



INTERNATIONAL HUMAN RIGHTS CLINIC  
HUMAN RIGHTS PROGRAM AT HARVARD LAW SCHOOL

## ENVIRONMENTAL REMEDIATION UNDER THE TREATY ON THE PROHIBITION OF NUCLEAR WEAPONS

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The Treaty on the Prohibition of Nuclear Weapons (TPNW) combines a comprehensive ban on nuclear weapons with obligations to assist victims and remediate the environment affected by use and testing. In so doing, the treaty aims both to prevent future harm and to address harm that has already occurred. Adopted in 2017, the TPNW is the most recent humanitarian disarmament treaty, meaning that it seeks to minimize the suffering caused by inhumane and indiscriminate weapons. This paper provides an overview of the environmental remediation provisions in the TPNW, and guidance from other humanitarian disarmament treaties as to how they might be implemented.

### **What is Environmental Remediation?**

In the context of the TPNW, environmental remediation seeks to reduce the impact of the contamination caused by nuclear weapon use and testing. The term refers to “any measures that may be carried out to reduce the radiation exposure from existing contamination of land areas through actions applied to the contamination itself (the source) or to the exposure pathways to humans.”<sup>1</sup> In other words, it entails both cleaning up affected areas and protecting humans from radiation exposure.

### **Related Provisions in Other Humanitarian Disarmament Treaties**

The obligation to clear remnants of war can be traced back to earlier humanitarian disarmament treaties, notably the 1997 Mine Ban Treaty and the 2008 Convention on Cluster Munitions. These treaties lay out specific duties that states parties must undertake to exclude civilians from contaminated areas and ultimately to destroy antipersonnel landmines and explosive remnants of war in their territory. The treaties set deadlines for states parties to complete clearance and require states parties to report on their progress. They also require other states parties in a position to do so to help affected states parties meet their clearance obligations.

### **Environmental Remediation Provisions in the TPNW**

The TPNW builds on the clearance obligations of its predecessors and adapts them to the toxic remnants of war left by nuclear weapons. Toxic remnants of war include “any toxic or

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<sup>1</sup> International Atomic Energy Agency, *Safety Glossary: Terminology Used in Nuclear Safety and Radiation Protection*, 2007, [https://www-pub.iaea.org/MTCD/publications/PDF/Pub1290\\_web.pdf](https://www-pub.iaea.org/MTCD/publications/PDF/Pub1290_web.pdf) (accessed March 11, 2018), p. 166 (“remediation”).

radiological substance resulting from military activities that forms a hazard to humans and ecosystems.”<sup>2</sup> The most relevant parts of the TPNW are as follows:

### **Article 6**

#### **Victim assistance and environmental remediation**

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2. Each State Party, with respect to areas under its jurisdiction or control contaminated as a result of activities related to the testing or use of nuclear weapons or other nuclear explosive devices, shall take necessary and appropriate measures towards the environmental remediation of areas so contaminated. . . .

### **Article 7**

#### **International cooperation and assistance**

1. Each State Party shall cooperate with other States Parties to facilitate the implementation of this Treaty.
2. In fulfilling its obligations under this Treaty, each State Party shall have the right to seek and receive assistance, where feasible, from other States Parties.
3. Each State Party in a position to do so shall provide technical, material and financial assistance to States Parties affected by nuclear-weapons use or testing, to further the implementation of this Treaty. . . .

Articles 6 and 7 of the TPNW provide for remediation of environments contaminated by either the use or the testing of nuclear weapons. While recognizing that in most cases the environment cannot be returned to its pre-detonation state, Article 6(2) requires that states parties take “necessary and appropriate measures” toward the cleanup of contamination, which could take a variety of forms. The TPNW places no time limit on the environmental remediation obligation, showing that it envisions long-term as well as immediate efforts.

Under Article 6, a state party affected by nuclear weapons bears the primary responsibility to remediate the environment within its jurisdiction or control. This approach respects the affected state’s sovereignty by allowing it to address issues within its borders. It recognizes that the affected state is in the best position to assist because it has a more in-depth understanding of the problem and easier access than other states parties to the contaminated areas. The approach also follows the legal precedent of past humanitarian disarmament treaties and international human rights law, which requires countries to ensure the realization of rights, including those related to a healthy environment.

An affected state party does not have to bear this responsibility alone, however. Article 7 entitles it to ask for and receive assistance from other states parties, and all states parties in a position to do are mandated to help it fulfil its obligations to remediate the environment. Since assistance can take a variety forms – including financial, material, and technical assistance – every state party should be in a position to provide some sort of aid. Such assistance may be delivered directly to

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<sup>2</sup> Aneaka Kellay, *Pollution Politics: Power, Accountability and Toxic Remnants of War* (Manchester: Toxic Remnants of War Project, 2014), [http://www.toxicremnantsofwar.info/wp-content/uploads/2014/06/TRW\\_Pollution\\_Politics\\_Report.pdf](http://www.toxicremnantsofwar.info/wp-content/uploads/2014/06/TRW_Pollution_Politics_Report.pdf) (accessed March 11, 2018), p. 30.

the affected state or indirectly through international and nongovernmental organizations. States parties that have used or tested nuclear weapons are specifically identified as having to provide assistance to affected states parties.

### Principles of Environmental Remediation

It is too early to know exactly how environmental remediation will be implemented under the TPNW because it has not yet entered into force. A number of principles have emerged, however, from the clearance provisions in the other humanitarian disarmament treaties. These principles should inform implementation of the environmental remediation provisions under the TPNW:<sup>3</sup>

- **Assessment and prioritization:** The process of dealing with the contamination caused by a nuclear detonation should begin with an assessment of risks and prioritization of steps to be taken.
- **Rehabilitation options:** Actual rehabilitation efforts can take a number of forms. In the case of nuclear contamination:
  - Some methods aim to reduce the amount of radioactive material in an area by separating contaminated particles from non-contaminated particles and removing the former.
  - Other methods seek to contain radioactive material by trapping it in the soil where the isotopes can decay over time or by creating a barrier to prevent human contact.<sup>4</sup>
- **Reduction of human exposure:** Remediation should encompass not only treatment of the environment, but also measures to reduce human exposure to radiation, even when it spreads. For example, evacuating contaminated areas and marking them with fencing and warning signs can help keep people away from the most dangerous zones.
- **Monitoring:** Monitoring radioactivity levels in local food and providing clean alternatives can prevent radiation exposure through ingestion.
- **Information sharing:** Dissemination of information regarding the location of contaminated areas and the dangers of exposure can ensure that people in the vicinity are aware of the risks and ways to protect themselves. Such information also helps affected people to engage more effectively in decision making about remediation plans and thus exercise their right to participation.
- **Development of a national plan and reporting measures:** Establishment of a national plan and regular reporting on progress made can help ensure remediation measures are implemented.

This combination of rehabilitation and risk reduction measures can minimize the impacts of a nuclear weapon explosion on the environment and on humans.

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<sup>3</sup> These principles are drawn in part from: Article 36 and Harvard Law School International Human Rights Clinic, “Environmental Remediation in the Nuclear Weapon Ban Treaty: A Comprehensive and Detailed Approach,” June 2017, <http://www.article36.org/wp-content/uploads/2017/06/VA-ban-treaty-full.pdf> (accessed March 11, 2018).

<sup>4</sup> For an analysis of various remediation methods, see US Environmental Protection Agency (EPA), *Technology Reference Guide for Radioactively Contaminated Media*, October 2007, <https://www.epa.gov/sites/production/files/2015-05/documents/media.pdf> (accessed March 11, 2018), pp. 21-167.

## **Environmental Remediation in the Context of Nuclear Weapons**

While past treaties offer general principles for how to approach clearing remnants of war, remediation of nuclear contamination raises a number of distinct concerns, particularly related to the geographic and temporal scope of harm. Nuclear weapon explosions release dangerous levels of long-lasting ionizing radiation over a wide geographic area. Impacted areas can remain highly contaminated since radioactive isotopes have half-lives that vary from hours to millennia. Nuclear fallout can continue for years after an explosion and carry radioactive isotopes beyond the immediate site of the explosion. The reach of the radiation depends on the intensity of the weapon used and weather patterns but can extend for thousands of square kilometers.

Contamination from nuclear use or testing also adversely affects the entire ecosystem, including plants, animals, and food. Nuclear fallout and the results of thermal radiation can render large tracts of land unusable, interfering with the ability to grow crops and raise livestock. The radiation in wildlife can also make it too dangerous to hunt and fish, meaning only imported food is safe to consume. Living in a contaminated environment or eating contaminated plants or animals can cause health effects, such as cancer, birth defects, and infectious diseases. Although environmental remediation measures cannot reverse all of this harm, they can make a tangible difference by addressing them as effectively and completely as possible.

*For more information on victim assistance, see Harvard Law School International Human Rights Clinic, "Victim Assistance under the Treaty on the Prohibition of Nuclear Weapons," April 2018.*