



HAL
open science

FUKUSHIMA: WHO WILL DRINK JAPAN'S 1.3 BILLION LITRES OF RADIOACTIVE WATER?

John Paull

► **To cite this version:**

John Paull. FUKUSHIMA: WHO WILL DRINK JAPAN'S 1.3 BILLION LITRES OF RADIOACTIVE WATER?. 2nd International Scientific and Practical Internet Conference, Wayscience, Jul 2023, Dnipro, Ukraine. pp.19-23. <hal-04176738>

HAL Id: hal-04176738

<https://hal.science/hal-04176738v1>

Submitted on 3 Aug 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons CC BY 4.0 - Attribution - International License

FUKUSHIMA: WHO WILL DRINK JAPAN'S 1.3 BILLION LITRES OF RADIOACTIVE WATER?

Paul John

PhD

University of Tasmania, Hobart, Tasmania, Australia
j.paull@utas.edu.au

Japan has a radioactive waste problem - more than 1.3 billion litres of radioactive water that has been used to cool the wreck of the Fukushima nuclear reactors. This Fukushima water (Fuku-water) is now stored on-site in tanks (Fig.1). The Fuku-water has been accumulated by Japan over the past 12 years - since three nuclear reactors of the Fukushima Daiichi Nuclear Power Plant “went into meltdown” in 2011; there are now more than 1.3 million tonnes of contaminated water (circa 1.3 billion litres) [1].



Figure 1. What to do with 1.3 billion litres of Fuku-water stored in more than 1,000 tanks at Fukushima? (image source: tepco.co.jp, 19 June 2023)

There is a proposal that Japan will ‘dispose’ of its Fuku-water problem by pumping it into the Pacific Ocean over forthcoming decades [1]. There is pushback to this plan from Japan’s fishing communities, and neighbours, including China, South Korea, North Korea, and island nations of the Pacific [2-6].

Japan’s Deputy Prime Minister Taro Aso claims: “I have heard that we will have no harm if we drink” the Fuku-water [7]. This offers a promising solution to the disposal of Japan’s massive storehouse of radioactive waste water. Just convince the Japanese. If they will each drink eight litres of Fuku-water then the problem of storing the Fuku-water is resolved. Perhaps as more Fuku-water water is generated (the water cooling of the failed reactors is continuing indefinitely), the Japanese could be induced to imbibe Fuku-water as a regular tippie for decades to come? The Fuku-water could be bottled and sold in Tokyo supermarkets with an endorsement from the IAEA [8] and certification from the Tokyo Electric Power Company (TEPCO) and Japan's regulator, the Nuclear

and Industrial Safety Agency (NISA). Japan could drink its problem. Perhaps the IAEA could put in a bulk order for their own water coolers?

In 1986, when Chernobyl failed it contaminated the whole planet [9]. As plumes of atmospheric radioactivity moved westward, European countries to the west of Ukraine were the most adversely affected. That contamination was accidental - an artefact of the Chernobyl reactor accident and the consequent release of plumes of radioactivity into the atmosphere. The contamination of neighbours was uneven, higher with proximity to Ukraine (as in Belarus), and also higher where rainfall carried the plume to land (as in Wales). In the wake of the Chernobyl accident, the local and global movement of food crops and livestock was curtailed for years. In the case of Wales, the prohibitions on moving livestock were only lifted after 26 years [10].

Japan is now proposing Chernobyl-ising, i.e globalising, the Fukushima nuclear accident - by sending its radioactive waste on a global trip around the world - via the oceans of the world. First stop for this maritime plume of radioactive waste is the Pacific Ocean, and from there to all the beaches and oceans of the world (Fig.2), to the seaweed, invertebrates, fish, and mammals of the oceans, throughout the marine food chain, and, via evaporation, to global rainfall.

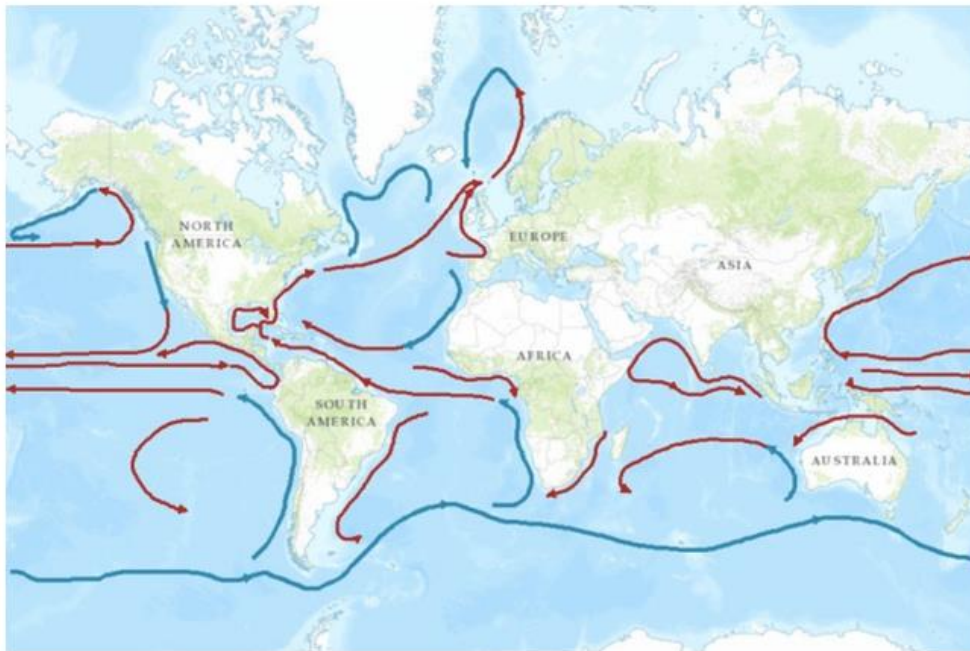


Figure 2. The oceans of the world are interconnected by geography and currents (image source: databasin.org)

Japan is a small rich country. The cheapest way to ‘solve’ its Fuku-water problem is to dump it on the world, outside of Japan. It is an example of ‘privatising the profits and socialising the costs’. Japan has had twelve years to spend the time and money to decontaminate the Fuku-water - and, if necessary, to develop the technology to do it ‘at scale’. Instead it has cut corners and used its so-called ‘Advanced Liquid Processing System’ (ALPS) to partially decontaminate the more than a billion litres (and counting) of radioactive water. ALPS can reduce the presence of some radioactive particles, not all, and not tritium (radioactive hydrogen, with two neutrons, and with a 12 year half life) [1].

Japan’s proposed ‘problem sharing’ demonstrates that the problem of nuclear waste remains intractable. After 80 years of the nuclear industry, how to deal with radioactive waste remains unresolved, as it has been since the outset.

Who owns the ocean? No country has title to the oceans - which is to say, to most of the surface of the globe. This is the ‘tragedy of the commons’ writ large [11] - the world’s oceans are the ‘commons’ of us all. Does Japan have a social licence to contaminate the oceans, and does Japan care? No and probably ‘no’ again.

For years, Japan defied the world with its whale hunting in the southern oceans. Its whale-killing shocked and outraged many, and doubly so with Japan peddling the lie that its whale hunting was purportedly for ‘scientific research’ [12]. Japan has form for duplicity about its global eco-behaviour – some would say it has zero credibility.

Dump more than one billion litres of Fuku-water in the Pacific Ocean? The International Atomic Energy Agency (IAEA) states that: “As nuclear safety is a national responsibility, it is a decision for the Government of Japan to take” [8, p.19]. Despite 130 pages of Safety Review of the IAEA, a simple and reassuring statement that the proposed release of Fuku-water into the ocean ‘is safe’ is not to be found [8].

Dilution is not a solution. It just spreads the problem thin, perhaps so that it can no longer be detected merely because the detector is not sufficiently sensitive and the contamination is sufficiently dispersed (but without reducing the quantum).

Dumping its Fuku-water in the Pacific Ocean will contaminate the world’s oceans for generations as the maritime plume of radioactivity is dispersed by the ocean’s currents (Fig.2). It will cause grief for those reliant on the oceans for fishing and food, and it will trash Japan’s reputation as a responsible global citizen.

It is incumbent on Japan to nationalise, not globalise, its Fuku-water problem. Japan needs to solve its nuclear waste problem at its own expense, on its own territory, and now - and not at the expense of the world and for generations to come. For Japan to use the world’s oceans as a dumping ground for its radioactive waste stockpile creates a dreadful precedent. We need to protect the oceans - not to use them as a convenient and free radioactive waste dump.

References:

1. Japan Reconstruction Agency, Fukushima: The inside story of the ALPS treated water (Sponsored by Japan Reconstruction Agency). New Scientist, 2023. 16 February.
2. Jun-Tae, K., Korea condemns Japan's decision to release water from Fukushima. The Korea Herald, 2021. 13 April.
3. Leandro, F., Better safe than sorry with Fukushima water. China Daily, 2023. 22 March.
4. Cai, J., Anxiety grows across Asia Pacific nations ahead of planned Fukushima wastewater release. ABC News, 2023. 9 July.
5. Korea Times, N. Korea slams IAEA for Fukushima water approval. The Korea Times, 2023. 9 July.
6. MoFA, Foreign Ministry Spokesperson Wang Wenbin’s Regular Press Conference on July 5, 2023. 2023, Beijing: Ministry of Foreign Affairs of the People's Republic of China.
7. Montgomery, H., Japan says Fukushima water is safe. China dares a Japanese official to drink it. Vice News, 2021. 15 April.
8. IAEA, IAEA Comprehensive Report on the Safety Review of the ALPS-treated Water at the Fukushima Daiichi Nuclear Power Station. 2023, Vienna: International Atomic Energy Agency (IAEA).
9. Alexievich, S., Voices from Chernobyl. 1999, London: Aurum Press.
10. BBC, Chernobyl sheep controls lifted in Wales and Cumbria. BBC News, 2012. 22 March.
11. Hardin, G., The tragedy of the commons. Science, 1968. 162: p. 1243-1248.
12. ICJ, Summary of the Judgment of 31 March 2014: Case 148 - Whaling in the Antarctic (Australia v. Japan: New Zealand intervening). 2014, The Hague: International Court of Justice (ICJ).



WayScience

2nd International Scientific
and Practical Internet Conference

«Global Society in Formation of
New Security System and World Order»

ISBN 978-617-8293-14-7