

TOKAI MURA CRITICALITY ACCIDENT

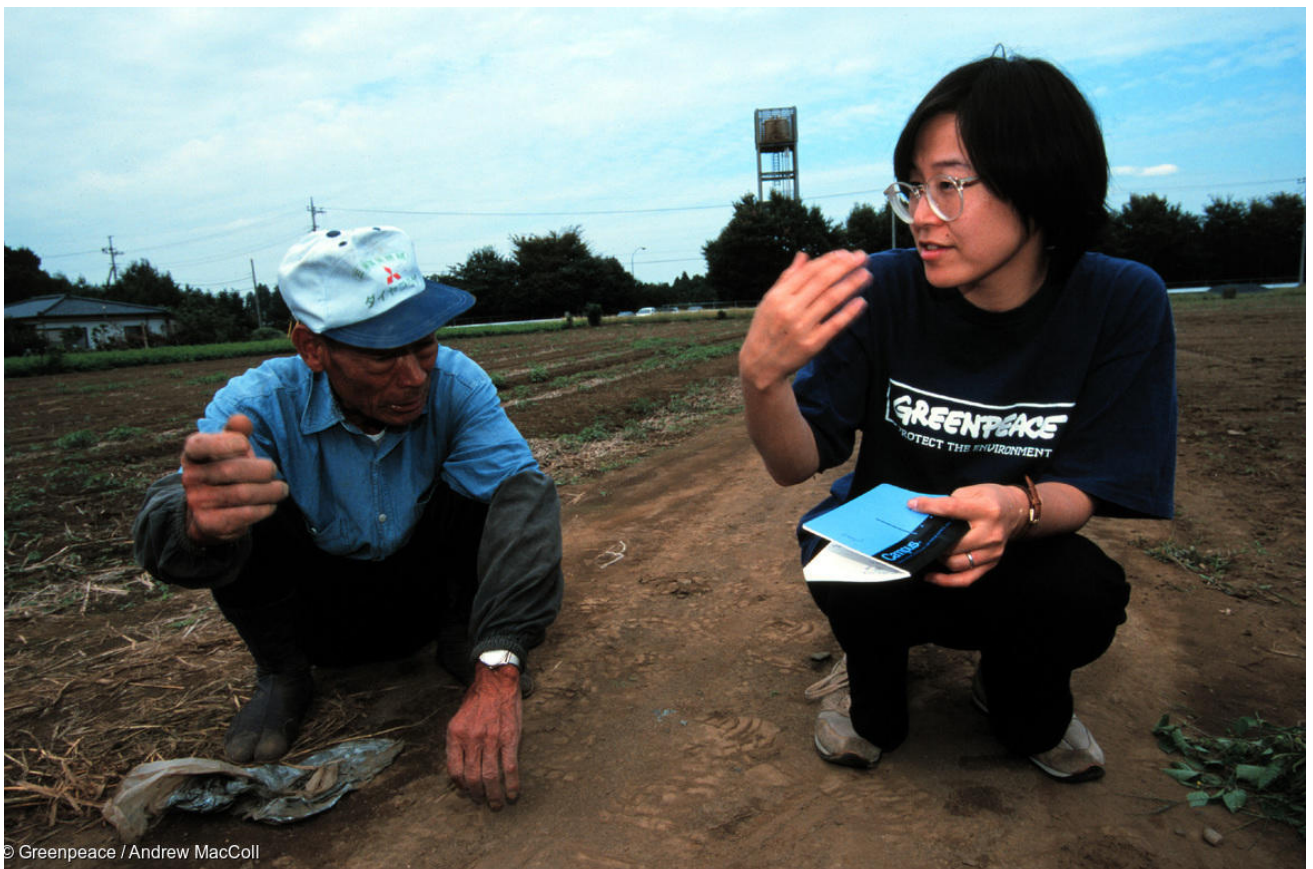
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Japan's worst nuclear accident – until 3.11

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“The reality is that this accident will not change the course of their nuclear program. I think it would take a Chernobyl to wake them up.” Greenpeace 10 October 1999, Newsweek - <https://www.newsweek.com/dangerous-wind-168194>



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Kazue Suzuki, nuclear campaigner with Greenpeace Japan with local farmer, Tokai Village, October 1999

Twenty years ago today on 30 September 1999, Japan experienced the start of its worst nuclear accident up until that time. Workers at the JCO nuclear fuel fabrication plant at the Conversion Test Building in the town of Tokai-mura, in Ibaraki prefecture (north of Tokyo) were manufacturing medium enriched uranium fuel for use in the JOYO experimental Fast Breeder Reactor. Behind schedule, untrained and operating with a manual that had been doctored by management to increase work rate but reduce safety margins, three workers were pouring uranyl nitrate solution that was medium enriched uranium (around 18% U-235) into a settling tank. Instead of the specification of 2.4kg they added 16 kg of uranium to the tank. At 10.35 a.m. local time a critical chain reaction was

created – not inside a nuclear reactor building – but a steel tank, inside a conventional industrial building in the middle of a town, a community.

Mr Hisashi Ouchi received a dose of 17 Sieverts and Mr Masato Shinohara 10 Sieverts. The third worker received 3 Sieverts. The accident continued for at least 17 hours, during which time the criticality fluctuated. While journalists piled up against the nuclear site wall, neutron radiation passed through them and into the surrounding town.

At the time, the Japanese government stated that only the immediate workers were affected, together with 49 others.

Our Greenpeace team had just “welcomed” a shipment of plutonium MOX fuel from Sellafield at the Takahama nuclear plant the morning of the accident; one week before we had been off the coast Fukushima Daiichi following an intense 18 month global campaign against TEPCO’s Fukushima Daiichi plutonium MOX program, as well as at Kansai Electric’s Takahama reactors. Exhausted, and uncertain of exactly what was happening, we mobilized a radiation team which was despatched from Europe. Four days later, an international team led by GP Japan and GPI with radiation lead Diederik Samsom of GP Netherland we were on the ground. In addition to gathering soil and plants, the main challenge was how do you work out the radiation exposure of the community of Tokai village when dealing with neutron radiation ?

On advice from a university professor in Tokyo, the Greenpeace survey visited people’s houses

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Nuclear

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physicist and Greenpeace campaigner Diederik Samsom with Tokai village citizen exchanging salt,

4 October 1999.

exchanging conventional table salt for salt that had been in their homes. As a result of neutron capture, table salt sodium 23 becomes sodium 24. The results were calculated during the coming days. We released the results to the [world’s media](#) on 7 October – [hundreds](#) of people, an estimated 600 up to 1000 in Tokai village had been exposed to neutron radiation. It was another four months

before the Japanese government confirmed our results, reporting that at least 400 residents had been exposed.

On the day the accident began, we [emphasized](#) that Japanese nuclear regulation was not fit for purpose, captured by the nuclear industry and lacking independence and ineffective. We [stated](#) that, "Today's accident at Tokaimura confirms our fears - the entire safety culture in Japan is in crisis... (and without change) it will only increase the probability of a nuclear catastrophe."

Unless nuclear power was phased out while also radically restructuring nuclear regulation, Japan [would](#) suffer a more severe accident.

No major changes were made and eleven years later the Fukushima Daiichi disaster began. The Nuclear Regulation Authority was established in 2011. Today, nuclear regulation in Japan remains, as elsewhere, fundamentally flawed.

Tokai's first victim - Mr Hisashi Ouchi

Hisashi Ouchi is considered the first fatality of his kind in Japan, perhaps the only person to ever receive such a huge amount of radiation in such a short amount of time. The amount of radioactive energy that he was exposed to is thought to be equivalent to that at the hypocenter of Hiroshima atomic bombing. The immensity of radiation completely destroyed his body, including his DNA and immune system. According to the book, *A Slow Death: 83 Days of Radiation Sickness*, "[N]one of Ouchi's chromosomes could be identified or arranged in order."

As his condition worsened, he was transferred to the University of Tokyo Hospital and, reportedly, underwent the world's first transfusion of peripheral stem cells. He was also given many blood transfusions, fluids, and medicine that wasn't even available in Japan yet. He also had to undergo several skin transplants which couldn't help the loss of fluids through pores.

After being treated for a week, Ouchi managed to say, "I can't take it any more... I am not a guinea pig". In one of the most cynical demonstrations of the callousness of the nuclear industry, and disregarding the wishes of the Ouchi family that his life support be turned off, they continued to treat him exactly as a unique guinea pig. The world's nuclear radiation medical community descended on Tokyo to observe. The doctors kept treating him and taking measures to keep him alive, which only ensured a very slow and very painful death.

On November 27, Ouchi's heart failed for 70 minutes, but the doctors managed to keep him alive with blood transfusions, fluids, and various drugs to keep his blood pressure and pulse stable. Finally, on December 21, his heart failed and the doctors did not resuscitate saying that his family wanted him to have a peaceful death.

After 83 days of struggle, Ouchi [died](#) of multiple organ failure on 21 December, 1999.

His co-worker Mr Masato Shinohara, [died](#) of multiple organ failure on 27 April 2000. He received a blood transfusion in October, and in late February, however, doctors placed him on a respirator when pneumonia and radiation damage to his respiratory system brought on severe breathing difficulties.

Court judgement

On 3 March 2003, the Mito District court delivered a ruling on the JCO Co. over the Tokai criticality accident. The ruling adopted the prosecution's claim that the cause of the accident could not be extended to include the responsibilities of other related organizations, and handed out sentences that were lighter than penalties demanded by the prosecution.

For more background see Citizens Nuclear Information Center Japan – CNIC -

<http://www.cnic.jp/english/?p=2028>