

The Role of UNCLOS 1982 in Maintaining and Protecting the International Marine Environment

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Article Info	Abstract
<p>Keywords: Regulations, UNCLOS 1982, Nuclear Power.</p> <p>DOI: 10.25041/lajil.v6i1.3379</p>	<p><i>The disposal of nuclear waste into the Sea of Japan is a complex and contentious issue that intertwines international law and environmental concerns. Japan, a major producer of nuclear waste, faces international pressure to manage this waste according to global legal and environmental standards. The United Nations Convention on the Law of the Sea (UNCLOS) provides a framework for managing marine resources, including waste disposal, but ambiguities in the law complicate the definition of state responsibilities. From an environmental perspective, the disposal of nuclear waste could have long-lasting detrimental impacts on marine ecosystems and human health, emphasizing the need for sustainability in decision-making processes. Moreover, international conventions like the Espoo Convention and the Aarhus Convention stress the importance of public participation in environmental governance, advocating for civil society's involvement to ensure public interests and concerns are addressed. This research aims to analyze Japan's disposal actions and explore the role of UNCLOS 1982 in protecting the international marine environment, using a normative juridical approach to examine legal conflicts, gaps, and ambiguous norms.</i></p>

A. Introduction

Japan began releasing treated wastewater from the Fukushima nuclear power plant into the Pacific Ocean on Thursday, August 24, 2023, a decision that has sparked widespread protests and controversy. Critics argue the discharge harms the environment,¹ yet the International Atomic Energy Agency (IAEA) has declared the impact on human and environmental health to be "negligible," stating that the radioactive levels in the ocean will not significantly increase.²

¹ Imanudin Abdurohman, "Why Japan Throw away Waste Nuclear to the Sea and What The impact?" , 2023, Source: <https://tirto.id/kenapa-jepang-membuang-limbah-nuklir-ke-laut-dan-apa-dampaknya-gPrz>

²Keane Audric, "Exile Waste Nuclear to the Sea by Japan" (2023), Source: <https://jurnalpost.com/pembuangan-limbah-nuklir-ke-laut-oleh-jepang/58101/>

Despite these assurances, the action has faced strong opposition from neighboring countries, such as China, which has criticized Japan's decision as "selfish and irresponsible."³

The issue has polarized the international community, with debates centering around the safety and ethics of releasing Fukushima nuclear waste. Supporters, including some world scientists, maintain that the release is safe, noting that tritium—the radioactive isotope involved—is naturally present in water around the world and that its concentration in the released water is far below the safety limits, including the IAEA's threshold of 1,500 becquerels per liter (Bq/L) and the World Health Organization's drinking water standard of 10,000 Bq/L. However, opponents such as Emily Hammond, an energy and environmental law expert at George Washington University, argue that compliance with these standards does not necessarily equate to a lack of consequences for the environment and human health. Concerns also persist from figures like Robert Richmond, a marine biologist, about Japan's capacity to monitor the broader radioactive and ecological impacts, while Greenpeace's Shaun Burnie highlights potential negative effects on marine and terrestrial life directly ingesting tritium.⁴

The use of nuclear energy is on the rise, driven largely by advancements in science and technology. Beyond its notorious role as a formidable weapon, nuclear power also offers substantial benefits for societal welfare. Today, nuclear energy is emerging as an appealing alternative for many countries, due to its diverse applications across various sectors.

Nuclear energy, particularly in the form of radioactive materials, is employed extensively in industries such as health, agriculture, animal husbandry, and the sterilization of pharmaceutical products and medical equipment. It also plays a crucial role in food preservation and hydrology, the latter representing a significant application of non-energy nuclear engineering.⁵ Additionally, nuclear power is used in electricity generation through Nuclear Power Plants (NPPs).⁶ NPPs are known for their ability to produce large amounts of stable, and relatively cost-effective electricity.⁷ According to data from the International Atomic Energy Agency (IAEA), Japan ranked as the eighth largest producer of nuclear energy in the world in 2022, generating 51.91 terawatt-hours (TWh) of electricity from nuclear sources.⁸

Japan's nuclear waste disposal plan was developed based on the 2011 explosion at the Fukushima nuclear power plant. Over the ten years since constructing the storage tanks for radioactive water, the contamination level has escalated, filling the tanks to near capacity. Consequently, the Japanese government has commenced the discharge of treated radioactive water into the sea⁹, a measure that has sparked significant opposition within Japan and

³CNN Indonesia, "UN Ensures Atomic Monitoring Waste Nuclear Fukushima is Not Dangerous", (2023), Source: <https://www.cnnindonesia.com/internasional/20230830014203-113-992133/pengawas-atom-pbb-pastikan-limbah-nuklir-fukushima-tak-berbahaya>

⁴Devita Savitri, "Pros vs Cons Opinions Waste Scientist Nuclear Japan", (2023), Source: <https://www.detik.com/edu/detikpedia/d-6899285/pro-vs-kontra-pendapat-ilmuwan-soal-limbah-nuklir-jepang> (Ahdia 2023, Abdurrohman 2023, Audric 2023, Indonesia 2023, Savitri 2023, Stevanni Thalia Pandi 2023, Netty Herawati 2021, Aprilia Mawaddah 2023, Arbar 2023, Commissioner 2021)

⁵*Ibid.* 2. (Netty Herawati 2021)

⁶Stevanni Thalia Pandi, Natalia Lengkong, Kathleen Pontoh, "Review of Disposal Law Waste Nuclear At Sea According to Environmental Law International" *Lex Administratum* 11, no. 1 (2023).

⁷Netty Herawati, Adityo Darmawan Sudagung, "Public Perception and Potential Related *Public Acceptance* Discourse on Nuclear Power Plant Development in the Regency Benkayang", *Journal Development Energy Nuclear* 22, no. 2 (2021): 111.

⁸Adi Ahdia, "Japan, Producer Country 8th Largest Electric Energy in the World", Source: <https://databoks.katadata.co.id/datapublish/2023/08/31/jepang-negara-produsen-energi-nuklir-terbesar-ke-8-di-dunia>

⁹Aprilia Mawaddah, Maria Maya Lestari, Ledy Diana, "Legal Analysis of Plan Disposal Waste Nuclear to the Sea After the Occurrence Earthquake and Tsunami in Japan", *Journal Law and Constitutional Science* 1, No. 2 (2023): 93.

internationally. This controversy could potentially affect critical Japanese exports, particularly seafood and cosmetics, due to fears of contamination.¹⁰

The International Atomic Energy Agency (IAEA) released a report endorsing Japan's disposal plan, which has been met with substantial resistance and criticism from neighboring regions, including China and Hong Kong, since its announcement two years ago. Although Japanese researchers assert that the water has been sufficiently treated through advanced filtration techniques to remove most radioactive substances, concerns persist. Critics point to residual tritium levels, which they argue could pose environmental and human health risks for more than a century.¹¹

The 1982 United Nations Convention on the Law of the Sea (UNCLOS) underscores the necessity for states to prevent actions likely to cause environmental harm. UNCLOS mandates states to assess any policy with potential environmental impacts rigorously. Additionally, the precautionary principle within UNCLOS advocates for proactive measures in the face of scientific uncertainty to prevent environmental degradation. This principle and UNCLOS together provide a crucial framework for countries to preempt marine pollution and broader environmental damage, reinforcing the importance of safeguarding the international marine environment and public health.

B. Discussion

Environmental issues are a global concern, impacting all countries and requiring a collective response. Pollution, resource degradation, and global warming are prevalent problems that necessitate viewing environmental protection through a global lens.¹² Historically, public awareness about nuclear power began under tragic circumstances during World War II, with the detonation of atomic bombs in Hiroshima and Nagasaki in 1945 which effects are still felt today.¹³

Before the implementation of the 1982 United Nations Convention on the Law of the Sea (UNCLOS), there were other significant efforts to address marine environmental issues. One such initiative was the 1972 London Convention, officially known as the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter. This convention, which came into effect in 1975¹⁴ under the auspices of the International Maritime Organization (IMO), marked one of the first global agreements aimed at protecting the marine environment from the adverse effects of human activities. It focuses on several key aspects:

- a) Disposal of waste or materials listed in Appendix I is prohibited: All parties involved in this agreement must prohibit the dumping of waste or materials listed in Appendix I into the sea. Appendix I covers certain types of waste that must not be disposed of.
- b) Disposal of waste or materials listed in Annex II requires a special permit: If waste is listed in Annex II, countries must obtain a special permit before disposing into the sea. Appendix II covers the types of waste that require monitoring.

¹⁰Thea Fathanah Arbar, "List of Countries Officially Stopping Imports Japanese Seafood, RI is there?", Source: <https://www.cnbcindonesia.com/news/20230829142220-4-467123/register-negara-resmi-setop-impor-makanan-laut-jepang-ada-ri>.

¹¹United Nations Human Rights Office of the High Commissioner, "Japan: UN Experts Say Deeply Disappointed by Decisions to Discharge Fukushima Water" (2021). Source: <https://www.ohchr.org/en/press-releases/2021/04/japan-un-experts-say-deeply-disappointed-decision-discharge-fukushima-water?LangID=E&NewsID=27000>

¹²Lathifatun Enjoy Hall, Aditya Putri Ristanti, Novianah Khalimatus Sa'diyah, Ibrahim bin Sa'id, "The Potential Impact of Japanese Nuclear Waste on Fish Organs in the Sea of Japan", *Journal of Agricultural Science* 18, No. 2 (2023): 61.

¹³I Gede Suputra Widharma, "Distributed Control System in Nuclear Power Plants", (2021): 2.

¹⁴I Gede Suputra Widharma, "Distributed Control System in Nuclear Power Plants", (2021): 2.

- c) Disposal of all waste or other materials requires a general permit: If the waste or material is not listed in Appendix I or II, the state must still obtain a general permit before carrying out the disposal. This applies to waste or materials that are not included in the provisions.

1. The Role of the United Nations Convention on the Law of the Sea (UNCLOS 1982) in the Prevention of Sea Pollution

The United Nations Convention on the Law of the Sea (UNCLOS) emerged from a series of international conferences facilitated by the United Nations.¹⁵ Adopted in 1982, this treaty delineates the rights and responsibilities of nations concerning the use of the world's oceans, establishing guidelines for managing marine natural resources, environmental protection, and economic activities.¹⁶

Currently, more than 100 countries have ratified the 1982 UNCLOS treaty, which encompasses extensive regulations on maritime law. Under UNCLOS, marine pollution is defined as the introduction by humans, directly or indirectly, of substances or energy into the marine environment that results in harmful effects such as hindrance to maritime activities including fishing and other legitimate uses of the sea, as stated in Article 1(4). Furthermore, the Convention obligates countries to prevent and control marine pollution within their jurisdictions.

One current concern is the disposal of nuclear waste, which has become a significant source of marine environmental pollution. Although international law does not prohibit the use of nuclear energy for non-hazardous purposes, launching a nuclear program involves critical considerations regarding security and the non-proliferation of nuclear materials. The Japanese government's disposal of nuclear waste into the sea, while declared safe post-treatment and necessary due to full storage tanks, raises concerns about potential long-term environmental impacts.

Given the critical need to protect the marine environment, UNCLOS includes specific provisions for this purpose. Chapter XII of the Convention focuses on the protection¹⁷, conservation, prevention, mitigation, and control of marine pollution. This chapter outlines several key aspects crucial to the preservation of the marine environment, which include:

- a. Protection of the Marine Environment: States must take necessary measures by this convention to ensure effective protection of the marine environment from adverse impacts that may arise from certain activities. This includes the prevention, reduction, and control of pollution and other threats to the marine environment, as well as the protection and conservation of marine natural resources.
- b. Protection of Human Life: States must take necessary measures to ensure the effective protection of human life. This is done by adopting appropriate laws, regulations, and procedures to supplement the relevant international laws mentioned in the treaty in question.
- c. Commoditization of Activities: Activities within the area must be carried out in a manner that is reasonable and takes into account other activities in the marine environment. Installations used to carry out activities within the territory must be

¹⁵Dwi Astuti Palupi, " International Maritime Law ", *LPPM Bung Hatta University* (2021): 8.

¹⁶Yulia Wiliawati, Danial, Fatkhul Muin, " The Existence of UNCLOS 1982 in Efforts to Enforce International Maritime Law in Coastal Country Waters ", *Sultan Jurisprudence : Journal of Legal Research* 2, No. 2 (2022): 287. Source: <https://jurnal.untirta.ac.id/index.php/jurisprudence/index>

¹⁷ Masdin, " Implementation Provisions of the 1982 United Nations Convention On The Law Of The Sea (UNCLOS). Protection and Preservation Indonesian Marine Environment ", *Journal Legal Opposition Law Science* 4, (2016): 2.

installed, located, and removed only by this section and by the laws, regulations, and procedures of the Authority.

The sea is not only vital for human life and the broader ecosystem but also serves as a dynamic environment that is continually enhanced by scientific and technological advancements. These advancements have led to the discovery of various mining materials and valuable artifacts, expanding the sea's utility.¹⁸ The increases in the functions and exploitation of the sea increase are followed by greater challenges and complications related to maritime law. Despite various government directives aimed at addressing these issues, practical solutions to protect the marine environment often fall short.¹⁹

In the context of environmental degradation, international environmental law plays a crucial role, particularly when pollution affects air, land, and sea. Such degradation raises significant ethical concerns about justice for future generations.²⁰ The rights of these future generations are enshrined in numerous international legal frameworks, including declarations, resolutions, and conventions. These instruments articulate generational rights to the benefits and development of natural and cultural heritage passed down from previous generations.²¹

The United Nations Convention on the Law of the Sea (UNCLOS) 1982 further underlines the responsibility of every coastal state. It mandates that these states exercise sovereign rights over their exclusive economic zones, including the sustainable use and protection of natural resources. Coastal states are also tasked with the duty to monitor and prevent activities that might lead to marine pollution within these zones. In specific case such as the nuclear waste disposal in Fukushima, Japan, UNCLOS 1982 highlights the rights of affected countries to seek compensation from the nation responsible for the pollution. This provision underscores the convention's crucial role in prompting nations to uphold their responsibilities in safeguarding the international marine environment and averting environmental catastrophes that could detrimentally impact ecosystems and human health.

2. Obligation and Responsibilities of Each State in Safeguarding the International Marine Environment

Marine pollution poses a significant threat to marine ecosystems and human health, necessitating robust legal mechanisms for mitigation. International law, particularly the United Nations Convention on the Law of the Sea (UNCLOS), establishes a comprehensive framework aimed at the protection and preservation of the marine environment. This framework imposes obligations on states to prevent marine pollution and manage their activities responsibly, encompassing both reactive measures, such as compensation for damages, and proactive collaboration and compliance with international regulations.²²

Under UNCLOS, each state is required to take all necessary measures to prevent pollution from any source, including land-based activities, activities at sea, and atmospheric emissions. This involves stringent control over the dumping of waste and other hazardous materials, such as nuclear waste, into the ocean. Furthermore, states are compelled to collaborate internationally to protect the marine environment. This cooperation is crucial, especially in addressing transboundary environmental challenges and ensuring effective response strategies in the event of environmental emergencies, such as significant oil spills or nuclear accidents.

¹⁸Didik Mohammad Sidik, "International Maritime Law and Regulations in Indonesia", *Bandung: Refika Aditama* (2014): 1.

¹⁹Dewa Gede Sudika Mangku, "Protection and Preservation Marine Environment According to International Law", *Tanjungpura Law Journal* 4, (2020): 164.

²⁰Jawahir Thontowi, "Law and Relationships International", *UII Press Yogyakarta* : 163.

²¹Suparto Wijoyo, "Environmental Law International", *Ray Graphics* (2017): 109.

²²Ahmad Syofyan, "Responsibility for Marine Pollution Caused by Oil According to International Law", *Inspiration*, No. X (2010): 139-140. <http://jurnal.untad.ac.id/jurnal/index.php/INSP/article/view/2792/1888>

The obligations and responsibilities extend beyond mere prevention. States are also tasked with actively engaging in efforts to mitigate the negative impacts of pollution if they occur. This includes adhering to established international environmental protocols and compensating for any damage caused by their activities. In cases like the Fukushima nuclear waste incident, the implicated country must not only cease the harmful activities but also provide adequate compensation for the repercussions of such actions.²³

Some of the responsibilities and obligations of states in protecting the international marine environment include:

- a. Protecting and preserving the international marine environment, including preventing marine pollution, managing marine resources sustainably, and developing environmentally friendly technology.
- b. Complying with international regulations relating to the marine environment, such as the United Nations Convention on the Law of the Sea (UNCLOS)
- c. Collaborating with other countries and international organizations in protecting the marine environment and overcoming its negative impacts.
- d. Being responsible environmental damage compensation caused by human activities, including marine pollution by nuclear waste.

In the context of the Fukushima nuclear waste incident, countries' responsibilities under international law, particularly under UNCLOS, go beyond mere compliance and collaboration. These responsibilities emphasize the importance of proactive international cooperation in preserving the marine environment and addressing global environmental challenges. Additional responsibilities for each country in protecting the international marine environment include enhanced monitoring and reporting. Nations are required to improve their surveillance of marine areas and promptly report any significant changes or pollution incidents. This rapid response is crucial to mitigating potential harm efficiently and minimizing long-term environmental impacts which can be performed through:

1. Protection and Preservation of the Marine Environment: Every country is required to take action for the protection and preservation of the marine environment by the provisions of international law.
2. International Obligations for the Protection and Preservation of the Marine Environment: States are responsible for fulfilling their international obligations regarding the protection and preservation of the marine environment. They must be held accountable for their actions in this matter.
3. Regional and Global Coordination: The country must coordinate with other regional and global activities in protecting the marine environment, including the disposal of nuclear waste in Japan.
4. Issuance of Legislation: The country must regulate nuclear waste disposal legislation in Japan and issue these regulations by the provisions of international law.

By complying with state responsibilities in protecting the international marine environment according to the international environmental law system, countries are expected to be able to effectively safeguard the marine environment by the provisions of international law.

2. Application of the Principles of Foreseeability of Harm and Precautionary Approach in International Environmental Law

The principle of foreseeability of harm emphasizes that the party responsible for the action must be able to estimate or understand the possibility of damage or danger resulting from their

²³ Hajriyanti Nuraini, "The Analysis Of Japan's Decision to Discharge Fukushima Radioactive Waste Water Under International Environmental Law", *LITRA: Journal of Spatial and Agrarian Environmental Law* 1, No. 2 (2022): 271. <https://doi.org/10.23920/litra.v1i2.775>

actions. This principle is significant in environmental regulation because it mandates that responsible parties consider and take steps to prevent potential environmental damage before proceeding with specific actions. It is intricately linked to the precautionary approach in environmental management, which plays a crucial role in ensuring that potentially harmful activities are approached with due diligence and responsibility.

The precautionary approach, meanwhile, is a principle that underscores the importance of taking preventive actions to mitigate risks to the environment and human health, particularly when scientific uncertainty exists about the potential adverse impacts. This approach compels responsible entities to be proactive rather than reactive, highlighting the necessity of anticipation in environmental management.

Both the foreseeability of harm and the precautionary approach are embedded in several international treaties and agreements that integrate the following principles:²⁴

- a. Convention on the Protection of the Marine Environment of the Baltic Sea Area 1992 Article 3 paragraph (2).
- b. Convention for the Protection of the Marine Environment of the North East Atlantic 1992 Article 2.
- c. Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities 1996 in the Preamble section.
- d. Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 Article 3 paragraph (1) number (7), Paragraph 23 and Paragraph 24.
- e. Global Program for Action for the Protection of the Marine Environment from Land Based Activities Introduction section, number (9).

Under the principle of foreseeability of harm, states are mandated to assess any policy or activity that might impact the environment critically. They must prevent or prohibit actions that could potentially cause environmental harm. Article 206 of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) specifies that if a state has reasonable grounds to believe that a proposed activity within its jurisdiction or control is likely to result in significant marine pollution or cause significant and harmful alterations to the marine environment, it must conduct an environmental impact assessment. This assessment should evaluate the potential impacts of such activities and the state is required to submit a report on the findings.

The precautionary principle, further emphasized in the 1990 Bergen Ministerial Declaration on Sustainable Development, dictates that environmental measures should be anticipatory, preventing and mitigating the causes of environmental degradation. It asserts that the lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation where there are threats of serious or irreversible damage. This principle has been incorporated into various international instruments and has become a fundamental aspect of the evolution of international environmental law. It promotes proactive measures in the face of scientific uncertainty and insists that this uncertainty should not be grounds for delaying preventive action against potential environmental damage.

The precautionary principle, which first emerged in the 1970s, has been adopted in numerous international treaties. Despite its divisive nature, some critics deem it unscientific and a barrier to progress, while supporters argue that it safeguards human health and the environment. This principle plays a significant role in risk governance, bridging the gap between science policy and the balance of caution with innovation. Implementing it presents

²⁴Adori Raka Susanto, “ Implementation *Foreseeability of Harm* and *Precautionary Principle* in Regulation Rubbish Plastic As *Land-Based Sources of Pollution* in the Sea”, *Belli Ac Pacis: International Law Journal* 7, no. 2 (2021): 55-56. <https://jurnal.uns.ac.id/belli/article/view/59992/34983>

both opportunities and challenges, as although there is consensus that it does not prescribe specific actions, opinions differ on how and when to enact precautionary measures.

The proposed discharge of nuclear waste into the ocean by Japan has ignited a heated debate, highlighting the tension between international law, such as the United Nations Convention on the Law of the Sea (UNCLOS) 1982, and the following environmental protection principles.

1. UNCLOS 1982:
 - a. UNCLOS (United Nations Convention on the Law of the Sea) is an international agreement that regulates various aspects of ocean use and conservation.
 - b. Article 192 of UNCLOS states that countries must take action to prevent, reduce, and control marine pollution, including waste disposal.
 - c. Article 194 of UNCLOS requires countries to adopt international standards, including scientific and technical standards, to protect the marine environment.
 - d. Article 197 of UNCLOS emphasizes the need for international cooperation in managing and protecting the marine environment.
2. Environmental Principles:
 - a. Precautionary Principle: Decisions that have the potential to damage the environment must be taken with caution and based on strong scientific evidence.
 - b. Prevention Principle: Efforts must be made to prevent environmental pollution and damage wherever possible.
 - c. Principle of International Cooperation: Countries must cooperate in protecting the global environment.

C. Conclusion

This article explores the critical role of international collaboration in safeguarding the marine environment, particularly regarding the contentious decision by Japan to discharge nuclear waste into the Pacific Ocean. It underscores the significance of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) in protecting the global marine environment, stressing the principles of precaution, prevention, and international cooperation. Moreover, the article examines the possible adverse effects of Japan's actions, the necessity for ecological sustainability, and the involvement of communities in environmental governance. The framework of UNCLOS 1982, an international treaty governing various aspects of marine usage and conservation, is pivotal for the protection of the marine environment. To ensure the sustainability and biodiversity of ocean ecosystems, UNCLOS principles should be rigorously enforced.

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