

Analyse, inform and activate

LAKA

Analyseren, informeren, en activeren

Stichting Laka: Documentatie- en onderzoekscentrum kernenergie

De Laka-bibliotheek

Dit is een pdf van één van de publicaties in de bibliotheek van Stichting Laka, het in Amsterdam gevestigde documentatie- en onderzoekscentrum kernenergie.

Laka heeft een bibliotheek met ongeveer 8000 boeken (waarvan een gedeelte dus ook als pdf), duizenden kranten- en tijdschriften-artikelen, honderden tijdschriftentitels, posters, video's en ander beeldmateriaal. Laka digitaliseert (oude) tijdschriften en boeken uit de internationale antikernenergie-beweging.

De [catalogus](#) van de Laka-bibliotheek staat op onze site. De collectie bevat een grote verzameling gedigitaliseerde [tijdschriften](#) uit de Nederlandse antikernenergie-beweging en een verzameling [video's](#).

Laka speelt met oa. haar informatie-voorziening een belangrijke rol in de Nederlandse anti-kernenergiebeweging.

The Laka-library

This is a PDF from one of the publications from the library of the Laka Foundation; the Amsterdam-based documentation and research centre on nuclear energy.

The Laka library consists of about 8,000 books (of which a part is available as PDF), thousands of newspaper clippings, hundreds of magazines, posters, video's and other material. Laka digitizes books and magazines from the international movement against nuclear power.

The [catalogue](#) of the Laka-library can be found at our website. The collection also contains a large number of digitized [magazines](#) from the Dutch anti-nuclear power movement and a [video-section](#).

Laka plays with, amongst others things, its information services, an important role in the Dutch anti-nuclear movement.

Appreciate our work? Feel free to make a small [donation](#). Thank you.



www.laka.org | info@laka.org | Ketelhuisplein 43, 1054 RD Amsterdam | 020-6168294

Addressing Humanitarian and Environmental Harm from Nuclear Weapons

Fallout on Countries Downwind from French Pacific Nuclear Weapons Testing

Aotearoa New Zealand, Australia, Cook Islands, Fiji, Niue, Samoa, Tokelau, Tonga and Tuvalu

'[The] impact on our fragile ecology and the physical health and mental wellbeing of our people has been profound. We continue to experience epidemics of cancers, chronic diseases and congenital abnormalities as a result of the radioactive fallout.'

– Submission of Fiji, Nauru, Palau, Samoa and Tuvalu
to 2016 UN meeting on nuclear disarmament.

Executive Summary

Radioactive fallout from French Pacific atmospheric nuclear weapons tests (1966 to 1974) extended beyond of French Polynesia and was detected throughout the Pacific region, including: Aotearoa New Zealand, Australia, Cook Islands, Fiji, Niue, Samoa, Tokelau, Tonga and Tuvalu. Mexico and Peru also reported detecting fallout. UK, US and French South Pacific territories may too have been affected. Venting and leaching of radioactive materials from France's underground test sites into the ocean poses ongoing environmental risks. To date, there has not been a sufficient monitoring of the medical, psychological nor environmental impact of this fallout on the region. The



Figure 1: French atmospheric nuclear weapons test at Moruroa.
Photo: public domain.

populations of these countries – some 30 million people – may thus be considered at elevated risk of being victims of nuclear weapons testing. Pacific governments and civil society have played leading roles in efforts to address the harm of nuclear weapons, including testing. The 2017 Treaty on the Prohibition of Nuclear Weapons obligates assistance to victims and remediation of contaminated environments. These countries should make a concerted effort to ensure all states in the Pacific region – and beyond – sign and ratify the Treaty.

Recommendations

Pacific states and the international community should:

1. Sign and **RATIFY** the Treaty on the Prohibition of Nuclear Weapons.
2. Assess and **RESPOND** to the humanitarian needs of survivors, those of French nuclear weapons tests.
3. Survey and **REMEDiate** environments contaminated environments contaminated by French nuclear testing.
4. **RESPECT**, protect and fulfill the human rights of nuclear test survivors.
5. **RETELL** the stories of the humanitarian and environmental impact of the tests.

Background on French Pacific Nuclear Weapons Testing

Between 1966 and 1996, France conducted 179 nuclear weapons tests at Moruroa¹ Atoll (42 atmospheric; 137 underground) and 14 at Fangataufa Atoll (4 atmospheric; 10 underground) in French Polynesia. The nuclear explosions caused ‘intense radioactive pollution of marine ecosystems’ and ‘increased incidence of thyroid cancer in the local population’ mainly as a result of contaminated of the food and water supply.² The tests inflicted ‘extensive physical damage’ to the atolls themselves ‘with ongoing risks of collapse and leakage’; ‘radioactive, chemical and other waste on land, in lagoons and in the ocean remains both at the former testing sites and at a network of facilities and infrastructure supporting the massive nuclear weapons enterprise.’³

Until 1974, France’s Pacific nuclear tests were atmospheric, detonated at ground level, dropped from an airplane or suspended from a balloon. This was despite the

establishment of the Partial Test Ban Treaty in 1963 by the UK, USA and USSR, which banned atmospheric testing. Atmospheric tests are more likely to disperse radioactive material over wide areas. Radioactive particles were dispersed over much of French Polynesia, including its most populated island, Tahiti.⁴ However, the impact of French nuclear weapons testing extended far beyond French Polynesia. A comprehensive review by the International Physicians for the Prevention of Nuclear War (IPPNW) stated that ‘The whole South Pacific region could be considered a downwind community’ from French nuclear testing.⁵

Monitoring Fallout in Downwind Countries

Starting in 1957, Aotearoa New Zealand established a monitoring system to detect radiation levels, sampling air, water, milk and fish at stations across the Pacific (See Figure 2). Stations were located in countries for which Aotearoa New Zealand was the colonial authority (Cook Islands, Niue, Tokelau and Samoa) or were UK colonies

Key Indicators of Humanitarian, Human Rights and Environmental Harm

- **Monitoring systems of the Australian and Aotearoa New Zealand governments detected fallout from French Pacific nuclear testing across the South Pacific region, including in Aotearoa New Zealand, Australia, Cook Islands, Fiji, Niue, Samoa, Tokelau, Tonga and Tuvalu. The current population of these states – some 30 million people – may be considered at elevated risk of being victims of nuclear testing.**
- **A further 79,000 people live in the non-self-governing territories administered by the US, UK and France that were in the vicinity, but were not included in Australia or Aotearoa New Zealand’s monitoring systems; it is possible they too may be considered at elevated risk of being victims of nuclear testing**
- **Mexico and Peru also reported fallout from French Pacific nuclear testing.**
- **There is evidence of ongoing venting and leaching of radiation from the test sites in French Polynesia/Te Ao Maohi, which may pose a threat to the marine environment of the South Pacific.**

¹ Note on spellings and place names: When covering the colonial period, the report uses English or French names places, such as ‘Christmas Island’ and ‘Gilbertese.’ When referring to contemporary post-colonial states where there is wide consensus on names, the report will use their naming and spelling conventions, such as ‘Kiritimati’ and ‘I-Kiribati.’ Where there is a persistent dispute over names I will use both, listing first the legally-recognized name, such as ‘French Polynesia/Te Ao Maohi.’ Given the emerging convention, the report uses Aotearoa New Zealand as the country name that includes both the indigenous and Anglicized names. Unless their ethnicity is specified, people from New Zealand/Aotearoa are referred to as ‘New Zealanders.’ For ‘Moruroa’, the report uses the indigenous Maohi spelling, rather than the French ‘Mururoa’, since that is also the conventional spelling in English.

² Remus Pravalie. (2014) ‘Nuclear Weapons Tests and Environmental Consequences: A Global Perspective.’ *Ambio*. 43(6). pp. 729-744.

³ Tilman A. Ruff. (2015) ‘The humanitarian impact and implications of nuclear test explosions in the Pacific region.’ *International Review of the Red Cross*. 97(899). pp. 775-813.

⁴ UNSCEAR. (2000) ‘Annex C: Exposures to the public from man-made sources of radiation.’ *Sources and Effects of Ionizing Radiation*. Vienna, UNSCEAR. Table 19. See also: Tilman A. Ruff. (2015) ‘The humanitarian impact and implications of nuclear test explosions in the Pacific region.’ *International Review of the Red Cross*. 97(899). pp. 775-813.

⁵ IPPNW. (1991) *Radioactive Heaven and Earth: The Health and Environmental Effects of Nuclear Weapons Testing In, On, and Above the Earth*. London, Zed Books. p. 141.

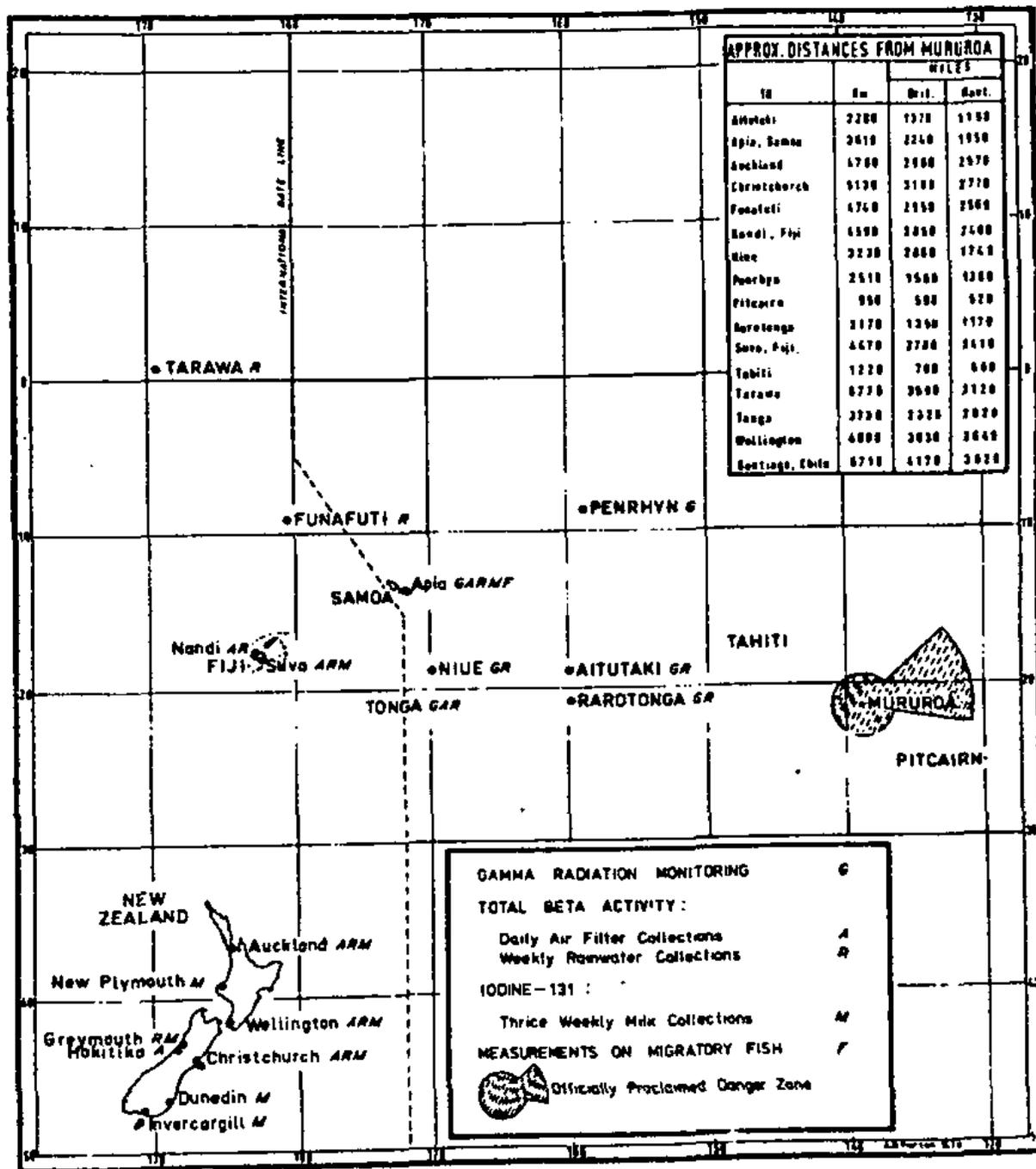


Figure 2: Map of New Zealand's Radiation Monitoring Stations in the South Pacific. Apia. Source: 1974 New Zealand submission NRL-F/51 to *New Zealand vs. France*, p. 305.

(Fiji, Tonga and the Gilbert and Ellice Islands Colony – now two independent states: the Republic of Kiribati and Tuvalu).

The Aotearoa New Zealand monitoring system detected radioactive fallout from French atmospheric nuclear tests in Aotearoa New Zealand, Cook Islands, Fiji, Niue, Samoa, Tokelau, Tonga and Tuvalu. The entire current

population of these states — almost 6 million people — may thus be considered at elevated risk of being victims of nuclear testing. Mexico and Peru also reported detecting fallout from French Pacific nuclear testing.

Aotearoa New Zealand continued to operate many of these stations in the years after the states became

Table 1: Nuclear Weapons Test Explosions in the Pacific Region

Affected State/Territory	Testing State(s)	Nuclear Explosions on Territory			
		Atmospheric	Underground	Total Number of Explosions	Total Yield (MT)
Amchitka Island, Alaska, USA	USA		3	3	5.88
Australia	UK	12		12	0.22
French Polynesia, French Non-Self-Governing Territory	France	46	147	193	13.24
Johnston Atoll, US Territory	USA	12		12	20.60
Republic of the Marshall Islands	USA	66		66	108.49
Republic of Kiribati	UK, USA	33		33	31.12
Pacific Ocean (High Seas)	USA	4		4	0.65
TOTAL		173	150	323	180.20

Note: The US Operation Hardtack I Yucca 1.7 kiloton test was a balloon launched from Enewetak Atoll in the Marshall Islands and detonated 85 miles northeast. Here it is counted under the Pacific Ocean (High Seas) total; it is often, justifiably, counted in the total for the Marshall Islands.

independent. At the 2014 conference on the Humanitarian Impact of Nuclear Weapons in Nayarit, Mexico, Ambassador Dell Higgin of Aotearoa New Zealand noted that, ‘at some financial cost, and entirely as a result of this [French] testing – New Zealand continues monthly radiation testing of NZ milk products in order to be able to reassure our export destinations about NZ’s radiation levels. We do similar analysis of rainwater samples on a weekly basis.’⁶

Fiji, Samoa, Tonga and Tuvalu are all now full members of the United Nations. When Samoa gained its independence in 1962, it signed a Treaty of Friendship with New Zealand, maintaining close ties. Aotearoa New Zealand and Samoa committed to assisting each other in protecting common diplomatic interests. Cook Islands, Niue and Tokelau are ‘Realm countries’ with strong ties to Aotearoa New Zealand. Cook Islands and Niue are self-governing, but have free association agreements with Aotearoa New Zealand which has generally taken responsibility for Cook Islands and Niue’s diplomatic relations and defense.⁷ Nevertheless, they are able to join some UN organizations and treaties. The Tokelau government and Aotearoa New Zealand refer to Tokelau as a separate country from Aotearoa New Zealand. However, Tokelau is considered by the UN to be a Non Self-Governing Territory. People from Cook Islands, Niue and Tokelau are all considered Aotearoa New Zealand citizens. The sovereignty status of

Pacific states and territories is summarized in the Annex to this report.

The US had its own network of radiation monitoring stations throughout the Pacific region, including in Tutuila, American Samoa.⁸ However, data on whether fallout extended to the UK, US and French South Pacific territories (American Samoa [Non-Self-Governing Territory administered by the US]; Pitcairn, Henderson, Ducie and Oeno Islands [Non-Self-Governing Territory administered by the UK]; and Wallis and Futuna/Uvea mo Futuna [French Territory]) is not publically available. However, they lie in the vicinity of countries where fallout was detected. It is thus quite possible the 79,000 people living in these territories may also be considered at elevated risk of being victims of nuclear testing.

The lack of available data regarding fallout on US, UK and French territories highlights a broader problem when trying to track the impact of nuclear weapons testing in the Pacific. The three states tested 318 nuclear devices in the region, in the Marshall Islands, French Polynesia/Te Ao Maohi, Kiribati, Australia, the US territory of Johnston/Kalama Atoll and Amchitka Island, Alaska.

⁶ Dell Higgin. (2014) ‘Session II: Statement by Ambassador Dell Higgin.’ <<http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/nayarit-2014/statements/NewZealand2.pdf>>.

⁷ New Zealand Department of Foreign Affairs and Trade. (n.d.) ‘Our relationship with Niue.’ <<https://www.mfat.govt.nz/en/countries-and-regions/pacific/niue/>>; New Zealand Department of Foreign Affairs and Trade. (n.d.) ‘Our relationship with Cook Islands.’ <<https://www.mfat.govt.nz/en/countries-and-regions/pacific/cook-islands/>>.

⁸ L. Berkhouse, et al. (1983, February). *Operation Dominic I – 1962. Technical report*. Defense Nuclear Agency, Department of Defense. DNA6040F. p. 57.

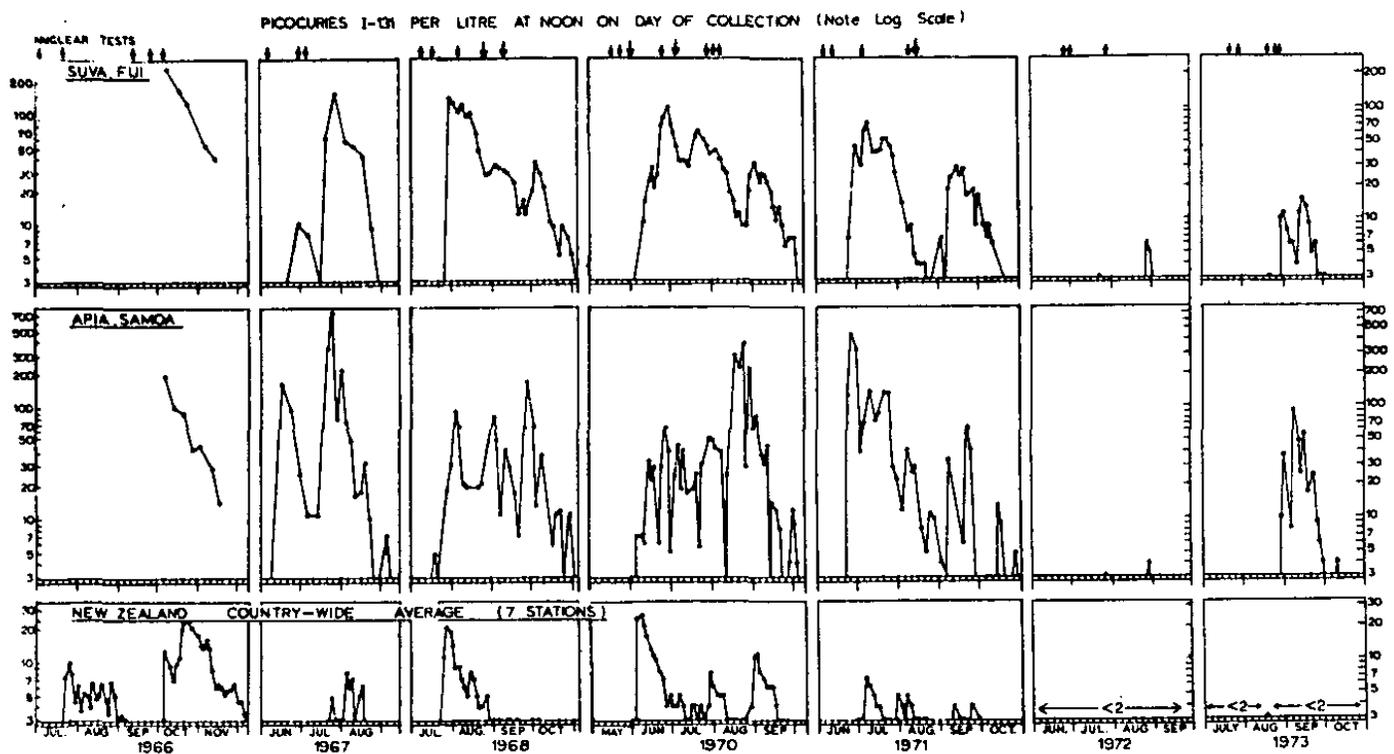


Figure 3: Iodine-131 in milk during each timeframe of monitoring by the New Zealand radiation monitoring system, from 1966 to 1973. The arrows at the top of the chart denote the timing of the French atmospheric nuclear weapons tests. Source: 1974 New Zealand submission NRL-F/51 to *New Zealand vs. France*. p. 332.

However, the tester states, through systematic secrecy, obfuscation and, at times, outright intimidation, have made it difficult to access information on the extent of the humanitarian, human rights and environmental harm caused by nuclear testing, including from fallout.⁹

However, the Aotearoa New Zealand system offers a rare instance of a multi-national fallout monitoring effort by a non-nuclear-armed state. Moreover, much of the data and analysis has been made available to the public, first through cases filed against France at the International Court of Justice (ICJ) and later on the website of the Ministry of Health.¹⁰

The Aotearoa New Zealand monitoring system was only fully established after the UK tests in Australia and Kiribati were finished. The monitoring stations were also too far from the Marshall Islands to offer in-depth insight into

fallout from those tests. It captured, instead, a picture of the extraterritorial impact of French Pacific nuclear testing.

Australia also established a system for monitoring extra-territorial fallout. However, data and documentation from their system has only selectively been released to the public, notably in the 1973 ICJ case against France. Nevertheless, a report filed with the ICJ described a ‘26 station network’ sampling ‘major milk supplies’ and doing ‘air filter sampling.’ This network detected traces of fallout from the French Pacific nuclear testing and so it is possible the 24 million Australians may also be considered at elevated risk of being victims of nuclear testing¹¹ Where Australian data was available at the time of writing, it has been included in this report.

As a result of relying mostly on the Aotearoa New Zealand government data and the data used by Australia in its suit against France, this report focuses on fallout downwind

⁹ Tilman A. Ruff. (2015) ‘The humanitarian impact and implications of nuclear test explosions in the Pacific region.’ *International Review of the Red Cross*. 97(899). pp. 775-813.

¹⁰ Reports have been archived at: International Disarmament Institute. (2018) ‘Annual Reports on Pacific Fallout from New Zealand Monitoring System.’ <<https://disarmament.blogs.pace.edu/nuclear-test-archive/new-zealand-fallout-monitoring/annual-reports-on-pacific-fallout-from-new-zealand-monitoring-system/>>.

¹¹ Australia. (1974) ‘Fall-Out in Australia from French Nuclear Tests in Polynesia during 1973.’ *Pleadings, Oral Arguments, Documents: Nuclear Test Cases, Volume I: Australia vs. France*. <<https://www.icj-cij.org/files/case-related/58/11831.pdf>>. p. 548.

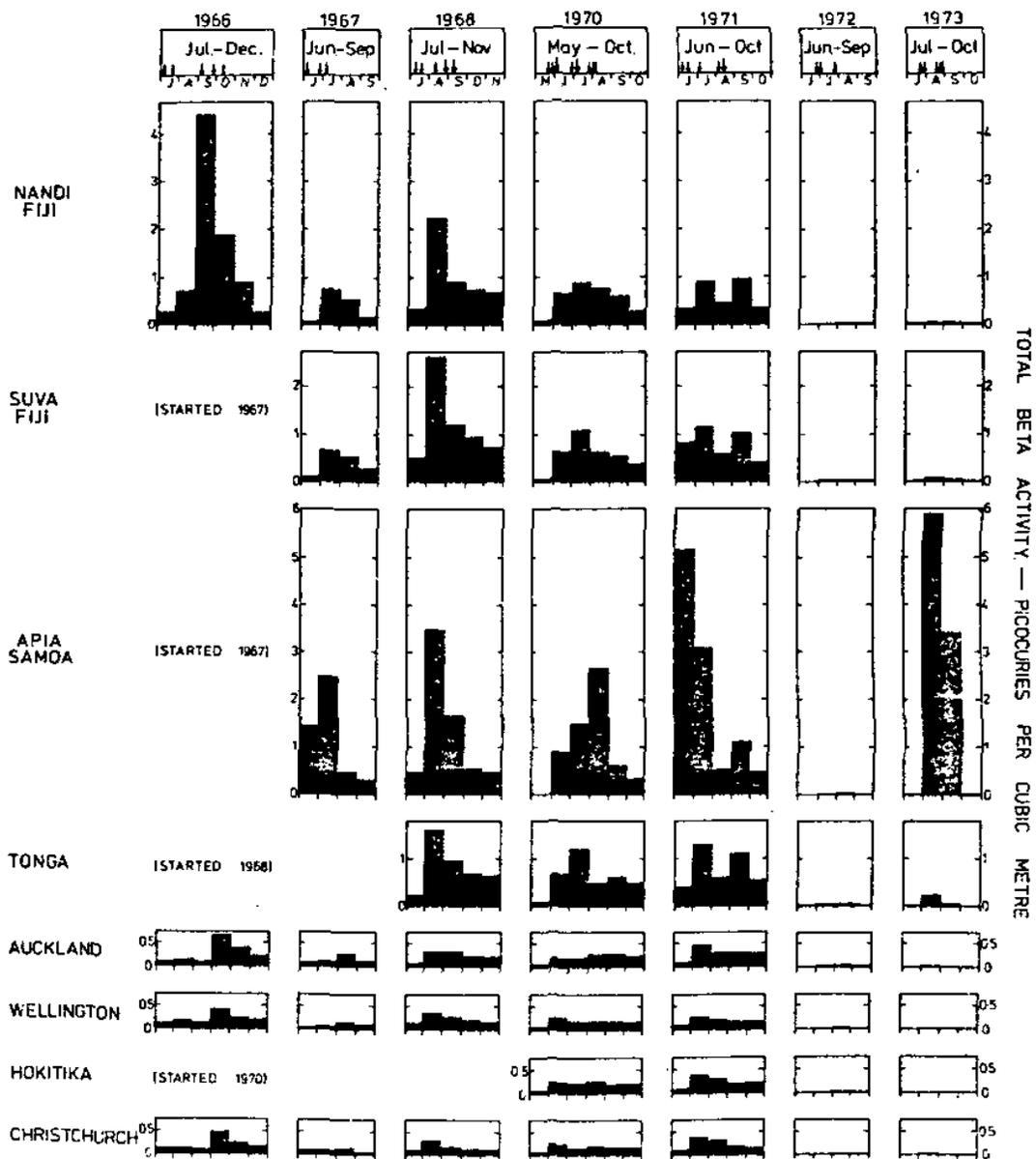


Figure 4: Average monthly air radioactivity during each timeframe of monitoring by the New Zealand radiation monitoring system, from 1966 to 1973. Source: 1974 New Zealand submission NRL-F/51 to *New Zealand vs. France*. p. 314.

from Moruroa and Fangataufa atmospheric tests. However, this should not be taken to mean that some of the countries examined were not also impacted by other nuclear test programs.

Noting evidence that many of the monitoring programs in the Pacific and Australia in particular were deeply flawed, Dr Tilman Ruff points out, ‘the sound epidemiological principle that *absence of evidence of effects does not constitute*

evidence of absence of effect applies all too often to the many settings where inadequate data have been gathered.’¹²

For instance, Tauriki Meyer of the Cook Islands recalls that in 1957, when she was ten years old on Rakahanga Atoll, she saw a bright flash of light in the sky, tremors, the lagoon changing color, and multiple fish floating to the surface dead. Report suggest that she was witnessing the effects of a UK nuclear test at Malden Island in Kiribati. She and others living in the Northern Cook Islands group worry that they ‘may have been exposed to fallout from a

¹² Tilman Ruff. (2015) ‘The humanitarian impact and implications of nuclear test explosions in the Pacific region.’ *International Review of the Red Cross*. 899. p. 800. Emphasis added.

series of atmospheric thermonuclear tests.’ Similarly, Dr. Terepa’i Moate, later Cook Islands’ Prime Minister, reported seeing the flash of nuclear test while on Manihiki Island. He ‘told a Cook Islands Research Association Conference in 2008 that he’d treated fatal cases of diarrhea and vomiting, and seen people with enlarged thyroids, but no-one made any connection to nuclear testing.’ However, ‘No information was released’ by the UK, ‘and no studies have been done about effects of the nuclear explosions on weather patterns, ocean currents, rainfall, migratory fish, food sources or human health.’¹³

Tropospheric Fallout

‘Fallout’ from atmospheric nuclear weapons tests can be divided roughly into two categories: tropospheric fallout and stratospheric fallout.

Tropospheric fallout results from fission products – radioactively-charged particles such as parts of the bomb, debris from the ground and water – being thrust by the detonation into the lower atmosphere (below 15 km from the earth’s surface). Nuclear tests that occur close to the ground (or ocean) are particularly prone to causing tropospheric fallout; particles are often highly radioactive and have a short half-life. The fission products return to the earth’s surface relatively quickly – within weeks or months – either falling on their own or along with precipitation in what is called a ‘rain out’ (see Figure 5), close to the same latitude as the detonation. Tropospheric fallout often contains high concentrations of Iodine-131. Iodine-131 is highly radioactive and is absorbed into the human thyroid. It becomes concentrated in milk because cows graze over wide areas, posing serious dangers to human health. Children are particularly at risk because their thyroids are smaller and thus more vulnerable to damage. Tropospheric fallout from the French Pacific tests tended to drift east and so the French government established a controversial ‘danger zone’ east of Moruroa Atoll and at Fangataufa Atolls, closed to shipping (which many saw as a violation of the freedom of the high seas). However, wind patterns over the ocean do not remain constant and there are occasional eddies that ‘blowback’ fallout in other directions.¹⁴

On 11 September 1966, the *Betelgeuse* test detonated a 120 kiloton device from a tethered balloon 600 meters in the

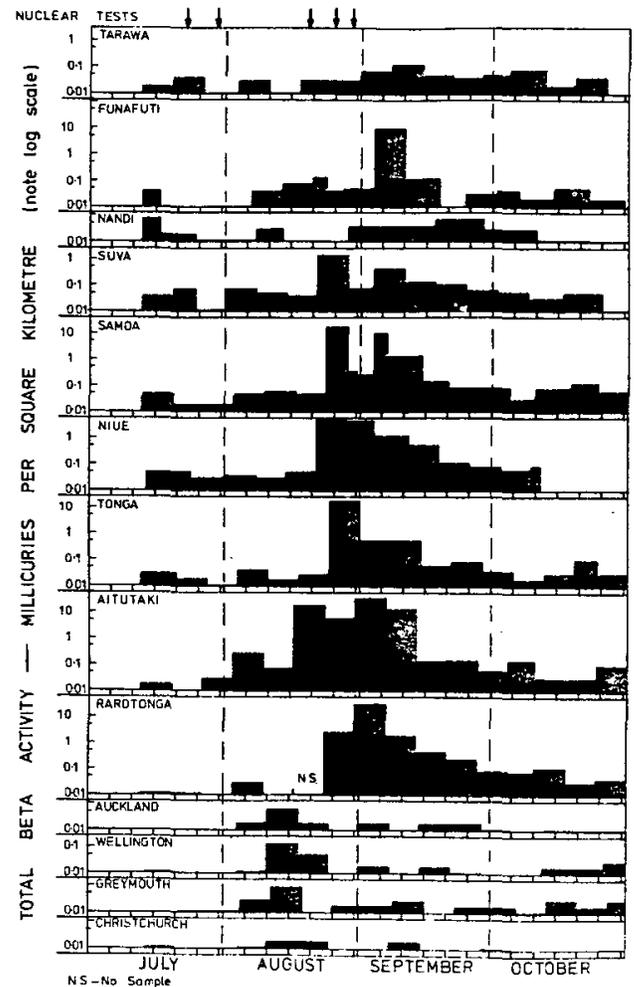


Figure 5: Average daily deposition of fission products in rain in 1973, detected by the New Zealand radiation monitoring system. The arrows at the top of the chart denote the timing of the French 1973 atmospheric nuclear weapons tests. Source: 1974 New Zealand submission NRL-F/51 to New Zealand vs. France. p. 328.

air. There were warnings that winds were blowing toward populated islands in French Polynesia and beyond. However, since French President Charles de Gaulle had travelled to French Polynesia to witness the test, it was ordered to proceed. He witnessed it from a naval cruiser 25 miles from the detonation. The following day, tropospheric fallout in the form of radioactive rain fell on the islands of Samoa, more than 3,700 kilometers away. The Aotearoa New Zealand monitoring station detected

¹³ Karin Williams. (n.d.) ‘Cook Is.’ *Britain’s Pacific Nukes*. <<https://pacificnukes.wordpress.com/cook-is/>>.

¹⁴ Details on the patterns and characteristics of fallout from French Pacific atmospheric nuclear weapons tests can be found in the scientific evidence submitted by New Zealand in its 1973 International Court of Justice case against France, such as: New Zealand. (1973) ‘Annex VII: Effects of French Nuclear Testing on Radiation Levels in New Zealand.’ Request for the Indication of Interim Measures of Protection Submitted by the Government of New Zealand. pp. 80-86. <<http://www.icj-cij.org/files/case-related/59/10731.pdf>>.

TABLE 4. TOTAL BETA ACTIVITY OF WEEKLY RAINWATER SAMPLES 1973 (cont.)

1973			Summary and Comparison			
Date	Rain (cm)	Deposition (mCi/km ²)	Year	Total Deposition (mCi/km ²)	Average Concentration (pCi/litre)	Dose to Infinity (mRAD)
Niue:						
July	13	2.5				
	23	1.3				
	31	0.7				
Aug.	7	0.5	1966	1		
	14	0.9	1967	1		
	21	4.0	1968	1		
	23	5.9	1970	1		
Sep.	3	2.2	1971	1		
	11	2.5	1972	6.3	17	0.2
	18	3.1	1973	79.9	312	0.8
	25	1.9				
Oct.	2	<0.1				
	9	<0.1				
Total	25.6	79.9				

Figure 6: Radioactivity of rainwater samples in Niue, detected by the New Zealand radiation monitoring system. Source: 1974 New Zealand submission NRL-F/51 to *New Zealand vs. France*. p. 323.

increased 'background radioactivity by a factor of 1,850, from 0.2 GBq/km² to 370 GBq/km² in Apia.¹⁵

Elevated radioactivity was also detected by Aotearoa New Zealand at its stations in Niue, Cook Islands and Fiji over the following days, indicating that they too were subject to tropospheric fallout from the *Betelgeuse* test. Further blowback of tropospheric fallout was detected in Samoa following the July 1967 tests and the August 1970 tests (in

which fallout was also detected in rainwater samples in Tuvalu and the Cook Islands).¹⁶ In 1973, tropospheric fallout was detected from the July-August tests in Cook Islands, Fiji, Niue, Samoa, Tonga, and Tuvalu. Low levels of Iodine-131 were detected in milk in Fiji and Samoa in

¹⁵ For background on the *Betelgeuse* test see: Tillman Durdin. (12 September 1966) 'De Gaulle Sees French Nuclear Test in Pacific.' *The New York Times*. <<https://www.nytimes.com/1966/09/12/archives/de-gaulle-sees-french-nuclear-test-in-pacific-watches-from-a.html>>; G.E. Roth et al. (1972) *Fallout from Nuclear Weapons Tests Conducted by France in the South Pacific from June to August 1971*. Christchurch: New Zealand National Radiation Laboratory; A.S. Burrows, et al. (1989) *French Nuclear Testing 1960-1988*. Washington DC: Natural Resources Defense Council; Bengt Danielsson. (1990) 'Poisoned Pacific: The Legacy of French Nuclear Testing.' *Bulletin of Atomic Scientists*. 46(2). pp. 22-31; IPPNW. (1991) 'Environmental Effects of French Nuclear Testing.' <<http://cyberplace.org.nz/peace/nukenviro.html>>; Stewart Firth. (15 June 1995) 'Sending a Frigate Would Maintain Rage.' *Sydney Morning Herald*. p. 7; IPPNW. (n.d.) 'Fangataufa and Moruroa, French Polynesia.' *Hibakusha Worldwide*. <<http://www.nuclear-risks.org/en/hibakusha-worldwide/fangataufa-and-moruroa.html>>; Tilman A. Ruff. (2015) 'The humanitarian impact and implications of nuclear test explosions in the Pacific region.' *International Review of the Red Cross*. 97(899). pp. 775-813.

¹⁶ Details on tropospheric fallout on Western Samoa from: New Zealand. (1973) 'Annex VII: Effects of French Nuclear Testing on Radiation Levels in New Zealand.' Request for the Indication of Interim Measures of Protection Submitted by the Government of New Zealand. *Nuclear Tests (New Zealand vs. France)*. pp. 81-82. <<http://www.icj-cij.org/files/case-related/59/10731.pdf>>.

FIGURE 6. THE ORIGIN OF FRESH FISSION PRODUCTS IN RAINWATER SAMPLES 1973

(as determined by measurement of the rate of radioactive decay)

The vertical scale gives values of $A^{-0.833}$ where A is the relative activity of the samples at successive measurement times. The estimated time of origin is given by the point where the extrapolated line of best fit cuts the date axis.

The collection period is shown thus: ∇ , and bomb tests thus: \circ .

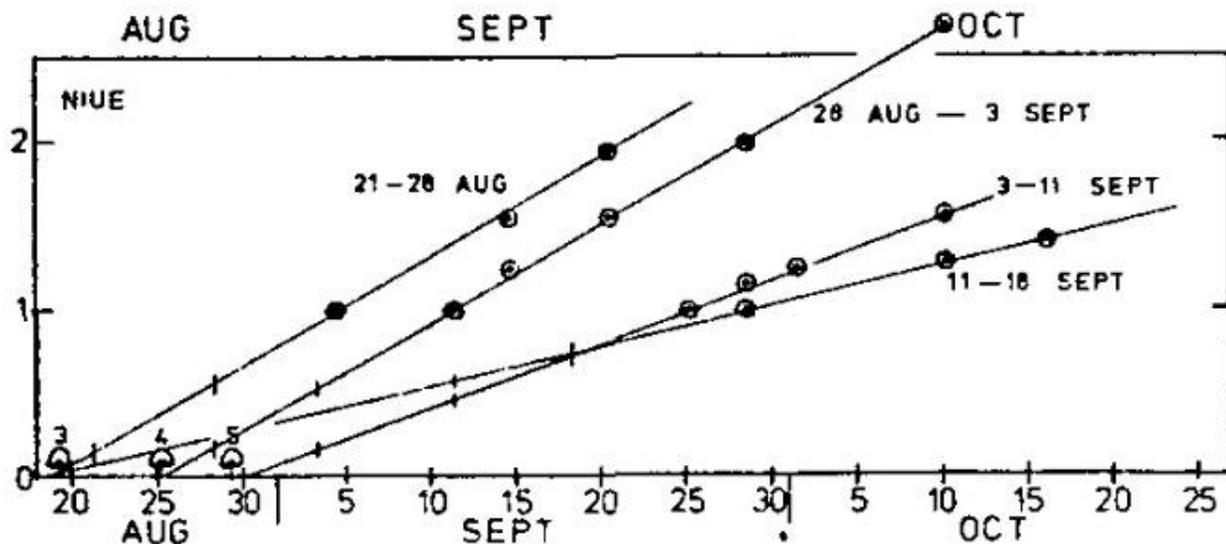


Figure 7: Tracing the origin of fission products detected in of rainwater samples in Niue by the New Zealand radiation monitoring system. Source: 1974 New Zealand submission NRL-F/51 to *New Zealand vs. France*, p. 329.

‘most samples collected from late August to the end of September.’¹⁷ (See Figures 3-7).

It is possible that the 1966, 1967, 1970 and 1973 blowback fallout could also have fallen on American Samoa (a US territory) and Wallis and Futuna (a French territory), given their proximity to the other islands where fallout was detected. However, these territories were not included in Aotearoa New Zealand’s monitoring system and so evidence is not publically available.

In documents filed with the ICJ, Australia reported that ‘Continuous monitoring of the Australian milk supplies for iodine-131 was maintained from 25 July to 23 October 1973, following the nuclear tests in Polynesia. This monitoring revealed that iodine-131 was present in the milk supplies between 14 August and 4 September.’ This

demonstrates that tropospheric fallout from the 1973 blowback reached as far as Australia.¹⁸

Stratospheric Fallout

Stratospheric fallout results from radioactive particles being thrust into the upper atmosphere, such as by powerful nuclear detonations of more than a megaton. These particles may drift for months or even several years before they return to the earth’s surface. Highly radioactive particles with a short half-life decay while remaining in the upper atmosphere. However, strontium-90 and caesium-137, which have long half-lives, are of particular concern, especially as they concentrate through the food chain. Strontium-90, with a half-life of 28 years, deposits in human bones and emits beta radiation over many years, posing a somatic hazard (to the nervous system). Children

¹⁷ New Zealand. (1973) ‘Report of November 1973 by the New Zealand National Radiation Laboratory Issued by the New Zealand Department of Health under No. NRL-F/51 and Entitled “Environmental Radioactivity Fall-out from Nuclear Weapons Tests Conducted by France in the South Pacific during July and August 1973, and Comparisons with Previous Test Series.”’ *Nuclear Tests (New Zealand vs. France)*, p. 309. <<http://www.icj-cij.org/files/case-related/59/9459.pdf>>.

¹⁸ Australia. (1974) ‘Iodine-131 in Australian Milk Supplies and Estimated Thyroid Doses for Young Children Following Nuclear Tests by France in Polynesia During July and August 1973.’ *Pleadings, Oral Arguments, Documents: Nuclear Test Cases, Volume I: Australia vs. France*. <<https://www.icj-cij.org/files/case-related/58/11831.pdf>>. p. 538; Australia. (1974) ‘Fall-Out in Australia from French Nuclear Tests in Polynesia during 1973.’ *Pleadings, Oral Arguments, Documents: Nuclear Test Cases, Volume I: Australia vs. France*. <<https://www.icj-cij.org/files/case-related/58/11831.pdf>>. p. 548.

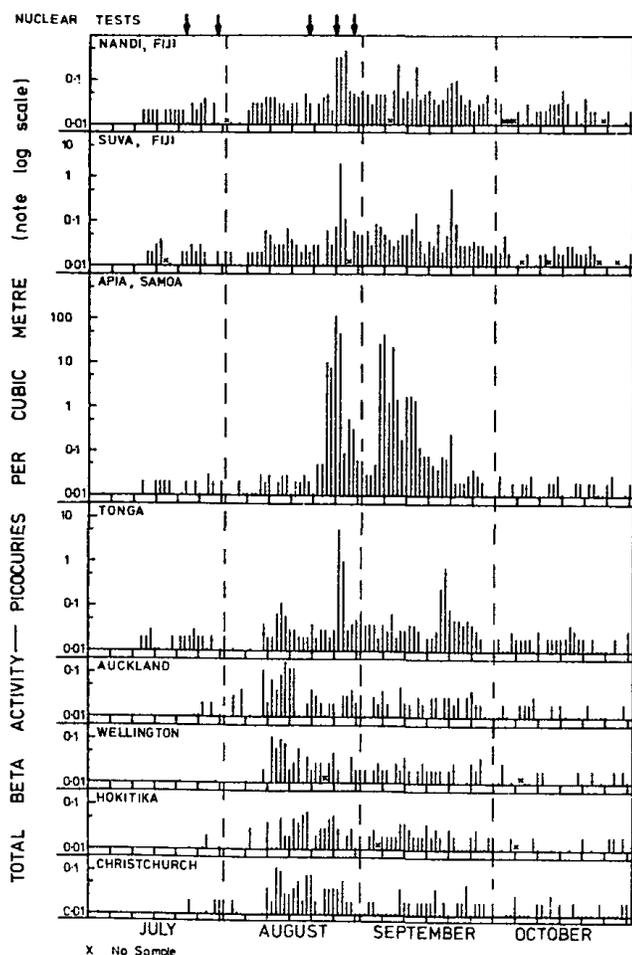


Figure 8: Daily air radioactivity in 1973, detected by the New Zealand radiation monitoring system. Note the arrows at the top of the chart denote the timing of the French 1973 atmospheric nuclear weapons tests. Source: 1974 New Zealand submission NRL-F/51 to *New Zealand vs. France*. p. 314.

are especially at risk, if their skeletons are in development at the time of exposure. Caesium-137 is both a threat when

it falls on a person's skin and also when they eat products in which it has deposited. While it is eliminated from the body faster, caesium-137 emits both beta and gamma radiation and can cause both somatic and genetic damage.¹⁹

According to Aotearoa New Zealand's submission to the ICJ in its 1973 case against France, seeking to block further nuclear testing, stratospheric fallout tends to fall 'in the mid latitudes of the hemisphere in which the nuclear weapons tests were conducted.' This means it that 'tropical Pacific islands receive less of the stratospheric long-lived fallout than countries in the temperate zone, such as New Zealand.'²⁰ Nevertheless, stratospheric fallout from French Pacific atmospheric tests was also detected as far as the Cook Islands, Fiji, Niue, Tonga, Tokelau, Tuvalu and Samoa, as well as Mexico and Peru.²¹

Australia's filing with the ICJ asserted that 'artificial radio-nuclides – mainly fresh fission products – were present in ground-level air' between 6 and 27 August 1973. Australia claimed that 'on the statistical evidence' these particles 'can be attributed unambiguously to fresh fall-out', not to earlier nuclear tests.²² Australia filed with the court the report of a 1973 meeting between Australian and French scientists at the Australian Academy of Science, which noted that Iodine-131, Strontium-90 and Caesium-137 had been detected in Australia as a result of fallout French nuclear tests. However, the Australian and French scientists disagreed on the implications of what were described as low levels of radiation. The Australian scientists estimated that 'as a result of the French tests that have already occurred, there could be approximately one death or serious disability in Australia from genetic causes during the first generation and 18 deaths in all subsequent generations; these are minimum estimates, and maximum estimates based on present information ... would be approximately 15 times these figures.'²³ They concluded

¹⁹ New Zealand. (1973) 'Annex VII: Effects of French Nuclear Testing on Radiation Levels in New Zealand.' Request for the Indication of Interim Measures of Protection Submitted by the Government of New Zealand. *Nuclear Tests (New Zealand vs. France)*. p. 82. <<http://www.icj-cij.org/files/case-related/59/10731.pdf>>.

²⁰ New Zealand. (1973) 'Annex VII: Effects of French Nuclear Testing on Radiation Levels in New Zealand.' Request for the Indication of Interim Measures of Protection Submitted by the Government of New Zealand. *Nuclear Tests (New Zealand vs. France)*. p. 82. <<http://www.icj-cij.org/files/case-related/59/10731.pdf>>.

²¹ H.R. Atkinson, et al. (1983) *Report of a New Zealand, Australian, and Papua New Guinea Scientific Mission to Moruroa Atoll, October-November 1983*. Wellington, New Zealand Ministry of Foreign Affairs; French Atomic Energy Commission. (1988) 'Memorandum of the Directorate for Nuclear Test Centers, August 25, 1988.' Villecoublay, France; Bengt Danielsson. (1990) 'Poisoned Pacific: The Legacy of French Nuclear Testing.' *Bulletin of Atomic Scientists*. 46(2). pp. 22-31; IPPNW. (n.d.) 'Fangataufa and Moruroa, French Polynesia.' *Hibakusha Worldwide*. <<http://www.nuclear-risks.org/en/hibakusha-worldwide/fangataufa-and-moruroa.html>>.

²² Australia. (1974) 'Estimated External Gamma-Radiation Dose to the Whole Body from Fall-Out over Australia following Nuclear Tests by France in Polynesia during July and August 1973.' *Pleadings, Oral Arguments, Documents: Nuclear Test Cases, Volume I: Australia vs. France*. <<https://www.icj-cij.org/files/case-related/58/11831.pdf>>. p. 539.

²³ 'Report of Meeting between Australian and French Scientists, 7-9 May 1973, at the Australian Academy of Science, Canberra.' In: Australia. (1974) *Pleadings, Oral Arguments, Documents: Nuclear Test Cases, Volume I: Australia vs. France*. <<https://www.icj-cij.org/files/case-related/58/11831.pdf>>. pp. 540-544.

with a precautionary argument, calling for an end to French nuclear tests. The French scientists disputed these conclusions, arguing that the Australian scientists had ‘greatly overestimated’ the risks.²⁴

In a 22 July 1973 letter to the French Foreign Minister, the Australian Prime Minister asserted that a French atmospheric test scheduled for that day ‘will cause widespread radio-active fall-out’ and that ‘There is a virtual certainty that this will include the deposit of radio-active fall-out on Australian territory.’²⁵

An official Working Paper submitted by Fiji, Nauru, Palau, Samoa and Tuvalu to the 2016 Open-ended Working Group taking forward multilateral nuclear disarmament negotiations in Geneva, highlighted the ‘unique perspective of Pacific island states’ having ‘suffered greatly as a result of half a century of nuclear testing in our region. ... [The] impact on our fragile ecology and the physical health and mental wellbeing of our people has been profound. We continue to experience epidemics of cancers, chronic diseases and congenital abnormalities as a result of the radioactive fallout that blanketed our homes and the vast Pacific Ocean on which we depend for our livelihoods. ... [Pacific people] suffered, and continue to suffer, untold anguish, heartache, and pain.’²⁶

In 1995, Cook Islands’ then minister of agriculture and conservation Vaine Tairea, told *New Scientist* that many older people ‘refusing to eat fish caught on the eastern side of the islands – the side facing Mururoa.’ While he noted that ‘the evidence of contamination is anecdotal’, in the same year, ‘14 doctors from the islands signed an open letter claiming that leukaemias, cancers and fish poisoning had increased’ in Cook Islands, as a result of fallout from French nuclear testing.²⁷

To date, there has not been a comprehensive survey of the medical, psychological nor environmental impact of this fallout on people living in the region. A 2015 article in the *International Review of the Red Cross* decried the ‘dereliction of



Figure 9: New Zealand’s legal representatives in the ICJ nuclear test case in The Hague, 1973 (left to right) Solicitor General R. C. Savage, Attorney General Martyn Finlay and R. Q. Quentin-Baxter. Photo: www.teara.govt.nz.

responsibility to monitor the effects of profoundly hazardous activities, analyse and disseminate data, and respond appropriately in relation to nuclear testing’ in the Pacific region.²⁸

However, Aotearoa New Zealand’s submissions in *New Zealand vs. France* outlined the potential health effects of fallout from French atmospheric nuclear weapons testing: ‘Somatic effects may involve slow destruction, particularly of the blood-forming tissues, organic lesions and destruction of the body’s natural means of protection. Later somatic lesions may appear in the form of leukemia and other malignant diseases, cataracts, skin diseases, impairment of fertility and non-specific ageing. Genetic effect may result from irradiation of the gonads.’²⁹ Women and girls are particularly vulnerable to the health effects of ionizing radiation. More recent research from other places has also shown that radioactive fallout can have long-term and multigenerational health consequences including elevated rates of cancer, heart disease and infertility.³⁰

²⁴ ‘Report of Meeting between Australian and French Scientists, 7-9 May 1973, at the Australian Academy of Science, Canberra.’ In: Australia. (1974) *Pleadings, Oral Arguments, Documents: Nuclear Test Cases, Volume I: Australia vs. France*. <<https://www.icj-cij.org/files/case-related/58/11831.pdf>>. p. 542.

²⁵ ‘Note of 22 July 1973 from the Australian Prime Minister and Minister of Foreign Affairs to the French Foreign Minister.’ In: Australia. (1974) *Pleadings, Oral Arguments, Documents: Nuclear Test Cases, Volume I: Australia vs. France*. <<https://www.icj-cij.org/files/case-related/58/11831.pdf>>. p.

²⁶ Fiji, Nauru, Palau, Samoa and Tuvalu. (3 March 2016) *Elements for a treaty banning nuclear weapons*. A/AC.286/WP.14. Geneva, UN General Assembly. <<http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/OEWG/2016/Documents/WP14.pdf>>.

²⁷ Ian Anderson. (2 September 1995) ‘Fallout in the South Pacific.’ *NewScientist*. <<https://www.newscientist.com/article/mg14719932-300-fallout-in-the-south-pacific/>>.

²⁸ Tilman A. Ruff. (2015) ‘The humanitarian impact and implications of nuclear test explosions in the Pacific region.’ *International Review of the Red Cross*. 97(899). p. 800.

²⁹ New Zealand. (1973) Application Instituting Proceedings submitted by the Government of New Zealand. *Nuclear Tests (New Zealand vs. France)*. p. 6. <<https://www.icj-cij.org/files/case-related/59/9447.pdf>>.

³⁰ e.g. M.A. Wahab et al. (2008) ‘Elevated chromosome translocation frequencies in New Zealand test veterans.’ *Cytogenetic and Genome Research*. 12(2). pp. 79-87; Rebecca Miles, et al. (2011) *British Nuclear Test Veterans Health Needs Audit Commissioned by the UK Ministry of Defence*. Miles and Green Associates.

Aotearoa New Zealand's submissions also identified potential environmental problems, with the health effects of ionizing radiation also impacting 'the living natural resources of the sea, especially fish and plankton. Migratory species of such living natural resources may carry both somatic and genetic effects beyond the range of fallout...and can affect the protein diet of other species, including man [*sic*], in widely distributed areas.'³¹ More recent environmental research has confirmed that nuclear fallout can have pose persistent hazards.³² A review of the cancer risks from nuclear weapons test fallout in *American Scientist* concluded that 'Exposures 50 years ago will continue into the future.'³³ 'The more we learn about the health effects of ionizing radiation' states a peer-reviewed article in the *International Review of the Red Cross*, 'the greater the effects evident for a given radiation dose.'³⁴ It notes that 'For intake of fluid containing the radioactive isotope strontium-90, infant girls exposed to the same level of contamination are assessed to have a 20.6-fold higher risk of breast cancer than women aged 30 years. For the same level of contamination of ingested fluid with iodine-131, the risk for infant girls compared with 30-year-old women is 32.8 times higher. This means that for the same level of radioactive contamination, the cumulative breast or thyroid cancer risk by ingestion over the first five years of life for girls is greater than that accumulated by women over their entire adult lives.'³⁵

In this context, the entire current population of the South Pacific region – more than 30 million people – may be considered potential victims of French nuclear weapons testing. Efforts to support the Pacific region's sustainable development, particularly the improvement of health

services, can be considered assistance to victims of nuclear weapons testing.

France halted atmospheric nuclear testing in 1974, under pressure from the international community, particularly Pacific states and civil society. In a statement to the 2014 Third Conference on the Humanitarian Impact of Nuclear Weapons in Vienna, Austria, Ambassador Dell Higgie of Aotearoa New Zealand said, 'Some of the submissions we made to the ICJ reflected our certainty about the risks that flow from nuclear weapons and from their testing. But on some aspects of risk we argued also on a precautionary basis - in effect asserting that something not apparently safe enough to be carried out in, say, Paris must ultimately also prove unsafe in the environment and ecology of the Pacific, let alone to the health and well-being of our peoples.'³⁶

The International Court of Justice's preliminary order in *New Zealand vs France* had determined that the 'French Government should avoid nuclear tests causing the deposit of radioactive fall-out on the territory of New Zealand, the Cook Islands, Niue or the Tokelau Islands.'³⁷ The Court declined to make a more comprehensive ruling when France stopped atmospheric testing.

Underground Testing

However, France persisted in conducting underground tests until 1991. Following a brief moratorium, France renewed Pacific underground tests in 1995 and 1996 before signing the Comprehensive Test Ban Treaty (CTBT) in September 1996. Despite France's claims to the contrary, underground nuclear weapons testing also posed

<https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/16592/20111027NTVsMODHealthNeedsAuditFinal.pdf>; Christopher Busby and Mireille Escande de Messieres. (2014) 'Miscarriages and Congenital Conditions in Offspring of Veterans of the British Nuclear Atmospheric Test Programme.' *Epidemiology*. 4(4). doi:10.4172/2161-1165.1000172; Tilman A. Ruff. (2015) 'The humanitarian impact and implications of nuclear test explosions in the Pacific region.' *International Review of the Red Cross*. 97(899). pp. 775-813; Rebekah Leigh Johnson. (2009) 'Psychological Fallout': The Effects of Nuclear Radiation Exposure.' Doctor of Clinical Psychology thesis, Massey University. <https://mro.massey.ac.nz/bitstream/handle/10179/1425/02_whole.pdf>.

³¹ New Zealand. (1973) Application Instituting Proceedings submitted by the Government of New Zealand. *Nuclear Tests (New Zealand vs. France)*. p. 6. <<http://www.icj-cij.org/files/case-related/59/9447.pdf>>.

³² e.g. Remus Pravalie. (2014) 'Nuclear Weapons Tests and Environmental Consequences: A Global Perspective.' *Ambio*. 43(6). pp. 729-744.

³³ Steven L. Simon, André Bouville and Charles E. Land. (2006) 'Fallout from Nuclear Weapons Tests and Cancer Risks: Exposures 50 years ago still have health implications today that will continue into the future.' *American Scientist*. 94(1). pp. 48-57.

³⁴ Tilman A. Ruff. (2015) 'The humanitarian impact and implications of nuclear test explosions in the Pacific region.' *International Review of the Red Cross*. 97(899). p. 801.

³⁵ Tilman A. Ruff. (2015) 'The humanitarian impact and implications of nuclear test explosions in the Pacific region.' *International Review of the Red Cross*. 97(899). p. 804; Arjun Makhijani, Brice Smith and Michael C. Thorne. (19 October 2006) 'Science for the Vulnerable: Setting Radiation and Multiple Exposure Environmental Health Standards to Protect Those Most at Risk.' Takoma Park, *Institute for Energy and Environmental Research*. p. 40.

³⁶ Dell Higgie. (2014) 'Vienna Conference on the Humanitarian Impact of Nuclear Weapons: New Zealand Statement.' <http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/vienna-2014/9Dec_NewZealand.pdf>.

³⁷ International Court of Justice. (1973) 'Order of 22 June 1973.' *Reports of Judgments, Advisory Opinions and Orders: Nuclear Tests Case (New Zealand V. France): Request For The Indication Of Interim Measures Of Protection Order Of 22 June 1973*. p. 142. <<http://www.icj-cij.org/files/case-related/59/059-19730622-ORD-01-00-EN.pdf>>.

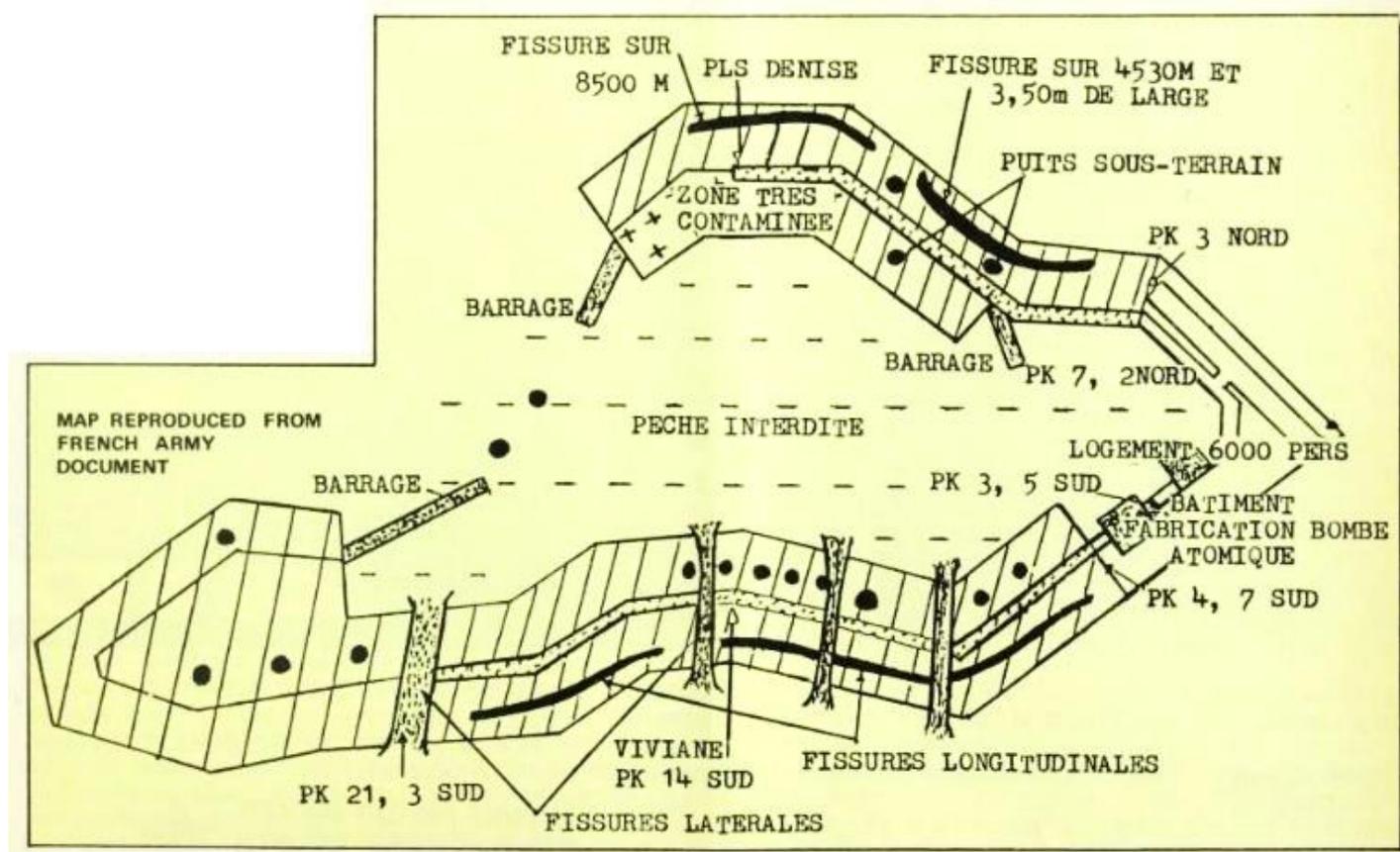


Figure 10: A June 1980 French Army map of Moruroa Atoll shows fissures and evidence of pollution ('ZONE TRES CONTAMINEE' and 'PECHE INTERDITE' – 'Very Contaminated Area' and 'Fishing Prohibited'). Reproduced in *Pacific Islands Monthly*, Vol. 54 (1983), No. 8, p. 35.

threats to the people and environments of the Pacific region.

In 1995, Aotearoa New Zealand and Australia, joined by Samoa and several other Pacific states, sought to reopen the International Court of Justice case. Aotearoa New Zealand's submissions in *New Zealand and Australia vs. France* asserted that there was evidence that the underground detonations 'vent' radioactive materials into the atmosphere. Moreover, the nuclear tests had 'generated very large quantities of radioactive material' which 'remain within the structure of the atoll.' Aotearoa New Zealand thus characterized Mururoa and Fangataufa Atolls as de facto 'nuclear waste "stockpiles"', warning that 'If all or substantial parts of this material were to be released into the marine environment, the effect upon marine natural living resources, especially fish and plankton, could be significant. Radionuclides released into the water are concentrated as they pass through the food chain to higher

organisms. The effects would be distributed through the marine ecosystem, affecting highly migratory species - including tuna - on which people of the region rely for sustenance and trade.' Aotearoa New Zealand noted that there was 'reason to fear that the risks of a significant release of radioactive material from either or both of the atolls...are substantially higher than was previously believed to have been the case', whether as a result of 'a serious collapse or fissuring of the atolls.'³⁸ The French government has since acknowledged that Moruroa Atoll risks collapsing.³⁹ (See Figure 10).

At the 2014 conference on the Humanitarian Impact of Nuclear Weapons in Nayarit, Mexico, Ambassador Dell Higgie of Aotearoa New Zealand stated that, 'Even today we remain alert to the consequences for the New Zealand environment of the tests which were carried out in the Pacific. ... The nuclear tests in our region took place against the continued insistence of nuclear weapon powers

³⁸ New Zealand. (1995) 'Request for an Examination of the Situation.' *Nuclear Test Cases: New Zealand and Australia vs. France*. pp. 12-17. <<http://www.icj-cij.org/files/case-related/97/7187.pdf>>.

³⁹ ABC. (2014) 'Effects of nuclear tests in French Polynesia remains a major concern: veterans.' *ABC News*. <<http://www.abc.net.au/news/2014-02-21/an-french-polynesia-upgrades-former-nuclear-sites/5276042>>.



Figure 11: Dominic Misiolo Sofe (right), Delegate of Samoa, speaking about the impact of nuclear weapons testing in the Pacific region, at a side event on victim assistance and environmental remediation provisions at the UN in New York, during the 2017 negotiations of the Treaty on the Prohibition of Nuclear Weapons. Photo courtesy of Ari Beser/ICAN.

that all their testing was safe – safe for our atmospheric and marine environments, and safe for the health and genetic well-being of our populations. Today, we know that so much of what we suspected in the 1970s and 1980s was true.⁴⁰

Diplomatic Efforts to Address the Impact of Pacific Nuclear Testing

Pacific states have taken many measures to protect their people and have raised concerns in diplomatic forums about the ongoing humanitarian, human rights and environmental impacts of nuclear weapons testing in the region.⁴¹ In a 2017 statement to the UN General Assembly

First Committee (Disarmament and International Security), Ambassador Aliioaiga Feturi Elisaia of Samoa spoke of the ‘scars of terror and mistrust from these real-life experiences’ that have ‘given our region a shared point-of-reference ... safeguard[ing] our region against nuclear weapons and ... protect[ing] the Ocean.’⁴²

Before its independence, Samoa unsuccessfully petitioned the UN Trusteeship Council in 1956 to prevent UK nuclear weapons tests at Kiritimati (Christmas) and Malden Islands.⁴³ Similarly, members of the Rarotonga government raised concerns to the Cook Islands Legislative Council about the proximity of their island to

⁴⁰ Dell Higgle. (2014) ‘Session II: Statement by Ambassador Dell Higgle.’ <<http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/nayarit-2014/statements/NewZealand2.pdf>>.

⁴¹ Matthew Bolton. (2018) ‘The “-Pacific” part of “Asia-Pacific”: Oceanic diplomacy in the 2017 Treaty for the Prohibition of Nuclear Weapons.’ *Asian Journal of Political Science*. <<https://doi.org/10.1080/02185377.2018.1515641>>.

⁴² Aliioaiga Feturi Elisaia. (13 October 2017) ‘Samoa’s Statement: Delivered by H.E Aliioaiga Feturi ELISAIA, Permanent Representative First Committee on Agenda Item - Nuclear Weapons Thematic Discussions.’ <http://reachingcriticalwill.org/images/documents/Disarmament-fora/1com/1com17/statements/13Oct_Samoa.pdf>.

⁴³ Nic Maclellan. (n.d.) ‘Grappling with the Bomb: Opposition to Pacific nuclear testing in the 1950s.’ *Labor History Melbourne*. <<https://labourhistorymelbourne.org/grappling-with-the-bomb/>>.

the UK tests.⁴⁴ According to a diplomatic note from Aotearoa New Zealand to France in 1963, French plans to conduct nuclear tests, ‘caused marked anxiety in the State of Western Samoa.’ Samoa requested Aotearoa New Zealand ‘to ensure that the misgivings of the Government and people of Western Samoa are fully understood by the French authorities.’⁴⁵ As one of the first Pacific island states to gain its independence, Samoa was the first Pacific state to register a complaint about the planned French tests, at the South Pacific Commission in 1965.⁴⁶ The following year, Aotearoa New Zealand refused to grant permission to French aircraft involved in the testing program to overfly Niuean or Cook Islands territory.⁴⁷

At the Pacific Island Producers Association meeting in June 1972, representatives of Niue joined the Prime Ministers of Fiji, Tonga, Western Samoa; the Premier of the Cook Islands and representatives of the then Gilbert and Ellice Islands Colony, in a unanimous resolution ‘register[ing] a strong protest’ against French Pacific testing, highlighting their ‘real threat not only to the peoples of the South Pacific but also to their environment.’⁴⁸

France sought to block any regional discussion of the impact of its nuclear testing in the South Pacific Commission, which since 1947 had coordinated regional development concerns. The Commission had been established by the colonial powers in the Pacific with an explicit ban on discussion of ‘political’ concerns.⁴⁹ As Pacific states gained independence, they sought diplomatic forums in which to express their discontent. In early 1971, the three fully independent Pacific states – Fiji, Samoa and Tonga – made a joint statement at the Commonwealth Heads of Government Meeting condemning French testing. At the same conference, Cook Islands called for

the establishment of a new regional body, independent of colonial control.

The result was the South Pacific Forum, now the Pacific Islands Forum (PIF), whose secretariat is in Suva. The body’s first communique expressed concern with French nuclear testing. Members of the Forum then helped draft of UN resolution, sponsored by Fiji and Aotearoa New Zealand at the 1972, which urged an end to French atmospheric tests (A/RES/2934(XXVII)A-C).⁵⁰ Since then, Pacific states have developed a range of bodies to manage regional challenges, including the Pacific Regional Environment Programme (SPREP), ‘charged with protecting and managing the environment and natural resources of the Pacific’ is based in Apia.

The persistence of the French atmospheric tests led Pacific states to take more assertive action. In July 1973, the Aotearoa New Zealand government sent two RNZN frigates to protest French nuclear weapon testing in French Polynesia. Stationed off Moruroa Atoll, the HMNZS *Otago* and the HMNZS *Canterbury* each observed a nuclear trigger test from a distance more than 20 nautical miles from the detonation.⁵¹

Aotearoa New Zealand also filed suit against France at the ICJ in 1973 acting not only on its own behalf, but also to represent the ‘potential hazard to the life, health and security’, as well as the ‘concern and apprehension... of the peoples and Governments’ of Cook Islands, Niue and Tokelau.⁵² Australia also filed suit and Fiji submitted documents in support of Aotearoa New Zealand’s case.⁵³ When France announced that it would move tests underground, the governments of Tokelau, Niue and Cook Islands joined Aotearoa New Zealand’s 1974 diplomatic note expressing ‘Strong protest’ at the resumption of

⁴⁴ Nic Maclellan. (n.d.) ‘Grappling with the Bomb: Opposition to Pacific nuclear testing in the 1950s.’ *Labor History Melbourne*. <<https://labourhistorymelbourne.org/grappling-with-the-bomb/>>.

⁴⁵ New Zealand. (1974) ‘Note from New Zealand Embassy to French Ministry of Foreign Affairs, 14 March 1963.’ In: International Court of Justice. *Pleadings, Oral Arguments, Documents: Nuclear Test Cases. Volume II (New Zealand vs. France)*. p. 14. <<http://www.icj-cij.org/files/case-related/59/9447.pdf>>.

⁴⁶ Christine Weir. (2013) ‘Ending Nuclear testing in the Pacific: Bishop Bryce and the Pacific Conference of Churches.’ p. 3.

<http://repository.usp.ac.fj/5658/1/Ending_nuclear_testing_in_the_Pacific-_Bishop_Bryce_and_the_Pacific_conference_of_churches.pdf>.

⁴⁷ New Zealand Ministry of External Affairs. (1966) ‘Note from New Zealand Ministry of External Affairs to French Embassy, 15 April 1966.’ In: *Nuclear Test Cases: Pleadings, Oral Arguments, Documents: New Zealand v. France*. Volume II. p. 40. <<http://www.icj-cij.org/files/case-related/59/9447.pdf>>.

⁴⁸ Pacific Islands Producers Association. (1972) ‘Resolution adopted by a Meeting of the Pacific Islands Producers Association on 14 June 1972.’ In: New Zealand. ‘Request for the Indication of Interim Measures of Protection. *New Zealand vs. France*.’ <<http://www.icj-cij.org/files/case-related/59/10731.pdf>>. p. 72.

⁴⁹ Yoko Ogashiwa. (1991) *Microstates and nuclear issues: regional cooperation in the Pacific*. Suva: University of the South Pacific.

⁵⁰ Matthew Bolton. (2018) ‘The “-Pacific” part of “Asia-Pacific”: Oceanic diplomacy in the 2017 Treaty for the Prohibition of Nuclear Weapons.’ *Asian Journal of Political Science*. <<https://doi.org/10.1080/02185377.2018.1515641>>.

⁵¹ New Zealand Veterans’ Affairs. ‘Research about New Zealand’s nuclear veterans.’ <<https://www.veteransaffairs.mil.nz/about-veterans-affairs/our-documents-and-publications/research/research-about-new-zealands-nuclear-veterans/>>.

⁵² New Zealand. ‘Application Instituting Proceedings submitted by the Government of New Zealand.’ In: *Nuclear Test Cases: Pleadings, Oral Arguments, Documents: New Zealand v. France*. Volume II. pp. 3-4. <<http://www.icj-cij.org/files/case-related/59/9447.pdf>>.

⁵³ International Court of Justice. (2018) ‘Nuclear Tests (New Zealand v. France).’ <<https://www.icj-cij.org/en/case/59>>.

nuclear weapons testing at Moruroa and ongoing 'fundamental opposition to all nuclear testing.'⁵⁴

Solidifying the region's opposition to nuclear weapons, in 1985, most Pacific states met in Rarotonga, Cook Islands, to sign the South Pacific Nuclear Free Zone (SPNFZ) Treaty. Its preamble expresses a determination to 'ensure...that the bounty and beauty of the land and sea in their region shall remain the heritage of their peoples and their descendants in perpetuity to be enjoyed by all in peace' and 'to keep the region free of environmental pollution by radioactive wastes and other radioactive matter.' Articles 3 and 6 ban the possession, manufacture, acquisition and testing of nuclear weapons and prohibits assisting and encouraging such activities. Unlike other nuclear weapon free zones it also banned dumping of radioactive waste at sea anywhere in the Zone (Article 7). The SPNFZ included three additional protocols to be signed by nuclear-armed states, obligating them to respect the treaty's prohibitions on manufacturing, stationing and testing nuclear weapons in the Zone (Protocol I and III) and never to use or threaten to use a nuclear weapon against the treaty's member states (Protocol II). The USSR and China ratified their relevant protocols in 1988. France, the UK and USA eventually signed them in 1996 (the US has not yet ratified). See the Annex to this report for information on states' positions on the SPNFZ.

In 1995, following France's decision to resume tests, Tofilau Eti Alesana, Samoa's then Prime Minister, called them 'an illustration of the French government's disregard and disrespect for world opinion, especially those of the Pacific region.'⁵⁵ Aotearoa New Zealand – joined by Australia, Marshall Islands, Federated States of Micronesia, Samoa and Solomon Islands – again filed suit against

France at the ICJ seeking to block the tests.⁵⁶ Tokelau's governing council also 'indicated its support' for Aotearoa New Zealand's action.⁵⁷

France finally halted its Pacific nuclear testing program following the successful negotiation of the Comprehensive Test Ban Treaty (CTBT) in 1996. The CTBT will not enter into force until all states with nuclear technological capacity sign and ratify it. Nevertheless, it has established a global norm against nuclear weapons testing, strengthened by the TPNW. Most states in the Pacific region are party to the CTBT, which, according to Samoa's 2017 statement to the UN General Assembly First Committee, demonstrates their 'determination to deter nuclear testing in the Pacific and anywhere else.'⁵⁸ The Annex to this report summarizes the positions of Pacific states on the CTBT and other nuclear weapons treaties.

Aotearoa New Zealand runs six CTBT monitoring facilities across the country: three auxiliary seismic stations to monitor underground explosions; one infrasound facility to provide real-time information on atmospheric explosions; and two radionuclide stations for atmospheric explosions and venting from underground explosions.⁵⁹ It also hosts a radionuclide laboratory in Christchurch, which provides independent additional analysis of International Monitoring System samples.⁶⁰ Fiji hosts radionuclide and seismic monitoring stations.⁶¹ Samoa hosts a seismic monitoring station.⁶²

At the 2010 Review Conference of the Nuclear Non-Proliferation Treaty (NPT), non-Nuclear Weapons States succeeded in getting the Outcome Document to express 'deep concern' at the 'catastrophic humanitarian consequences' of nuclear detonations. This provided the basis of a new diplomatic initiative called the Humanitarian

⁵⁴ New Zealand Embassy in Paris. (1974) 'Note of 17 June 1974 from the New Zealand Embassy in Paris to the French Ministry of Foreign Affairs.' In: International Court of Justice. 'Documents Submitted to the Court after the Filing of the Memorial.' *New Zealand vs. France*. p. 301. <<http://www.icj-cij.org/files/case-related/59/9459.pdf>>.

⁵⁵ In: Martin Bright. (20 September 1995) 'Nuclear: Winds of Change in Paris; Nuclear testing in the south Pacific has given rise to questions about the relationship between France and her colonies.' *The Guardian*. p. 12.

⁵⁶ International Court of Justice. (2018) 'Request for an Examination of the Situation in Accordance with Paragraph 63 of the Court's Judgment of 20 December 1974 in the Nuclear Tests (New Zealand v. France) Case.' <<http://www.icj-cij.org/en/case/97>>.

⁵⁷ International Court of Justice. (1995) 'Public sitting held on Monday 11 September 1995, at 3.30 p.m., at the Peace Palace, President Bedjaoui presiding: Verbatim Record.' <<http://www.icj-cij.org/files/case-related/97/097-19950911-ORA-01-00-BI.pdf>>. p. 20.

⁵⁸ Aliioaiga Feturi Elisaia. (13 October 2017) 'Samoa's Statement: Delivered by H.E Aliioaiga Feturi ELISAIA, Permanent Representative First Committee on Agenda Item - Nuclear Weapons Thematic Discussions.' <http://reachingcriticalwill.org/images/documents/Disarmament-fora/1com/1com17/statements/13Oct_Samoa.pdf>.

⁵⁹ CTBTO Preparatory Commission. 'Country Profiles: New Zealand'. <www.ctbto.org/the-treaty/countryprofiles/?country=123&cHash=a89fe05af2289a1c06da78c5bcea855d>; Jeremy Bulleid et al. (2005) 'Keeping the global environment safe: monitoring for the nuclear test ban treaty.' *Water & Atmosphere* 13(1). <www.niwa.co.nz/sites/niwa.co.nz/files/import/attachments/nuclear.pdf>.

⁶⁰ CTBTO Preparatory Commission. 'Country Profiles: New Zealand'. <www.ctbto.org/the-treaty/countryprofiles/?country=123&cHash=a89fe05af2289a1c06da78c5bcea855d>; CTBTO Preparatory Commission. 'Radionuclide Monitoring'. <www.ctbto.org/verification-regime/monitoring-technologies-how-they-work/radionuclide-monitoring/>.

⁶¹ CTBTO. (n.d.) 'Fiji.' <<https://www.ctbto.org/the-treaty/country-profiles/?country=60&cHash=9ef354b72af12a606b16e49c5e90b8d0>>.

⁶² CTBTO. (n.d.) 'Samoa.' <<https://www.ctbto.org/the-treaty/country-profiles/?country=148&cHash=8e8ed4c71e12cabf5bde3a5a8de8e283>>.

Initiative on Nuclear Weapons. At three conferences in 2013 and 2014, in Oslo, Norway; Nayarit, Mexico and Vienna, Austria, states heard presentations from academic, government and civil society experts on the humanitarian, human rights and environmental impact of nuclear weapons.

Patrick A. Arioka, Emergency Management Planning and Advisory Officer in Cook Islands, told the 2013 Oslo conference that ‘the Pacific Region as a whole is ... living in the fears of previous detonations of the Pacific’, particularly the French tests. He raised concerns regarding the ‘impacts on the future of a very fragile environmental eco-system’, especially giving rising sea levels and the intensification of natural disasters due to climate change. In particular, Arioka called for more attention to the risk of Moruroa Atoll’s ‘collapse’ if exposed to a major cyclone, given the damage it has sustained. ‘Leakage’ of radioactive material would ‘affect a large number of societies, and its cultures and traditions, ... [which] treasures and relies heavily on the eco-system and diversity of our ocean and land environments.’ He noted that Cook Islands’ ‘preparation for this kind of disaster is limited to nil’ and called for assistance from the ‘international community’ and ‘those responsible’, both in ‘recovery’ for the existing harm in the Pacific, but also in planning for potential future risks.⁶³

Kiribati spoke on behalf of itself, Marshall Islands, Papua New Guinea, Samoa, Tonga and Tuvalu, at the 2014 Nayarit conference, saying that ‘we understand all too well the devastating impact of nuclear weapons ... which contaminated the environment and exposed our people to high levels of radiation.’ The statement called for the testimony of *hibakusha* and survivors of nuclear testing to be heard in international policymaking on nuclear weapons.⁶⁴ In its national capacity, Samoa told the conference, that ‘As a small country which does not have an army, Samoa is deeply vulnerable to actions by others that could destroy our environment and destroy or degrade the life of our future generations.’⁶⁵

The conferences resulted in a ‘Humanitarian Pledge’, in which states recognized that the ‘unacceptable harm that victims of nuclear weapons explosions and nuclear testing have experienced’ has not been ‘adequately addressed.’ The Pledge, called on the international community to ‘stigmatise, prohibit and eliminate nuclear weapons in light of their unacceptable humanitarian consequences and associated risks.’ By the end of the 2015 NPT Review Conference, the Pledge had more than 100 state signatories and later that year, 124 states voted to make it United Nations General Assembly (UNGA) Resolution A/RES/70/48. Fiji, Kiribati, Marshall Islands, Nauru, Aotearoa New Zealand, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu voted in favor; Australia voted against.

The Pledge was followed by the convening of an Open-ended Working Group (OEWG) taking forward multilateral nuclear disarmament negotiations in Geneva in 2016. At the OEWG, which paved the way for the paved the way for the TPNW negotiations, Fiji, Nauru, Palau, Samoa and Tuvalu submitted an official Working Paper outlining potential ‘Elements for a treaty banning nuclear weapons.’ The paper highlighted the ‘unique perspective of Pacific island states’ having ‘suffered greatly as a result of half a century of nuclear testing in our region. ... [The] impact on our fragile ecology and the physical health and mental wellbeing of our people has been profound.’⁶⁶ In her statement to the OEWG, Ambassador Higgie of Aotearoa New Zealand stated that ‘our region of the Pacific is only too aware of the harmful long-term effects of nuclear weapons testing.... Having seen the environmental and health effects ... it is not hard for us to understand the horrendous consequences of an actual nuclear weapons detonation ... for our global environment and our economies....’⁶⁷

Regional Civil Society Action

Complementing and driving state’s diplomatic efforts is the long history of civil society activism on nuclear issues in the Pacific region. As early as 1957, a *Fiji Times* editorial called attention to ‘how many people will die’ because of

⁶³ Patrick A. Arioka. (2013) ‘Cook Islands Position on the Humanitarian Impacts of Nuclear Weapons.’

<<http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/oslo-2013/statements/SIS.pdf>>.

⁶⁴ Kiribati. (2014) ‘Joint Statement on Behalf of Pacific Island Nations: Second Conference on the Humanitarian Impact of Nuclear Weapons Nayarit, Mexico, 13-14 February 2014.’ <<http://reachingcriticalwill.org/images/documents/Disarmament-fora/nayarit-2014/statements/PacificIslands.pdf>>.

⁶⁵ Samoa. (2014) Statement to 2014 conference on the Humanitarian Impact of Nuclear Weapons in Nayarit, Mexico.

<<http://reachingcriticalwill.org/images/documents/Disarmament-fora/nayarit-2014/statements/Samoa.pdf>>.

⁶⁶ Fiji, Nauru, Palau, Samoa and Tuvalu. (3 March 2016) *Elements for a treaty banning nuclear weapons*. A/AC.286/WP.14. Geneva, UN General Assembly.

<<http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/OEWG/2016/Documents/WP14.pdf>>.

⁶⁷ Dell Higgie. (2016) ‘Panel II.’ <http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/OEWG/2016/Statements/25Feb_NZ.pdf>.

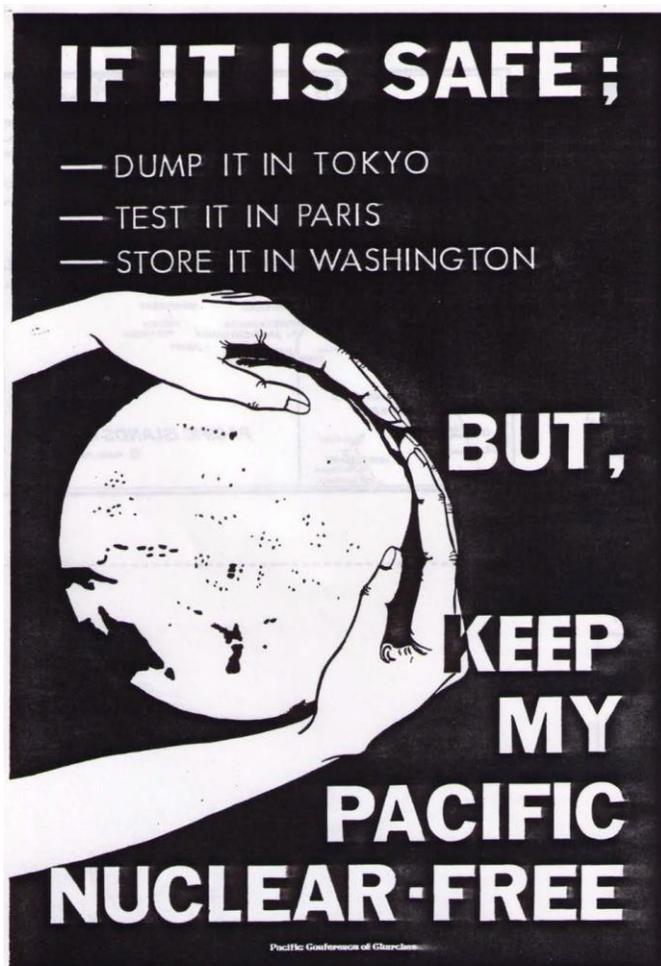


Figure 12: Poster of the Nuclear-Free and Independent Pacific Movement, published in a 1983 issue of *Tok Blong Pasifik*, published by Pacific Peoples' Partnership.

nuclear weapons tests, condemning them as 'irresponsible folly.'⁶⁸

From the mid-1970s, the Nuclear Free and Independent Pacific (NFIP) movement energized people from around the region in calling for the dual goals of denuclearization

and decolonization (see Figure 12). The NFIP in part grew out of activism on the campus of the University of the South Pacific (USP) in Suva, Fiji. USP research has also contributed to understanding of the humanitarian, human rights and environmental impact of nuclear weapons on the region.⁶⁹ Fijian trade unions also played a major role in the NFIP.⁷⁰ The NFIP's Pacific Concerns Resource Centre in Suva served as a kind of secretariat for the movement and supported the participation of Fijian test veterans in global meetings on the rights of survivors of nuclear weapons use and testing.

Visits of US and French warships to ports in the region were met with protests. During 1987 visit to the Samoan capital Apia, US Secretary of State George P. Schultz faced extensive questioning from the Samoan press about US support for French nuclear testing.⁷¹

A defining moment in Aotearoa New Zealand's anti-nuclear history came in July of 1985 when the Greenpeace flagship *Rainbow Warrior* was bombed in Auckland. The *Rainbow Warrior* was moored in Marsden Wharf, on its way to protest a planned French nuclear test in the Moruroa. French Secret Service (DGSE) agents were sent to prevent it from leaving. A Greenpeace photographer was killed in the explosion. The two DGSE agents were convicted of manslaughter, but were decorated and promoted upon their release from prison and return home.⁷² The incident led to a severe deterioration in France-Aotearoa New Zealand relations, and cemented Aotearoa New Zealand's anti-nuclear foreign affairs policy.⁷³ By 1986, there were 350 active, local-area peace groups working on nuclear issues in Aotearoa New Zealand. This movement included faith-based organisations, sports groups, students, Māori/tangata whenua, women's groups, business networks, doctors' and lawyers' associations.⁷⁴

⁶⁸ In: Nic Maclellan. (2017) *Grappling with the Bomb: Britain's Pacific H-Bomb Tests*. Acton, ANU Press. p. 80.

⁶⁹ e.g. Vijay Naidu. (1988) 'The Fiji Anti-Nuclear Movement: Problems and Prospects.' In: Ranginui Walker & William Sutherland (Eds.). *The Pacific: Peace, Security and the Nuclear Issue*. United Nations University Press. pp. 185-195; Teresia K. Teaiwa. (1994) 'bikinis and other s/pacific n/oceans.' *The Contemporary Pacific*. 6(1). pp. 87-109; Claire Slatter & Yvonne Underhill-Sem. (2009) 'Reclaiming Pacific Island Regionalism.' In: Bina D'Costa & Katrina Lee-Koo (Eds.). *Gender and Global Politics in the Asia-Pacific*. New York, Palgrave Macmillan. pp. 195-210; Barbara Rose Johnston & Brooke Takala Abraham. (2016) 'Environmental Disaster and Resilience: The Marshall Islands.' *Cultural Survival*. <<https://www.culturalsurvival.org/publications/cultural-survival-quarterly/environmental-disaster-and-resilience-marshall-islands>>.

⁷⁰ Jean-Marc Regnault. (2005) 'The Nuclear Issue in the South Pacific: Labor Parties, Trade Union Movements, and Pacific Island Churches in International Relations.' *The Contemporary Pacific*. 17(2). pp. 339-357.

⁷¹ Norman Kempster. (24 June 1987) 'Shultz Defends French Nuclear Testing in S. Pacific.' *Washington Post*. <https://www.washingtonpost.com/archive/politics/1987/06/24/shultz-defends-french-nuclear-testing-in-s-pacific/fce5d82d-0282-4463-bcba-5fb907d15cc5/?utm_term=.112d8fc18c2b>.

⁷² New Zealand History. 'Sinking the Rainbow Warrior.' *Nuclear-free New Zealand*. <<https://nzhistory.govt.nz/politics/nuclear-free-new-zealand/rainbow-warrior>>.

⁷³ New Zealand History. 'Sinking the Rainbow Warrior.' *Nuclear-free New Zealand*. <<https://nzhistory.govt.nz/politics/nuclear-free-new-zealand/rainbow-warrior>>; New Zealand Herald. (10 July 2015) 'At the end of the Rainbow.' <www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10656635>.

⁷⁴ Foundation for Peace Studies Aotearoa. 'History'. *Aotearoa/New Zealand 30 Years Nuclear Free*. <<http://www.nuclearfreenz30.org.nz/history/>>.



Figure 13: Fijian activist and intellectual, Vanessa Griffin of femLINKPacific and the International Campaign to Abolish Nuclear Weapons (ICAN), on a side event panel on gender and nuclear disarmament during the 2017 negotiations of the Treaty on the Prohibition of Nuclear Weapons at the UN. Photo: Ari Beser/ICAN.

Residents of the Northern Cook Islands have sought compensation from the Cook Islands, Aotearoa New Zealand and UK governments, claiming that their health has been harmed by fallout from UK nuclear testing.⁷⁵ Parliamentarians from Cook Islands and Aotearoa New Zealand delivered a letter of protest to the French Navy by sailing a ceremonial canoe to Moruroa in 1995, condemning the resumption of nuclear testing as a ‘monstrous act of test bombing in this paradise of the Pacific....’⁷⁶ That same month, Cook Islanders sailed the 22-meter traditional canoe *Te Au O Tonga* (‘Mist of the Sea’) to Papeete, Tahiti flying a ‘Nuclear Free Cook Islands’ banner. They performed an anti-nuclear *baka* (chant) written by Cook Island traditional leaders calling on Tane (god of the sea) and Tangaroa (god of the earth) to halt the tests.⁷⁷

Civil society organisations in Australia have had a long and sustained influence on nuclear issues. From the earliest days of nuclear testing, there were protest movements

around nuclear weapons testing and development, evident through the activism of churches, unions, student movements, environment, social justice and Aboriginal rights organisations. Nuclear veteran associations have consistently spoken out about the impacts on their members, advocating for recognition, health monitoring and compensation.⁷⁸ National organisations such as Friends of the Earth and the Australian Conservation Foundation have maintained campaigns on nuclear free issues – from nuclear disarmament, to nuclear waste dumping and uranium mining – for decades.

The Pacific Conference of Churches (PCC), was a major backer of the NFIP, along with its global partner, the World Council of Churches (WCC). PCC was founded following a consultation at Malua Theological College in Samoa in 1961. WCC is also an ICAN partner organization and delivered a statement to the TPNW negotiations 15 June 2017, calling for ‘accompaniment of affected people and care for Creation that has been abused by nuclear

⁷⁵ Karin Williams. (n.d.) ‘Cook Is.’ *Britain’s Pacific Nukes*. <<https://pacificnukes.wordpress.com/cook-is/>>.

⁷⁶ In: Helen Trinca. (30 August 1995) ‘Greenpeace readies for “very close” French test.’ *The Australian*.

⁷⁷ (26 August 1995) ‘Islanders pit gods against bomb.’ *Hobart Mercury*.

⁷⁸ See, for example: Nuclear Veterans Association <<http://anva.org.au>> and Atomic Vets <www.atomicvets.org.au>

weapons production, use and testing.’ The statement quoted a 2014 WCC policy document that asserted that ‘To use the energy of the atom in ways that threaten and destroy life is a sinful misuse of God’s creation. We are called to live in ways that protect life instead of putting it at risk We must listen to all who suffer nuclear harm.’ WCC highlighted that ‘Indigenous peoples have been particularly subject to the devastating humanitarian impact of nuclear weapons production and testing.’⁷⁹

The Pacific Regional Office of the International Committee for the Red Cross (ICRC) in Suva covers the region, in partnership with the national Red Cross Societies. In 2011, the 10 Pacific Red Cross Societies and 29 others around the world co-sponsoring a resolution calling for a ‘legally-binding instrument’ to prohibit nuclear weapons.⁸⁰ The ICRC supported the TPNW negotiations, requesting states to ‘consider how best to ensure that the needs of the victims of nuclear weapon detonations are recognized and advanced and to consider the most suitable approach to facilitate assistance and cooperation for the implementation of the treaty’s obligations.’⁸¹

Local, national and regional civil society efforts are part of broader global campaigns addressing the harm caused by nuclear weapons. The Nobel Peace Prize-winning ICAN has an extensive network of partner organizations in the Pacific region, building on the NFIP movement. It was first established in Melbourne, Australia where it opened an office in 2006. Civil society activists from French Polynesia, Fiji, Marshall Islands, Aotearoa New Zealand and Australia addressed the negotiations or were featured in side event panels.

Vanessa Griffen, a Fijian activist with femLINKPacific and intellectual who has long been a supporter of the NFIP addressed the TPNW negotiations on behalf of ICAN on 6 July 2017 (see Figure 13). On ‘the islands of the Pacific, my home, nuclear weapons were tested on atolls and above the seas, destroying homelands, removing people forever from their lands,’ she told the conference. ‘We hope that

all states parties will fully embrace the spirit of this treaty and assist in clear the poisoned lands and lagoons and address the health needs of the many victims of nuclear testing that still suffer from cancers, intergenerational effects and the health care burdens.’⁸²

At a side event during the TPNW negotiations, Roland Oldham of the French Polynesian test survivor’s association Moruroa e Tatou (‘Moruroa and Us’) described nuclear testing in the Pacific as ‘nuclear racism’ and a ‘crime against humanity.’ He asserted that ‘as victims we are not begging for favour, we are just standing up for our rights and our dignity’ and called for ‘nuclear armed states to compensate their victims, and to make reparation for the damage done to the environment.’⁸³

On the 60th anniversary of the *Grapple Y* test in Kiribati, in April 2018, the heads of the Aotearoa New Zealand and Fiji test veterans associations wrote an open letter to the Commonwealth Heads of Government Meeting (CHOGM) in London, calling on the British government to ‘provide compensation, medical support and environmental remediation to all people affected by Operation Grapple....’⁸⁴

Victim Assistance and Environmental Remediation Obligations in the TPNW

The TPNW, adopted at the UN in 2017, frames nuclear weapons as an affront to humanity and acknowledges the humanitarian and environmental harm of use and testing, including the disproportionate impact on women and girls and indigenous peoples. The International Campaign to Abolish Nuclear Weapons (ICAN) received the 2017 Nobel Peace Prize for its advocacy to achieve the treaty.

In recognition of the role Aotearoa New Zealand played in helping to build the political will necessary for the TPNW, Ambassador Higgie was elected by participating member

⁷⁹ Emily Welty. (16 June 2017) ‘Strengthening the Preamble’s Humanitarian, Human Rights, Environmental and Sustainable Development Foundations for Positive Obligations.’ <http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/nuclear-weapon-ban/statements/16June_WCC.pdf>.

⁸⁰ Council of Delegates of the International Red Cross and Red Crescent Movement. (2011) ‘Resolution 1: Working towards the elimination of nuclear weapons.’ <<https://www.icrc.org/eng/resources/documents/resolution/council-delegates-resolution-1-2011.htm>>.

⁸¹ Lou Maresca. (29 March 2017) ‘Topic 2: Core prohibitions: Statement of the International Committee of the Red Cross.’ <http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/nuclear-weapon-ban/statements/29March_ICRC-T2.pdf>.

⁸² Vanessa Griffen. (6 July 2017) ‘Vanessa Griffen.’ <<https://vimeo.com/224540494>>.

⁸³ Roland Oldham. (2017) ‘Roland Oldham, Moruroa e Tatou, Tahiti.’ <<http://www.icanw.org/wp-content/uploads/2017/05/Roland-Oldham-speech-ban-neg-6.17.pdf>>.

⁸⁴ Roy Sefton & Paul Ah Poy. (12 April 2018) ‘Support for Nuclear Veterans in the Pacific.’ *Island Sun*. <<http://theislandsun.com.sb/support-for-nuclear-veterans-in-the-pacific/>>.

states as Vice-President of the negotiating conference.⁸⁵ In Aotearoa New Zealand's opening statement, the Ambassador noted that 'New Zealand brings to this negotiation our long and proud history as a strong supporter of nuclear disarmament. . . .'⁸⁶ She commented that the delegates gathered at the conference were 'focused on the humanitarian impact of the weapon we wish to proscribe' (see Figure 13).⁸⁷

At the time of writing, in the Pacific region Aotearoa New Zealand, Cook Islands, Palau/Belau, Samoa and Vanuatu were State Parties; Fiji, Kiribati and Timor Leste were signatories. Australia, Federated States of Micronesia, France, UK and USA boycotted the treaty negotiations. The Forty-Ninth Communique of the Pacific Islands Forum in September 2018 'encouraged individual member countries to progress efforts' toward signature and ratification of the TPNW.⁸⁸ The Annex to this report summarizes the positions of Pacific states on the TPNW.

In addition to banning nuclear weapons, the TPNW obliges states that join it to address the harm inflicted on people and the environment from nuclear weapons use and testing. Article 6(1) requires affected states parties to assist victims 'in accordance with applicable international humanitarian and human rights law', adequately providing 'age-and gender-sensitive assistance, without discrimination, including medical care, rehabilitation and psychological support' to survivors and to 'provide for their social and economic inclusion.' Article 6(2) requires affected states parties to take 'necessary and appropriate measures towards the environmental remediation of areas contaminated by nuclear weapons use or testing.

In the 2018 Pacific Islands Forum Communique 'Leaders reaffirmed their commitment to addressing the outstanding security threats from nuclear legacy issues, including radioactive contaminants' and called 'on all responsible parties to rectify the ongoing impacts of contaminants in our Ocean to sustain our future generations.' Pacific leaders 'directed the Forum Secretariat, in coordination with . . . [regional institutions], to further advance national and regional efforts towards a



Figure 14: Ambassador Dell Higginson of Aotearoa New Zealand during the 2017 negotiations of the Treaty on the Prohibition of Nuclear Weapons at the UN in New York. Photo: Clare Conboy/ICAN.

just and final resolution, including through Forum international engagement and advocacy.'⁸⁹

The TPNW also encourages the international community to retell the stories of those who have suffered the humanitarian, human rights and environmental impact of nuclear weapons use and testing. The TPNW's preamble emphasizes 'the importance of peace and disarmament education . . . and of raising awareness of the risks and consequences of nuclear weapons for current and future generations.' The Treaty particularly recognizes the contributions of 'the *hibakusha*' (victims of nuclear weapons) as voices of 'public conscience.' It expresses a commitment 'the dissemination of the principles and norms' of the TPNW, which in Article 12 obligates states to universalizing the Treaty.

⁸⁵ Scoop Media. (9 May 2017) 'Nuclear weapons ban negotiations.' <www.scoop.co.nz/stories/PO1705/S00112/nuclear-weapons-ban-negotiations.htm>.

⁸⁶ New Zealand. (28 March 2017). 'Statement: General Debate.' UN Conference to Negotiate a Nuclear Prohibition Treaty. <www.reachingcriticalwill.org/images/documents/Disarmament-fora/nuclear-weapon-ban/statements/28March_NZ.pdf>.

⁸⁷ New Zealand. (28 March 2017). 'Statement: General Debate.' UN Conference to Negotiate a Nuclear Prohibition Treaty. <www.reachingcriticalwill.org/images/documents/Disarmament-fora/nuclear-weapon-ban/statements/28March_NZ.pdf>.

⁸⁸ Pacific Islands Forum. (6 September 2018) 'Forty-Ninth Pacific Islands Forum: Communiqué.' <https://foreignminister.gov.au/releases/Pages/2018/mp_mr_180906a.aspx>.

⁸⁹ Pacific Islands Forum. (6 September 2018) 'Forty-Ninth Pacific Islands Forum: Communiqué.' <https://foreignminister.gov.au/releases/Pages/2018/mp_mr_180906a.aspx>.



Figure 15: Pacific leaders sign the 2017 Treaty on the Prohibition of Nuclear Weapons at the UN in New York on 20 September 2017. From top left clockwise: Enele Sosene Sopoaga, Prime Minister and Minister for Public Utilities of Tuvalu; Tuila’epa Sailele Malielegaoi, Prime Minister and Minister for Foreign Affairs and Trade of Samoa; Josaia Voreqe Bainimarama, Prime Minister of Fiji; Craig Hawke, Permanent Representative of New Zealand to the United Nations. Photos courtesy of Darren Ornitz/ICAN.

Joining the TPNW entitles affected states to international cooperation and assistance so that they can meet their obligations to help victims and remediate the environment. To ensure that an undue burden is not placed on affected states, Article 7 obliges states parties in a position to do so to provide ‘technical, material and financial assistance to States Parties affected by nuclear-weapons use or testing’ (Article 7(3)). Given the range of types of assistance, all states parties should be able to assist in some way. Such assistance, according to Article 7(5), can be provided through the UN system, ‘international, regional or national’ institutions, bilateral assistance, NGOs or the Red Cross and Red Crescent Movement.

Article 7(6) explicitly requires states parties that have ‘used or tested nuclear weapons or any other nuclear explosive devices’ to contribute to ‘adequate assistance to affected States Parties, for the purpose of victim assistance and environmental remediation.’

Indeed, Pacific peoples are protected by international human rights norms, including the right to health, the right to a safe, clean, healthy and sustainable environment and the rights of indigenous peoples. The relevance of such rights to those affected by nuclear testing has been highlighted by the UN Special Rapporteur’s 2012 report on the Marshall Islands⁹⁰ and the recurring UN General Assembly resolutions on addressing the human and

⁹⁰ Calin Georgescu. (2012) *Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes*, Calin Georgescu. A/HRC/21/48/Add.1. Geneva, United Nations Human Rights Council. <<https://documents-dds-ny.un.org/doc/UNDOC/GEN/G12/163/76/PDF/G1216376.pdf?OpenElement>>.



Figure 16: The Nuclear Free and Independent Pacific movement has had broad and durable support in the Pacific region from across civil society, churches, trade unions and academia, and played a major role in the effort to establish a South Pacific Nuclear Free Zone. Photo: Nic Maclellan.

environmental harms to the Semipalatinsk region of Kazakhstan (e.g. A/RES/72/213).

These ‘positive obligations’ were included in the TPNW in part because of the strong calls to do so by Pacific states.⁹¹ In their Working Paper submitted to the 2016 Open-ended Working Group, Fiji, Nauru, Palau, Samoa and Tuvalu called for the TPNW to include ‘obligations to provide assistance to victims towards the fulfilment of their rights; obligations to provide support to other States in such efforts; responsibilities to report on the work being undertaken; and regular meetings where a community of practice would share experience and work to strengthen collective action. The treaty should also include obligations to address damage to the environment.’⁹² Fiji spoke four times on the floor of the TPNW negotiations, asserting that ‘Fiji speaks with first-hand experience of the destruction and long lasting effects that nuclear weapons have had on our people without victim assistance.’ Fiji decried the ‘environmental degradation’ caused by the ‘forced’ nuclear weapons testing in the Pacific. It endorsed

‘the recognition of the rights of victims of the use and testing of nuclear weapons and a commitment to provide assistance to victims and environmental redress for Pacific islanders who have lost much as a result of nuclear testing.’⁹³ Similarly, a diplomat of Samoa offered supportive remarks from the floor during a June 2017 side event on victim assistance and environmental remediation during negotiations of the TPNW (see Figure 11).

Ensuring robust implementation of the victim assistance and environmental remediation provisions is a priority for ICAN, working alongside its partners in the ‘Positive Obligations Group’: Article 36, Conflict and Environment Observatory, Elimondik, Mines Action Canada, the Harvard Law School International Human Rights Clinic and Pace University’s International Disarmament Institute. The Group’s work, including this report, has been supported by Friedrich Ebert Stiftung’s New York Office.

At the 72nd Session of the UN General Assembly First Committee, Samoa described the TPNW as a ‘breakthrough in the efforts towards nuclear disarmament

⁹¹ Matthew Bolton. (2018) ‘The “-Pacific” part of “Asia-Pacific”: Oceanic diplomacy in the 2017 Treaty for the Prohibition of Nuclear Weapons.’ *Asian Journal of Political Science*. <<https://doi.org/10.1080/02185377.2018.1515641>>.

⁹² Fiji, Nauru, Palau, Samoa and Tuvalu. (3 March 2016) *Elements for a treaty banning nuclear weapons*. A/AC.286/WP.14. Geneva, UN General Assembly. <<http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/OEWG/2016/Documents/WP14.pdf>>.

⁹³ Fiji. (31 March 2017) ‘Fiji Statement at the United Nations conference to negotiate a legally-binding instrument to prohibit nuclear weapons, leading towards their total elimination.’ <<http://statements.unmeetings.org/media2/14683464/fiji.pdf>>.

and highlights strong political commitments to achieve and maintain a nuclear free world and we encourage all member states to sign up to and ratify the treaty.’ Samoa also congratulated ICAN on receiving the Nobel Peace Prize and stated that it ‘truly appreciates and recognizes the vital role of civil societies in our joint fight to achieve a treaty-based prohibition on nuclear weapons.’⁹⁴ Similarly, Fiji reiterated its support for the treaty, paying ‘special tribute to the lives of innocent victims, families and individuals who have suffered as a result of nuclear testing’ and acknowledging the ‘long lasting environmental impacts.’ It condemned the ‘silence’ of the ‘offending states’ which conducted the nuclear tests as ‘deafening’, showing ‘utter disregard for humanity.’ Fiji framed its support for the TPNW as ‘playing its part’ in contributing to ‘a world free of nuclear weapons.’⁹⁵

Fiji reiterated the importance of the TPNW at a High-Level Meeting to Commemorate the International Day against Nuclear Tests at the UN General Assembly on 6 September 2018. Dr. Satyendra Prasad, Fiji’s UN Ambassador, said, ‘The human and environmental impact of nuclear testing within the Pacific is not confined to the past. It remains a threat to the pursuit of sustainable development by the Pacific States. Most notably, to the sustainable development goals relating to; health and well-being; gender equality and; the environment on land and in the oceans.’ He called for ‘rigorous implementation of the TPNW’, particularly its “‘positive obligations” on victim assistance, environmental remediation and international cooperation and assistance. He urged the ‘international community and the UN system to use the opportunities created by the TPNW to: conduct a new comprehensive assessment of the ongoing humanitarian, human rights and environmental impacts of nuclear weapons testing in the

Pacific and develop action plans to address these problems.’⁹⁶

Health Care Capacity in the Pacific Region

Health care capacity for the kinds of diseases associated with exposure to ionizing radiation is limited in the Pacific region outside Australia, Aotearoa New Zealand and Hawaii (USA).

Health care and assistance to persons with disabilities in Aotearoa New Zealand ‘are delivered by a complex network of organisations and people’, coordinated by District Health Boards, ‘which plan, manage, provide and purchase primary health services for the population of their district, including hospital care, speciality care and community nursing.’⁹⁷ There are ‘200 Māori health and disability providers that are Māori-owned and governed.’⁹⁸ The New Zealand Cancer Society provides support to cancer patients, survivors and their families in Aotearoa New Zealand, as well as prevention education.⁹⁹

Niue Foou Hospital ‘is the hub for the majority of health services and public health programmes, providing both primary and secondary medical care’ in Niue.¹⁰⁰ Tertiary health care is ‘provided via transfers to New Zealand and an emergency evacuation service, complemented with annual visits from New Zealand-based specialists.’¹⁰¹ The WHO has stated that Niue ‘is experiencing increases in the incidence of noncommunicable diseases (NCDs), including diabetes, stroke and cancers.’¹⁰²

Fiji provides ‘free health care to all citizens through its two national hospitals, approximately 20 regional hospitals and 200 smaller health care facilities.’ There is also a private hospital in Suva. Regarding mental health care, there are

⁹⁴ Aliioaiga Feturi Elisaia. (13 October 2017) ‘Samoa’s Statement: Delivered by H.E Aliioaiga Feturi ELISAIA, Permanent Representative First Committee on Agenda Item - Nuclear Weapons Thematic Discussions.’ <http://reachingcriticalwill.org/images/documents/Disarmament-fora/1com/1com17/statements/13Oct_Samoa.pdf>.

⁹⁵ Fiji. (10 October 2017) ‘Fiji Statement in the First Committee General Debate on Disarmament Measures and International Security.’ <http://reachingcriticalwill.org/images/documents/Disarmament-fora/1com/1com17/statements/10Oct_Fiji.pdf>.

⁹⁶ Satyendra Prasad. (6 September 2018) ‘Statement by H.E. Dr. Satyendra Prasad, Permanent Representative of Fiji to the United Nations at the High-Level Meeting of the General Assembly to Commemorate and Promote the International Day Against Nuclear Tests.’ <<http://statements.unmeetings.org/media2/19408108/fiji.pdf>>.

⁹⁷ Commonwealth of Nations. (2018) ‘Health Systems in New Zealand.’ *Commonwealth Health Online*. <http://www.commonwealthhealth.org/pacific/new_zealand/health_systems_in_new_zealand>.

⁹⁸ Commonwealth of Nations. (2018) ‘Health Systems in New Zealand.’ *Commonwealth Health Online*. <http://www.commonwealthhealth.org/pacific/new_zealand/health_systems_in_new_zealand>.

⁹⁹ Cancer Society. (n.d.) ‘Cancer Society NZ.’ <<https://cancernz.org.nz/>>.

¹⁰⁰ WHO. (2017) ‘Niue-WHO Country Cooperation Strategy 2018-2022.’ <<http://iris.wpro.who.int/bitstream/handle/10665.1/13950/WPRO-2017-DPM-016-niu-eng.pdf>>.

¹⁰¹ WHO. (2017) ‘Niue-WHO Country Cooperation Strategy 2018-2022.’ <<http://iris.wpro.who.int/bitstream/handle/10665.1/13950/WPRO-2017-DPM-016-niu-eng.pdf>>.

¹⁰² WHO. (2017) ‘Niue-WHO Country Cooperation Strategy 2018-2022.’ <<http://iris.wpro.who.int/bitstream/handle/10665.1/13950/WPRO-2017-DPM-016-niu-eng.pdf>>.

‘0.1 mental health outpatient facilities and 0.1 psychiatric beds in general hospitals per 100,000 people.’¹⁰³

In Samoa, the national hospital, Tupua Tamasese Meaole Hospital, is located in Moto’otua, Apia. District hospitals and clinics are distributed throughout the country. The Samoa Cancer Society runs a National Cancer Resource Centre at the hospital. It is currently working on a research project with the National University of Samoa – School of Health Science regarding Samoans practices in seeking cancer check-ups. However, ‘Samoan tertiary care is limited and mainly provided through arrangement with New Zealand’s health care system.’¹⁰⁴ Samoa has adopted a ‘Sector Wide Approach’ (SWAp) to development coordination in the health sector, with donors supporting the Ministry of Health’s comprehensive health sector plan.¹⁰⁵ Aotearoa New Zealand, Australia and Japan support development of Samoa’s health care sector.¹⁰⁶ The USA has assisted in the construction of hospital facilities and there are about 50 Peace Corps Volunteers deployed in Samoa.¹⁰⁷

In Tonga, there are four hospitals and 14 health care centers.¹⁰⁸ The only hospital in Tuvalu is Princess Margaret Hospital Funafuti; it provides ‘basic primary health care, and dental and pharmaceutical services.’ There are an additional eight clinics with nursing staff around the country. Mental health services are very limited in both Tonga and Tuvalu.¹⁰⁹

Health care and other aspects of sustainable development in most Pacific island states are supported by multilateral and bilateral aid programs. The office of the UN Development Programme (UNDP) in Apia, Samoa also covers Niue, the Cook Islands, and Tokelau and supports

a range of sustainable development programs with funds primarily from Aotearoa New Zealand and Australia.¹¹⁰ Aotearoa New Zealand focuses its development aid programs on Pacific nations, including those affected by nuclear weapons tests such as Kiribati and Fiji, as well as downwind countries like Samoa, Cook Islands, Niue and Tokelau.¹¹¹ Other major aid donors in the region include the EU, Canada, China, Japan and Korea.

Recommended Action

Given the ongoing humanitarian, human rights and environmental concerns resulting from the French nuclear weapons tests, the international community should:

- 1) *Sign and **RATIFY** the Treaty on the Prohibition of Nuclear Weapons and other relevant international instruments:*
 - a. Pacific states should ratify the Treaty on the Prohibition of Nuclear Weapons (TPNW).
 - b. Civil society, faith institutions and parliamentarians in France and French Polynesia should pressure their governments to bring their nuclear disarmament policy into closer alignment with the norms in the TPNW.
 - c. Regional institutions such as the Pacific Island Forum and the University of the South Pacific should promote and facilitate regional accession to the TPNW, such as through the development of model ratification legislation.
- 2) *Assess and **RESPOND** to the multigenerational humanitarian needs of survivors of French nuclear weapons tests:*
 - a. Pacific states affected by French nuclear weapons tests should comprehensively assess, monitor and

¹⁰³ Commonwealth of Nations. (2018) ‘Health Systems in Fiji.’ *Commonwealth Health Online*. <http://www.commonwealthhealth.org/pacific/fiji/health_systems_in_fiji>.

¹⁰⁴ Commonwealth of Nations. (2018) ‘Health Systems in Samoa.’ *Commonwealth Health Online*. <http://www.commonwealthhealth.org/pacific/samoa/health_systems_in_samoa/>; Samoa Cancer Society. (n.d.) ‘About Us.’ <<https://www.samoacancer.com/about-us>>.

¹⁰⁵ Graeme Smith et al. (2013) ‘The Development Needs of Pacific Island Countries.’ <http://www.undp.org/content/dam/china/docs/Publications/UNDP_CH_SS_Publication_The%20Development%20Needs%20of%20Pacific%20Island%20Countries%20REPORT.pdf>.

¹⁰⁶ New Zealand Ministry of Foreign Affairs and Trade. (n.d.) ‘Aid Partnership with Samoa.’ <<https://www.mfat.govt.nz/en/aid-and-development/our-work-in-the-pacific/aid-partnership-with-samoa/>>; Australian Department of Foreign Affairs and Trade. (n.d.) ‘Development Assistance in Samoa.’ <<http://dfat.gov.au/geo/samoa/development-assistance/Pages/development-assistance-in-samoa.aspx>>; JICA. (n.d.) ‘Activities in Samoa.’ <<https://www.jica.go.jp/samoa/english/activities/index.html>>.

¹⁰⁷ US Department of State. (4 May 2017) ‘U.S. Relations with Samoa.’ <<https://www.state.gov/r/pa/ei/bgn/1842.htm>>.

¹⁰⁸ Commonwealth of Nations. (2018) ‘Health Systems in Tonga.’ *Commonwealth Health Online*. <http://www.commonwealthhealth.org/pacific/tonga/health_systems_in_tonga>.

¹⁰⁹ Commonwealth of Nations. (2018) ‘Health Systems in Tuvalu.’ *Commonwealth Health Online*. <http://www.commonwealthhealth.org/pacific/tuvalu/health_systems_in_tuva>.

¹¹⁰ UNDP. (2018) ‘About UNDP in Cook Islands, Niue, Samoa, Tokelau.’ <http://www.ws.undp.org/content/samoa/en/home/operations/about_undp.html>.

¹¹¹ New Zealand Foreign Affairs and Trade. ‘Our aid partnerships in the Pacific.’ *Aid and development*. <www.mfat.govt.nz/en/aid-and-development/our-work-in-the-pacific/>.

- respond to the multigenerational humanitarian needs of survivors, without discrimination.
- b. Conduct a multi-country independent study into the children and grandchildren of survivors of French nuclear weapons tests, to investigate potential inter-generational health effects.
 - c. Victim assistance should include, but not be limited to: healthcare provision, psycho-social support, socio-economic inclusion, support for victim's advocacy associations, risk education.
 - d. Assistance should especially targeted to underserved communities.
 - e. Governments, multilateral organizations, the Red Cross and Red Crescent Movement, religious organizations, civil society and academic institutions should provide international cooperation and assistance to help affected states provide victim assistance.
 - f. Regional institutions such as the Pacific Island Forum and Pacific Islands Development Forum should promote regional approaches to assisting victims of nuclear testing.
 - g. The French government should acknowledge their especial responsibility to support victim assistance in affected states.
- 3) *Survey and **REMEDIATE** environments contaminated by French nuclear weapons testing:*
- a. Pacific states should support the comprehensive, independent and credible survey of the environmental impact of French nuclear testing.
 - b. Surveys of radiological conditions should be conducted perhaps under multilateral and/or academic auspices, but not by institutions that are committed to the promotion of nuclear technology. The National University of Samoa and University of the South Pacific particularly could aide in developing models of grassroots citizen radiation monitoring, which have had some success in areas of Iraq affected by depleted uranium and in Fukushima, Japan.¹¹²
 - c. The international community should act to prevent the collapse of Moruroa and Fangataufa Atolls and mitigate the venting and leaching of radioactive materials.
 - d. Governments, multilateral organizations, religious organizations, civil society and academic institutions should provide international cooperation and assistance to help Samoa survey and remediate contaminated environments.
 - e. Regional institutions such as the Pacific Island Forum, Pacific Islands Development Forum and Pacific Regional Environment Programme should promote regional approaches to assessing and remediating environments affected by nuclear testing and communicating radiation risk education.
 - f. The French government should acknowledge their especial responsibility to support remediation of environments contaminated by their nuclear testing program.
- 4) **RESPECT**, *protect and fulfill the human rights of nuclear test survivors:*
- a. France and Pacific states should implement 'effective remedies' of the harm to the human rights of victim of the nuclear tests, through measures including, but not limited to, investigation, opening of archives, provision of information, acknowledgement, apology, memorialization, commemoration, paying tribute to victims, assistance to victims, guarantee of non-repetition and reparation.¹¹³ Care should be taken to ensure non-discrimination in access to victim assistance.
 - b. States should question France and Pacific states on their measures to guarantee the human rights of nuclear test victims during Universal Periodic Reviews in the UN Human Rights Council.
 - c. Governments, multilateral organizations, the Red Cross and Red Crescent Movement, academic institutions, religious organizations and civil society should provide international cooperation and assistance to help guarantee the human rights of nuclear test survivors. This should include support for the human rights advocacy of survivor and test veteran associations, as well as nuclear disarmament networks like ICAN.
 - d. Regional institutions such as the Pacific Island Forum and Pacific Islands Development Forum should promote regional approaches to

¹¹² e.g. Safecast. (n.d.) 'About Safecast.' <<https://blog.safecast.org/about/>>.

¹¹³ For a summary of international norms on 'effective remedy', see: UN General Assembly. (2005) 'Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law.' A/RES/60/147. <<http://www.ohchr.org/EN/ProfessionalInterest/Pages/RemedyAndReparation.aspx>>.

guaranteeing the rights of victims of nuclear testing.

- e. The French government should acknowledge their especial responsibility to support remediation of environments contaminated by their nuclear testing program.

5) **RETELL** *the stories of the humanitarian and environmental impact of the tests:*

- a. Pacific states and France should open independent official inquiries to investigate the humanitarian, human rights and environmental harm caused by nuclear weapons testing in French Polynesia. They should declassify and make publically available archives and official documentation related to the testing programs.
- b. Pacific states and France should support mechanisms of radiation risk education, particularly in affected communities.
- c. Academia, journalists, civil society and survivors' associations should record and disseminate the testimony of victims of nuclear weapons testing in French Polynesia. They should facilitate the participation of survivors in global nuclear disarmament policymaking.
- d. Governments, multilateral organizations, the Red Cross and Red Crescent Movement, academic institutions, news media, religious organizations and civil society should provide international cooperation and assistance for disarmament education and radiation risk education, particularly to amplify survivors' voices.
- e. Regional institutions such as the Pacific Island Forum and Pacific Islands Development Forum should promote regional approaches to disarmament education and radiation risk education.
- f. The French government should acknowledge their especial responsibility to amplify the voices of survivors of nuclear testing in French Polynesia.

Further Reading

Bolton, Matthew. (January 2018) *Humanitarian and Environmental Action to Address Nuclear Harm: The Treaty for the Prohibition of Nuclear Weapons as a Normative Framework for Assisting Victims of Nuclear Weapons Use and Testing and Remediating Contaminated Environments*. New York, International Disarmament Institute. <<https://disarmament.blogs.pace.edu/files/2018/01/>

[Humanitarian-Action-to-Address-Nuclear-Harm-6-1eili3g.pdf](https://disarmament.blogs.pace.edu/files/2018/01/1eili3g.pdf)>.

CTBTO. (n.d.) 'France's Nuclear Testing Programme.' <<https://www.ctbto.org/nuclear-testing/the-effects-of-nuclear-testing/frances-nuclear-testing-programme/?textonly=1>>.

Danielsson, Bengt. (1990) 'Poisoned Pacific: The Legacy of French Nuclear Testing.' *Bulletin of Atomic Scientists*. 46(2). pp. 22-31.

de Vries, Pieter & Han Seur. (1997) *Moruroa and us: Polynesians' experiences during thirty years of nuclear testing in the French Pacific*. Lyon, Centre de Documentation et de Recherche sur la Paix et les Conflits.

Firth, Stewart. (1987) *Nuclear Playground*. Sydney, Allen and Unwin.

International Human Rights Clinic, Harvard Law School. (April 2018) 'Environmental Remediation under the Treaty on the Prohibition of Nuclear Weapons.' <<http://hrp.law.harvard.edu/wp-content/uploads/2018/04/Environmental-Remediation-short-4-8-18-final.pdf>>.

International Human Rights Clinic, Harvard Law School. (April 2018) 'Victim Assistance under the Treaty on the Prohibition of Nuclear Weapons.' <<http://hrp.law.harvard.edu/wp-content/uploads/2018/04/Victim-assistance-short-4-8-18-final.pdf>>.

International Physicians for the Prevention of Nuclear War (IPPNW). (n.d.) 'Fangataufa and Moruroa, French Polynesia.' *Hibakusha Worldwide*. <<http://www.nuclear-risks.org/en/hibakusha-worldwide/fangataufa-and-moruroa.html>>.

Jacobs, Robert. (2014) 'The Radiation That Makes People Invisible: A Global Hibakusha Perspective.' *The Asia-Pacific Journal*. 12(31). pp. 1-11.

MacLellan, Nic & Jean Chesneaux. (1998) *After Moruroa: France in the South Pacific*. Melbourne, Ocean Press.

MacLellan, Nic. (2014) *Banning Nuclear Weapons: A Pacific Islands Perspective*. ICAN Australia. <<http://www.icanw.org/wp-content/uploads/2014/01/ICAN-PacificReport-FINAL-email.pdf>>.

Ruff, Tilman A. (2015) 'The humanitarian impact and implications of nuclear test explosions in the Pacific

region.’ *International Review of the Red Cross*. 97(899). pp. 775-813.

Anne Sandstorm. (27 June 2017) ‘The bomb and us.’ *Peace and Health Blog*.

<<https://peaceandhealthblog.com/2017/06/27/the-bomb-and-us/>>.

Points of Contact

International Campaign to Abolish Nuclear Weapons (ICAN).

Web: <http://www.icanw.org/>; Email: info@icanw.org;

Phone: +41 22 788 20 63; Twitter: @nuclearban

Pacific Conference of Churches: Web:

<https://pacificconferenceofchurches.org/>; Phone: +679 3311277

International Disarmament Institute, Pace University: Web:

<http://www.pace.edu/dyson/disarmament>; Email: disarmament@pace.edu; Phone: +1 212 346 1828; Twitter: @disarminstitute

Secretariat of the Pacific Regional Environment Programme

(SPREP), Apia, Samoa. Web: <http://www.sprep.org>;

Phone: +685 21929.

Publication Details

Authors: Dr. Matthew Bolton, Sydney Tisch and Dimity Hawkins, with research assistance from Alice Osman.

Series Editor: Dr. Matthew Bolton, Director of International Disarmament Institute, Pace University, New York, New York, USA.

Reviewed by ICAN Positive Obligations Group.

Thanks to Gene Bai, Shelley Burich, Nic Maclellan, Vijay Naidu, Roland Oldham, Tilman Ruff, Samoa Cancer Society, Claire Slatter, Dominic Misiolo Sofe, Brooke Takala, Tim Wright.

September 2018. Version 4.1.

Annex: Pacific Positions on the TPNW and Other Nuclear Weapons Norms

State/Territory	Sovereignty Status			Position on TPNW	Relation to Other Nuclear Weapons Treaties		
	Relation to UN	Relation to PIF	Shared Sovereignty Arrangements		NPT	SPNFZ	CTBT
American Samoa	Designated Non-Self-Governing Territory.	Not member	Governed by USA	USA boycotted negotiations	USA is State Party	USA is signatory to Protocols 1, 2 & 3	USA is signatory
Australia	Member	Member		Boycotted negotiations	State Party	State Party	State Party
Cook Islands	Non-member; but can sign UN treaties	Member	Free association with Aotearoa New Zealand	State Party	Not Party	State Party	State Party
Federated States of Micronesia	Member	Member	Free association with USA	Boycotted negotiations	State Party	Not Party	State Party
Fiji	Member	Member		Signatory	State Party	State Party	State Party
French Polynesia/Te Ao Maohi	Designated Non-Self-Governing Territory	Member	Governed by France	France boycotted negotiations	France is State Party	France has ratified Protocols 2 & 3	France is State Party
Kiribati	Member	Member		Signatory	State Party	State Party	State Party
Marshall Islands	Member	Member	Free association with USA	Not Party; voted for adoption	State Party	Not Party	State Party
Nauru	Member	Member		Not Party; participated in negotiations; absent for adoption vote	State Party	State Party	State Party
New Caledonia/Kanaky	Designated Non-Self-Governing Territory	Member	Governed by France	France boycotted negotiations	France is State Party	France has ratified Protocols 2 & 3	France is State Party
Niue	Non-member; but can sign UN treaties	Member	Free association with Aotearoa New Zealand	Not Party; represented in negotiations by Aotearoa New Zealand	Not Party	State Party	State Party
Aotearoa New Zealand	Member	Member		State Party	State Party	State Party	State Party
Palau/Belau	Member	Member	Free association with USA	State Party	State Party	Not Party	State Party
Papua New Guinea	Member	Member		Not Party; voted for adoption	State Party	State Party	Signatory
Pitcairn Islands	Designated Non-Self-Governing Territory	Not member	Governed by UK	UK boycotted negotiations	UK is State Party	UK has ratified Protocols 1, 2 & 3	UK is State Party

Pacific Positions on the TPNW and Other Nuclear Weapons Norms, Ctd.

State/Territory	Sovereignty Status			Position on TPNW	Relation to Other Nuclear Weapons Treaties		
	Relation to UN	Relation to PIF	Shared Sovereignty Arrangements		NPT	SPNFZ	CTBT
Samoa	Member	Member	Treaty of Friendship with Aotearoa New Zealand	State Party	State Party	State Party	State Party
Solomon Islands	Member	Member		Not Party; voted for adoption	State Party	State Party	Signatory
Timor Leste	Member	Special Observer		Signatory	State Party	Not Party	Signatory
Tokelau	Designated Non-Self-Governing Territory	Associate member	Realm country of Aotearoa New Zealand	Aotearoa New Zealand is a State Party	Aotearoa New Zealand is State Party	Aotearoa New Zealand is State Party	Aotearoa New Zealand is State Party
Tonga	Member	Member		Not Party; voted for adoption	State Party	State Party	State Party
Tuvalu	Member	Member		Not Party; voted for adoption	State Party	State Party	Not Party
Vanuatu	Member	Member		State Party	State Party	State Party	State Party
Wallis and Futuna	France is member	Not member	Governed by France	France boycotted negotiations	France is State Party	France has ratified Protocols 2 & 3	France is State Party

Legend

CTBT: 1996 Comprehensive Test Ban Treaty

NPT: 1968 Treaty on the Non-Proliferation of Nuclear Weapons

PIF: Pacific Islands Forum

SPNFZ: 1985 Treaty of Rarotonga (South Pacific Nuclear Free Zone)

TPNW: 2017 Treaty on the Prohibition of Nuclear Weapons