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The impact and responsibility of Japan's obligations on nuclear waste for fulfilling international obligations

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Abstract
Transboundary pollution of the environment requires a strong legal basis to hold countries who should be responsible for polluting, the research aims to find out how the negative impact of Fukushima's radioactive waste on the marine environment in the Pacific Ocean can impact to all countries, on marine ecosystems especially China is a neighbor country to Japan, as well as a representative country along the coast of the Pacific Ocean that can protect its rights. They are related to appropriate strategies and security measures for the comfort of the world's ecosystem. In this repatriation crisis, Japan's neighbor countries are direct stakeholders, so the mitigation strategies will be implemented and especially attract world attention resulting from the radioactive waste and provide an understanding of the legal consequences for all countries because of radioactive waste as in the regulation of international environmental law (United Nations Convention on the Law of the Sea 1982 (UNCLOS 1982) which is embodied in international conventions. Fukushima radioactive waste dumped into the sea can cause serious harm to the marine environmental ecosystem, social impacts and economic impacts, and in all aspects of Japan's decision to dispose of radioactive waste into the sea. Degrading radioactive waste into the sea can cause serious harm to the marine environmental ecosystem, social impacts and economic impacts, and in all aspects of Japan's decision to dispose of radioactive waste into the sea. Transboundary pollution of the environment requires a strong legal basis to hold countries who should be responsible for polluting. The type of research is using normative legal research. Legal research is conducted doctrinally, namely "research on the law that is conceptualized and developed based on the doctrine adhered to by the conceptualizer or developer. Japan released radioactive contaminated waste without considering international laws governing the human environment, and the Japanese government will be held liable for violating its international obligations. Therefore, protecting and preventing greenhouse gas emissions is a crucial obligation in safeguarding human rights and environmental health, both now and in the future. To fulfill its international responsibility to protect the marine environment, the Japanese government must conduct an EIA (Environmental Impact Assessment) under international law. Because all the radioactive nuclear waste carried out by Japan affects the world's fisheries.

Keywords: International environmental law, radioactive, state accountability

Introduction

International law can be defined as a collection of binding norms and regulations that govern relations between states and international organizations within the international community. However, due to the rapid advancement of science and technology in the 21st century, the increasing interdependence and interconnectedness between states has led to the emergence of several large international organizations that require the development of international law. International law has a scope that includes regulation not only of relations between states, but also of other legal entities such as international organizations, supranational groups, national communication movements, and individuals in the context of relations with states. Japan is widely recognized as one of the most famous manufacturers in the world. [1] One of the crucial factors that must be considered carefully and prepared optimally in the development of nuclear energy utilization in Indonesia is the problem of radioactive waste disposal.

Nuclear waste refers to the by-products of nuclear activities, such as the construction of nuclear power plants and nuclear research. Disposal of nuclear waste into the sea may have adverse effects on ecosystems and human health. As a result of the use of nuclear energy, nuclear waste can cause environmental problems, especially in the ocean, without us realizing that these problems are getting worse, widespread, and widespread. exist. The problems are regional, national, transnational, and international, not just local or regional. Environmental influences that occur are not only related to one or two aspects, but according to the nature of the environment, several links systematically influence each other.

Regarding marine pollution, There are 2 (two) main causes: Nuclear weapons testing and destruction of radioactive and nuclear waste, Contamination from using the sea for military purposes, and Disposal of military equipment at sea. Nuclear waste can be divided into two main categories: radioactive waste with low levels of radioactivity and radioactive waste with high levels of radioactivity. [2] Low radioactivity waste has low levels of radioactivity and generally comes from the medical, industrial, and research sectors. Due to the use of nuclear energy, nuclear waste can cause environmental problems, especially in the oceans, without us realizing that these problems are getting worse, wider, and wider. exist. The problems are regional, national, transnational, and international, not just local or regional. Environmental influences that occur are not only related to one or two aspects, but according to the nature of the environment, several links affect each other systematically.

On August 24, 2023, Japan began the process of sending radiologically treated water from the Fukushima Daiichi nuclear power facility to the Pacific Ocean. The initial

discharge volume will be 7,800 cubic meters. Japan's neighbors, including South Korea, North Korea, and China, have asked Japan to stop discharging treated effluent, and China has also banned all seafood imports from Japan. It is estimated that the entire process will take approximately 30 years to release the treated water. [3] About 1.3 million tons of water are still being released inside the Fukushima nuclear power plant. Japan is filtering or controlling all radioactive elements from the Fukushima nuclear waste, but not the radioactive element tritium. Tritium is a radioactive isotope of hydrogen. It has the same number of protons and electrons as hydrogen, but contains two neutrons, whereas hydrogen usually contains only one. This makes tritium unstable and radioactive. Tritium is produced naturally through the interaction of cosmic radiation with gasses at the top of the atmosphere, and is also a byproduct of nuclear fission. Like all radioactive isotopes, tritium has decayed. When full, it activates beta radiation. Although tritium can be gaseous, the most common form is air due to its radioactive reaction with oxygen, which forms water vapor.

Current sources of tritium, according to the United States Environmental Protection Agency, are commercial nuclear reactors, research reactors, and government weapons plants. Tritium can be discharged as waste from these facilities, or it can leach into soil and groundwater. Tritium can enter the environment as a result of improper harvesting or illegal production where it is not normally found. Once tritium enters the body it quickly spreads and is evenly distributed throughout the body. Tritium is capable of emitting beta radiation which if absorbed by the human body's immune system can cause damage to human cells. Activated by radioactivity Tritium can enter the body when a person consumes water containing tritium, inhales tritium as a gas in the air, or absorbs it through the skin. Tritium is a radioactive isotope found in nuclear reactor fuel. Ingestion of large amounts of tritium can increase the risk of cancer in humans. If the nuclear waste is discharged into open waters in large quantities, it can cause damage to the ecosystem in the waters.

Indonesia, as a country with a large dominance of sea area, has significant sovereignty to be developed and used as a resource that supports Indonesia's move to become an important center in the maritime world. As expressed by President Joko Widodo in his speech at the East Asia Summit, President Jokowi firmly expressed his determination to place Indonesia as the main focus in global maritime affairs. President Jokowi expressed his vision of Indonesia's role as a key hub in the global maritime context, [5] as well as his aspirations for the future role of the East Asia Summit, in his speech at the East Asia Summit held in Nay Pyi Taw, Myanmar, on Thursday, November 13, 2015. In a speech delivered at the 9th East Asia Summit (EAS), which took place on November 13, 2014, in Nay Pyi Taw, Myanmar, President Jokowi highlighted the concept of Indonesia as a major center in the global maritime context, with an emphasis on five main pillars in the development agenda: Reviving Indonesia's Maritime Heritage, Protecting Marine Resources and Realizing Seafood Sovereignty by Highlighting the Primary Role of Fishermen, Prioritizing the Development of Maritime Infrastructure and Connectivity through the Development of Sea Lines, Inner Harbors, Logistics Chains, Shipping Industry, and Marine Tourism Sector, Adopt Maritime Diplomacy with Efforts to Enhance Cooperation in Maritime Affairs and Conflict Resolution, Such as Acts of Piracy, Sovereignty Violations, Territorial Disputes, Piracy, and Marine Pollution, While Affirming that the Ocean Should Unite Nations and States, Not Separate Them. Strengthening Maritime Capability as Part of Responsibility in Ensuring the Security and Safety of Shipping at Sea. [6]

Achieving the status of a maritime nation requires the development and improvement of infrastructure that connects the islands and takes into account the extensive coastline of each island. In addition to infrastructure, it is also important to pay attention to the degradation of marine ecosystems, which are unique to the tropics and consist largely of carbon-based sediments produced by corals, seaweed, and other carbon dioxide-producing organisms. However, the condition of Indonesia's marine ecosystems is deteriorating. Problems related to the degradation of marine ecosystems include nuclear waste and chemicals that disrupt marine ecosystems. Due to deforestation, not only small fish but also long-lived carp are at risk of dying, so deforestation is a threat to long-lived carp. The disposal of hazardous and toxic waste, often referred to as B3 (Bad and Dangerous Materials), has the potential to cause adverse impacts on marine ecosystems. The preservation of the marine environment and its surroundings is crucial for the future as it ensures sustainable fishing of juveniles and the utilization of coral reefs as habitats for marine organisms. In addition, the aesthetic appeal of this ecosystem can be utilized for tourism purposes.

In contrast, excessively emitted smog has very high levels of radioactivity and usually comes from nuclear reactors and nuclear fuel processing. The following are some of the potential negative impacts of dumping radioactive waste into the ocean: Environmental Contamination, Impact on Human Health, Ecosystem Disruption, Climate Change, Economic Impact, Biotic and Abiotic Damage, and Global Warming.

Methods

The research methods used in this article are descriptive and explanatory. Descriptive research presents a complete picture of the problem that focuses on the application To solve the problem of discharging nuclear waste into the sea, serious nuclear waste management procedures must be implemented. An alternative is to store nuclear waste in specially designed secure facilities. A global understanding of the risks posed by nuclear weapons and their proliferation is the first step in safeguarding the health of marine ecosystems and human health.

Discussion and Result

Nuclear waste disposal that violates regulations set by the International Atomic Energy Agency (IAEA) has the potential to cause negative impacts on the environment. The regulation of environmental law at the international level is reflected in international treaties, both non-binding (declarations and resolutions) and binding (treaties and agreements), which are formed through conferences and other international meetings. These agreements can be initiated by certain countries or groups of countries, or initiated by the United Nations Environment Programme (UNEP) and other international organizations. In this context, violations of these provisions in nuclear waste disposal can have a detrimental impact on environmental ecosystems. Yudi Utomo Imardjoko, a nuclear expert from

Universitas Gadjah Mada (UGM), discussed the long-lasting radioactive substances found in nuclear waste. This dissolution can pose a danger to world waters. Under this provision, countries are required to implement measures to prevent, reduce, and mitigate the degradation of the marine environment, and ensure that activities carried out in their territories do not contribute to environmental damage. The concept of pure justice has a broad perspective. The primary and most significant objective of this principle is to reduce negative impacts on the environment. Both countries are responsible for preventing environmental damage within and beyond their borders, including through regulations, administrative measures, and other means. [7]

In addition, the Foreign Affairs Act of the United States stipulates that a country's responsibility is not limited to preventing environmental damage, but also reducing and controlling such damage. Concerning boundary demarcation, each country is obliged to fulfill two obligations, First, take the necessary steps with good intentions. Second, it regulates activities related to the general public and the private sector within its jurisdiction.

Environmental Impact Assessment (EIA) is a process that involves the identification, estimation, evaluation, and mitigation of relevant biophysical, social, and developmental impacts before making significant decisions or commitments. The purpose of this regulation is to avoid or minimize negative impacts on the environment. By using the Environmental Impact Assessment (EIA) method, any project that has the potential to cause significant environmental impacts can be identified in advance. According to the Rio Declaration, international law commands that Environmental Impact Assessments (EIAs) should be carried out by qualified national authorities for activities that have the potential to generate significant adverse impacts on the environment. [8] In addition, the 1982 UN Convention on the Law of the Sea (UNCLOS) provides for Environmental Impact Assessments (EIAs) and is one of the pioneering UNCLOS treaties for environmental protection that address this issue. Article 206 states that "If a state has reason to believe that planned activities under its jurisdiction or control are likely to cause substantial degradation or other significant and harmful changes to the marine environment, it shall assess their potential impacts as soon as practicable." All components of the marine ecosystem are subject to regulated responsibilities, including specific areas within a state. "All components of the marine ecosystem are subject to regulated responsibilities, including specific areas within a country. [9]

In addition to UNCLOS 1982, the Espoo Convention on Environmental Impact Assessment in Transboundary Contexts (Espoo Convention) mandates the application of Environmental Impact Assessment (EIA) in transboundary contexts. The Convention mandates that Environmental Impact Assessment (EIA) is a must in the implementation of activities that have the potential to cause significant impacts on ecosystems in river basins. In addition, the Espoo Convention indicates that the following impacts will have significant consequences: Impact refers to any consequence arising from the implementation of an activity that is detrimental to the environment, including impacts on human health and safety, the presence of flora and fauna, soil conditions, air and air quality, climate, landscape, and historic monuments or other physical structures. In addition, impacts also include effects on cultural heritage or socio-economic conditions arising from changes to these elements and the interaction between the factors involved. For such initiatives, the proponent is required to prepare an EIA. In addition, several international legal experts state that conducting an EIA for activities that may hurt the environment is a globally accepted responsibility. [10]

As such, the principles of international law dictate that every state is obliged to carry out an Environmental Impact Assessment (EIA) process before engaging in activities that have the potential to impact the environment, whether within or outside the state's territory. By international law, a state can be held liable if it fails to fulfill its international obligations. Violations of international obligations aim to stop such violations and compensate for losses incurred by other states to enhance state responsibility. It is important to distinguish between state liability based on fault and liability related to damages caused by lawful acts, which do not involve any fault.

State Responsibility for Environmental International of Law

Under international law, states should take responsibility for violations of international law that can be attributed to them. Article 2 of the Draft Articles on Responsibility of States for Internationally Wrongful Acts, which has been accepted as Customary International Law, states that there is an "internationally wrongful act of a State when the act in the form of an act or omission is deemed to be committed by the State under international law." is attributable to the State under international law; and constitutes a breach of an international obligation of the State.

In this way, a state will have responsibility when the wrongdoing can be imputed to the state and is included in the state's violation of international law. If a state's actions violate international obligations and fulfill the elements of the act of state category, then the state must be held internationally responsible through legal instruments and diplomacy. If a state feels aggrieved by international violations from another state, then the state has the right to enforce claims for such violations based on the subject matter. [11]

Conflict Theory Absolute liability or strict liability is a type of absolute liability that is linked to the occurrence of damage. As such, the intended form of liability would be no-fault. Liability will not apply if the executor in the case of the damage incurred can show that the incident occurred because of the executor in the case of the damage incurred: The act or omission is vital to protect human life or safety; An extremely rare and unpredictable natural disaster occurs, despite preventive measures being taken; The occurrence of acts of terrorism; The occurrence of acts of war against activities carried out by implementers.

In the evolution of international law, states are responsible for not damaging or degrading the environment in other states' territories. An increasing number of international treaties outline the responsibilities of individual states to avoid harming and destroying the ecology of other states. The principle of state sovereignty has been incorporated into several international treaties, such as Article 21 of the 1972 Stockholm Declaration. [12]

This is one type of investigation in environmental cases that has become a reference point and has legal implications for environmental management at the global level. Although no environmental case has yet been decided under the law,

international law rules governing a state's liability for harm of an international nature further strengthen the legal basis for establishing liability in situations of environmental degradation involving multiple states.

The implications of Japan's decision on its international legal obligations can be outlined as follows: On April 13, 2021, the Japanese government is scheduled to announce the start of the process of discharging radioactive water from Fukushima that has been transported to the Pacific Ocean. The Japanese government's decision to release nearly one billion tons of radioactively contaminated water into the Pacific Ocean in response to the 2011 Fukushima nuclear disaster potentially violates its international legal obligations. To protect human rights, it is important to maintain a living environment that includes both natural and man-made elements. The Japanese government's decision to release radioactive air that has not been proven harmless to the environment has raised global environmental issues. [13]

One of the characteristics of pollution is that its effects may not be felt immediately when pollution occurs, but they can be felt in the future. This will inevitably hurt human life in the future. The global community has a responsibility to preserve the environment to prevent future damage. As a member of the 1982 United Nations Convention on the Law of the Sea (UNCLOS), the Japanese government is obliged to protect and preserve the marine environment and prevent pollution within its territorial waters and in the waters of other countries. By Article 194 (1) and (2) of the 1982 United Nations Convention on the Law of the Sea, each state is obliged to take necessary measures to prevent, mitigate and protect the marine environment, and to avoid contributing to the damage caused by sea level rise in the territories of other states. If Japan's decision to release radioactive air results in damage to the marine environment, then the Japanese government may be considered in violation of the 1982 United Nations Convention on the Law of the Sea (UNCLOS), as it has caused harm to the sea boundary area.

In addition to UNCLOS 1982, the 1972 London Convention provides for the protection of the marine environment from the encroachment of invasive species. The 1972 London Convention regulations do not take into account radioactive air releases from Fukushima in the aforementioned treaty. The limited scope of the 1972 London Convention regarding the cessation of radioactive emissions at Fukushima is due to its extraterrestrial origin, specifically nuclear power plants. In contrast, the 1972 London Convention only regulates the discharge of water from ships, aircraft, platforms, and other artificial structures at sea. [14] Since Japan is a member of the 1972 London Convention, the radioactive air release from Fukushima does not violate that international treaty. In its efforts to protect the environment, the Japanese Government has a responsibility to prevent damage. Measures taken include reducing negative impacts on the environment and implementing precautions to manage radioactive waste disposal. There are several alternative measures with minimal environmental impact that the Japanese government can choose from. Some of these options include injection into the earth's crust, release of hydrocarbons into the atmosphere, underground storage, long-term storage, and the use of the best available technology to reduce the risk of radioactivity associated with the storage and reuse of this water.

The Japanese government has abandoned the principles outlined in Article 194 of the 1982 UN Convention on the Law of the Sea and chosen a different approach. They do not take precautions that will reduce the impact of radioactive waste on the marine environment or use alternative methods to manage radioactive waste. The release of radioactive water into the Pacific Ocean has the potential to harm the marine ecosystem. [15] Environmental impact assessment (EIA) is one of the measures that can be taken to prevent such negative impacts. Applying EIA to activities that have the potential to cause environmental impacts has now become an internationally recognized obligation. Article 206 of the 1982 UNCLOS also stipulates the requirement to conduct an environmental assessment of activities that have the potential to cause pollution in the marine environment.

Unfortunately, there is a weakness in the mandatory implementation of the Environmental Impact Assessment (EIA), where a country has the freedom to determine which activities may potentially pollute the environment. In its decision-making regarding the release of radioactive water, the Japanese Government stated that the action would not harm the marine environment, so they deemed it unnecessary to conduct an EIA. However, it is important to remember that the release of radioactive water has the potential to contaminate other countries' territories. Therefore, the Japanese government has the responsibility to carry out an Environmental Impact Assessment. [16]

In deciding whether to release radioactive air into the Pacific Ocean, the Japanese government must realize that this action will have an impact on other countries. Therefore, Japan has a responsibility to collaborate with other countries and international organizations. This collaborative work consists of providing information to countries and international organizations and assessing the potential impact of their activities on the marine environment. Given the criticism of the Japanese government's decision from neighboring countries and the international community, it is clear that the Japanese government will not cooperate with other countries and organizations that could potentially violate its international obligations. [17] If the Japanese government decides to release radioactively contaminated water into the Pacific Ocean, they will be liable for violating international treaties and principles of international environmental law due to their state status. In addition, although the Japanese government's decision is considered valid under international law, if there is evidence of harm from the withdrawal, Japan could be held liable under strict liability clauses or in the absence of a breach. If there is evidence of damage to the marine environment due to the release of radioactive air, the government could be held liable.

By Article 2 of the Draft Articles on Responsibility of Nations for International Illegal Acts, a state is responsible for acts of violation of international law. If the Japanese government violates its international obligations, it can be held liable and the act or violation can be attributed to the state concerned. As a result of Japanese Prime Minister Shinzo Abe's announcement regarding the aforementioned breach of international obligations, it can be concluded that Japan is liable. Therefore, if another country claims Japan has violated its international obligations and caused harm, the Japanese government can be held liable for the violation.

Conclusion

As a result of global technological development and increasingly sophisticated human activities, threats to human health and the environment are increasing. Therefore, the international community recognizes that concern for environmental health should be enhanced through several international regulations, such as the need to avoid pollution of water and air, as well as the surrounding environment. It would result in a violation of Japan's international obligations if the Japanese government releases radioactively contaminated air without considering international laws governing the human environment. If the decision is implemented and meets the requirements of Article 2 of the International Responsibility of States for Illegal Acts, the Japanese government will be liable for violating its international obligations. Therefore, protecting and preventing greenhouse gas emissions is a crucial obligation in safeguarding human rights and environmental health, both now and in the future. To fulfill its international responsibility to protect the marine environment, the Japanese government must conduct an EIA (Environmental Impact Assessment) under international law. The purpose of this evaluation is to obtain accurate knowledge of the impact of logging on the environment. In addition, as a legal requirement, consultations must be conducted by seeking advice from various experts, including Japanese government officials. In addition, consultations must also be conducted with other countries' bodies that have competence in examining the impacts if the contaminated water is discharged into the sea.

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