

**Forum:** General Assembly Second Committee

**Issue:** The Question of the Prohibition of the Dumping of Radioactive Wastes

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## Introduction

Radioactive substances are substances which emit ionizing radiation. They have wide applications in many fields starting from power generation industries, to medical centers and research centers. These applications generate radioactive waste. The reason why the UN might want to prohibit the dumping of this waste in oceans or in the ground may be due to several reasons, the underlying one being that they are hazardous. Being exposed to ionizing radiation (containing high levels of radioactivity) for prolonged periods can lead to health risks and death of living organisms. Hence, it is important for the UN and its member states to realize that it is crucial to deal with the consequences of nuclear weapons which also includes managing radioactive waste.

As mentioned, the most common ways of dealing with the problem have since been to dispose of this waste by dumping it in the sea or by putting the waste into metal containers and burying it. Both of these methods have horrible consequences for biodiversity and also, in the case of burying, require maintenance to operate and are therefore very expensive. Thus, NGOs and certain institutions like Greenpeace and IAEA most notably, have made efforts to tackle the issue. These have included collective efforts by member states of these organizations on the management and classification of radioactive wastes as well as policies on safe use.

## Definition of Key Terms

### Prohibition

Prohibition is the banning of something by law (in this case international law). Something that has been prohibited is no longer allowed and is enforced by authority, a policing force.

### Dumping

In the context of waste dumping, dumping is the act of putting waste in one area as a means of disposal usually in the form of burying underground or dumping in the sea.

### Radioactive Substance

A radioactive substance is one that decays naturally and can give off alpha or beta particles as well as gamma radiation. Radioactive materials include uranium-234, neptunium-237, plutonium-238, and americium-241.

### Radioactive Waste

Radioactive waste is waste containing radioactive material, most of which comes from nuclear power production or use of nuclear products or technology. Radioactive waste includes any material that is either intrinsically radioactive, or has been contaminated by radioactivity, and that is deemed to have no further use. Examples of these may include contaminated equipment or protective clothing, waste from the process of extracting uranium, medical or industrial waste or other types of waste. Government policy dictates whether certain materials – such as used nuclear fuel and plutonium – can be considered waste. Radioactive waste can be separated into two categories, low-level waste or high-level waste. The radioactivity of these wastes can range from a little higher than natural background levels, such as for

uranium mill tailings, to the much higher radioactivity of used (spent) reactor fuel and parts of nuclear reactors<sup>1</sup>.

## Ionizing radiation

Any type of particle or electromagnetic wave that carries enough energy to ionize or remove electrons from an atom. There are two types of electromagnetic waves that can ionize atoms: X-rays and gamma-rays, and sometimes they have the same energy<sup>2</sup>

## Half-Life:

The time required for the radioactivity of a given amount of a substance to decay half of its initial value.

## Explanation of the Question

The question of prohibition of the dumping of radioactive wastes focuses on potentially banning the disposal of waste in oceans and within our environment. The question is concerned with the environmental effects of dumping this waste in oceans and by burying it because of the effects of radioactivity on biodiversity. Considering the massive current amount of radioactive waste which needs to be permanently disposed of, these temporary solutions will not be enough seeing as these radioactive substances need to be put out of the way safely, while being cost-effective.

## Dealing with nuclear waste

Most low-level radioactive waste (LLW) is typically sent to land-based disposal immediately following its packaging for long-term management. This means that for the majority (~90% by volume) of all of the waste types produced by nuclear technologies, a satisfactory disposal means has been developed and is being implemented around the world.

For used fuel designated as high-level radioactive waste (HLW), the first step is storage to allow decay of radioactivity and heat, making handling much safer. Storage of used fuel may be in ponds or

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<sup>1</sup> <https://www.eia.gov/energyexplained/nuclear/nuclear-power-and-the-environment.php>

<sup>2</sup> <https://www.physicscentral.com/explore/action/radiationandhumans.cfm>

dry casks, either at reactor sites or centrally. Currently, there are over 20,000 m<sup>2</sup> of spent nuclear fuel lying around in pools which need a final resting place.

Beyond storage, many options have been investigated which seek to provide publicly acceptable, safe, and environmentally sound solutions to the final management of radioactive waste. The most widely favoured solution is deep geological disposal because it is a good long-term strategy in contrast to near-surface disposal which requires human maintenance. Intermediate-level radioactive waste (ILW) that contains long-lived radioisotopes is also stored pending disposal in a geological repository.

### Effects of nuclear waste

The effects of radiation on humans and animals are well-documented as having an extremely detrimental effect. When exposed to radiation in large amounts, humans can develop cancer. If the amount of radiation is controlled, it can be used to treat cancer, but if a leak or accidental exposure occurs, it would be nearly impossible to control the exposure. Radiation can also cause birth defects in humans and animals, so an exposure to radiation in the wild could lead to generations of difficulties throughout an entire ecosystem. This would in turn cause a loss of biodiversity limited not only to animals but plants as well.

## Key Member States and NGOs Involved and Their Views

### IAEA (International Atomic Energy Agency)

Ever since the first development of nuclear weapons, in the 40s and 50s, the International Atomic Energy Agency (an independent IGO with 171 member states) has been focused with the peaceful use of nuclear energy, inhibiting its use for any military purpose, including nuclear weapons. Therefore, along with these tasks comes dealing efficiently and permanently with the radioactive waste which comes with producing nuclear energy.

The organization has been very active in finding solutions and managing to mobilize countries which produce nuclear power to manage their waste.

### The International Maritime Organization

The International Maritime Organization (IMO) is an organization which has been successful when it comes to prohibiting dumping nuclear waste in oceans. They were at the forefront of the London

Protocol and Convention, which brought together 82 countries to prevent the disposal of radioactive waste in the oceans.

## Greenpeace

Greenpeace has succeeded in raising awareness about the loss of biodiversity due to radioactive waste through advertising campaigns, one of which is “End Nuclear Waste”, which has brought the issue to the world’s attention.

## Organization of African Unity

The Organization of African Unity was an IGO consisting of 32 African countries, the predecessor to the African Union. In their 48th Ordinary Session, they decreed that “the dumping of nuclear and industrial wastes in Africa is a crime against Africa and the African people” and took other drastic measures to<sup>3</sup> prevent radioactive waste from being disposed of on the African Continent in CM/Res.1153 (XLVIII)<sup>4</sup>.

## Timeline of Events

The first dumping of radioactive waste occurred off the coast of California in the United States in 1946. In 1957, the International Atomic Energy Agency decided to have a meeting discussing pollution and radioactive waste at sea and soon after in 1958, the Convention on the High Seas was signed by 63

UN member states (including most Soviet-Bloc countries and most of European nations as well as the US). It recommended that "every State shall take measures to prevent pollution of the seas from the dumping of radioactive waste, taking into account any standards and regulations which may be formulated by the competent international organizations".

In 1972, 82 countries adopted the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention 1972) which prohibited the dumping of high level radioactive waste and in 1994 an amendment was revised through the IGPRAD to prohibit all types of radioactive waste from being disposed of in the sea.

Since then a revised London Convention, the London Protocol, has been discussed and put into effect in 2006 and hopes to include more countries in the deal.

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<sup>3</sup> <http://www.peaceau.org/uploads/cm-res-1153-xlviii-e.pdf>

<sup>4</sup> <http://www.peaceau.org/uploads/cm-res-1153-xlviii-e.pdf>

Date	Event
<b>1946</b>	First dumping of radioactive waste (in the Pacific Ocean by the U.S.A)
<b>1957</b>	First IAEA meeting discussing the disposal of radioactive waste
<b>1958</b>	First UN conference on the Law of the Sea (UNCLOS I)
<b>1962</b>	Convention on the High Seas comes into effect
<b>1972</b>	London Convention (Prohibition of dumping of high level radioactive waste)
<b>1975</b>	London Convention put into effect
<b>1977</b>	The NEA sets up Coordinated Research and Environmental Surveillance Programme (CRESP) for NEA dumping site
<b>1983</b>	Proposed amendment to the LDC prohibiting all radioactive waste from being disposed at sea
<b>1986</b>	The Intergovernmental Panel of Experts on Radioactive Waste Disposal at Sea (IGPRAD) forms to discuss the impacts of low-level radiation on biodiversity and review the amendment
<b>1993</b>	Final IGPRAD meeting which resulted in the adoption of a revised amendment to the LDC which would limit all radioactive waste from being dumped into the sea by Feb. 20th 1994
<b>1994</b>	LDC amendment put into force
<b>1996</b>	The London Protocol (a new revised LDC) is discussed and put into effect for 2006

<b>1997</b>	Establishment of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
<b>2006</b>	London Protocol put into force

## UN Involvement, Relevant Resolutions, Treaties and Events

- United Nations Convention on the High Seas (UNCLOS I), Article 25, (1958)
  - Encouraged action from member states to prevent the pollution of the seas by abstaining from dumping radioactive waste in the ocean
- The London Protocol (1972) revised in 1993
  - Prohibiting the dumping of radioactive waste in the ocean
- African Unity Session (1988) CM/Res.1153 (XLVIII) and CM/Res.1225 (L)
  - Declares that “the dumping of nuclear and industrial wastes in Africa is a crime against Africa and the African people”<sup>5</sup>.
- Resolution International Atomic Energy Agency GC(XXXIV)/RES/530 (21 September 1990)
  - Establishing the Code of Practice on the International Transboundary Movement of Radioactive Waste
- Resolution International Atomic Agency GC(45)/RES/10 (21 September 2001)

## Possible Solutions

Although the London Protocol has been quite successful in making sure that countries do not dump their waste in the seas, there is still the problem of finding a long-term disposal method. Some states have opted to bury them near the surface in metal containers however this has still not managed to solve the issue. The world is searching for new ways of disposing of radioactive waste, for instance in Eastern Finland where they are building an underground permanent long-term nuclear storage facility.

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<sup>5</sup> <http://www.peaceau.org/uploads/cm-res-1153-xlviiii-e.pdf>

However, as we can see from the nuclear incidents in Chernobyl in the 80s and Fukushima in 2011, radioactive substances can have a profound impact on society and thus the containment of radioactive isotopes must be ensured and these deep borehole disposal areas are currently the most safe places to store nuclear waste.

Other options would include disposing of nuclear waste into space or that radioactive waste-products would be transmuted into less harmful materials. However all of these three methods could potentially be very expensive which is a reason why certain governments may not be willing to finance such projects.

A final option would be for states to opt entirely out of producing nuclear energy as a whole, which would limit the amount of radioactive waste needing to be stored as a result of nuclear energy production, however, seeing as almost all nuclear states benefit far too much economically from nuclear energy, this solution will be a hard one to enforce on states.

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