

Japanese nuclear crisis worse than previously conceded

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Three months after the March 11 earthquake and tsunami struck north-eastern Japan, the Tokyo Electric Company (TEPCO) is still struggling to stabilise badly damaged reactors at its Fukushima Dai-ichi nuclear plant. The latest update posted by the International Atomic Energy Agency (IAEA) continues to describe the situation as “very serious.”

A detailed government report to the IAEA, leaked to the Japanese media last week, indicated that the nuclear disaster was far worse than previously acknowledged. TEPCO had admitted that the cores of three reactors—units 1, 2 and 3—underwent a meltdown after power supplies at the plant failed. However, the report indicated for the first time that a “melt-through” may have occurred.

Each of the cores of the boiling water reactors at the Fukushima plant is surrounded by two containers—a pressure vessel sits inside the reactor’s primary containment vessel. A “melt-through” signifies that the molten fuel is no longer inside the pressure vessel, as TEPCO previously claimed, but has melted through that steel container and fallen to the bottom of the containment vessel.

If a melt-through has taken place in any of units 1, 2 and 3, it not only complicates efforts to bring the reactors under control but raises the risk of escaping radioactivity if the primary containment vessel has been breached. Japan’s Nuclear and Industrial Safety Agency (NISA) last week conceded that holes could have formed around piping entering the primary containment vessel.

NISA also doubled its estimates for the amount of radioactivity released during the first week of the crisis from 370,000 to 770,000 terabecquerels, bringing it into line with the figure provided by Japan’s other regulatory authority, the Nuclear Safety Commission (NSC). In April, a month after the quake, the NSC conceded that the Fukushima crisis was the worst since the 1986 Chernobyl disaster in the Ukraine and raised its severity to 7—the highest ranking on

the International Nuclear and Radiological Event Scale.

TEPCO announced a plan in mid-April to stabilise the plant and bring all the reactors to “cold shutdown” within six to nine months. “Cold shutdown” means cooling the reactor cores to less than the boiling point of water at normal atmospheric pressure. At present, the recirculation systems for units 1, 2 and 3 are not functioning and water is being pumped continuously into the reactors to cool the nuclear fuel.

More than 100,000 tonnes of highly radioactive water have leaked out of the reactor systems and are being stored in improvised containers. A water treatment plant built by the French corporation Areva is due to commence operation this week, but its ability to process the contaminated water at the Fukushima plant is yet to be tested. At most, the plant is capable of treating 1,200 tonnes of water a day.

The operation is complicated by the presence of debris, oil and salt in the water that could interfere with the chemical processes used by the Areva plant. The radioactive water might have to be treated several times before it can be dumped in the ocean. Lake Barrett, an engineer involved in the cleanup after the Three Mile Island disaster in the US, told the *Washington Post*: “Normally the processing is done in small volumes, and you have a carefully controlled chemistry. Here you have massive volumes and a very heterogeneous chemistry.”

The government report to the IAEA admitted that neither TEPCO nor the Japan’s nuclear agencies were prepared for the Fukushima disaster. Despite Japan’s vulnerability to severe earthquakes, the company did not envisage that the plant’s power supplies could be knocked out by a tsunami, nor did it anticipate the hydrogen explosions that ripped apart the reactor buildings in subsequent days.

As reported by *Asahi Shimbun*, “several government

ministries and agencies were involved in overseeing the nuclear industry and their roles and responsibilities were not clearly separated, leading to chaos in the days after the accident.” The chaos was not simply the result of a lack of coordination, but the close relations of the Nuclear and Industrial Safety Agency (NISA), in particular, with TEPCO, which is notorious for safety breaches.

From the outset, TEPCO’s main objective was damage control. It sought to salvage its investment at the Fukushima plant, its public image and therefore its financial standing. Crucially, the company apparently delayed the pumping of salt water into the reactor cores, hoping thereby to prevent irreparable damage. It then denied for weeks that there were any signs of a reactor meltdown. At the same time, the company played down the extent of the disaster in an effort to stem the catastrophic slump in its share prices.

NISA, which assisted in this cover-up, is part of the Ministry of Economy, Trade and Industry (METI), which is responsible for promoting as well as regulating the nuclear industry. Amid widespread public distrust over its response to the nuclear disaster, the government announced plans last week to separate NISA from METI and consolidate the country’s nuclear regulatory agencies. This largely cosmetic step will do little to contain the influence of Japan’s powerful energy corporations, such as TEPCO.

Concerns over Japan’s handling of the crisis strained relations with the US, which complained about the lack of information from TEPCO and the government. Akihasa Nagashima, a senior government parliamentarian, told the *Wall Street Journal* last week: “The frustration was so serious that mutual trust between the US and Japan, I think, was endangered.”

Sharp differences emerged over the seriousness of the crisis, with the US calling for American citizens to evacuate from 80 kilometres around the Fukushima plant—far wider than Japan’s initial 20-kilometre exclusion zone. One unnamed US official told the newspaper: “In those early hours, they didn’t seem to understand the severity of the situation. In the beginning, they weren’t taking any suggestions from us at all.”

Washington was clearly worried about more than US citizens. Dissatisfied with the lack of Japanese cooperation, the US navy dispatched aircraft to determine radioactivity levels in the atmosphere and began running its own simulations of what had taken place at the Fukushima plant. The US military was obviously concerned that the disaster

could impede operations from its bases in Japan and South Korea.

Three months after the quake, around 80,000 “nuclear refugees” from the 20-kilometre exclusion zone have no prospect of being able to return for months, probably years. The government has extended evacuations to include another four towns more than 20 kilometres from the plant. Just last week, authorities announced that they were considering evacuating two further radiation “hot spots” more than 30 kilometres away.

Those evacuees who are not living with friends or relatives or in rental accommodation are among the 98,500 people forced to stay in some of the 2,000 crowded emergency shelters set up after the earthquake and tsunami. According to a *Kyodo News* survey, nearly 3,000 evacuees in emergency accommodation were hospitalised in the first two months for symptoms associated with stress, fatigue or poor sanitation or hygiene.

At the Fukushima plant, TEPCO is relying heavily on poorly paid and trained labourers to carry out the most dangerous and arduous work to stabilise the reactors. Of a workforce of about 2,500, all but 300 are hired by subcontractors and have no insurance for injuries or the effects of radiation.

NISA reported last week that two emergency workers at the plant had received radiation doses of twice the annual limit of 250 millisieverts and formally warned TEPCO about the violation. Shortly after the Fukushima disaster erupted, Japanese authorities lifted the official limit from 100 millisieverts—a figure that was already high by international standards.

The ongoing disaster facing “nuclear refugees” and the dangers confronting workers are sure signs that profit continues to be placed before the well-being of ordinary working people as TEPCO, the government and the state bureaucracy seek to contain the political and economic impact of the continuing crisis.



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