

The Japanese disaster one year later

March 12 2012



Tsunami devastation in Japan's Miyagi prefecture (left). One year later in March 2012, a washed-up boat remains on shore. Credit: AP Photo/Kyoto News

As the world remembers the horrors of the disaster on its one-year anniversary, experts at the Mailman School take stock of disaster response, nuclear fears and lessons learned

Prior to March 11, 2011, Japan was held up as a paragon for preparedness. They had a national readiness plan, regular disaster drills and strong [civic engagement](#). But in the face of an unprecedented 9.0 [earthquake](#), massive [tsunami](#), and a [nuclear accident](#) at the Fukushima-Daiichi power plant, the country experienced a host of challenges—many that continue to be felt.

Within a few days there were a number of problems, says Irwin Redlener, MD, professor and director of the National Center for Disaster Preparedness of the Mailman School. Search and rescue efforts were delayed, shelters ill-equipped, and supply chains broken. But worst of all, says Dr. Redlener, there was confusion about who was managing the nuclear accident—the power company TEPCO or the Japanese government. Information, when forthcoming, was sometimes contradictory. And adding to the confusion, there were worries, even among officials, that the 13 million residents of Tokyo would need to be evacuated. "All of this adds to widespread psychological chaos during an evolving catastrophic disaster," Dr. Redlener explains.

The Japanese public was angry and distrusting, says Richard Garfield, RN DrPH, professor of Clinical Population and Family Health, who visited the country last summer. Some went so far as to buy their own Geiger counters and post readings online. While the anger was justified, he explains, the radiation worries have been misplaced. More than 15,850 people were killed by the earthquake and tsunami, but so far there have been no fatalities or serious illnesses related to the nuclear accident. The meltdown was largely contained and most of the radiation was carried out to sea. Exposure levels remained low, he says, and even cleanup workers might see their lifetime cancer risk go up by a mere fraction of a percent.

Exaggerated Radiation Risks But Real Fears

"There is a disconnect on the part of the public, and even on the part of scientists and medical professionals, when it comes to radiation and health risks," says Norman J. Kleiman, PhD, director of the Eye Radiation and Environmental Research Laboratory, at the Mailman School. One of the biggest lessons from Fukushima, he says, is the need for "accurate, rapid dissemination of information to the general public—what they should expect, what realistically their health risks are,

what they can do to protect themselves and their children.”

On the ground research informs these recommendations. The Mailman School led the first epidemiological study of the 1979 Three Mile Island accident, which found no increased cancer risk among those living near the plant. Today, Dr. Kleiman is doing studies of workers who cleaned up the 1986 Chernobyl accident, who endured much greater radiation exposures. With Fukushima, he says, “there is an urgent need to use this experience in a positive way to better estimate what the low-dose risks are.”

But while radiation risks are often misunderstood by the public, their anxieties are real and can have serious health consequences. Dr. Kleiman cites a report from the World Health Organization showing that by far the biggest health issue from the Chernobyl disaster wasn't cancer but mental health issues like depression and anxiety. In some instances, this leads to physical symptoms, including, in extreme cases, nausea, vomiting, and diarrhea, that are identical to what would happen with exposure to high levels of radiation. To address this challenge, Dr. Kleiman and his colleagues at the Columbia Center for Radiological Research are developing methods to quickly identify who has been exposed to radiation and by how much to determine appropriate ways to treat both physical effects and emotional fall-out.

As the recovery continues in Japan, the goal is a return to normalcy. A big challenge will be finding homes for the approximately 160,000 who remain displaced. Shelters can, unfortunately, become semi-permanent for some, says Dr. Garfield, who is also the Henrik H. Bendixen Professor of Clinical International Nursing, at Columbia School of Nursing. He notes that even today, some Japanese in the south remain displaced from the 1995 Kobe earthquake.

The Nuclear Question

Another major issue facing the country is energy. Before last year's disaster, 54 reactors provided 30% of Japan's electricity. Today only two are operational, and they are scheduled to go offline by early May. This represents a major shift for Japan, which has long embraced nuclear technology. The ongoing energy shortage may also pose a health risks, says Dr. Garfield, especially for the elderly, because of restrictions on summer air conditioning.

While the experience of Fukushima has soured the Japanese on nuclear energy, others continue to embrace it. China and India have a number of reactors in the works and, in February, regulators in the U.S. gave the go-ahead on the first new reactors in this country since 1978.

On March 5, Dr. Redlener participated in a discussion with experts from [Japan](#) and the U.S. on the issue of nuclear power in the context of recertifying the 37-year-old Indian Point reactor, which is located only 35 miles from New York City. "This aging plant is located in a very population-dense region. A major disaster here would have even greater consequences than were seen at Fukushima. To make matters worse, the plans for evacuation and response to a major accident are seriously flawed," says Dr. Redlener. He points to his experience with the 2010 oil spill in the Gulf Coast, where he saw a serious absence of leadership and coordinated response. And, as with [Fukushima](#) and TEPCO, there was a "dangerous defaulting of safety and response responsibilities to industry," without much regulatory oversight. Compounding the problem are budget cuts: recent years have seen 17% less money for disaster preparedness in general. "We can do better," Dr. Redlener says.

But even with a committed government, Dr. Redlener stresses that good [disaster response](#) also depends on citizens themselves being prepared for the unexpected. "In any large-scale disaster, it's worth remembering that you are your own first responder."

Provided by Columbia University

Citation: The Japanese disaster one year later (2012, March 12) retrieved 2 May 2024 from <https://phys.org/news/2012-03-japanese-disaster-year.html>

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