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The Impact of Japan's Nuclear Sewage on the Marine Environment: From a Global Perspective

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Abstract: With the accelerated process of economic globalization and political multipolarity, Environmental governance has also become an issue that cannot be ignored among countries. Japan's release of hazardous nuclear wastewater into the sea is no longer just a domestic problem, it's a matter of global. The introduction of nuclear sewage into the sea violates numerous principles and obligations under international law, Responsibility should be assumed. This paper will examine the impact of Japan's nuclear effluent into the sea on China and its response by using literature analysis and case study methodology, the study of relevant environmental cases, analysis of disciplinary measures and programs in international law dealing with related issues to find the greatest common divisor, exploring the solutions to environmental problems brought by the Japanese government. This article collects, collates, and analyzes the academic contributions of some scholars of high academic level in the field of environmental protection and builds on the results of its analysis. To identify deficiencies in current scholarship and correct them. At the same time, this paper uses a normative analysis, by analyzing the relevant domestic laws in China, relevant domestic laws in Japan, and relevant international laws on environmental governance, finding out in the context of Japan's discharge of nuclear sewage into the sea, the solutions for the Chinese government and how to defend people's rights. This article provides information on how to protect Chinese rights under the relevant laws and regulations, scientific and technological research and development to deal with pollution and raise national security awareness.

Keywords: nuclear sewage, marine environment, rights defense program, China's response

1. Introduction

As a result of the massive earthquake and tsunami that occurred in 2011, the core meltdown at Fukushima Daiichi nuclear power plant units 1 to 3, caused leakage of nuclear effluent from nuclear power plants in use [1]. TEPCO continues to inject cold water to cool the core and recover wastewater. As of March 2021, Japan's nuclear power plants have stored million tons of nuclear effluent and it's rising at a rate of 140 new tons per day. On April 13, 2021, the Government of Japan called for a formal decision: millions of tons of nuclear wastewater from the Fukushima Daiichi nuclear power plant are filtered and diluted before being discharged into the sea, and emissions begin after 2023. Owing to ocean mobility and climate change, its harm is unavoidable for countries around the globe. Looking at the current situation in China, the oceans have become an important part of Chinese economic development. As time goes by, the country is showing new trends in coastal economic

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development, increasing dependence on coastal areas. If the environmental problems caused by Japan's nuclear sewage entering the sea are not resolved in a timely manner, it will have an incalculable impact on the development of Chinese economy and even people's livelihoods. To avoid the huge impact of Japan, China should formulate relevant domestic laws in accordance with international law, timely and effective prevention of potential hazards, protection of national economic development, and ensure national security.

The purpose of this paper is to explore the economic and livelihood impacts on China and how it should respond to the enormous damage caused by Japan's release of nuclear wastewater into the ocean. There is still no country with an enforceable solution to Japan's nuclear discharge. This paper will examine policies related to international law and propose richer solutions based on China's national conditions.

2. The Danger of Nuclear Discharge in Japan

Japan's Nuclear Effluent Discharge into the Sea Will Affect the Entire World, raising global environmental issues. The presence of large quantities of radioactive material in nuclear effluent: cobalt, iodine, alpha ray, and beta ray [2]. These substances are recycled into the body through the food web. It can give people radiation sickness, including malignant tumors and organ lesions, even affecting normal human gene expression. Serious threat to global livelihoods. At the same time, the discharge of nuclear effluent into the sea would spread the nuclear effluent westward due to the warming of the North Atlantic. Extensive damage to marine ecosystems, harming the growth and reproduction of marine animals. And the nuclear effluent will accumulate at the bottom of the sea, Long-lasting harm to marine ecosystems and human health, even destroying the ecosystem balance.

Not only in terms of livelihood, Japan's nuclear discharge into the sea also raises political issues. Current trends, the world is in a phase of economic globalization and political internationalization, and states promote the idea of a community of human destiny. Japan's completely self-interested move is a serious violation of the concept of global cooperative development. It only focuses on developing national interests, serious violations of international and inter-state interests, contrary to international ethics, advertising effects on confidence and cooperation in the international community, and violation of the principles of international law. This is not conducive to Japan's own development; it also hinders the development of other countries.

3. Principles Violated by Japan's Nuclear Effluent Discharges

3.1. Risk Prevention Principle

Lack of conclusions by the Government of Japan as to the extent of the harm caused by the discharge of nuclear sewage into the sea to the marine environment of neighboring countries and to the global marine environment, in accordance with the precautionary principle, the Japanese government should take effective preventive measures and make correct decisions in accordance with its own capacity to manage nuclear wastewater, for the purpose of risk prevention and protection of the marine environment [1].

3.2. Principles of International Cooperation

General obligation of States to protect and preserve the marine environment [3]. For cooperation in the prevention of pollution of the marine environment, states should actively cooperate with neighboring countries on governance to ameliorate the impact of environmental pollution on the oceans and seas. This is manifested in the sharing of intelligence information, collaborative monitoring and evaluation, and scientific standard-setting. In the event of a dispute, the peace and

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development perspective should be maintained in solving problems. Japan's discharge of nuclear wastewater into the sea should be done in cooperation and consultation with neighboring countries and the international community, sharing of nuclear wastewater information with countries around the globe, developing a risk disclosure program, and developing relevant emergency response measures.

3.3. Principle of Non-detriment to the Extraterritorial Environment

The country is freely exploiting and utilizing of national environment and resources. Developing the economy while responsible for ensuring that activities under their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction; environmental pollution and damage from activities under the jurisdiction or control of a State, responding to Pollution, victims of sabotage, area or directly injured legal person, individual liability for damages and other [4]. Therefore, after the Fukushima nuclear leakage accident in Japan, nuclear wastewater should be treated according to its own national conditions and active cooperation with other countries. If damage is caused, should be liable and compensate for damages [5].

4. China's Response

4.1. Defending Rights under Existing Legislation

Japan's Discharge of Nuclear Sewage into the Sea could lead to a Nuclear Pollution Disaster and, a threat to human life and health. China should rely on international law relevant domestic legislation requires Japan to render harmless its nuclear pollutants dumped into the sea, avoiding harm to China and the world [6].

4.1.1. Domestic Law

The Radioactive Pollution Prevention and Control Act is the first ministry on the prevention and control of radioactive contamination in China, protecting the environment, protecting human health, promotion of nuclear energy law on the Development and Peaceful Uses of Nuclear Technology. This law provides that radioactive waste generated in the course of scientific research must be discharged and treated in accordance with the requirements of the National Radioactive Pollution Prevention and Control Standards (NRPPCS), treatment or storage of radioactive waste fluids not to be discharged into the environment. At the same time Radioactive Pollution Prevention and Control Act also provides for the prohibition of the disposal of radioactive solid waste in inland waters and on the sea. Nuclear effluent from Fukushima, Japan, as it flows through China needs to comply with China's standards and requirements for the treatment of nuclear wastewater.

Civil code there are also relevant provisions on environmental governance in the pollution of the environment by two or more tortfeasors in article 121, ecologically sound, level of responsibility, depending on the type of pollutant concentration (percentage of dissolved material in a solution), emission, the ecologically destructive approach, Realm, Degree (level or extent), and the contribution of the act to the consequences of the damage, etc.; Infringers in article 1232 deliberately pollute the environment in violation of the law, ecological damage with serious consequences, the right of the infringed to claim appropriate punitive damages [7]. That's why the victims of Fukushima's nuclear sewage have a right to rely on Civil code Claims for infringement liability and compensation for damages for injuries suffered by the organization or company concerned in Japan.

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4.1.2. International Convention

United Nations Convention on the Law of the Sea Part 12, "Protection and preservation of the marine environment", provides the minimum requirements for the preservation of the global marine environment. In the first place, at the level of conferring State obligations, Article 192 summarizes "the obligations of States to protect and preserve the marine environment". This provision is the first time that a state's obligation to protect the marine environment has been recognized in a multilateral convention; Article 195 imposes on States "the obligation not to cause damage or danger or to transfer or transform one type of pollution into another", the responsibility to protect maritime security, therefore, exists not only in areas under the jurisdiction of States parties, also on the high seas. More so, to prevent the transfer of regional marine pollution, to the detriment of the global marine environment, reasons for conferring generalized obligations on States.

4.2. Reference to Japan's Domestic Law Article Legislation

Japan's domestic regulations on environmental contamination by nuclear wastewater Atomic Energy Compensation Act, Atomic Energy Compensation Act Article 3, subparagraph 1, refers to "during the operation of an atomic energy reactor". In the event of atomic energy damage caused by the operation of the atomic energy reactor, etc. The atomic energy operator related to the operation of the atomic reactor, etc., will be liable for damages. Fukushima managers were negligent in the course of their work, failed to maintain nuclear sewage storage vessels in a timely manner, they are aged and employees did not strictly follow work regulations for industrial wastewater disposal, etc., leading to leakage of nuclear effluent, harming people around the globe, violate Atomic Energy Compensation Act, Liable in tort. China can refer to the relevant laws and regulations, and enactment of similar legislation at the domestic level to vindicate their rights [8].

4.3. Scientific and Technological Research and Development to Deal with Pollution

China strengthens investment and incentives for research teams, developing a new nuclear contamination treatment machine as soon as possible, and establishing a monitoring mechanism specialized in the proliferation of radioactive contaminants and treatment of nuclear effluents through scientific and technological means. For example, using ion exchange and electrochemical methods to purify nuclear wastewater. At the same time, environmental monitoring should be strengthened [9]. If China's livelihood rights are violated, Chinese should have relevant data to prove that the Japanese Government is the subject of the infringement, establishment of a national testing unit， testing the levels of radioactive elements in seawater and marine organisms in the waters, tracking horizontal changes in marine ecosystems, ensure at all times that the Chinese people will not be affected by the entry of Japanese nuclear sewage into the sea.

4.4. Raising National Security Awareness

The Chinese government should play the role of social media, making each nuclear effluent quality monitoring data publicly available, ensuring the right of citizens to be informed about the hazards and seriousness of nuclear-related effluent, and enhancing public awareness and crisis awareness of nuclear wastewater [10]. At the same time, social media and national health care organizations have developed protective measures for the general public, such as adjustment of daily diet, eating more foods rich in potassium and other trace minerals within reasonable limits; reducing trips to the beach, eating as little deep-sea seafood as possible; attention to daily exercise to strength bodies. Relevant professional bodies should provide relevant knowledge dissemination, promoting public understanding of nuclear wastewater treatment.

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5. Conclusion

This paper analyzes the incident of nuclear wastewater entering the sea in Fukushima, Japan by， specifically elaborating on the United Nations principles violated by Japan's act and the measures China should take. Handling nuclear contamination, there are no well-developed governance systems and programs at the international level, by writing The Impact of Japan's Nuclear Sewage on the Marine Environment: From a Global Perspective, this paper hopes to call the attention of all mankind to the problem of environmental pollution, proposing effective governance programs, advancing global sustainable development.

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[7] *Civil Code, Part 1232.*
[8] *Law on Prevention and Control of Radioactive Pollution, Part 4.*
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