

The Battle for Public Opinion of “Japan’s Nuclear Wastewater Sea Discharge”

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Abstract

The Japanese government’s decision to drain nuclear waste into the sea from the Fukushima Daiichi nuclear power plant, which is set to begin in 2023, could stymie geopolitical cooperation and collaboration, as well as the risk of radioactive elements in the wastewater having an incalculable impact on the planet’s ecology and human society. Using qualitative content analysis, this article evaluates the history of the Japanese nuclear wastewater disaster, as well as support and opposition voices from other countries, academia, and civil society organizations. It explains how China may use the “policy + public opinion” system of governments and non-governmental organizations to defend its interests in international public opinion and eventually gain worldwide discourse power that matches China’s strength.

Keywords

Fukushima Nuclear Accident, Fukushima Radioactive Wastewater, Discourse, Public Opinion

1. Introduction

According to expert advice, the Japanese government will discharge roughly 1.2 million tons of radioactive wastewater from the Fukushima nuclear power plant into the Pacific Ocean in October 2020. Public opinion was outraged, and Japanese fishermen’s organizations quickly objected and issued warnings, enraging neighboring countries. Is this true, despite claims that it is a common procedure that complies with international standards?

On 11 March 2011, an earthquake measuring 9.0 on the Richter scale triggered a tsunami that caused severe damage to the Fukushima Daiichi and Daiichi II nuclear power plants of the Tokyo Electric Power Company (TEPCO), and

the Fukushima nuclear accident was subsequently classified by the Japan Atomic Safety and Security Agency (NISA) as the highest level 7 (mega accident). According to estimates by the International Atomic Energy Agency (IAEA), as rainfall and groundwater at the site continue to be contaminated at an estimated rate of increase, the space in the existing nuclear site storage tanks will be unavailable by mid-2022 (BBC, 2021). In response to the crisis, the Japanese government publicly announced that it had chosen to discharge nuclear wastewater into the ocean after considering a total of five options: water evaporation, underground discharge, electrolysis, cement containment, and discharge into the ocean.

Both Prime Minister Yoshihide Suga and the Environment Minister have publicly stated that discharging wastewater into the Pacific Ocean is the most realistic, safe, and economical option (Conca, 2019). They believe that dilution of the wastewater would remove almost all radioactive elements. The plan is supported by the IAEA and its Director-General Rafael Mariano Grossi (Barrett, 2021), and a recent BBC report concluded that the diluted water poses no scientifically detectable risk (BBC, 2021). The reason is that the core radioactive element has a half-life of about 12 years (Beavis & Ruff, 2020) and will disappear from the environment. While fishing industry groups are rightly concerned about contamination from residues in the water (after all, elemental radiation can be transmitted to humans through the food chain), the report argues that the scientific consensus is that it poses no threat to humans and claims that the nuclear tests carried out by the US, UK, and France in the 1940s, 1950s and 1960s have released a lot of radiation into the Pacific Ocean (BBC, 2021). Japan argued that its approach was justified under established regulatory standards.

However, there is no scientific consensus on this. If radioactive material were to leak into the sea, the Pacific Ocean currents would disperse it widely (Calmet, 1992; Elenaelk, 2012) and even marine life in California would be affected (Lin et al., 2021). Ionizing radiation can harm all living things, causing genetic damage, developmental abnormalities, tumors, reduced fertility, altered genetic material, and many other problems (Beavis & Ruff, 2020; Butler, 1998). Of particular concern are the long-lived radioisotopes (unstable chemical elements) and those concentrated in the food chain, such as cesium-137 and strontium-90 (Beavis & Ruff, 2020). Other radionuclides such as strontium-89, iodine-131, carbon-14, and plutonium-239 can enter the body through the diet and damage human tissues and organs (Lin et al., 2021). Greenpeace Germany nuclear expert Sean Burney claims that the nuclear wastewater stored at the Fukushima nuclear power plant in Japan contains, in addition to the radioactive isotope tritium, radioactive elements such as carbon-14 that could affect humans for thousands of years and cause genetic damage (Hongkong, 2021). In addition, given the effects of ocean currents and monsoons, in a short time, it could cause increased contamination in the Pacific coastal countries and eventually spread globally (Behrens et al., 2012; Cho et al., 2009), i.e.,

- 1) Severe damage to marine ecosystems and animal mutations.
- 2) Exceedances of radiation levels in fishery products, fruits and vegetables, rice, and even in many segments of cosmetics.
- 3) The health of people in all countries along the Pacific coast.

Japan's insistence on the discharge of nuclear effluent is contrary to international norms. Although the United Nations Convention on the Law of the Sea, the Convention on Nuclear Safety, and the Convention on Early Notification of a Nuclear Accident do not explicitly oppose discharging nuclear waste into the sea, international treaties such as the United Nations Convention on the Law of the Sea stipulate the obligations of the parties to accidents that may cause trans-boundary effects. These provisions make clear of Japan's obligation to protect and preserve the marine environment and to take necessary measures to prevent, to reduce and control pollution of the marine environment. However, Japan's practices have objectively resulted in the transfer of pollution and increased the potential for damage to other countries. The IAEA is currently setting up a technical working group on this matter, with South Korea confirming its participation, and the international community is highly concerned about the progress.

2. Global Public Opinion Reaction

The Japanese Prime Minister, Yoshihide Suga, believes that this is the most realistic course of action and the inevitable choice to achieve recovery from Fukushima (Lee, 2021). He claimed that the Japanese government had established basic policies to prevent reputational damage and to ensure that wastewater was released into the ocean after it was at a safe level. For its part, Tokyo Electric Power Co. downplayed the dangers of nuclear effluent in a statement, saying it would not affect health if consumed. This was in line with international practice. However, a large number of activists have emerged among Japanese nationals to protest against the government, with the fishing groups at the forefront in Fukushima Prefecture. They fear it could further damage the reputation of the catch and affect their livelihoods, hitting the Fukushima fishing industry—after all, more than 20 countries have already imposed import restrictions on certain Japanese foods (Barrett, 2021; Shin, 2021). Meanwhile, environmental groups in Japan have strongly condemned the decision, saying that “it is in total disregard of the human rights and interests of the people of Fukushima, Japan, and the Asia-Pacific region” (International, 2021).

The Chinese Foreign Ministry also expressed its attitude towards the Japanese government's decision to be irresponsible: the Japanese side has unilaterally decided to dispose of nuclear wastewater by discharging it into the sea without exhausting safe disposal means and without consulting neighboring countries and the international community (China, 2021). The People's Daily published a feature stating that Japan's move “betrays the most basic international morality” (Daily, 2021). The Xinhua News Agency summed up the Japanese officials' claim that nuclear wastewater was potable as “untrustworthy, unrighteous, unkind and

insincere” (Hua, 2021). CCTV news even said that the Japanese government owes a debt to history and is egoistic (News, 2021). Liu Senlin, a scientist at the China Institute of Atomic Energy in Beijing, believes this is an extremely irresponsible act (Bianca, 2021). At the same time, medical experts and professors actively engage in public opinion which was lopsided in its outrage and protest. According to a public opinion survey on Japan’s nuclear wastewater release, the majority of Chinese people voiced negative feelings about the plan in Weibo comments, China’s largest social media platform (Pu et al., 2022).

The position of neighboring countries and regions is mostly similar. South Korea has maintained its ban on seafood imports from the Fukushima region and summoned the Japanese ambassador Koichi Aiboshi (Lee, 2021). Condemnation of the nuclear wastewater discharge has been strongest from many environmental groups, notably Greenpeace, which has long spoken out against the release of water into the ocean (Hongkong, 2021). UN Special Rapporteur Baskut Tuncak has publicly urged the Japanese government to reconsider its decision (Beavis & Ruff, 2020). UN experts say it is difficult to ensure that the radioactive elements in it are below regulatory levels even after using the ALPS water processing technology (UN, 2021). The Taiwan Atomic Energy Commission in Taiwan, China, was likewise against it. However, unlike neighboring countries, the United States supports Japan’s decision. US Secretary of State Antony Blinken tweeted to appraise Japan for its transparent efforts to deal with wastewater from the Fukushima nuclear plant (McCurry, 2021).

There has also been a hot debate in academic circles. Ken Buesseler of the Woods Hole Oceanographic Institution in Falmouth, Massachusetts, believes that based on current ocean currents, the contaminants could reach the west coast of the United States within two years, but he believes that the low-energy particles emitted by the filtered contaminants would cause little damage to living cells (Buesseler et al., 2017; Institution, 2020). Pascal Bailly du Bois of the Laboratoire de la Radioecologie de Cherbourg-Octeville in France largely agrees with Buesseler and argues that the radiological impact of filtered discharges on fisheries and marine life would be minimal (Adam, 2020). The release of treated wastewater is part of the daily operation of a nuclear power plant, according to Jordi Vives I Batlle of the Belgian Nuclear Research Centre, who studies the effect of radiation on marine ecosystems. He believes there is no evidence that discharging nuclear wastewater into the sea will have any impact (Bianca, 2021). In contrast, Simon Boxall of the University of Southampton argues that the risk of radionuclides accumulating in shellfish from coastal waters and the impact on marine life and humans who eat shellfish. Francis Livens of the University of Manchester, U.K., more directly expresses doubts about the filtration techniques highlighted by the Japanese government and TEPCO to remove more than 62 radioactive contaminants (Adam, 2020).

3. Chinese Public Opinion Implication

International resistance to Japan’s radioactive water dump is mounting, with

South Korea issuing a statement expressing its deep concern (Hyonhee, 2020). China strongly agrees and should use a broad range of actions to pressure Japan. The comprehensive pressure method of “diplomatic pressure + public opinion pressure + international organization pressure + civil organization pressure + scientific testing + economic sanctions” might be considered in the public opinion war.

3.1. Expanding the Scope of Information Dissemination

The Japanese government has the backing of the US government behind its nuclear wastewater discharge, but this does not equate to the approval of the American people and people around the world, especially as there is a robust public outcry within Japan. According to a survey conducted by the Sankei Shimbun from November to December 2020, 55% of people opposed the government’s judgment, the discharge of nuclear sewage into the sea (China News, 2021). Effectiveness of communication = effective information reported × number of people reached × target audience arrival rate × recognition rate.

The Chinese side can make full use of the vacuum effect in the public opinion arena and target the masses in the Pacific Rim, especially fishermen and residents of coastal areas, for a wide range of dissemination. Video platforms might be chosen that focus on short videos increase the number of individuals reached when it comes to communication channels. To quickly improve the public’s acceptance of the information by producing simple material and highlighting the effects of nuclear wastewater discharge to the sea on individuals might be desirable. To create a more visual and dramatic sensation of the crisis, news coverage should incorporate more frightening photographs or videos of the nuclear accident site. However, because most of our nuclear power facilities are constructed on the coast and utilize saltwater to cool their reactors, it’s also critical to keep a tight lid on reporting. It is also necessary to prevent the reaction of public opinion that audiences identify with concerns such as the discharge of marine pollution, questions about nuclear power development, or nuclear panic.

3.2. Foreign Statements and Counter the Western-Dominated Global Discourse

Whether the Japanese assertion that “treated nuclear wastewater contains just tritium” is true or not is a point of contention among scientists. While one or two nuclides are acceptable under TEPCO standards, they do not reflect the total safety of Japan’s nuclear waste, which is so complicated that, in addition to tritium, lethal radioactive elements including cesium, cobalt 60, and strontium 90 have been identified in certain water storage tanks. Rather than relying on the Japanese side’s claims as to the standard, China should call on international organizations such as the United Nations, the World Health Organization, and the International Atomic Energy Agency to develop standardized, scientific standards for the hazards of nuclear wastewater. China could join forces with Pacific Rim nations, particularly South Korea, ASEAN countries, Australia, and New

Zealand, to send experts to Japan to sample and inspect non-discharged wastewater to determine the extent of the risks. Simultaneously, investigate the amount of nuclear contamination's influence on marine organism development, mutation, and variation, and conduct a probability analysis of the impact on marine species; and test human intake of nuclear-contaminated seafood to determine the risks. Furthermore, if practicable, marine in vivo testing might be conducted to study the impact on living species while making matters public.

We can construct our influential global discourse through huge public pressure and the creation of a framework for scientific communication. By gathering scientific data and creating a series of scientific drawings or audiovisual materials, such as a diagram to help people comprehend the hazards of Japan's nuclear wastewater discharge, as well as exposing the worldwide threats of the ocean current cycle and radioactive radiation. Detail how nuclear waste materials enter the mass food consumption cycle, stressing the risks to people and the importance of nuclear wastewater to every member of the global community. Nuclear contamination's severity, duration, and global character may all be addressed through communication. Having bloggers specializing in cytology, immunology, nuclear physics, and marine chemistry speak out on international platforms such as YouTube and Twitter, and bloggers having expertise in the humanities and social sciences focus on analyzing and reporting on the causes and consequences of representative nuclear power plant accidents, e.g., the Fukushima accident in Japan and the Chornobyl accident in the Soviet Union. It also emphasizes how difficult it is to entirely clean up nuclear pollution and how long it will take for the natural ecosystem to regenerate. In this fashion, the hazards of Japan's nuclear wastewater release are underscored, as well as the action's lack of thinking and arbitrariness.

3.3. Soft and Hard Measures to Strengthen International Cooperation

China should actively engage in the IAEA's technical working group. Simultaneously, China could join international organizations and Pacific Rim nations in urging Japan to cease releasing nuclear waste and instead pursue alternative viable solutions. We should concentrate on aggressively collaborating with worldwide environmental groups, Japan's internal opposition, South Korea, Pacific Island countries, Russia, and the EU in particular. Building a Pacific Rim alliance of public opinion to raise awareness of nuclear waste contamination, the impact on local fishery resources, human injury, and the destruction of the earth's ecology might be desirable. International organizations and Pacific Rim countries can band together to assist the Japanese government by providing the necessary international assistance and scientific and technological power, providing support, including appropriate equipment and technical power, developing international cooperation, and organizing a joint international expert mission to propose solutions to Japan's nuclear wastewater treatment problem. After all, the US supports Japan's efforts to isolate the country from its neighbors and increase

its reliance on the US, and that our country may even collaborate with Japan on nuclear wastewater treatment research and accomplish the reverse.

3.4. Neighboring Countries on Tough Measures against Japan

If Japan continues to act arbitrarily, despite warnings from various countries, China might consult with South Korea, Russia, and East Asian neighbors, as well as the Pacific Rim fisheries industry chain, to develop a sanctions mechanism that can have a greater impact on Japan and restrict or ban the import of Japanese fisheries products. Alternatively, join forces with other nations to use political and economic pressure to limit imports of Japanese autos and components, as well as exports of petroleum crude oil, LPG, coal, and other critical chemical raw materials to Japan, the world's top importer. If the Japanese government and TEPCO are adamant about getting their way, they may consider applying public opinion pressure and sanctions pressure simultaneously, and to some extent, integrating the power of multi-channel media communication, so that Japanese domestic and international public opinion might beat tacked both internally and externally, while UN forces impose sanctions at the political level to force them to reconsider nuclear disposal. China might continue to speak out against the disposal of nuclear waste into the ocean on a global scale, and convene a forum with worldwide forces and Japanese domestic professionals, researchers, and environmentalists to collaborate on a treatment option.

In general, China should maintain a high level of sensitivity and maintain a consistent attitude in the public sphere. Simultaneously, China should make proper use of technology to comprehend the movement of international public opinion and combine public strength with diplomatic methods to establish a powerful pressure approach. Furthermore, timely dissemination of clear scientific data and regular discussions at relevant international conferences to bring together governmental and non-governmental organizations opposed to the discharge of nuclear waste into the sea are critical components of maintaining public support.

4. Conclusion

To summarize, in response to Japan's decision to discharge nuclear waste into the sea, China might further establish a series of "policy + public opinion" mechanisms by government and non-government organizations, forming alliances with the international community to develop and improve a long-term monitoring mechanism and follow-up solutions, and continuing to promote international cooperation with its "a Community of Common Destiny" initiative. With the current Chinese political agenda, it will continue to foster a win-win collaboration in the international community while promoting global governance. The major goal of this article was to assist China in resolving international crises peacefully and effectively by harnessing the strength of public and civil opinion in order to protect its interests. It can also be used as a springboard for devising

a plan to harness the power of Chinese discourse in other international events.

This article analyses and suggests possible responses for China in the international public opinion arena surrounding “Japan’s nuclear wastewater sea release” from the standpoint of international public opinion. The limitation might be due to the number of sample selection of Chinese-language literature and we suggest that further studies to carry out a quantitative analysis on evaluation of pertinent data to anticipate additional talks on public opinion future research.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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