

Blown to Hell: The Health Legacies of US Nuclear Testing in the Marshall Islands

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From 1946 to 1958 the Marshall Islands was home to extensive US nuclear testing, testing that left behind an extensive health legacy. This paper examines the initial responses to the testing to see how they influenced a legacy that has spanned decades and identifies the indirect and long lasting health consequences and why they appeared. Just as crucial as to why and how these health consequences have affected the Marshallese people, is who has taken responsibility since. Focusing on the 1980s to the 2000s, this paper examines the significance of the responses, or lack thereof, from the United States and how it has contributed to the health legacies of the Marshall Islands.

The Marshall Islands, a collection of coral atolls and islands, lie in the midst of the Pacific Ocean halfway between Hawaii and Japan in the Micronesia region. From 1946 to 1958 this isolated paradise was home to extensive US nuclear testing, testing that has left behind an extensive health legacy. In order to identify the indirect and long lasting health consequences and why they appeared, this paper examines the initial responses to the testing to see how they have influenced a legacy that has spanned decades, and will surely continue to do so. Just as crucial to why and how these health consequences have affected the Marshallese people, is who has taken responsibility for them ever since. In 1983 the Marshallese, still enduring the health consequences of nuclear testing, entered into a Compact of Free Association with the United States. By determining what the Compact of Free Association has meant for responsibility and compensation of US nuclear testing damages, and who has benefited most from this agreement, we can see its role in the health legacy of the Marshallese. I will emphasize that as a result of US nuclear testing, the Marshall Islanders have suffered long lasting health consequences. Focusing on the 1980s to 2000s, I will examine the significance of the responses, or lack thereof, from the United States and how it has contributed to the health legacies of the Marshall Islands.

When the Bombs Dropped

As soon as the war ended, we located the one spot on earth that hadn't been touched by the war and blew it to hell – Bob Hope¹

From 1946 to 1958 the United States government detonated sixty-seven nuclear weapons on the Marshall Islands, six of which resulted in the vaporization of some islands.² The testing program detonated the equivalent of 7,000 Hiroshima bombs in the Marshall Islands.³ During the Cold War era and the race for nuclear supremacy against the Soviet Union, these experiments helped the United States reinforce their strategy of deterrence. The initial nuclear test conducted by the

¹ Bikini Atoll website, accessed April 9, 2013, <http://www.bikiniatoll.com/>. Quote from comedian Bob Hope commenting on Operation Crossroads.

² Holly M. Barker, *Bravo for the Marshallese: Regaining Control in a Post-Nuclear, Post-Colonial World*. (Belmont: Wadsworth, 2013), 22.

³ *Ibid.*, 157.

United States in 1946, Operation Crossroads, was conducted while the Marshall Islands were administered by the US Navy. It was not until 1947, a full year after Operation Crossroads, that the United Nations established eleven trust territories, the Marshall Islands being the only ones designated as “strategic territory”. It was under the terms of trusteeship that the United States acquired this strategic territory, as well as the requirement to promote the health and well-being of the citizens of the Marshall Islands and to protect the inhabitants against the loss of their lands and resources.⁴ Despite this, the United States government detonated a further sixty-six nuclear weapons after acquiring trusteeship over the Marshall Islands.

Aside from the islands that were completely vaporized by detonations and no longer exist today, islands that remain, such as Bikini and Enewetak, bear scars in the form of craters that mark the history of the nuclear testing. All islands and atolls were exposed to radiation released from tests; however, the highest levels of radiation were in the northern islands and atolls that were closest to ground zero locations.⁵ Runit Island became the most radioactive island of all. After being used as a detonation site, it was past the point of no return, being too radioactive for the Marshallese to ever inhabit it, enabling it to become a radioactive dump site where more than 100,000 cubic yards of radioactive soil and debris have been enclosed in a cement dome.⁶ Runit Island will be quarantined and lost to the Marshallese forever, but with this in mind, islands within three miles of Runit have been designated as being safe for picnics and food gathering. This has raised some serious questions regarding how safe these surrounding islands can be, given that food sources such as birds, crabs, and turtles can easily travel between the quarantined island and the “safe” islands and in turn be consumed by the Marshallese.

The beginning of the United States nuclear testing in the Marshall Islands marked the beginning of the Marshallese being subject to numerous evacuations, the consequent displacement from their homes, and for some the promise of never being able to return. The first of these evacuations began in 1946 when Bikinians were moved to Rongerik, the people of Enewetak were moved to Meck Island and Kwajalein, and the people of Rongelap and Wotho were moved to Lae atoll – all in preparation for Operation Crossroads. Enewetak atoll was evacuated again in 1947, and this time they were moved to Ujelang. Some 550 Marshallese living in a labour camp on the United States base at Kwajalein were moved to Ebeye Island in 1948. The Bikinians living on Rongerik were evacuated once again, temporarily to the Navy base on Kwajalein, and were moved months later to Kili Island, all in 1948. When Operation Bravo took place in 1954, radioactive fallout was carried towards Rongelap, Rongerik, and Utrik, which resulted in the Rongelap people on Rongerik and the people of Utrik to be evacuated two days later. Months later, the Rongelap people were moved to Ejit Island due to Rongelap being highly contaminated from the radioactive fallout of Bravo, the Utrik people were told their island was safe and to return home. The Rongelap people were finally told their island is safe in 1957 and they returned home. The early 1960s contained a few more evacuations, more so the result of the United States designating the area for military operations, rather than further nuclear testing. In 1972 The Atomic Energy Commission told Bikini residents that it had cleaned up their atoll and it was safe for them to return home; only three families believed the island was safe enough to return and chose to do so. In 1978 the families that had returned to Bikini were re-evacuated to Kili after

⁴ Ibid., 22.

⁵ Ibid., 23.

⁶ Giff Johnson, “Paradise Lost.” *The Bulletin of the Atomic Scientists* (1980): 24.

testing indicated that they had a 75 percent increase in body levels of radioactive caesium since their return to Bikini. The people of Enewetak atoll began to return home in 1980, with the exception of being able to return to Runit, which had been designated as off limits indefinitely. Many Enewetakese people returned to Ujelang and shortly after returning home they discovered the trees did not bear fruit. Finally, in 1985, with the help of Greenpeace the Rongelap people moved to Mejato after suffering continuous signs of radiation linked illnesses.⁷

Outlining all of the evacuations that took place during and after the US nuclear testing is a substantial feat, but it is an important aspect that must be acknowledged in order to discuss the health consequences of nuclear testing for the Marshallese. Many of these evacuations were carried out in order for the United States military to either conduct nuclear testing on the home islands of the Marshallese, or to prevent exposure to fallout. However, after nuclear testing was terminated evacuations continued to take place, whether it was for United States military interests in the area or because islands were found to be unsafe for habitation after the United States had originally cleared them as safe. Regardless of the intentions behind the evacuations, they resulted in devastating health consequences for the Marshallese.

Even before the long lasting and indirect health consequences of US nuclear testing in the Marshall Islands, there were immediate health consequences. The resulting responses to these consequences unquestionably determined the outcome of the health legacies the Marshallese have been dealing with since. Evacuations that occurred to remove the Marshallese from the areas where nuclear testing would take place had immediate health consequences for the displaced Marshallese. The Enewetakese who were evacuated to Ujelang were unable to sustain themselves for long, and as a result suffered malnutrition and serious food shortages due to the infrequency of supply deliveries from the United States. The extreme radioactivity in the surrounding environments, environments which thus became ruined to the Marshallese resulted in serious health consequences. However, there was one test in particular that directly exposed the Marshallese to radioactive fallout. The Bravo test resulted in the wind blowing radioactive ash directly towards inhabited islands. The radioactive material stuck to skin and hair, was inhaled, and was even played with and eaten by islanders who thought this strange material was snow. Although some illnesses were possibly not a result of radiation exposure, there are many clear health problems that can be determined to be a result of radiation exposure. The Marshallese directly exposed to radiation fallout presented a wide array of health issues: cancers, thyroid diseases, beta burns, hair loss, and birth defects. The anthropologist Holly M. Barker has commented that the United States government did not evacuate the Marshallese during the Bravo test, knowing full well that the radioactive material would carry towards the inhabited islands “purposefully [leaving] the Marshallese people in harm’s way and [exposing] them to radioactive fallout.”⁸ Whether the United States government purposefully exposed the Marshallese to radiation is questionable. The American government’s general disregard for the Marshallese is more plausible, yet equally atrocious.

Government Response and Acknowledgement of Responsibility

⁷ Jane Dibblin, *Day of Two Suns: US Nuclear Testing and the Pacific Islanders*. (London: Virago Press, 1988), 255-58.

⁸ Barker, *Bravo for the Marshallese*, 24.

The initial response by the United States government to the health consequences the Marshallese suffered as a result of nuclear testing was less a response and more of an observation. The earliest response by the United States government, in 1954, came in the form of Project 4.1, the “Study of Response of Human Beings Accidentally Exposed to Significant Fall-Out Radiation.”⁹ Loss of hair, depressed blood cell and leukocyte counts, flulike symptoms, nausea, fingernail discoloration, and radioisotope activity in the urine were all side effects observed in those after acute exposure.¹⁰ Project 4.1 served to document all of these effects of radiation exposure. Patients did not receive painkillers or medication for any of their maladies. Doctors monitored the health of the patients in the study, regularly taking blood, bone marrow and urine samples without ever asking the individuals for their permission to be a part of the study.¹¹

The United States decision to evacuate the Marshallese during various stages of the nuclear testing program, after the program, and the incredibly insufficient supply deliveries that took place once the Marshallese were displaced was in its own way an acknowledgement of potential health consequences and the responsibility the United States had, however inadequate. The early 1980s marked the beginning of serious acknowledgement of responsibility by the United States, likely thanks to protest from the Marshallese. On May 24th, 1981 in a Department of Energy (DOE) document requesting guidance for DOE coverage for the referral of patients presenting a non-radiation related illness or disease, it is clear that acknowledgement of responsibility is made, even if it would rather be avoided. In addition to the outline of procedures to follow when referring a patient from the Marshall Islands elsewhere to receive health care, the document states:

Commitment has been made; this is not and must not be considered to be a responsibility of the Department of Energy. . . And it should be realized that referrals should be prioritized with awareness of fiscal constraints. . . While agreeing to cover medical needs of an immediate life-threatening nature, this is an interim and temporary humanitarian measure for which a limited financial [sic] . . .¹²

The following year in another DOE document from February 19th, 1982, that asked whether the Marshall Islands programs should be transferred from the Office of Environmental Protection, Safety and Emergency Preparedness to Defense Programs, a change of stance was noted on the part of the DOE. In the discussion it was stated that, “The problems (social and technical) in the Marshall Islands are the legacy of the atmospheric test program.”¹³ Both of these DOE documents highlight the fact that United States government officials were aware of the degree of responsibility that the U.S. held for the health consequences suffered by the Marshallese, but they wished to avoid any measure of responsibility that would require extensive compensation or public admission of blame.

⁹ Ibid., 41.

¹⁰ Barbara Rose Johnston and Holly M. Barker. *Consequential Damages of Nuclear War: The Rongelap Report*. (Walnut Creek: Left Coast Press, Inc., 2008), 105.

¹¹ Barker, *Bravo for the Marshallese*, 44.

¹² Department of Energy, “Twx to E Cronkite, et al, Subject: Guidance For Referral of Rongelap and Utrik Patients With Non-Radiation Related Illness or Disease,” March 24, 1981, 2-3.

¹³ Department of Energy, “Memorandum: Action: Marshall Islands Programs,” February 19, 1982, 2.

Given this context, a 1996 report from the DOE, the “Five Year Report on the Medical Follow up of Marshallese Receiving Special Medical Care Related to 1954 Bravo Fallout Radiation,” outlines the mandate of the Marshall Islands Medical Program. The mandate of the program, as required by the United States Congress in 1980 (PL 96-205, Sec. 106 (a)), states that, it created “. . . a program of medical care and treatment . . . for *any* injury, illness, or condition which may be the result *directly or indirectly* of such nuclear weapons testing program.”¹⁴ The medical program discussed in this document was carried out by Brookhaven National Laboratory, owned by the United States DOE. It is worth comparing the mandate set out by Congress in 1980, and the attitude towards responsibility by the DOE in the 1981 document, which requested guidance on the transfer of patients from Brookhaven National Laboratory to medical establishments elsewhere. The Department of Energy’s stance in 1981 regarding patient health care, and the assertion that it “must not be considered to be a responsibility of the Department of Energy,” is in direct opposition to the program mandate.

Compact of Free Association and Limitations of Responsibility

In 1983, voters in the Marshall Islands approved the Compact of Free Association for a 15-year period with the United States, redefining the political relationship between the two. As a result, the Marshall Islands entrusted its defence to the United States, while the United States maintained the power to exercise its own defense in the Marshall Islands. The Marshall Islands became self-governing, with separate nationality and citizenship, but the Compact provided Marshallese citizens the right to enter, live, work and go to school in the United States.¹⁵ The most crucial component of the Compact of Free Association is the 177 Agreement because it addressed the consequences of the US nuclear weapons testing program. The 177 Agreement states: “[t]he Government of the United States accepts responsibility for compensation owing to citizens of the Marshall Islands . . . for loss or damage to property and person . . . resulting from the nuclear testing program. . . .”¹⁶ In addition to the 177 Agreement, the Compact also agreed to provide the people of Rongelap and Utrik with a medical care program operated by the DOE, which operates under strict definitions and restrictions, limiting the number of individuals who can qualify for health care.¹⁷ In the 177 Agreement, the United States government also agreed to provide a one-time settlement of \$150 million for all past, present and future consequences of the nuclear testing program, which came with the price tag of the Marshall Islands agreeing to abandon all claims in US courts.¹⁸ As an alternative to the courts, the 177 agreement established a Nuclear Claims Fund (NCF) and dispersed money to the four Marshallese communities most affected by nuclear tests.¹⁹ However, in 2000 when the tribunal awarded over \$341 million to Enewetakese claimants for the “hardships suffered as a result of their relocation” and for “past and future loss of use of Enewetak” the Nuclear Claims Tribunal, still determining a damages amount and stated that the “claimants have suffered damage beyond which money can

¹⁴ Brookhaven National Laboratory, “Five Year Report on the Medical Follow Up of Marshallese Receiving Special Medical Care Related to 1954 Bravo Fallout Radiation (January 1992-1996) DOE/EH-0593,” 1 (emphasis added).

¹⁵ Barker, *Bravo for the Marshallese*, 30.

¹⁶ *Ibid.*, 30.

¹⁷ *Ibid.*, 31.

¹⁸ *Ibid.*, 35.

¹⁹ Martha Smith-Norris, “American Cold War Policies and the Enewetakese: Community Displacement, Environmental Degradation, and Indigenous Resistance in the Marshall Islands.” *Journal of the Canadian Historical Association* 22 (2011): 219.

compensate.”²⁰ Unfortunately for the Marshallese, money would not compensate their losses; there was not enough money in the NCF. Islanders were paid out less than one-half of one percent of the amount the Nuclear Claims Tribunal had awarded for their hardships: a mere \$1.7 million of the \$341 million that was awarded.

The responsibility the United States has taken for the health consequences resulting from their nuclear testing program, and the compensation offered in return has its limitations. The four atoll communities most affected by testing (Bikini, Enewetak, Rongelap and Utrik) were the only ones officially recognized by the United States to receive any form of compensation. Other atoll populations exposed to radiation and suffering from long lasting health consequences of the nuclear testing program were all but ignored by the United States government. These ignored communities have no resources to address environmental degradation as a result of radiation exposure and no rights to receive American funded medical treatment for health problems that are a result of radiation exposure. Responsibility is also limited to a specific time frame. Individuals who were not residing on the four designated atolls during the time frame of the testing program are denied United States government assistance, even if they lived or worked on contaminated lands after the testing program.²¹ To emphasize, the United States has taken “responsibility” for the environmental and health problems culminating from the nuclear testing program, but it is exceptionally limited. The laws that define the United States assistance programs are extremely narrow and prohibit thousands of people who were exposed to radiation from the testing program to be able to receive the same benefits as citizens from the four designated islands.

Indirect and Long Lasting Health Consequences of the US Nuclear Testing

We seek no retribution, nor do we condemn the United States for what it has done. We merely wish to recover our original way of life, to overcome the disadvantages which have been imposed upon us because of our exile.²²

It is an absolute irony that the US nuclear testing program took place while the United Nations Trust Agreement bound the United States to “protect the health of the inhabitants” and to “protect the inhabitants against the loss of their land or resources.”²³ Instead of receiving protection, the Marshallese were left with health consequences that have stretched out over decades, the rape of their land, and the absolute destruction of a way of life. In addition to the heinous health consequences the Marshallese suffered in response to immediate radioactive exposure, the consequences they have suffered in the decades following are equally as deplorable. Much of this suffering has been a direct result of actions taken by the United States government in response to initial “health concerns,” namely the evacuation, or perhaps more fittingly, the exile of the Marshallese.

The health legacies of US nuclear testing in the Marshall Islands is a topic that has been greatly neglected by historians. It appears that most historians have focused their attention on the Cold War time frame, and the importance of the bombs. Most of the literature and research on the

²⁰ Ibid., 221.

²¹ Barker, *Bravo for the Marshallese*, 37.

²² Smith-Norris, “American Cold War Policies and the Enewetakese,” 218.

²³ Johnson, “Paradise Lost,” 29.

Marshallese and the suffering they have incurred in the decades after the nuclear testing ban comes from anthropologists addressing the overarching cultural themes. Historian Martha Smith-Norris is an exception to this and has addressed that the “human and environmental implications of American Cold War policies [in the Marshall Islands] deserve further attention by historians.”²⁴

In her research on American Cold War policies and the Enewetakese, Smith-Norris addresses the environmental concerns that faced the Enewetakese when they resettled. Enewetak had been “nearly completely denuded of vegetation” and after clean-up and resettlement of the islands, very little vegetation remained. As a result of this, the Enewetak had to rely on imported food. It was also recognized that reliance on imported food would have to continue into the future to “keep the people from eating food grown on the atoll until the degree of risk from plant uptake of radionuclides [could] be properly evaluated.”²⁵ In order to restore the Enewetak environment, islanders chose to treat contaminated soil with potassium and to monitor it for radiation. The Enewetakese realized that restoring the ecology of their atoll would be a long term project. Scientists have estimated that the method of treating the soil with potassium and monitoring it to ensure the safety of food sources would be a project necessary for at least 100 years.²⁶ This type of treatment has continued to be utilized by the Marshallese. In a letter to Oscar deBrum, the chief secretary of the Marshall Islands from Harry Brown at the Office of Emergency Response and Program Analysis in 1988, the use of potassium is recommended. Brown says that “what this achieves is the ‘buying’ of a certain number of years in which food crops contribute much less to total dose of a user population, and meanwhile the natural decay further reduces the overall levels of radioactivity.”²⁷

The environmental degradation that has resulted from US nuclear testing has had far reaching consequences on the health of the Marshallese. A high level of radioactivity in soil has greatly impacted the availability of food sources for the Marshallese. The destruction of food crops impacts the Marshallese in two ways: they can no longer be self-sufficient with traditional subsistence, and they must turn to other food sources which bring their own host of problems. The people of Rongelap went into self-exile in 1985 after experiencing radiation related illnesses from the food and water sources on Rongelap.²⁸ Prior to their self-exile, the islanders returned to eating coconut crabs, an important source of food for the Marshallese. It was not until more than a year after the United States resettled the community that Americans informed the people that eating the coconut crabs presented a health risk due to the high levels of strontium 90.²⁹ The people of Bikini faced similar challenges when resettling to their home island as well. In 1980, the DOE declared a particular Bikini island safe for return and that “the people [would] not receive doses above the federal radiation standards if they import[ed] 50 percent of their food and [spent] no more than 10 percent of their time on Bikini Island, approximately six miles away.”³⁰ Instead of removing the population from the hazardous environment (or removing the

²⁴ Smith-Norris, “American Cold War Policies and the Enewetakese,” 222.

²⁵ Ibid., 217.

²⁶ Ibid., 221.

²⁷ Harry U. Brown, Office of Emergency Response and Program Analysis, “Attn: Oscar deBrum, Chief Secretary Republic of the Marshall Islands,” October 26, 1988, 1.

²⁸ Johnston and Barker, *Consequential Damages of Nuclear War*, 159.

²⁹ Barker, *Bravo for the Marshallese*, 46.

³⁰ Johnson, “Paradise Lost,” 29.

hazards from the environment) the DOE suggested that the government implement a feeding program, to reduce the consumption of local foods, and thus exposure.³¹

The loss of traditional food sources and the introduction of imported food to the Marshallese diet have adversely affected the nutritional status and overall health of the Marshallese. Traditionally, the diet of the Marshallese would have consisted of breadfruit, taro, bananas, fish and other naturally grown crops that would have been rich in nutrients. The loss of these food sources to high radiation content has resulted in food importing and “fat dumping”. The availability of certain items has been termed “fat dumping,” which refers to the selling of unwanted high fat animal by-products to lower income populations.³² Commonly imported and consumed meats are turkey tails, turkey necks, and corned beef. Food is imported by eight wholesalers who retail their goods to smaller stores. Smaller stores generally stock items such as snack foods, soft drinks, candy and canned meat. A consequence of nuclear testing for the Marshallese has resulted in the dependency on western foods and the loss of traditional food practices. Not having access to traditional, healthy food sources has led to significant levels of undernutrition in children and overnutrition in adults who have become dependent on inadequate western diets.³³

The loss of self-sufficiency for the Marshallese is a complex issue with many contributing factors, many of which stem from the loss of land, a result of the evacuations during nuclear testing. In the case of the Rongelap people, the weapons testing program alienated the entire population from its land and resources. This loss has resulted in serious consequences for the diet, health, household economy, cultural knowledge, and long-term well-being of the community.³⁴ The loss of land and subsequent urbanization of islands of exiled communities has led to serious housing problems. Ebeye Island, where many exiled communities relocated, is one of the most densely populated areas in the world. It is home to approximately 15,000 people in the space of one-tenth of a square mile.³⁵ In the documentary “Collateral Damage,” Dr. Neal Palafox commented on the health issues that have resulted from the displacement of the Marshallese from their home islands. Palafox says that, “When you move people off their islands where they live to do the testing, you break down their entire community structure. What is the impact on health? You contaminate their lands; they can’t grow things that they used to eat. They get more diabetic because . . . they’re eating a western diet. . . [And] when you urbanize, infectious diseases tend to take off.”³⁶ The evacuations of the Marshall Islanders, whether before or after testing, as well as the self-exile of many communities due to their home islands being ravaged by nuclear testing, has all led to generations of Marshallese enduring health consequences as a result.

Consequently, the health consequences of US nuclear testing were not something that took place in one moment of time, at the time the bombs dropped. Instead, the health consequences are the legacy of those bombs being dropped, creating a legacy of health implications that spanned decades and will likely continue to span many more decades. Jane Dibblin ends her book, *A Day*

³¹ Ibid., 26.

³² Joel Gittelsohn and Heather Haberie, Amy E. Vastine, William Dyckman and Neal A. Palafox. “Macro- and Microlevel Processes Affect Food Choice and Nutritional Status in The Republic of the Marshall Islands.” *The Journal of Nutrition* 133 (2003): 311.

³³ Ibid., 312.

³⁴ Barker, *Bravo for the Marshallese*, 66.

³⁵ Ibid., 68.

³⁶ California Newsreel, *Collateral Damage*, Film, California Newsreel with Vital Pictures, 2008.

of *Two Suns*, with this rather fitting sentiment from Kinoj Mawilong, an Ebeye resident: “Our main hope is that the world will get to know of what has happened here. And when you know we need your active support. Together we must stop the testing and stop the arms race: and then we will be able to begin looking at all our other problems.”³⁷ I think that this is an important statement to reflect upon, especially as academics. Instead of focusing on the US military’s dropping of bombs, the focus should be shifted to the consequences resulting from unquestioned power in our world. Being a dominant force on the world stage can lead to the prevention of a critique of historical actions, leaving it the responsibility of academics to focus on the injustices that are not getting attention in prominent discourse. More attention should be paid to the legacies of these major historical events, for the sake of the people who were affected and also for ourselves. Health legacies of major historical events matter: not just because of the need to bear witness, but because these legacies are still unfolding and claiming their space in history. When we shift our attention to them, we not only broaden our discourse, we provide active support to those who are still suffering from these legacies.

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³⁷ Dibblin, *Day of Two Suns*, 254.

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