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MATTERS RELATED TO RADIOACTIVE WASTES

Pacific assessment and concerns with respect to plans to discharge nuclear wastewater from Fukushima Daiichi Nuclear Power Plant into the Pacific Ocean

Submitted by SPREP

SUMMARY

Executive summary: This document responds to the invitation by the governing bodies to share any relevant information related to radioactive wastes, and shares the work of the Panel of Independent Scientific Experts (Expert Panel) appointed by the 18 member states of the Pacific Islands Forum (PIF) to independently assess the data relating to the decision by Japan to discharge ALPS treated nuclear wastewater from TEPCO's Fukushima Daiichi Nuclear Power Plant into the Pacific Ocean.

Action to be taken: Paragraph 14

Related document: LC 44/WP.1

Introduction

1 At the meeting of the LC/LP governing bodies in 2022, the delegation of Vanuatu, noted with deep concern the decision by the Government of Japan in April 2021 to discharge advanced liquid processing system (ALPS) treated water from its TEPCO Fukushima Daiichi nuclear power plant into the Pacific Ocean. The delegation of Greenpeace International¹ welcomed the independent assessment and scrutiny provided by a Panel of Independent Scientific Experts (Expert Panel) under the auspices of the Pacific Islands Forum (PIF).² SPREP highlighted the key findings of the Expert Panel that Japan's decision to discharge is highly premature and lacking in sound scientific basis.³

¹ LC 44/WP.1, paragraph 11.6.16.

² The Pacific Islands Forum is the Pacific region's premier political and economic policy organization. Founded in 1971, it comprises 18 members: Australia, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Nauru, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

³ LC 44/WP.1, paragraph 11.6.17.

2 Following the discussions, the governing bodies invited delegations to share any relevant information related to radioactive wastes at future sessions.⁴ This document aims to share the main findings and recommendations of the Pacific Islands Forum Expert Panel.

Context

3 Following Japan's announcement in April 2021 of its Basic Policy on this issue, Pacific Leaders and the Prime Minister of Japan discussed this issue through their PALM9 Meeting held on 2 July 2021.⁵ Japan reiterated that it would continue to provide PIF Members with explanations based on scientific evidence, in a highly transparent and timely manner and in close cooperation with the International Atomic Energy Agency (IAEA).⁶

4 PIF Leaders highlighted the priority of ensuring international consultation, international law, and independent and verifiable scientific assessments on this issue. Further, they committed to pursue independent guidance to interpret the scientific evidence as it becomes available.⁷ More recently, at their 51st Annual Meeting, "Leaders reiterated their strong concerns for the significance of the potential threat of nuclear contamination to the health and security of the Blue Pacific, its people and prospects".⁸

5 For Pacific Islands, this issue is critical to the health and livelihoods of the Blue Pacific, including ocean resources and revenue for Pacific economies. Pacific Islands are concerned about the unprecedented, transboundary and intergenerational nature of the problem, and seek new approaches and alternatives to ocean dumping.

Pacific efforts, to date

6 Over the last 21 months since Japan's announcement, PIF Members have received five presentation sessions from Japan and three briefing sessions from the IAEA, in addition to the sharing by Japan of data and information related to the planned ocean release. Importantly, in pursuit of the above reference commitments by PIF Leaders at their PALM9 meeting with Japan, and in view of the capacity gap and constraints in Pacific Islands, PIF Members nominated and appointed in December 2021 a Panel of Independent Scientific Experts to independently assess and advise PIF Members on the data and information.

7 The independent expert panel consists of the following: Dr. Ken Buesseler, Senior Scientist and Oceanographer at the Woods Hole Oceanographic Institution; Dr. Arjun Makhijani, President of the Institute for Energy and Environmental Research; Dr. Antony Hooker, Associate Professor and Director of the Centre for Radiation Research, Education and Innovation at The University of Adelaide; Dr. Ferenc Dalnoki-Veress, Scientist-in-Residence and Adjunct Professor at the James Martin Center for Non-proliferation Studies at the Middlebury Institute of International Studies at Monterey; and Dr. Robert H. Richmond, Research Professor and Director at the Kewalo Marine Laboratory in the University of Hawaii at Manoa.⁹

⁴ LC 44/WP.1, paragraph 11.7.3.

⁵ [Leaders Declaration: Japan- PALM9, 2nd July 2021 – Forum Sec](#)

⁶ Paragraph 11, [PALM9 Declaration](#)

⁷ Paragraph 11, [PALM9 Declaration](#)

⁸ Paragraph 48, PIF Leaders 51st Meeting Communique, <https://www.forumsec.org/2022/07/17/report-communique-of-the-51st-pacific-islands-forum-leaders-meeting/>

⁹ Pacific Islands Forum Secretariat, "Pacific Appoints Panel of Independent Global Experts on Nuclear Issues" (14 March 2022). Available from <https://www.forumsec.org/2022/03/14/release-pacific-appoints-panel-of-independent-global-experts-on-nuclear-issues/> (Accessed 2 February 2023).

8 The panel have held three meetings with Japan, in addition to written exchanges with the IAEA. They have produced the following key pieces of advice, which can be accessed through the link <https://www.forumsec.org/security/>:

- .1 Memorandum of 8 March 2022;
- .2 Memorandum of 8 May 2022;
- .3 Executive Summary of 2 June 2022; and
- .4 Summary of 11 August 2022 of Information and Data Gathered, and of Views on the Scientific Status of the Planned Release

Scientific assessment and findings

9 In summary, the present findings by the PIF expert panel highlight serious concerns with the quantity and quality of the data, noting it as being inadequate, incomplete and inconsistent to support a decision to release the TEPCO tank waters into the Pacific Ocean. The expert panel is of the view that waiting until just before discharge to address critical issues is not a sound procedure either from a scientific or ecological point of view. Due to the transboundary and transgenerational nature of the problem, new approaches and alternatives to ocean dumping are needed and are the responsible way forward.

10 A number of key findings and recommendations are summarized as follows:

Main findings

- .1 The quantity and quality of the data are inadequate, incomplete and inconsistent to support a decision to release tank waters.
- .2 While tritium is of concern, so are other radioactive elements that are not so easy to clean up.
- .3 Accumulation on sea floor and marine food products will need to be considered.
- .4 There are alternatives and no urgency to release. Extra caution and thorough research of alternative options should be exercised.
- .5 This is not normal operations of a reactor and so normal rules do not apply. This is not the first, nor will it be the last such catastrophe. Japan has the opportunity to be the world's leader in advancing new approaches to a serious, international problem.
- .6 This is the United Nations Ocean Decade. Continued use of the ocean for dumping wastes is not sustainable.

What is in the water?

- .7 The Expert Panel deem data shared with PIF to be inadequate, incomplete, inconsistent and biased. It is not clear to the Expert Panel what the source term is or, in layman's terms, it is not clear what is in the tanks.
- .8 Thus far, 64 radionuclides have not been analysed in any tank in any data shared with the PIF. TEPCO will need to analyse a high throughput of data and since they have not done that, they have not demonstrated that they can.
- .9 The Expert Panel know there is an enormous amount of radioactivity in the core and if only a fraction would be picked up by the water, it would make treatment of the water very challenging. Despite this, Japan's focus has been primarily on tritium in terms of dispersal and dilution.

- .10 The accident is not over, this is not normal operations for a reactor. TEPCO should spare no expense to consider other alternatives to dumping.
- .11 The Expert Panel is of the view that waiting until just before discharge to address critical issues is not a sound procedure either from a scientific or ecological point of view.

Alternatives

- .12 Due to the transboundary and transgenerational nature of the problem, new approaches and alternatives to ocean dumping are clearly needed and are the responsible way forward.
- .13 TEPCO has not considered several alternatives that could address transboundary and reputational impacts. These include: ALPS treatment followed by storage to tritium decay in seismically safe tanks; ALPS treatment followed by using treated water to make concrete in applications with little human contact (concrete would shield tritium beta particles); and Bioremediation. All three may have orders of magnitude lower impact than the release plan.
- .14 The Expert Panel note that [ICRP 124](#)¹⁰ on the "Protection of the Environment under Different Exposure Situations" defines optimization of protection as "[t]he process of determining what level of protection and safety makes exposures, and the probability and magnitude of potential exposures, *as low as reasonably achievable, economic and social factors being taken into account*" (p. 20, italics added). TEPCO has not done that. Consideration of the alternatives suggested by experts among others that may avoid transboundary, and fisheries impacts, is essential before a final determination is made on what is safe and what meets sound scientific and ecological principles.

11 In view of the above, Pacific Island States strongly urge that time is taken to closely examine whether current international safety standards are adequate to handle the unprecedented case involving a large volume of radioactive wastewater from damaged nuclear reactors as opposed to that discharged in normal operations.

12 To this end, a high-level delegation met in Tokyo with the Japan Prime Minister and relevant Ministers on 6 and 7 February 2023 to request a deferral of ocean release in order to enable PIF experts to assess a complete set of the data and to determine likely impacts of the proposed plans to Pacific environment and human health. The deferral will also enable members to explore legal issues, obligations and responsibilities under relevant international treaties such as the 1982 UN Convention on the Law of the Sea, as well as the LC/LP.

Additional comments

13 The uncertainties around the safety of the water means that any ocean discharge would raise legitimate international law concern. This issue raises the opportunity for LC/LP Contracting Parties to explore options such as adopting a new instrument covering land-based dumping into the sea noting IMO's legal advice dated 29 July 2022.¹¹

¹⁰ International Commission on Radiological Protection (ICRP), 2014. Protection of the Environment under Different Exposure Situations. ICRP Publication 124. Ann. ICRP 43(1).

¹¹ LC 44/11, paragraph 20.

Action requested of the Scientific Groups

14 The Scientific Groups are invited to note the information provided and to comment as they deem appropriate.
