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**Promotion et protection de tous les droits de l'homme,
civils, politiques, économiques, sociaux et culturels,
y compris le droit au développement**

Rapport du Rapporteur spécial sur les incidences sur les droits de l'homme de la gestion et de l'élimination écologiquement rationnelles des produits et déchets dangereux, Calin Georgescu

Additif

Mission dans les Îles Marshall (27-30 mars 2012) et aux États-Unis d'Amérique (24-27 avril 2012)* **

Résumé

Dans le présent rapport, soumis conformément à la résolution 18/11 du Conseil des droits de l'homme, le Rapporteur spécial sur les incidences sur les droits de l'homme de la gestion et de l'élimination écologiquement rationnelles des produits et déchets dangereux rend ses conclusions et formule des recommandations en se fondant sur ses visites dans les Îles Marshall et aux États-Unis d'Amérique, pendant lesquelles il a cherché à évaluer les incidences sur les droits de l'homme du programme d'essais nucléaires mené par les États-Unis dans les Îles Marshall, de 1946 à 1958, en s'intéressant en particulier aux efforts déployés par le Gouvernement de chaque État pour atténuer les effets néfastes de ce programme.

Le Rapporteur spécial analyse les effets néfastes sur les droits de l'homme du programme d'essais, en particulier ceux qui résultent de substances et de déchets dangereux. Il examine les actions visant à atténuer ou faire disparaître ces effets préjudiciables et conclut le rapport par des recommandations à cette fin.

* Le résumé du présent rapport est distribué dans toutes les langues officielles. Le rapport proprement dit est joint en annexe au résumé et il est distribué dans la langue originale seulement.

** Soumission tardive.

Annexe

[English only]

Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes on his mission to the Marshall Islands (27-30 March 2012) and the United States of America (24-27 April 2012)

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I. Introduction

1. The Special Rapporteur on the implications for human rights of environmentally sound management and disposal of hazardous substances and wastes conducted a visit to the Marshall Islands from 27 to 30 March 2012, and to the United States of America from 24 to 27 April 2012. Both visits were carried out at the invitation of the respective Governments. The Special Rapporteur wishes to thank both Governments for their cooperation during the visits.
2. The Special Rapporteur conducted the two visits as part of his efforts to examine, in a spirit of cooperation and dialogue (a) the effects of the nuclear testing programme of the United States in the Marshall Islands between 1946 and 1958, when it was under United Nations trusteeship, on the enjoyment of human rights; (b) the efforts made by both Governments to eliminate or mitigate the negative effects of the testing on the Marshallese population, and the sound management of hazardous substances and wastes associated with nuclear testing; and (c) the lessons learned and additional measures necessary to ensure the full realization of the victims' right to an effective remedy. The findings of both visits are therefore presented in one comprehensive report.
3. During his four-day visit to the Marshall Islands, the Special Rapporteur met with the President, Christopher J. Loeak; members of the *Nitijela* (parliament); the Minister-in-Assistance to the President; the Chief Secretary; the Assistant Attorney General; the Adviser on Nuclear Issues; representatives of the Environmental Protection Authority, the Ministry of Health, the Ministry of Resources and Development, and the Council of *Iroij* (elders); and the mayors and people of Bikini, Enewetak, Rongelap and Utrok Atolls. The Special Rapporteur also had the opportunity to visit Ejit Island, to where the inhabitants of Bikini relocated, as well as certain places in Majuro where the former inhabitants of Enewetak and Utrok now reside. The Special Rapporteur also met with the Ambassador of the United States to the Marshall Islands, representatives of the United States Department of Energy, and members of academia and civil society.
4. The Special Rapporteur thanks the Ministry of Foreign Affairs for coordinating his visit to the Marshall Islands. He expresses his appreciation to the United Nations Joint Presence in Majuro and the Pacific Regional Office of the Office of the United Nations High Commissioner for Human Rights for their support during the visit. In addition, the Special Rapporteur expresses his sincere gratitude to civil society representatives who took the time to meet with him during his visit to the Marshall Islands. The Special Rapporteur was particularly honoured to receive the personal testimony of several of the survivors of the testing period, as well as accounts of descendants of those since deceased.
5. During his four-day visit to the United States of America, the Special Rapporteur met with representatives of the Department of State, the Department of Energy, the Department of Defense, the Senate Committee on Energy and Natural Resources and the National Cancer Institute, as well as with academics and members of civil society.
6. The Special Rapporteur thanks the Department of State for coordinating his visit and for its cooperation and flexibility in arranging the schedule. He also thanks the civil society representatives who took the time to meet with him during his visit.
7. The Special Rapporteur sent a questionnaire to the Government of the Marshall Islands and to that of the United States of America on 21 March 2012 to complement the information gathered during the course of his visits. He received their responses on 26 March and 24 April 2012, respectively.

8. While the Special Rapporteur acknowledges that many issues concerning nuclear testing in the Marshall Islands must be resolved, he emphasizes that the purpose of the present report is neither to apportion blame to either State nor to attempt to make a legal pronouncement on the nuclear testing programmes. Much has already been written in this vein and the Special Rapporteur wishes rather to stimulate constructive and forward-looking dialogue between the parties in the spirit of understanding, respect and reconciliation, for the benefit of the Marshallese people.

9. The Special Rapporteur is cognizant of the effects of the nuclear testing programme on the health of United States war veterans who were not necessarily aware of the consequences of their own exposure to hazardous substances and wastes. He also realizes that people in territories where other countries conducted similar nuclear testing programmes, for example in Algeria, French Polynesia and Kazakhstan, were affected.¹ Such concerns, however, lay outside the scope of the present report, also owing to practical limitations. The report presents nonetheless an opportunity to provide good practices in the area of addressing the human rights impact of nuclear testing programmes generally and, in particular, to other States involved in such programmes and the populations whose rights may be affected.

II. Nuclear testing programme in the Marshall Islands

10. The Marshall Islands comprised 29 low-lying coral atolls and five islands, totalling 70 square miles of land scattered over 750,000 square miles of ocean. After centuries of successive colonial rule by Spain, Germany and Japan, the Marshall Islands was designated a Trust Territory pursuant to Security Council resolution 21 (1947), and the United States of America was designated as the Administering Authority. The Security Council designated the Trust Territory of the Pacific Islands, which comprised the present-day Marshall Islands, the Federated States of Micronesia, the Northern Mariana Islands and Palau as a strategic area, and placed it under the United Nations international trusteeship system. Under the terms of resolution 21 (1947), the United States was charged with fostering the development of political institutions, promoting economic, social and educational advancement, and moving the Trust Territory towards self-governance. Importantly, as the Security Council designated the Marshall Islands a “strategic area”, it granted to the United States, as the Administering Authority, permission to militarize the territory. Notably, the Administering Authority was entrusted “to protect the land, resources, and health of Micronesia’s inhabitants”.

11. In article 16 of resolution 21 (1947), the Security Council, having approved the terms of trusteeship on 2 April 1947, provided that the Trusteeship Agreement would enter into force when approved by the Government of the United States of America after the completion of a due constitutional process. On 18 July 1947, the Congress of the United States enacted a joint resolution accepting the Trusteeship Agreement, which was approved by the President the same day.

12. On 1 July 1946, before the Trusteeship Agreement came into force, the United States of America moved the 167 inhabitants of Bikini Atoll to the smaller Rongerik Atoll in order

¹ According to the report of the United Nations Scientific Committee on the Effects of Atomic Radiation for 2000, the total number of atmospheric tests carried out by all countries as at 1998 was 541, with a yield of 440 megatons and a fission yield of 189 megatons. Depending on the altitude of the explosion, radioactive residues dispersed into the environment locally, regionally and globally, and caused the largest collective radiation doses to humans from man-made sources. As at 1998, the total number of all underground tests by all countries was 1,867, with an estimated yield of 90 megatons.

to commence nuclear tests, known as “Operation Crossroads”. After enduring periods of near starvation and malnutrition due to limited food supplies on Rongerik Atoll, in 1948 they were relocated to Kwajalein Atoll, where they were housed in tents along the military airstrip. Soon after, they were moved again to Kili, a small island with no lagoon, no protective reef and no fishing grounds. Eventually, 139 Bikinians returned to Bikini Atoll in 1972, but were again moved to Kili Island and Ejit Island of Majuro Atoll owing to the radiation exceeding permissible levels on Bikini Atoll. The people of Bikini Atoll also decided not to return their homes. Indeed, in 1998, the International Atomic Energy Agency (IAEA) recommended that the Atoll not be permanently resettled under the present radiological conditions or until certain specified remediation action had been taken.² The inhabitants of Rongelap Atoll also were evacuated in 1946, returned in 1957 and, ultimately, moved voluntarily from Rongelap in 1985.

13. Enewetak Atoll later became another testing site, and 145 people were moved to Ujelang Atoll. The detonation of the world’s first hydrogen bomb vaporized one of the islands of Enewetak. The testing continued; on 1 March 1954, the Castle Bravo test³ resulted in a blast 1,000 times the explosive power of the bombing of Hiroshima on Bikini Atoll, making it the most powerful known detonation made by the United States. The nuclear weapon’s high explosive yield created a fallout cloud that covered Rongelap Atoll (100 miles from the blast site) and Utrok Atoll (320 miles from the blast site).

14. Two months later, on 6 May 1954, the Marshallese people filed a petition with the United Nations Trusteeship Council regarding the nuclear testing, which received a hearing on 20 August 1954 (see chapter IV).⁴ In the petition, the Marshallese people were “not only fearful of the danger to their persons from these deadly weapons”, but “also concerned for the increasing number of people removed from their land”, and requested that “all experiments with lethal weapons in this area be immediately ceased.”

15. The United States of America continued its nuclear testing programme until 1958, conducting a total of 67 detonations throughout the territory of the Marshall Islands, mostly in Bikini (23) and Enewetak (43)⁵ Atolls, and accounting for 32 per cent of all atmospheric tests conducted by the United States. The Marshallese people were told that the tests were necessary for the eventual well-being of all people in the world.⁶

16. The trusteeship of the United States of America was terminated pursuant to Security Council resolution 683 (1990), after the Council determined that the conclusion of a Compact of Free Association between the United States and the Marshall Islands fully satisfied the terms of the trusteeship agreement. Under the terms of the Compact, the Marshall Islands was established as a sovereign State in free association with the United States. The Compact granted the United States certain competencies, including full authority and responsibility for the security and defence of the Marshall Islands, including military operating rights and the use of certain areas. It also afforded the Marshall Islands certain privileges, for example on immigration and taxation, and provided for economic assistance, including eligibility for certain federal programmes.

² Peter Stegnar, “Assessing Radiological Conditions at Bikini Atoll and the Prospects for Resettlement. Review at Bikini Atoll”, IAEA Bulletin 40/4/1998; IAEA, Radiological conditions at Bikini Atoll: prospects for resettlement, Radiological Assessment Reports Series (STI/PUB/1054) (Vienna, 1998).

³ See also A/66/378, para. 7.

⁴ Petition from the Marshallese people concerning the Pacific Islands (T/PET.10/28), 6 May 1954.

⁵ An additional test was conducted at an altitude of 86,000 feet from a balloon that was launched from an aircraft carrier located approximately 85 miles north-east of Enewetak.

⁶ Petition from the Marshallese people concerning the Pacific Islands (T/PET.10/29), 9 March 1956, enclosure IV.

17. According to information received from the United States of America, the Compact represents a continuation of the rights and obligations of the United States as elaborated in the Trusteeship Agreement, and provides a framework to achieve three main goals: (1) to secure self-government for the Marshall Islands; (2) to assist the Marshall Islands in its efforts towards attaining economic development and self-sufficiency; and (3) to ensure certain national security rights for all parties. The Compact was approved by the people of the Marshall Islands in a plebiscite held in 1983, and legislation on the Compact was passed by the United States Congress and signed into law by the President in 1986.

18. Under section 177 (a) of the Compact, the Government of the United States of America “accepts the responsibility for compensation owing to citizens of the Marshall Islands, for loss or damage to property and person of the citizens of the Marshall Islands, resulting from the nuclear testing program which the Government of the United States conducted in the Northern Marshall Islands between June 30, 1946, and August 18, 1958.” Section 177 (b) requires, *inter alia*, the creation of a separate agreement for the just and adequate settlement of all claims and outlining provisions for medical surveillance, treatment programmes, radiological monitoring, and additional programmes and activities. Section 177 (c) of the Compact further provided for direct economic assistance to the Marshall Islands, including the establishment of a \$150 million fund for claims arising from the nuclear testing as well the provision of projects, programmes and technical assistance (see also chapter IV below).

III. Impact on the enjoyment of human rights

19. The nuclear testing resulted in both immediate and continuing effects on the human rights of the Marshallese. According to information received by the Special Rapporteur, radiation from the testing resulted in fatalities and in acute and long-term health complications. The effects of radiation have been exacerbated by near-irreversible environmental contamination, leading to the loss of livelihoods and lands. Moreover, many people continue to experience indefinite displacement.

A. Right to health

20. Radiation doses are not frequently encountered in everyday life, although people may be exposed to natural “background” radiation⁷ from the air, land, sea, foodstuffs and the human body itself, as well as from various beneficial practices, such as radiological medicine (for example, X-ray imaging or cancer radiotherapy).⁸ For the purposes of establishing international radiation protection standards, it is assumed that any increase in a dose of radiation, however minute, will result in a proportionate increase in the risk of cancer.⁹

21. Human beings are exposed to radiation from the release of radioactive elements or radionuclides, generally through (a) rain washing hazardous radioactive materials out of the air in the form of acid rain; (b) direct external exposure to a nuclear explosion cloud; (c) direct external exposure to hazardous radioactive materials in the ground; (d) internal

⁷ According to the United Nations Scientific Committee on the Effects of Atomic Radiation, the global average radiation dose from natural background sources is 2.4 millisieverts (mSv) per year. The sievert (Sv) is the international unit of measurement for radiation doses.

⁸ A routine diagnostic chest X-ray is equivalent to about 0.05 mSv, while a comprehensive X-ray examination may lead to a dose as high as 10 mSv.

⁹ IAEA, “Nuclear Tests in French Polynesia: Could Hazards Arise?”. Available from www.iaea.org/Publications/Booklets/mururoabook.html.

exposure from eating, drinking, or inhaling hazardous radioactive materials in food, water or air; or (e) internal and/or external exposure from contact with contaminated water. According to testimony from the survivors, in the immediate aftermath of the nuclear testing, white ash fell from the sky, and shortly thereafter people began to experience skin burns, hair loss, finger discolouration, nausea and other symptoms of acute radiation poisoning. They also provided testimony of observing and experiencing ailments that they had never experienced before, including cancers and growth retardation in children.

22. In response to the questionnaire (see paragraph 7 above), the United States Department of Energy stated that the development of thyroid disease, including thyroid cancer in the Marshall Islands, had been linked to the intake of radioactive iodine primarily as a consequence of ingesting hazardous fallout debris particles deposited on food surfaces, eating utensils, the hands and the face, and of drinking contaminated water.

23. In 2004, the National Cancer Institute of the United States conducted an expert assessment of the expected number of cancers among the Marshallese, and concluded in its report thereon that as much as 9 per cent of all cases of cancers expected to develop among those residents alive between 1948 and 1970 might be attributable to exposure to the radiation caused by nuclear tests.¹⁰ Specifically, according to the report, an estimated 530 “excess” cancers (namely those beyond the expected projections in a population) would be expected in the people living in the Marshall Islands during the testing period and, owing to the latency period of cancer, half of the malignancies had yet to be detected. A review report subsequently issued in 2010 significantly reduced the excess number of cancer cases to 170, lowering the percentage from 9 to 1.6 per cent. Owing to the current limitations of medical programmes, the assistance actually available to persons developing an excess cancer is unclear (see chapter IV below).

24. In the light of the lack of scientific consensus and the limited available data, the Special Rapporteur was unable to address fully the effects on the health of the first, second and subsequent descendants of the survivors of the nuclear tests. He observes that scientific contention focuses on whether low-level radiation can be linked to cancer; whether the effects of radiation are specific to the individual (given that certain people may have a predisposition to cancer without any radiation exposure from nuclear testing), or conversely whether certain people are particularly susceptible to radiation; and whether such radiation causes genetic and intergenerational harm (see Section IV below).

25. Both Governments provided the Special Rapporteur with an analysis by their respective experts, who reached differing conclusions on the safety of the islands for human habitation. In addition to the general consensus that Bikini¹¹ and Enewetak¹² Atolls are contaminated, assessments were conducted in other areas of the Marshall Islands; for example, between 1990 and 1994, the Marshall Islands Nationwide Radiological Study took in situ gamma spectrometry measurements and collected and analysed solid, plant and other food item samples from every inhabited island and many of the larger uninhabited islands. Unfortunately, despite the comprehensive nature of the Study, issues were raised

¹⁰ See “NCI Dose Estimation and Predicted Cancer Risk for Residents of the Marshall Islands Exposed to Radioactive Fallout from the U.S. Nuclear Weapons Testing at Bikini and Eniwetok”, available from <http://dceg.cancer.gov/reb/research/dosimetry/1/marshallislands/bg#purpose>; and Charles E. Land, André Bouville, Iulian Apostoaei and Steven L. Simon, “Projected lifetime cancer risks from exposure to regional radioactive fallout in the Marshall Islands”, *Health Physics*, vol. 99, No. 2, August 2010.

¹¹ See Stegnar, “Assessing Radiological Conditions” and IAEA “Radiological conditions at Bikini Atoll” (see footnote 2).

¹² “Radioactive Residues of the Cold War Period: A Radiological Legacy”, IAEA Bulletin 40/4/1998. Available from www.iaea.org/Publications/Magazines/Bulletin/Bull404/40405080211.pdf.

about its credibility and accuracy, leading the national parliament to adopt a resolution in which it did not accept the Study's findings.

26. Survivors of the tests provided compelling testimony about their psychological trauma from witnessing the explosions and their effect. Psychological stress and anxiety are recognized as a legitimate and serious health concern in populations where nuclear testing has been conducted. The Special Rapporteur understands that, although these health concerns are of a different nature to cancer, the fear of radiation itself is no less real.¹³ Consequently, the fear of some present-day inhabitants of the Marshall Islands of the radiation that they believe still contaminates their lands and affects their health should not be underestimated.

27. The Special Rapporteur also received information suggesting that the full effects of radiation on the right to health of Marshallese women may have been, and continues to be, underestimated. For example, the practice of women bathing in contaminated water may have been overlooked as a possible means of exposure, and cultural differences may also have resulted in an inadequate accounting of adverse reproductive outcomes.¹⁴ Studies show that pregnant women are particularly susceptible to thyroid cancer, with resultant negative effects on the health of the women and their infants.¹⁵

28. The right to health is an inclusive right that extends to the underlying determinants of health, such as access to an adequate supply of safe food and to safe and potable water. The Marshallese diet consists primarily of seafood, supplemented by pandanus fruit, coconut and other fruits. The fallout from the nuclear testing contaminated local food supplies, leading to illnesses and, ultimately, the stigmatization of these foods.¹⁶ The United States of America informed people not to eat local foods and provided imported canned foods. Many people, however, continued to eat local foods for a variety of reasons (such as cultural customs and a lack of understanding of the adverse health effects), and succumbed to illnesses. Furthermore, given that the Marshallese derive much of their fresh water supply from coconuts, their access to safe drinking water was highly compromised during the testing period.

29. Some information indicates that, because of cultural differences and language barriers, Marshallese dietary customs were either unknown or ignored during the testing period. For example, the difference in dietary and other eating habits of men, women and children may have led to higher exposure of some members of the population, especially women. Women eat different parts of the fish to those eaten by men, especially bones and organ meat, in which certain radioactive isotopes tend to accumulate. The differences in the retention of radionuclides by coconut and land crabs were not recognized by the medical profession in the United States. Apparently, women were more exposed to radiation levels in coconut and other foods owing to their role in processing foods and weaving fiber to make sitting and sleeping mats, and handling materials used in housing construction, water collection, hygiene and food preparation, as well as in handicrafts.

30. The Special Rapporteur heard compelling testimony by women on their experience of returning from Rongelap Atoll, including on the alarmingly high rates of stillbirths,

¹³ *Radiation, People and the Environment*, IAEA, Vienna, February 2004, p. 46. Available from www.iaea.org/Publications/Booklets/RadPeopleEnv/pdf/radiation_low.pdf.

¹⁴ Advisory Committee on Human Radiation Experiments, final report, footnote 128. Available from www.hss.energy.gov/healthsafety/ohre/roadmap/achre/chap12_fn.html.

¹⁵ Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation, *Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase 2* (Washington, D.C., National Academies Press, 2006), pp. 13 - 15.

¹⁶ Some evidence suggests the uptake of caesium-137 (a radioactive isotope of caesium) by plants, thereby affecting food supplies.

miscarriages, congenital birth defects and reproductive problems (such as changes in menstrual cycles and the subsequent inability to conceive, even in those who previously had no such difficulties). Some gave birth to babies that ultimately died from foetal disorders, and they still endured the shame and trauma they experienced as a result. The extent to which radionuclides were actually present in the breast milk of women exposed to the testing is unclear, making it also difficult to assess the risks to individuals who were breastfed by those women. The women also expressed their fears of reproduction and motherhood as a result of their exposure to radiation.

31. Several years after exposure, a high incidence of thyroid cancer was reported, as well as an unusually high prevalence of stunted growth among Marshallese children. The incidence of such cases was also supported by the number of claims before the Nuclear Claims Tribunal. Similar effects have been recorded in children in other irradiated environments,¹³ with a greater incidence of thyroid cancer due to the intake of iodine-131, particularly through drinking milk contaminated with iodine, an element that accumulates in the thyroid, thereby inhibiting growth and the child's cognitive abilities, which could lead to mental disability.

B. Displacement

32. The Special Rapporteur heard the accounts of women survivors of the shame that they had experienced during the relocation process, when they were subjected to examinations with Geiger counters while naked and hosed down with liquid in the presence of their male relatives, as well as enduring on-site analysis of their pubic hair by American male personnel. In this context, many women, in particular those from Rongelap Atoll, were stigmatized, which affected their prospects for marriage and motherhood. In order to prevent such incidents from recurring, in the interests of non-recurrence the Special Rapporteur urges all States to adhere to the Guiding Principles on Internal Displacement,¹⁷ which identify the rights and guarantees relevant to the protection of persons from forced displacement and their protection and assistance during displacement, as well as during return or resettlement and reintegration. Guiding Principle 8, which declares that displacement should not be carried out in a manner that violates the rights to life, dignity, liberty and security of those affected, is particularly relevant.

33. Displacement due to the nuclear testing, especially of inhabitants from Bikini, Enewetak, Rongelap and Utrok Atolls, has created nomads who are disconnected from their lands and their cultural and indigenous way of life; for example, the Marshallese engaged in migratory practices to gather different types of cultural goods (ranging from fish, fruits and medicines to materials for housing) from the islands and atolls. Today, they are unable to perform these migratory practices and harvest their cultural goods because, in some cases, the islands and atolls have been contaminated by nuclear fallout. In addition, it should be considered that, in their matriarchal society, land is passed from mother to child; displacement from their lands has denied Marshallese women the right to exercise their cultural and other rights and their role as custodians of land in society.

34. The Marshallese have found it difficult to maintain their distinct cultural identity and the traditional bond to their lands. One of the challenges to assessing the loss of land use has been the differing concept of what constitutes land. The United States of America proposed to calculate land loss on the basis of commercial rent values. The Marshallese, as indigenous peoples, have a culturally distinctive relationship to land. In this context, the Special Rapporteur recalls the United Nations Declaration on the Rights of Indigenous Peoples, which the United States has endorsed. Specifically, article 26 of the Declaration

¹⁷ E/CN.4/1998/53/Add.2, annex.

underlines the right of indigenous peoples to the lands, territories and resources that they have traditionally owned, occupied or otherwise used or acquired. In this regard, States have an obligation to give legal recognition and protection to these lands, territories and resources, with due respect for the customs, traditions and land tenure systems of the indigenous peoples concerned. The Special Rapporteur encourages both States to use the Declaration as a basis for further discussions on unresolved land issues.

35. New thinking on the issue of redress includes concepts that encourage the consultation of groups, including indigenous groups, on what they deem fit or what they consider to be adequate redress, because the notion of monetary compensation is not appropriate in some contexts. In this connection, article 28 of the Declaration on the Rights of Indigenous Peoples affirms the right of indigenous peoples to redress, which may include restitution or, when this is not possible, just, fair and equitable compensation, for the lands, territories and resources that the indigenous peoples have traditionally owned or otherwise occupied or used, and that have been confiscated, taken, occupied, used or damaged without their free, prior and informed consent.

IV. Efforts to mitigate the impact of nuclear testing on the enjoyment of human rights

36. Various positive measures have been taken by the Government of the Marshall Islands and by that of the United States of America, to varying degrees of success, to address the issues of the right to an effective remedy; to health facilities, goods and services; and to environmental rehabilitation for the Marshallese people.

A. Right to an effective remedy

37. The Marshallese people filed a petition with the United Nations Trusteeship Council on 6 May 1954 (see paragraph 14 above). When the tests continued, the Marshallese filed another petition on 9 March 1956, in which they reiterated their previous concerns over the nuclear testing.

38. In response to the second petition, a representative of the United States of America answered that “nothing would please the United States more than to be able to comply with the wishes of the Marshallese people that the nuclear tests be discontinued in their islands, but this is not yet possible”; that “as long as there is a threat of...aggression, elementary prudence requires the United States to continue its tests”; and that “further tests are absolutely necessary for the eventual well-being of all the people of this world”, reassuring that “all possible precautionary measures [would] be undertaken before such weapons are exploded.”¹⁸ The Trusteeship Council voted to reaffirm its resolution 1082 (XIV) on the previous petition (T/PET/10/28) and to sanction the continuation of the tests, and recommended precautionary measures, settlement of all just claims of the former inhabitants of Bikini and Enewetak Atolls for loss of land, and that adequate provision be made for any losses arising as a result of the new series of tests.

39. After nearly 35 years without the possibility to return home, the people of Bikini Atoll filed a suit, *Juda v. United States of America*, under the Tucker Act, which vested jurisdiction to the United States Court of Federal Claims to hear the matter. The case was suspended temporarily in 1983 in the light of the negotiations on the Compact of Free Association (see paragraph 16 above) and, once it resumed, the court denied a motion to

¹⁸ Petition from the Marshallese people concerning the Pacific Islands (T/PET.10/29), 9 March 1956, enclosure IV.

dismiss by the Government of the United States of America owing to lack of jurisdiction. Upon the entry into force of the Compact in 1986, however, an amended motion to dismiss the case was granted. Several suits filed thereafter were also dismissed on the grounds that the courts now lacked the jurisdiction owing to the existence of section 177 of the 1985 Compact, which governed the settlement of claims. As such, Marshallese citizens no longer had access to United States courts on any other potential and future claims.

40. Under section 177 of the Compact of Free Association, the United States of America agreed to provide \$150 million for the Nuclear Claims Fund and established the Nuclear Claims Tribunal, with jurisdiction to render final judgements on all claims related to the nuclear testing programme past, present and future of the Government, citizens and nationals of the Marshall Islands. The Fund was projected to return at least \$18 million per year, leaving the capital untouched; the Fund could thus continue to meet all claims in perpetuity. The United States and the Marshall Islands agreed to an amended version of the Compact, referred to as "Compact II" (or the Amended Compact) in 2003, which entered into force in 2004. Compact II primarily envisaged the gradual phasing out of economic assistance in order to reduce reliance on the United States and move towards self-sufficiency by increasing contributions to a trust fund. The major concern is that the fund set up under the original Compact was intended to cover not only personal injury claims but also property damages and remediation, which in some areas would require, at a minimum, the full amount initially injected into the fund. The Special Rapporteur received information that the United States continues to replenish the superfunds to provide compensation for irradiated property claims emanating from United States-dependent territories in the Pacific that suffered less damage than the Marshall Islands. He regrets that the Nuclear Claims Fund does not receive the same type of replenishment. Currently, the Nuclear Claims Fund contains less than \$50,000, and award claims have been suspended.

41. The agreement for the implementation of section 177 of the Compact was enacted to, *inter alia*, "create and maintain, in perpetuity, means to address past, present, and future consequences of the Nuclear Testing Programme, including the resolution of resultant claims." The provision on changed circumstances under article IX of the agreement provides that additional funding may be requested from the United States Congress for loss or damage arising from the nuclear testing programme if such loss or damage is "discovered after the effective date" of the agreement and the "injury could not reasonably have been identified as of the effective date of the agreement" and failure to provide for the injuries would render the agreement "manifestly inadequate". Under article X, the Marshall Islands agreed to an espousal provision, which terminated any legal proceedings against the United States or its agents related to the nuclear weapons testing programme, and was intended to provide a full settlement of all claims, past, present and future. The tension between these provisions has hindered progress and created anxiety for the Marshallese on what the assistance envisaged by the Compact is supposed to entail, and for how long.

42. In 2000, the Marshall Islands brought the Changed Circumstances petition¹⁹ before the United States Congress, in which it stated, *inter alia*, that certain information, including subsequent declassified Department of Energy and Department of Defense documents, had not been available at the time of the negotiations on the Compact; the information apparently showed that the extent of radioactive fallout had been underestimated, and that advances in science and knowledge of radiogenic effects had provided more accurate assessments of the full impact of nuclear testing on people and the environment since the agreement came into force in 1986. The United States administration also presented its evaluation of the petition to Congress, asserting that the petition did not meet the set criteria

¹⁹ See www.fas.org/sgp/crs/row/RL32811.pdf.

for changed circumstances and hence there was no legal basis for considering additional funds. To date, Congress has not acted on the petition.

43. According to information received by the Special Rapporteur, some parties posit that the agreement on the implementation of section 177 offers full and final settlement of claims arising from the nuclear testing programme, while others contend that the overriding intent of Congress was to contemplate such action only if compensation has been just and adequate; otherwise, there would have been no need for the changed circumstances provision. Even though resolving the legislative tension of the provisions contained in the Compact falls outside the scope of the present report, the Special Rapporteur emphasizes the right to an effective remedy as established in international human rights law,²⁰ and calls on both States to fulfil this right. The Special Rapporteur is also of the view that interpretations of statutes should advance the course of justice.

44. Article 2.3 of the International Covenant on Civil and Political Rights requires that individuals have accessible and effective remedies to vindicate their rights. The Special Rapporteur recalls general comment No. 31 of the Human Rights Committee, in which the Committee pointed out that such remedies should be appropriately adapted so as to take into account the special vulnerability of certain categories of persons. The Committee also stressed the importance of establishing appropriate judicial and administrative mechanisms for addressing claims of rights violations.²¹ Article 2.3 moreover requires reparations to be provided to individuals whose rights have been violated.²²

45. The right to an effective remedy also requires that any person claiming a remedy have his or her right thereto determined by competent authorities (judicial, administrative, legislative or otherwise provided for by the legal system), and that the competent authority enforce such remedies when granted. The Special Rapporteur considers that, in order to give effect to the right to an effective remedy, competent authorities should not only be empowered to make binding decisions but should also have sufficient resources to effect the awards they make. Noting that the Nuclear Claims Tribunal was grossly underfunded, the President's Cancer Panel has called for increased funding, stating that "the U.S. Government should honor and make payments according to the judgment of the Marshall Islands Tribunal."²³

46. The Special Rapporteur welcomes the initiative taken by the Human Rights Council to address the issue of reparations by establishing, in its resolution 18/7, the mandate of Special Rapporteur on the promotion of truth, justice, reparations and guarantees of non-recurrence, and concurs with its emphasis on the importance of a comprehensive approach incorporating the full range of judicial and non-judicial measures, including, among others, individual prosecutions, reparations, truth-seeking, institutional reform, or an appropriately conceived combination thereof, in order to, inter alia, ensure accountability, serve justice, provide remedies to victims, promote healing and reconciliation.

47. An opportunity exists to consider the issue within the international community. In his report on the effects of atomic radiation in the Marshall Islands, the Secretary-General indicates that the Organization stood ready to respond to any future instruction from Member States, adding that the General Assembly might wish to consider whether additional international efforts were appropriate for consolidating all the relevant available

²⁰ See Universal Declaration of Human Rights, art. 8, and International Covenant on Civil and Political Rights, art. 2.3.

²¹ CCPR/C/21/Rev.1/Add.13, para. 15.

²² *Ibid.*, para. 16.

²³ National Cancer Institute, "Reducing Environmental Cancer Risk: What We Can Do Now", 2008–2009 annual report, p. 108. Available from http://deainfo.nci.nih.gov/advisory/pcp/annualreports/pcp08-09rpt/PCP_Report_08-09_508.pdf.

information on the effects of atomic radiation in the Marshall Islands into a final report of scientific findings on this regrettable episode in human history. If the Assembly wished to pursue that course, the United Nations Scientific Committee on the Effects of Atomic Radiation would be the appropriate international body to entrust with that responsibility.²⁴

B. Health services

48. Following the nuclear tests and subsequent exposure of individuals to fallout and radiation, in 1954, the Government of the United States of America implemented Project 4.1 to treat the people of the Marshall Islands. During the Project, many of the effects of radiation on human beings were documented, which contributed to global knowledge of this phenomenon. Serious concerns frequently raised by the Marshallese during the visit of the Special Rapporteur included that the Castle Bravo test (see paragraph 13 above) was a deliberate attempt to assess the effects of nuclear weapons on humans. With regard to human testing, the Special Rapporteur received information from survivors of the nuclear tests alleging that they were conducted without their prior and informed consent, in violation of article 7 of the International Covenant on Civil and Political Rights, and that the treatment received from the United States authorities had been degrading and culturally insensitive.

49. The Advisory Committee on Human Radiation Experiments was appointed in 1994 by President Clinton to investigate any unethical human experiments undertaken by personnel and/or agents of the United States of America and to make recommendations to ensure non-recurrence, if necessary. The Advisory Committee concluded that, with regard to the Marshall Islands, there was insufficient evidence to demonstrate intentional human testing on the Marshallese, except for two examples with minimal low-risk exposure. For the most part, however, consent for medical tests to monitor human health appears to have been neither sought nor obtained.²⁵

50. The Advisory Committee also highlighted the fact that there was evidence that demonstrated a lack of consideration for cultural appropriateness, and cautioned on the inherent conflicts posed by combining research with patient care, which could perhaps have been reduced by a clearer separation of the two activities and clearer disclosure to the subjects. The Advisory Committee recommended that, in such instances, the United States Government should deliver

a personal, individualized apology and provide financial compensation to the subjects (or their next of kin) of human radiation experiments in which efforts were made by the U.S. Government to keep information secret from these individuals or their families, or from the public, for the purpose of avoiding embarrassment or potential legal liability, or both, and where this secrecy has had the effect of denying individuals the opportunity to pursue potential grievances.²⁶

It also noted that “one of the greatest harm from past experiments and intentional releases may be the legacy of distrust they created.” Denial by the Government of the United States of access by Marshallese patients to medical files, and denial of access of Marshallese authorities to previously classified, then declassified, but unreadable scientific documentation, were cited as major concerns and a hindrance to open dialogue between the

²⁴ A/66/378, para. 10.

²⁵ See Advisory Committee on Human Radiation Experiments, final report. Available from www.hss.doe.gov/healthsafety/ohre/roadmap/achre/report.html.

²⁶ *Ibid.*, recommendation 1.

two parties. The Special Rapporteur raised the issue of access to information to United States authorities during his visit.

51. The Marshall Islands has a national care agency for its population (approximately 55,000 people) run by the Ministry of Health. Medical care is delivered mainly by an expatriate work force at primary and secondary care facilities on Ebeye Island (45 beds), Kwajalein Atoll (34 beds) and Majuro Atoll (90 beds), while smaller clinics on the remote outer islands provide limited primary care and pharmaceutical capabilities. The work force does not include any American doctors or nurses.

52. According to the World Health Statistics for 2011, the health infrastructure in the Marshall Islands comprises 27 beds per every 10,000 persons,²⁷ a ratio comparable with that of global trends. In accordance with the best practices of integrated and coordinated approaches to reducing cancer morbidity and mortality through prevention, early detection, treatment, rehabilitation and palliation, the Marshall Islands developed a national comprehensive cancer control programme that focuses on primary and secondary prevention and medical care, and includes a cancer registry. Implementation of the programme has, however, been hampered by capacity constraints and insufficient resources, including lack of skilled personnel, transportation and pharmaceuticals. Diabetes is the single largest cause of death among Marshallese citizens, followed by cancer. A diet consisting primarily of canned and highly processed foods has been identified as a contributing factor to the high incidence of diabetes.

53. Efforts made by the Government of the United States of America deserve commendation, as some \$600 million has been spent in various technical programmes. The amount also includes the contribution to the compensation proceeds under the Nuclear Claims Fund under the agreement on the implementation of section 177. Through the Department of Energy, the Government runs a medical programme that currently involves annual comprehensive medical screening and treating 138 patients (people who were living in Rongelap and Utrok Atolls at the time of the Castle Bravo test). Thirty one of the patients reside in the United States, the largest number in Hawaii. They may see a community doctor or be referred to regional or community hospitals for advanced diagnosis and care. Patients in the programme have a median age of 65; the youngest patient is 55 years of age; 60 per cent are women. The patients in the Marshall Islands live on 10 atolls; annual medical care and follow-up treatment are provided in close proximity to them. Patients with medical conditions that are potentially radiation-related findings and that cannot be diagnosed or handled in the Marshall Islands are referred to Hawaii. All related expenses for board and medical services are borne by the programme. The Department of Energy also operates the Whole-Body Counting Program, which carries out routine dose estimates on people who wish to assess their level of exposure to radionuclides.

54. The United States Department of the Interior also funds the 177 Health Care Program, which was established to meet the comprehensive health-care needs of people from Bikini, Enewetak, Rongelap and Utrok Atolls. People enrolled in the health programme of the Department of Energy are also entitled to coverage under the Program for conditions not covered by the former; the latter does not, however, treat cancer patients. According to information received by the Special Rapporteur, patients of the two programmes are generally satisfied with the quality of the services provided. There are concerns, however, regarding the scope of the programmes, which are limited to people who were residing in the islands at the time of the testing, thereby excluding their descendants.

²⁷ WHO, World Health Statistics 2011, table 6. Available from www.who.int/whosis/whostat/EN_WHS2011_Full.pdf.

55. The Marshallese are convinced that there is sufficient evidence – based on their own observations of changes to their reproductive functions – of intergenerational harm caused by radiation fallout. Their descendants are nonetheless still denied the benefits envisaged by Compact for the treatment of radiation effects. According to a recent report on the biological effects of ionizing radiation by the National Academy of Sciences, “although adverse health effects in children of exposed parents (attributable to radiation-induced mutations) have not been found, there are extensive data on radiation-induced transmissible mutations in mice and other organisms. Thus, there is no reason to believe that humans would be immune to this sort of harm.”²⁸ While the Special Rapporteur acknowledges these variations, he is nevertheless concerned that the right to health may be compromised. Regardless of the scientific debate on the link between exposure to low levels of radiation and cancer, he believes that a precautionary approach that emphasizes the likelihood of risk over conclusive proof may prove more prudent and protective of rights.

56. The position of the Government of the United States of America is that only the northern atolls were significantly affected; consequently, people from the southern atolls are not covered by any of the special programmes. They have therefore not been able to receive treatment, although they point out that other people similar to them, as “downwinders” from radiation fallout in the United States, receive compensation (on a presumptive basis) through the Radiation Exposure Compensation Act, even though they live even further downwind than those in the Marshall Islands. Cancer patients from the southern atolls are instead treated in a hospital run by the Government of the Marshall Islands that does not, however, offer dedicated oncology service.

57. The Special Rapporteur is concerned that scientific uncertainty may have the effect of shifting the burden of providing those affected by the nuclear fallout with health services from the United States of America to the Marshall Islands.²⁶ In this regard, he is encouraged by the commitment made by the United States authorities to greater and meaningful discussions with the Marshallese on how the health dimensions may be addressed.

C. Environmental rehabilitation and monitoring

58. According to the United States Department of Energy, efforts to rehabilitate contaminated land in an environmentally sound and sustainable manner include a combined remedial strategy involving limited soil removal around housing and village areas, and treatment of agricultural areas with potassium, which has been recommended to atoll communities as a practical and effective solution to reduce levels of external and internal exposure. Moreover, treatment with potassium has been shown to be effective in reducing the uptake of cesium-137 in food crops for an extended period of time, and there is a proposed dose criterion for the treatment of contaminated sites in the Marshall Islands. The Department of Energy is implementing these methods to remediate contaminated land under the environmental monitoring programme for Bikini, Enewetak, Rongelap and Utrok Atolls.

59. Progress has been made in efforts to resettle the people of Rongelap Atoll under a memorandum of understanding signed by the people of Rongelap, the Marshall Islands and the United States of America. According to information received, however, there is still resistance in Rongelap among some people to the idea of resettlement. The Rongelapese raised the concern that restricting people’s movements in an island is artificial (only about one third of the main island has been remediated and people claim to have received

²⁸ Committee to Assess Health Risks., *Health Risks from Exposure to Low Levels of Ionizing Radiation* (see footnote 15), p. 10.

instructions from the United States authorities not to venture into the other parts of the island), and that the island should be remediated fully so people are not exposed to potential harm. People have also been warned not to consume food from the non-remediated areas of the island. The Department of Energy has conducted sampling of commonly consumed food; a report thereon is due early in 2013. Furthermore, a garden project has been launched to promote dietary change. Similarly, the Marshall Islands has an agricultural programme geared towards local food production. In 2008, the programme was partnered with civil society organizations in the Youth Food Initiative, the aim of which was to encourage the creation of backyard gardens in Majuro.

60. As mentioned above, IAEA recommended that Bikini Atoll not be resettled under the current radiological conditions, and stressed that remedial action would be necessary. It furthermore noted that there was a need to assess the radiological conditions of Enewetak. The Special Rapporteur is particularly concerned about the radioactive dump site on Runit Island. He received information indicating that the structural integrity of the nuclear waste container is substandard, and that the hazardous radioactive materials contained could seep and leach into the marine and terrestrial environment. He therefore calls on both the Governments to ensure that the impact of these hazardous substances and wastes on people's health and the environment is mitigated.

61. In addition to a lack of land, the Government of the Marshall Islands has identified the three-tier land tenure system as one of the challenges to resettlement programmes. The return, resettlement and reintegration of displaced people should be intensified by a multi-sectoral comprehensive plan of action based on national consultations. Nevertheless, where return is not possible, other durable solutions should be explored.

62. As stated above, the Special Rapporteur was not able to address fully many of the issues concerning the Marshallese experience. Despite some divergence on significant matters by the parties, the Special Rapporteur is encouraged by the willingness he observed in both parties to improve the quality of life of the Marshallese people. He believes that the nuclear testing and the experiments have left a legacy of distrust in the hearts and minds of the Marshallese. The deep fissure in the relationship between the two Governments presents significant challenges; nonetheless the opportunity for reconciliation and progress, for the benefit of all Marshallese, is there to be taken.

V. Recommendations

63. **The Special Rapporteur recommends that the Government and relevant State actors of the Marshall Islands:**

(a) Carry out an independent, comprehensive radiological survey of the entire territory and, in this regard, request relevant United Nations agencies to undertake a study similar to the one conducted by IAEA on testing sites in other countries;

(b) Develop a comprehensive national health strategy and plan of action, on the basis of epidemiological evidence, addressing the health concerns of the whole population and, in particular, non-communicable diseases (such as cancer and diabetes), and build on the lessons learned from the National Comprehensive Cancer Control Plan for the period 2007–2012; the strategy and plan should pay special attention to women and children, and seek to overcome the barriers that women encounter in their access to health facilities, goods and services, including family planning and sexual and reproductive health services; support should also be sought for the renovation of the main hospital and provision of qualified medical personnel and oncology services;

(c) Consider taking the lead in regional consultations to address the burden of cancer and emerging non-communicable diseases in the Pacific;

(d) Ensure that impact assessments use reliable baseline studies for both environmental contaminants and human health conditions; impact assessments should be ongoing to monitor the evolving impact, and be carried out by competent, independent third parties;

(e) Engage in a broad consultative process, including with victims, families of victims, victims' associations and other relevant civil society actors, on outstanding issues and measures required to address any long-term human health and environmental effects of the testing, with particular emphasis on solutions aimed at reconciling the traditional land tenure system with durable solutions to displacement;

(f) Develop an economic diversification strategy to reduce overreliance on the Compact of Free Association, including by developing the tourism sector, and make a viability assessment of commercial exploitation of the medicinal and health properties of the pandanus fruit; ensure the implementation of mechanisms that strengthen the capacity of indigenous and tribal peoples to further their own development priorities are favoured; and establish programmes to support small-scale economic initiatives for women, including the necessary capacity-building;

(g) Promote good governance and transparency at the national and atoll administration levels, including through the disclosure of the use of Compact funds and other technical assistance; concurrently, strengthen public and private sector accountability; and develop a human rights policy and management framework, including annual reporting on their social, environmental and economic impact, with appropriate monitoring and evaluation;

(h) Consider creating partnerships with international academic institutions with a view to making the Marshall Islands a centre of excellence in environmental studies by means of the unique research, internship and secondment opportunities it provides, in such areas as climate change and marine biology;

(i) Seek international assistance to improve public infrastructure, including for water, sanitation and waste management facilities; and strengthen engagement with international agencies in these fields, including with the United Nations Environmental Programme, to address the waste and chemicals management issues, nuclear or otherwise.

64. The Special Rapporteur recommends that the Government and relevant State actors of the United States of America:

(a) Continue to provide the Marshall Islands with assistance (financial, technical and otherwise) in order assist it to develop its health infrastructure and capacity further and to reduce the need for off-island referrals, including through the establishment of fellowship and technical training programmes; a nationwide medical survey; cancer and other health registries; and the infrastructure necessary to conduct early diagnosis and treatment for radiogenic diseases;

(b) Continue to assist the Marshall Islands in its efforts to protect the environment and to safeguard the rights of its people, by providing environmental information obtained by means of its monitoring operations; supporting Marshallese efforts to develop and sustain their own atmospheric, marine and terrestrial monitoring capabilities; strengthening the capacity of the Marshall Islands to address remaining threats and to protect its population from new dangers identified as a result of technological progress; assisting in the development of national public health

and disaster response plans; and supporting the development of the educational and technical capacity to implement such plans fully;

(c) Support the Marshall Islands in conducting a comprehensive nationwide terrestrial and marine survey that identifies and maps the presence and concentration of radiogenic and other toxic substances remaining from the United States military activity in the Marshall Islands marine and terrestrial ecosystem, and continue to provide assistance and the means to secure, contain and remediate hazardous sites;

(d) Strengthen transparency and accountability mechanisms to ensure that individual atoll-administered funds are used to benefit the constituents intended, as well as the annual reporting mechanism used by the Marshall Islands to report to the United States Congress on the implementation and use of funds;

(e) Grant full access of the Marshall Islands to United States information and records regarding the environmental and human health ramifications of past and current United States military use of the islands, as well as full access to United States medical and other related records on the Marshallese, in accordance with the right to information and the principle of transparency;

(f) Guarantee the right to effective remedy for the Marshallese people, including by providing full funding for the Nuclear Claims Tribunal to award adequate compensation for past and future claims, and exploring other forms of reparation, where appropriate, such as restitution, rehabilitation and measures of satisfaction (for example, public apologies, public memorials and guarantees of non-repetition); and consider the establishment of a truth and reconciliation mechanism or similar alternative justice mechanisms;

(g) Consider adopting a presumptive approach to groups currently excluded from the special programmes of the United States of America created to assist survivors of nuclear testing, whereby individuals exposed to nuclear fallout would be presumed to be eligible;

(h) Consider issuing a presidential acknowledgment and apology to victims, in accordance with the conclusion of the Advisory Committee on Human Radiation Experiments that the one of the greatest forms of harm from past experiments and intentional releases may be the legacy of distrust they created, and that, in such instances, the Government of the United States should deliver a personal and individualized apology.

65. The Special Rapporteur recommends that both the Governments of the Marshall Islands and of the United States of America maximize the benefits of the joint task force established to discuss progress in the implementation of the Compact of Free Association, emphasizing open and frank engagement to enhance accountability of both parties under the Compact.

66. The Special Rapporteur recommends that the international community, including relevant United Nations departments, funds and agencies:

(a) Recall that the Marshall Islands were placed under the trusteeship of the United States of America by the international community, which therefore has an ongoing obligation to encourage a final and just resolution for the Marshallese people;

(b) Acknowledge that the harm suffered by the Marshallese people has resulted in an increased global understanding of the movement of radionuclides through marine and terrestrial environments, and learn from the Marshallese experience with nuclear contamination, particularly the documentation prepared by the United States on the effects of nuclear exposure and medical research, which has

contributed to the understanding of the relationship between radioiodine and thyroid cancer;

(c) Support bilateral and multilateral action to assist the Marshall Islands in its efforts to regain use of traditional lands, including the knowledge and means to identify, assess, remediate and restore a sustainable way of life;

(d) Promote regional and international assistance and cooperation in order to support the efforts of the Marshall Islands to guarantee the rights of affected communities, including through investment in the development of new technologies to remove environmental hazards and their subsequent impact on health;

(e) Support nationally-owned and nationally-led development plans and strategies, including through the provision of funding and technical assistance; to scale up small- and medium-enterprises; to mitigate the effects of climate change; and to monitor, secure and remove nuclear wastes on a scale and standard comparable to the clean-up of domestic testing sites in the United States, as part of an international response to nuclear legacy issues;

(f) Stand in international solidarity with the Marshallese people as they face the challenge of overcoming the legacy of nuclear testing.
