



FUKUSHIMA “WASTE WATER” CONTROVERSY: THE ACCIDENT IS NOT OVER YET

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A year ago, on 24 August 2023, Tokyo Electric Power Co. (TEPCO) announced that it had started discharging “treated” and “diluted” water from the damaged Fukushima Daiichi nuclear power plant into the Pacific Ocean, following a prolonged period of domestic and regional public outcry over the potential environmental and human safety impacts of this decision. The controversy over the power plant’s “treated waste water” represents a possible long-lasting public policy battle over the decommissioning of the crippled nuclear power plant (NPP), reminding us that the 13-year old accident is in fact not over yet. This commentary explains why that is so.

What is the problem with releasing “treated waste water”?

Contaminated water, which is generated when underground water, including rainfall, is passed through the reactor site and used to cool the melted fuel debris inside the reactors, can contain more than sixty kinds of radioactive materials. A newly developed equipment called, “advanced liquid processing systems” is therefore used to remove most of the radioactive materials, except that it still cannot remove tritium.

Explaining that there will be not enough storage space at Fukushima Dai-ichi site, the Japanese government decided to release this “treated water” which contains mostly tritium, with other radioactive materials below regulatory standards. However, according to [TEPCO’s own data](#), as of 31 March 2024, of the total of about 1.2million cubic metres of treated water, only about a third was satisfying regulatory standards and the other two thirds needed to be re-purified. Therefore, “treated water” is not a pure “tritiated water” as it may still contain other radioactive nuclides, albeit in small proportions. TEPCO released approximately 31,200 tons of contaminated water in four rounds during the fiscal year through March 2024. The [draft discharge plan](#) for FY2024 includes seven releases for a total volume of water of approximately 54,600 m³ and total amount of tritium of

approximately 14 trillion becquerels. As of July 16 2024, three rounds of releases had been [completed](#).

Scientific arguments against TEPCO’s treated waste water release plan

A report from an independent expert panel established by the Pacific Islands Forum highlighted that [International Atomic Energy Agency’s Comprehensive safety report](#) on TEPCO’s release plan does not include the safety guidance established by the IAEA as per its [General Safety Guide No. 8 \(GSG-8\)](#), which requires that the benefits of a given process outweigh the harms for individuals and societies. In a *National Geographic article*, Robert Richmond, director of the Kewalo Marine Laboratory of the University of Hawaii and one of the panel members, summarises the uncertainty surrounding the impacts of TEPCO’s water release plan on the ocean environment: “It is a trans-boundary and trans-generational event” and that he does not believe “the release would irreparably destroy the Pacific Ocean but it does not mean we should not be concerned.”

Lack of public trust

In 2013, the company [reported](#) that three hundred tons of contaminated water had leaked from the storage tanks and eventually leaked to the sea, despite their claim that the tanks are safe. After this event, the government decided to take over the responsibility of managing the contaminated water. In August 2015, the Japanese government and TEPCO [promised local fishermen](#) that they “will not implement any disposal without understanding of interested parties.” So, when the decision was made by former Prime Minister Yoshihide Suga in August 2021 to release the “treated water” to the sea, the local fishermen and other stakeholders affected by this decision felt cheated. Concerns also spread to neighboring countries, including South Korea, China, Taiwan, and the Pacific Island nations, and protests erupted in some of these countries against the wastewater release, despite the Japanese government’s efforts to explain its plan. Shortly after the contaminated water was released, China expressed its opposition to water release from Fukushima NPP and [announced](#) a ban on imports of all seafood products from Japan. On 26 May 2024, Japan’s Prime Minister Fumio Kishida and Chinese Premier Li Qiang agreed to facilitate working-level consultations on the Fukushima waste water issue. The IAEA established a Task Force to monitor the release and carried out two review missions in October 2023 and April 2024, [reporting](#) that it “did not identify anything that is inconsistent with the requirements in the relevant international safety standards.”

What can be done to rectify the situation?

The Japanese government and TEPCO should realise that the management of radioactive waste water is not merely a scientific and technical issue. To use Alvin Weinberg’s term, it is a [typical case of “trans-science”](#)– an issue that can be asked by science but not answered by science alone. The public controversies that it has generated cannot be resolved by “science-based” dialogues alone, since they are also social and political debates. Therefore, TEPCO’s and the Japanese government’s approach to the issue must

change; it needs to include a non-scientific dialogue and additional remedies, such as an improved political decision-making process and a sincere multi-stakeholder dialogue (rather than persuasion).

There are two other important technical issues that should be resolved in order to proceed with the decommissioning. Due to technical problems, removal of spent fuel from Unit 3 and 4 will not start until FY 2027-2028. Spent fuel stored in pools could cause catastrophic radioactive contamination, as proven by the Fukushima accident, and needs to be removed urgently.

At present, there is no clear plan to remove the melted fuel debris still contained in the reactor vessels in Units 1, 2, and 3. The estimated amount of fuel debris is about 880 tons and the technical investigation is moving slowly.

In May 2011, 164,865 individuals were evacuated to various locations within and outside Fukushima.. As of 1 May 2024, 25,959 residents of Fukushima Prefecture are still living as [evacuees](#) (mostly outside the prefecture). Many legal cases have been brought to the court to seek compensation and legal responsibility of TEPCO and the government. As of 31 May 2024, the total compensation amount paid out by TEPCO is [¥11,143 billion](#) (~US\$71.3 billion). In short, the accident is not over yet.

In order to improve public trust among stakeholders, including international ones, first, the government should set up an independent organization which can be trusted by the key stakeholders to oversee the entire decommissioning process. Such an organisation can be set up by the Parliament to ensure the independence from the government/TEPCO. International experts should also be invited to attend. Second, alternative approaches to the management of contaminated water should be explored further. Third, a renewed dialogue between local public and the government/TEPCO should be initiated with complete transparency for confidence building. These steps could help to reduce international concern as well as to improve public trust in the decommissioning process.

The opinions articulated above represent the views of the author(s) and do not necessarily reflect the position of the Asia-Pacific Leadership Network or any of its members.

This commentary is also published on the [APLN website](#).

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