastrophe. For the previous two years, the Doomsday Clock had been set to 100 seconds to midnight. In 2023, largely due to the war in Ukraine, the Clock moved another 10 seconds forward, to 90 seconds – the closest to nuclear Armageddon it has ever been. Back at the time when the nuclear testing was already ongoing in the Pacific region, the first ever Doomsday Clock in 1947 showed seven minutes to midnight.

For several years now, the Bulletin of the Atomic Scientists has emphatically reminded us of the direct relationship between nuclear legacy and the threat of climate change in their annual statements.[21] While testing itself in the Pacific region has ended, several nuclear-related concerns remain. Climate change is a significant threat multiplier to the Pacific communities living with their nuclear legacy, as it is directly impacting the territories that are already vulnerable due to radioactive fallout and waste. As Ruff states:

> All the waste on atolls and in lagoons will become more difficult to monitor, recover or otherwise remediate, and will increasingly be released into the marine environment as a result of inevitably accelerating sea-level rise related to global warming; whilst declining physical integrity and storms and hurricanes of increasing intensity will mean that more waste is physically disrupted and dispersed.[22]

A visible and infamous reminder of the interplay between nuclear weapons and the climate change threat is the Runit Dome, built by the US government in the 1970s to cover the radioactive waste left behind by the atomic tests in the Bikini and Enewetak atolls in the Marshall Islands. One of the tests created a huge crater in the lagoon; this crater was then chosen as the dump site for more radioactive waste. Contaminated sediment and debris was mixed with cement and placed onto the crater floor. The idea of lining the bottom of the crater itself with cement, as explained by Michael B. Gerrard, "was rejected because it would have been expensive and time-consuming and not deemed to provide any greater protection."[23] The dome, therefore, remained open to the ocean.

Climate change, with its various implications from sea-level rise to stronger, more frequent, and unpredictable tropical storms, will undoubtedly have an impact

21 Bulletin of the Atomic Scientists, "This is your COVID Wake-up Call: It is 100 Seconds to Midnight. 2021 Doomsday Clock Statement, 3, https://thebulletin.org/wp-content/uploads/2021/01/2021-doomsday-clock-statement.pdf.

22 Ruff, "The Humanitarian Impact," 791.

23 Michael B Gerrard, "America's Forgotten Nuclear Waste Dump in the Pacific," ***SAIS Review*** 35(1) (2015): 87-97, 89.

on nuclear waste left behind in the Pacific. The billion-dollar question in relation to the Runit Dome is – will it be strong enough to endure rising seas, especially as it is already reportedly cracking? As stated in the Marshall Islands National Nuclear Commission report, the dome is "another constant reminder of the U.S. government's unfinished business in dealing with the contamination left behind from their nuclear weapons testing program." Worryingly, the report also states that "only recently has new information come to light that less than 1% of the plutonium on Enewetak is inside the concrete structure. This means that over 99% of the plutonium on Enewetak is in the surrounding environment."[24] Vulnerable to changes in its environment brought by climate change, the Runit Dome continues to be a threat to the Enewetak community in that it does not properly cover or contain the radioactive waste therein. As Gerrard provocatively has argued, "[the] Runit dome would not meet today's US standards for the disposal of household trash"[25] – yet, there seems to be very little interest in doing anything about it.

Runit Dome (or Cactus Dome), Runit Island, Enewetak Atoll (Credit: US Department of Defense)

24 The Marshall Islands National Nuclear Commission, ***Nuclear Justice for the Marshall Islands***, 19.

25 Gerrard, "America's Forgotten", 93.

The Runit Dome is but one well-known example of the connection between nuclear testing and the existential threat of climate change in the Pacific region. The dome is a concrete example of the continuous harms visited upon island communities by historic atomic testing, but there might be other, so far unimaginable consequences. As noted by the Marshall Islands National Nuclear Commission:

> Our future generations also need to be prepared to respond to challenges that we haven't even imagined yet, such as the ways that the nuclear legacy intersects with climate change and migration issues as well as the intergenerational impacts of radiation exposure.[26]

It is this intersection between nuclear legacy and climate change, as a threat multiplier, that is of great concern to the affected communities. Climate change will potentially increase the movement of populations across atolls, multiplying the number of people in already limited spaces. It will create more uninhabitable land through salt water intrusion, coastal erosion, and rising seas, thereby increasing food and water insecurities, and impact the biodiversity of the ocean.

Moreover, both nuclear legacy and climate change have significant human rights dimensions. In 2012, the UN Special Rapporteur published on the impacts of the US nuclear testing in the Marshall Islands, noting that it resulted in both immediate and continuing effects on the human rights of the Marshallese people, including long-term health complications as well as the environmental contamination and displacement of the population.[27] In 2021, almost a decade after the Special Rapporteur's findings, the United Nations Human Rights Council adopted Resolution 48/13, acknowledging the human right to a safe environment, and its relationship to other fundamental human rights and international law.

A year later in 2022, the United Nations General Assembly, in its Resolution 76/300, endorsed the same right, and reaffirmed the obligation of states:

> ...to respect, protect and promote human rights, including in all actions undertaken to address environmental challenges, and to take measures to protect the human rights of all, as recognized in different international instruments, and that additional measures should be taken for those who are particularly vulnerable to environmental degradation, noting the framework principles on human rights and the environment.

26 The Marshall Islands National Nuclear Commission, ***Nuclear Justice for the Marshall Islands***, 21.

27 Report of the Special Rapporteur on the Implications for Human Rights of the Environmentally Sound Management and Disposal of Hazardous Substances and Wastes, United Nations Human Rights Council, 31st session, September 3, 2012. A/HRC/21/48/Add.1.

A decade after the publication of the UN Special Rapporteur document on the Marshall Islands, the UN Human Rights Council brought all these elements together in its resolution on the provision of technical assistance and capacity-building to the Marshall Islands in order to address the human rights consequences of nuclear testing.[28] Addressing the nuclear legacy, the UN Human Rights council recognises that "nuclear waste, radiation and contamination remains a challenge and a barrier to the full realization and enjoyment of human rights by the people of the Marshall Islands, including the enjoyment of a clean, healthy, and sustainable environment in the Marshall Islands." The resolution further notes that the Government of the Marshall Islands is not responsible for the nuclear weapons testing in its territory and the harm that continues to be inflicted on its citizens. Interestingly, the resolution does not direct this responsibility to the US either, but to the UN system, as the Marshall Islands were under UN trusteeship at the time.

The nuclear legacy in the Pacific region is a reminder of the militaristic use of nuclear weapons and the catastrophic consequences they can have. Climate change is a threat multiplier in the context in which radiation, nuclear waste, and contamination continue to impact, threaten, or preclude the enjoyment of a clean, healthy, safe, and sustainable environment. At the same time, nuclear power and climate change have a complex relationship, as it has been argued that the peaceful use of nuclear power is required, at least in the interim, to provide energy while phasing out fossil fuels. Even the peaceful use of nuclear power, however, carries major risks such as disaster-related accidents like the Fukushima nuclear power plant. In his 2021 speech remembering the international day against nuclear tests, Secretary-General Puna pointed out the importance of the nuclear legacy of the Pacific in the era of climate crisis. The lessons that must be learned, Puna stated, include working together and ensuring collective global leadership.[29] It is the Pacific aspect of this collective global leadership for a nuclear-free world at the time of climate crisis to which I now wish to turn.

Pacific Leadership in the World of Existential Threats

Pacific Islanders are still living with the numerous and various impacts of nuclear testing, now intensified by anthropogenic climate change. In addition to the health and environmental issues, these impacts include economic losses, forced migration, a broken connection to the land and loss of cultural heritage, as well as a continuous nuclear presence through geopolitical contestation and militarisation of the Pacific by contemporary nuclear powers. It is, however, important to acknowledge that despite these ongoing issues, Pacific

28 United Nations Human Rights Council, 51st session, October 5, 2022. A/HRC/51/L.24/Rev.1.

29 Henry Puna, Welcome Remarks at the Pacific Islands Forum Blue Pacific Talanoa Webinar Series 2021, August 27, 2021, https://www.forumsec.org/2021/08/27/nuclear-testing-is-a-legacy-that-no-people-nation-or-region-should-ever-have-to-endure-forum-sg-puna-to-blue-pacific-webinar/.

communities have actively resisted victimisation and taken leadership in both nuclear disarmament and climate change spaces.

As a consequence of its dark nuclear legacy, the Pacific region has perhaps become the most prominent anti-nuclear region in the world. This resistance to nuclear weapons not only responds to colonial exploitation, but also changes the narrative towards one of regional solidarity and empowerment.[30]

Pacific communities have actively resisted victimisation and taken leadership in both nuclear disarmament and climate change spaces.

Examples of Pacific anti-nuclear activism are plentiful. A coalition of NGOs campaigning under the umbrella of the Nuclear Free and Independent Pacific Movement (NFIP) grew from the first regional Nuclear Free Pacific Conference that took place in Fiji in 1975. In 1983, The Peoples' Charter for a Nuclear Free and Independent Pacific was adopted in Vanuatu; the preamble of the Charter powerfully declaiming against the imperial exploitation of the region and its people:

> **We, the people of the Pacific have been victimised too long by foreign powers.**
>
> The Western imperialistic and colonial powers invaded our defenceless region, they took over our lands and subjugated our people to their whims. This form of alien colonial, political and military domination unfortunately persists as an evil cancer in some of our native territories such as Tahiti, New Caledonia, Australia, New Zealand. Our environment continues to be despoiled by foreign powers developing nuclear weapons for a strategy of warfare that has no winners, no liberators and imperils the survival of all humankind.[31]

With the landmark Treaty of Rarotonga of 1985, the South Pacific Nuclear Free Zone was formalised. The Treaty banned the use, testing, as well as possession of nuclear weapons in the South Pacific region. States Parties to the Treaty were, and continue to be, Australia, the Cook Islands, Fiji, Kiribati, Nauru, New Zealand, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

30 See the excellent paper by Michelle Keown, "Waves of Destruction: Nuclear Imperialism and Anti-Nuclear Protest in the Indigenous Literatures of the Pacific," ***Journal of Postcolonial Writing*** 54(5) (September 2018), 585-600.

31 The Peoples' Charter for a Nuclear Free and Independent Pacific, Nuclear Free and Independent Pacific Movement Conference, Vanuatu (1983), http://www.apc.org.nz/pma/pacchar.htm.

Pacific Island Countries were also essential to the negotiations for the TPNW, which was adopted at the UN conference in 7 July 2017.[32] The Treaty provides a comprehensive ban on nuclear weapons, prohibiting nations from developing, testing, producing, manufacturing, transferring, possessing, stockpiling, using or threatening to use nuclear weapons, or allowing them to be stationed on their territory. The Treaty came into force on 22 January 2021, after reaching the required 50 signatories in 2020 – one-fifth of all State Parties to the Treaty being Pacific Island Countries.[33] The Treaty currently has 92 signatories and 68 State Parties, but none of the nuclear weapon states have so far joined.

Articles 6 and 7 of TPNW directly address the issues of nuclear legacy. According to Article 6, each State Party commits itself to provide age- and gender-sensitive assistance to the victims of nuclear testing, "including medical care, rehabilitation, and psychological support, as well as provide for their social and economic inclusion."[34] Article 6 further acknowledges that necessary and appropriate measures towards the environmental rehabilitation of contaminated areas should be taken. Article 7 states that the affected states have a right to seek and receive assistance, where possible, from other States Parties. According to this article:

> Without prejudice to any other duty or obligation that it may have under international law, a State Party that has used or tested nuclear weapons or any other nuclear explosive devices shall have a responsibility to provide adequate assistance to affected States Parties, for the purpose of victim assistance and environmental remediation.[35]

The first meeting of States Parties to the TPNW was held in 2022, in the midst of the heightened risk of use of nuclear weapons following Russia's invasion of Ukraine. In the meeting, the State Parties confirmed their commitment to the Treaty and adopted the Vienna Declaration and Action Plan, which illustrated the ambition to universalise the ban on nuclear weapons in 10 years, and highlighted the necessity of assistance to the victims of nuclear weapons testing.[36]

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32 United Nations, ***Treaty on the Prohibition of Nuclear Weapons***, (July 7, 2017), A/CONF.229/2017/8, https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVI-9&chapter=26.

33 International Committee of the Red Cross, "Treaty on the Prohibition of Nuclear Weapons: Pacific Island Countries Played Crucial Role," (October 26, 2020), https://www.icrc.org/en/document/treaty-prohibition-nuclear-weapons-pacific-island-countries-played-crucial-role.

34 United Nations, ***Treaty on the Prohibition of Nuclear Weapons***, (July 7, 2017), https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVI-9&chapter=26.

35 Ibid.

36 ICAN, "Vienna Declaration and Action Plan: Overview" (June 23, 2022), https://www.icanw.org/vienna_declaration_action_plan_overview.

Closing of the First Meeting of States Parties to the Treaty on the Prohibition of Nuclear Weapons (TPNW) (Credit: UNIS Vienna)

The meeting also established an informal working group on victim assistance, environmental remediation, and international cooperation and assistance under Articles 6 and 7 of the Treaty. The group is co-chaired by Kazakhstan and Kiribati, both former testing sites. As explained by Kairat Sarzhanov, the Director of the International Security Department in the Ministry of Foreign Affairs of Kazakhstan:

> These articles are designed to address the human and environmental effects of nuclear weapons use and testing as well as the ongoing and expected future harm from the resulting contamination. The positive obligations are central to the humanitarian goals of the Treaty and are also the first of their kind in a nuclear-weapon-related treaty.[37]

37 Kairat Sarzhanov, "TPNW: Renewed Effort Towards Nuclear Disarmament," ***The Geopolitics***, September 14, 2022, https://thegeopolitics.com/tpnw-a-renewed-effort-towards-nuclear-disarmament/.

The Vienna Declaration and Action Plan identify the ways in which these can be addressed going forward, including the establishment of a trust fund for those states that have been affected by nuclear testing, assessment of the needs on the ground, and the development of national action plans for victim assistance as well as environmental remediation obligations.

Since the early days of Pacific anti-nuclear movement, different organisations and actors have shared common ground, calling for the nuclear-weapon states to acknowledge their responsibility with respect to the various impacts of atomic testing; to help the affected countries, territories and communities to clean up and rehabilitate; and to sufficiently compensate the harm done to the local communities.[38] In this framework, the aspirations of the State Parties to the TPNW is a step forward for the global recognition and assistance of victims of nuclear testing. Problematically, the TPNW only obligates the State Parties and none of the nuclear power states have joined the treaty.

Where compensation has been offered, it has remained far below what has been estimated necessary to remedy the full range of harms.

The PICTs discussed in this paper have all called for a recognition of the harm caused by nuclear testing in their territories, but the question of compensation has been a contested matter in all cases. Regarding the French tests, a law was passed in 2010 that provided that anyone exposed to radioactive fallout in Polynesia or Algeria could be compensated if they developed any of cancers associated with exposure to radiation, such as thyroid cancer. The law, however, had very strict limitations in place on eligibility for compensation, and only a small number of individuals who have applied have been successful with their claims – despite the fact that some recent studies show that up to 90% of the Maohi Nui population at the time might have been exposed to a sufficient level of radiation.[39]

38 Maclellan, "The Nuclear Age," 368-369.

39 Sébastien Philippe, Sonya Schoenberger and Nabil Ahmed, "Radiation Exposure and Compensation of Victims of French Atmospheric Nuclear Tests in Polynesia," ***Science & Global Security*** 30(2) (2022), 62-94.

Where compensation has been offered, it has remained far below what has been estimated necessary to remedy the full range of harms. In the case of Marshall Islands, the RMI Nuclear Claims Tribunal was established with the 1986 Compact of Free Association (COFA) between the Marshall Islands and the US. The Tribunal, however, ran quickly out of funds and was able to compensate only a fraction of claims submitted. The Marshall Islands National Nuclear Commission has stated that "the unpaid and partially paid awards from the Tribunal represent one of the gravest forms of injustice to the Marshallese people for the harm inflicted by the U.S. nuclear testing program."[40] Ongoing renegotiations of COFA have focused on the demands of increased investments by the United States to local services such as healthcare and education. The need to address nuclear legacy in the context of climate change, has also been acknowledged. In the words of the Marshall Islands Chief Negotiator Kitlang Kabua:

> Of course, as a government, we need to strive for a sustainable future. However, there are needs that have not been addressed by the U.S. government, those of the nuclear affected folks, and new, extraordinary phenomenon and challenges that we face today, such as climate change.[41]

It is beyond the scope of this paper to discuss in detail the whole range of important ethical and political questions related to the fair and sufficient compensation in these cases. What is important to stress, however, is that because of the threat multiplier of climate change, the need for assistance in these countries and territories will only increase – and exponentially so – in the future. The nuclear powers bear responsibility for tests they conducted in the Pacific region and are accountable for fair and sufficient compensation. I do agree with the Marshall Islands National Nuclear Commission that it may be difficult, if not impossible, to put a monetary value on complex material damages and human losses caused by decades of atomic testing. This is why the means have to extend beyond monetary compensation. As long as the communities in these islands continue to live with the dark legacy of the nuclear arms race, their calls for compensation have to be taken seriously and to be fully accounted for.

40 The Marshall Islands National Nuclear Commission, ***Nuclear Justice for the Marshall Islands***, 12.

41 Kabua quoted in Anita Hofschneider, "Marshall Islands Could Receive Billions Under Renegotiated US Treaty," Honolulu Civil Beat (January 22, 2023), https://www.civilbeat.org/2023/01/marshall-islands-could-receive-billions-under-renegotiated-u-s-treaty/.

Conclusion

In November 2022, the UN climate change conference closed with an agreement to establish a fund for loss and damage that covered the range of permanent and irreversible impacts of climate change. The Alliance of Small Island States (AOSIS) called the establishment of the fund "a win for our entire world."[42] The details of the fund are still under negotiation, as are the details of victim assistance for countries affected by nuclear testing under the TPNW. Nuclear and climate justice go hand in hand in the Pacific region, where the impact of both the nuclear legacy and climate change are existential threats to the people and their livelihoods. While the climate change process is separated from the nuclear disarmament process at international fora, they are inherently, intrinsically intertwined in the territories that were used by the nuclear powers as test sites for decades. These powers have not done enough to compensate the harms they have inflicted upon these communities, and they continue to be held accountable by the countries and territories with nuclear legacy until fair and sufficient means and mechanisms to remedy these harms have been found. What is fair and sufficient is up to the communities that have been affected to decide.

Children playing on the beach in Ambrym, Vanuatu (Credit: iStock/livcool)

42 AOSIS Chair COP27 Statement, (November 19, 2022), https://www.aosis.org/historic-loss-and-damage-fund-established-at-cop27-in-sharm-el-sheikh/.

About APLN

The Asia-Pacific Leadership Network for Nuclear Non-Proliferation and Disarmament (APLN) is a Seoul-based organisation and network of political, military, and diplomatic leaders and experts from across the Asia-Pacific region working to address global security challenges, with a particular focus on reducing and eliminating nuclear weapons risks.

The mission of APLN is to inform and stimulate debate, influence action, and propose policy recommendations designed to address regional security threats, with an emphasis on nuclear and other WMD (weapon of mass destruction)threats, and to do everything possible to achieve a world in which nuclear weapons and other WMDs are contained, diminished, and eventually eliminated.

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