

Fukushima’s Endless Quagmire of Radiation Hazards

“The final issue that remains is how to deal with radioactive waste that continues to be produced even as decommissioning of the plant progresses.”
— Tepco Representative, January 2024

Japan’s Ocean Dumping Violates IAEA Rules

The International Atomic Energy Agency (IAEA) has given its stamp of approval to Japan’s ocean dumping of Fukushima wastewater, claiming that its effects would be “negligible” and declaring that the practice complies with international norms.

Arjun Makhijani is president of the Institute for Energy and Environmental Research and a member of the Pacific Islands Forum Independent Expert Panel on Tepco’s Fukushima radioactive water dumping proposals. In June 2023, Makhijani published a scathing critique of the IAEA’s approval of Japan’s dumping. The report discloses that Japan’s dumping of treated radioactive water violates essential provisions of the IAEA’s own General Safety Guide.

After describing Japan’s system of processing and diluting the radioactive wastewater, Makhijani reports, “At that point the water would contain mainly tritium, but also small concentrations of other radionuclides like carbon-14, strontium-90, cesium-137, and iodine-129.”

The IAEA’s statutory General Safety Requirements demand that: “Facilities and activities that give rise to radiation risks must yield an overall benefit.” Proof of “overall benefit” is required, Makhijani found, because, “There will be some radiation dose, even if small. ... Tepco estimates that ... the main radiation exposure is estimated to come from ingestion of fish.”

Yet there is no identifiable benefit to dumping 1.3 million metric tonnes of radioactive wastewater in the ocean. As Makhijani wrote, “Countries in the Pacific region, such as members of the Pacific Islands Forum, South Korea, China, and the Philippines, will receive no benefit from the proposed dumping.”

Because “radiation doses will not be zero,” and because “every increment of radiation dose produces an excess cancer risk with no threshold below which the risk is zero,” Makhijani wrote, “countries and people in the Pacific region will suffer some radiation harm. ... Some of that harm will go on for decades (e.g., tritium), some for centuries (e.g., strontium-90 and cesium-137), and some essentially forever (iodine-129).

“As a result of the above considerations, the harm to Pacific region countries will outweigh the benefits; indeed, there are no benefits to them. This means that, from a transboundary perspective, the proposed Tepco dumping plan is not justified.”

The IAEA is also violating its binding mandate regarding the required “justification” for potentially harmful actions. Makhijani reported, “During the 8/9 June 2023 virtual meeting with the Pacific Islands Forum and its Expert Panel, at which [I] was present, the IAEA explicitly stated that ‘we are not involved in the justification’ and ‘we are not reviewing any justification.’

“By rejecting its responsibility for key parts of [General Safety Guides and General Safety Requirements] the IAEA is also rejecting the corresponding requirements ... and the related fundamental safety principles ... on justification.”

In his critique, Makhijani emphasizes: “The rejection means that the IAEA has effectively abandoned the safety and protection interests of the countries of the Pacific region, including the many IAEA member states in the region.

“The IAEA should declare officially that the Tepco plan does not meet key protection and safety requirements and therefore cannot be declared safe. [T]he IAEA has basically jettisoned the interests of Pacific region countries, including non-Japanese IAEA member countries, in favor of Tepco and the government of Japan.”

Earthquakes Routinely Threaten Reactor Site

The dumping of radioactive wastewater from the rubbished Fukushima nuclear reactor site was suspended for a day last March 15 after a 5.98-magnitude earthquake struck off the coast of Fukushima, the *Malaysia Star* and Arab News Japan report. Tepco said through a spokesperson that it halted operation of its liquid waste filtering system (“ALPS”), but that “no abnormalities were detected,” and no leak of radiation “was detected.” The comic choice of words implies that dumping of radiation-emitting wastewater into the Pacific Ocean is not abnormal and that its radioactive tritium, strontium, carbon, and cesium can’t be detected. The dumping system was restarted later the same day after Japan’s Meteorological Agency said there was no threat of a tsunami. The shutdown was the first time Tepco’s radioactive waste dispersal was interrupted by earthquake activity.

Radioactive Wastewater Leaks and Promises of Improvement

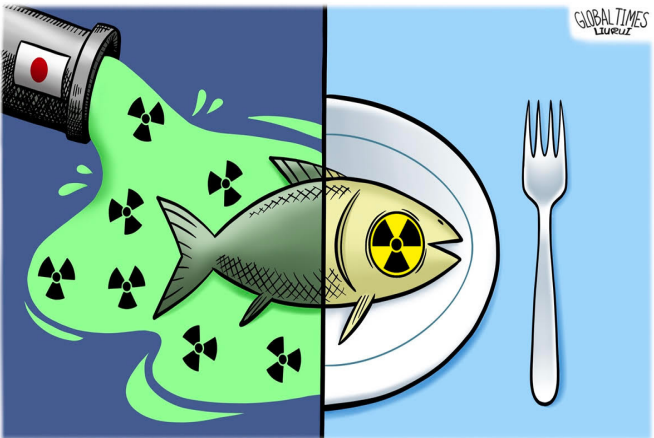
On Feb. 7, 2024, the faulty wastewater filtering system at Fukushima leaked more than 1.5 tons of highly radioactive cooling water. The worker-caused blunder forced Tepco to promise in April that it will install new piping and ventilation intended to direct any future wastewater spills to fall inside the building. The plan puts workers in danger, and the vent ports would release radioactive gases to the open air. Last October, an accident at the same liquid processing site sprayed five workers, directly exposing them to radioactive materials in the water likely including tritium, carbon-14, strontium, cesium, iodine, cobalt, and other deadly radionuclides. China’s Xinhua News Agency reported: “Amid raging credibility and safety concerns among the Japanese public following a series of accidents at the crippled plant, Tepco and the Japanese government have been frequently challenged for the ocean discharge as the decommissioning process remains ambiguous.”

Extracting Melted Fuel and Wreckage from Radioactive Hellscape

Reactors 1, 2, and 3 at Fukushima-Daiichi in Japan — wrecked in 2011 by Japan’s worst-ever recorded earthquake, a devastating tsunami, and a string of explosions — have about 880 tons of melted fuel either burned into or through the three reactors’ foundations. Tepco and Japan’s government intend to remove this fiercely radioactive wreckage and abandon it somewhere else. The melted fuel and the surrounding irradiated structures are so ferociously hot and radioactive that remote-controlled robots have repeatedly broken down in the harsh, underwater environment. (Water is continually poured over the fuel melt to keep it from overheating further.) Last March, Japan’s Nuclear Damage Compensation and Decommissioning Facilitation Corporation came forward with three ideas for removing the wrecked fuel, etc., something never before attempted at a site smashed by the earthquake-tsunami-meltdown. Japan’s formal “wrecking crew” has recommended: 1) removing debris while exposed in the air, and 2) solidifying debris in place using a “filler” like concrete. The suggestions also included a plan to submerge entire reactor systems under water after constructing a giant pool-like structure around them. Robots would theoretically then approach, grasp, and withdraw the debris while the water partially shielded workers from radiation.

G-7 Leaders Offer Political Cover for Dumping

The Group of Seven colonial corporatist states (Canada, France, Germany, Italy, Japan, the U.K., and the U.S.) endorsed Japan’s dumping of radioactive water into the ocean at their summit in Italy on June 15, 2023, in an off-agenda move widely seen as a winking promise to protect the global nuclear



reactor industry. “We support Japan’s safe, transparent, and science-based process to responsibly manage the discharge,” the G-7 statement said. Millions of people and more than 20 countries around the Pacific Rim have objected to Japan’s dumping over the next 40 years. The discharge is so patently unsafe, so shrouded in long-term unknowns, and so clearly in violation of the IAEA’s own scientific guidelines, that the G-7’s nod can be seen as industrial push-back against the protests in Japan, China, Russia, South Korea, and the Pacific Island Forum of 17 states.

Landslide Threat Endangers Cooling Pool

Earthquakes routinely strike the Fukushima area, threatening 1,000 large tanks holding 1.3 million metric tonnes of contaminated wastewater, and endangering the structural integrity of cooling pools holding extremely radioactive used fuel rods (called “spent fuel” by the industry). In January 2024 alone, there were over 18 earthquakes in the Fukushima region with magnitudes of between 2.8 and 3.7. In February there were at least 23, with one measuring magnitude 6.1.

Quakes pose another threat to the devastated reactor site. According to *Nuclear Engineering International*, a landslide from a massive mountain slope could shut down the adjacent large waste fuel cooling pond. The pool holds 5,197 waste fuel assemblies, and Akira Ishiwatari, a geologist and federal Nuclear Regulation Authority commissioner, told the magazine, “A landslide could occur on the slope in the event of a minor earthquake or even without any tremor.” The authority “is concerned that if sediment from a landslide flowed into the pool, the nuclear fuel would no longer be cooled and, in the worst-case scenario, could eventually melt,” the magazine said.

Tepco said a landslide would not affect the cooling pond but, to avert the danger, announced plans to excavate 100,000 cubic meters from the slope over the next ten years.

Far-Off Prefecture Wants Halt of Wild Food Shipments after Radioactive Cesium Found

Another prefecture in Japan has asked for a halt to shipments of a popular edible wild food after it was found contaminated with high levels of cesium-137, a radioactive toxin dispersed in large quantities by the triple Fukushima meltdowns of March 2011. Cesium-137 stays in the environment for 300 years and was spread long distances from the disaster site. Kitaibaraki village in Ibaraki prefecture is 134 miles from Fukushima, yet the government found cesium contamination in popular angelica tree shoots at twice the level allowed by Japanese authorities. Restrictions on shipping wild mushrooms and koshiabura, a species of edible flowering plant, are still enforced across wide areas of the prefecture. Cesium testing began after the meltdowns that followed the 2011 Great East Japan Earthquake and tsunami. In the Spring 2024 *Quarterly* we reported that edible foods up to 292 miles from Fukushima were still being found highly tainted with cesium.

— JML

On Aug. 17 at 8pm Eastern/5pm Pacific, Nukewatch is co-sponsoring the “Don’t Nuke the Pacific, Protect Our Ocean” webinar to stop the Fukushima wastewater dumping. Register at mp-nuclear-free.com.