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Fukushima in Light of Minamata

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Abstract: The mercury discharged into the sea by the Chisso factory in Minamata, and the radiation released by the Fukushima Daiichi nuclear power plant, are not entirely different "accidents," although one was the result of a "natural disaster" and one not. Minamata offers hints of future developments as Japan attempts to respond to and recover from Fukushima.

Key Words: Fukushima, Fukushima Daiichi nuclear power plant, Minamata, Minamata disease, Tokyo Electric Power, TEPCO, Chisso, natural disasters, pollution, industrial pollution, mercury, methyl mercury, organic mercury, radiation

Introduction

Japan is still struggling to deal with the worst nuclear accident since Chernobyl, and will be for a long time. This makes the triple disaster of March 11, 2011 unlike anything Japan, or any other country, has ever experienced. The release of radiation from the Tokyo Electric Power (TEPCO) nuclear power plant in Fukushima, however, is not the first time Japanese people have been exposed over an extended period of time to a poison released into the environment by modern technology. The March 11 earthquake, tsunami, and radiation disaster (a bundle of tragedies referred to as the "Higashi Nihon daishinsai," or Great East Japan Earthquake Disaster) occurred 55 years after the official discovery of Minamata disease and 79 years after the Chisso chemical plant in Minamata began releasing methyl mercury into the sea.[1] Although the two incidents differ in important ways, Minamata surely offers hints of possible outcomes as Japan attempts to respond to and recover from the nuclear disaster at the Fukushima Daiichi nuclear power plant. Minamata suggests that for decades the disaster will not be "over," by any reasonable definition, and that human society and the environment will never return to its pre-disaster state. This essay will first survey the many "solutions" to Minamata, and then focus on two aspects of Minamata and the light they might shed on Fukushima: first, the company's response to the disaster and government-company relations, and second, the environment itself and what human beings have done in response to the poisoning of the sea.

"Solving" Minamata

The mercury poisoning "incident" in Minamata has been grandly pronounced resolved at least four times since the pollution began in 1932 and Minamata disease was officially recognized in 1956.[2] In 1959 the Chisso Corporation paid compensation to fishing cooperatives and "sympathy payments" to patients that required them to renounce all future claims against the company. It did not accept responsibility for the disease. At the same time, it also installed a "Cyclator" to purify its wastewater, without announcing that the Cyclator did not remove mercury. At a ceremony at the end of 1959, Chisso's president publicly drank a glass of water from the Cyclator, without announcing that the wastewater from the acetaldehyde plant, which contained mercury, was not being run through the Cyclator. An eerily similar performance took place on March 24, 2011 when Tokyo's Governor Ishihara Shintarō drank a glass of tap water on national television to "prove" that it was safe from radioactive contamination.

Ishihara's televised tap water performance

The second "solution" to the Minamata disease problem came in 1973 when the largest settlement a Japanese court had ever granted led to an agreement between Chisso and all certified Minamata disease patients, giving them substantial lump-sum and recurring payments. As of 2010, 2,271 patients had been certified and therefore made eligible for these payments, though over half were no longer living. This compensation under the 1973 agreement, however, was only for those certified as "official" patients, and the court case considered only the responsibility of the corporation, not government.

A third solution put in place in 1995 and 1996 gave one-time payments to some 10,000 more people deemed "affected" by the pollution but not certified as patients—but in return, in an echo of 1959, they had to drop their lawsuits and agree not to apply for certification.

The system was thrown into disarray by a 2004 Supreme Court decision in a case pressed by patients who had refused to drop their lawsuit. The court found the government's certification standards too strict, and found the prefectural and national governments at fault for allowing the disease to spread after it was discovered. The government refused to relax its certification standards, and thousands more applied for certification or filed lawsuits. In 2010 the government reached agreement on a plan to compensate many more people—possibly bringing the total up to 35,000—but many lawsuits continue.

What does it mean that so many "final and complete" solutions have all turned out to be so incomplete and far from final? Minamata is complex, with medical, legal, political, economic, corporate, social, and environmental aspects. Can Minamata ever be truly "over," and if so, what would that mean? That all patients had finally died? What would it mean for the environment to be healed? Can any of this help us answer questions about how long it will take Japan to recover from March 11, 2011? Minamata suggests that for decades the 2011 disaster will not be "over," by any reasonable definition, and that human society and the environment will never return to their pre-disaster states.

Company, Government, Citizens

There were many reports in the wake of the Fukushima disaster of localities having second thoughts about their efforts to solve their problems by attracting nuclear power plants.[3] As Japan's rural population declined and farming and fishing became marginalized, nuclear power plants had seemed to many a reasonable gamble in order to keep their towns alive. In Minamata in the early twentieth century, local leaders concerned with the loss of salt-making and transport jobs courted Noguchi Shitagau and

"No more Minamata" protestors during the 2010 court case

persuaded him to build his new chemical plant in the town.

Responses by Chisso and the national and local governments to the poisoning that the factory later inflicted on the area taught people to assume that corporate and government leaders would hide, deny, or downplay their responsibility, and would attempt to move just in time, and just far enough, to head off serious damage. This should come as no surprise to anyone who has followed other companies in Japan and elsewhere causing pollution, or nicotine addiction, or mine disasters. Chisso did this in 1959 with its *mimaikin* sympathy payments. TEPCO did this with the tiny payments it quickly offered to residents and towns near its Fukushima power plant, and at least one local mayor rejected this money.

Government responses to pollution incidents have probably changed more over time than those of corporations. The central government, particularly the Ministry of International Trade and Industry (whose functions were absorbed into the new Ministry of Economy, Trade and Industry in 2001), may have been more unwaveringly on the side of corporations in the 1950s and early 1960s than now. But the government has continued to have particularly strong connections to the nuclear power industry.

In 1977 Ishihara Shintaro, then Minister of the Environment and now a leading nuclear booster, apologized to Minamata victims after using his position of authority to attempt to discredit their quest for compensation. He said that many Minamata sufferers were "fakes" and that their court petition "looked like it had been written by a moron"

Government policy regarding domestic use of nuclear power in the wake of Fukushima is still in flux. But Japanese companies have continued to aggressively pursue foreign nuclear power contracts with the support of the government. Seven months after the disaster, Prime Minister Noda Yoshihiko said in a speech at the United Nations: "Many countries of the world are seriously exploring the use of nuclear power, and we have assisted them in improving nuclear safety. We will continue to answer to the interest of those countries."[4] In Minamata, Chisso attempted to export its mercury waste to Korea but was blocked by union workers.

One common question in both the Minamata and Fukushima cases is what to do if the company is unable to survive if it has to pay all the costs but the government does not want to be seen as abandoning the "Polluter Pays Principle." In the Minamata case, as the costs of the 1973 agreement burdened a declining Chisso, a deal was brokered by the late 1970s to have Kumamoto Prefecture sell bonds to finance loans to Chisso, with the understanding that the central government would buy most of the bonds and that Chisso would not repay the loans. In 2010 a bill was passed to split Chisso into two companies, one doing business and one existing only to pay compensation, so that those debts would not drag it down.

Noda and Vietnamese Premier Tan Dung forge a nuclear technology agreement

It is too early to say what will happen with TEPCO, but in the first months after the disaster the government moved quickly to explore a range of ways to keep the company alive and able to pay compensation. Key differences will include TEPCO's attempt to argue that this was an act of God/nature, the greater extent of the damage and greater number of people involved, the vastly greater national and international coverage, and the fact that TEPCO is not likely to lose as much relevance to the national economy as Chisso did after the early postwar period. In comparison to Minamata, the government moved more quickly to explore ways to help TEPCO pay some of the costs of compensation payments, which will likely total trillions of yen. But as far as possible it has described much of this as assistance to TEPCO that will enable TEPCO to pay the compensation itself, and it seems to have backed away from rumored earlier plans to nationalize the company. So it has been looking for ways to preserve the Polluter Pays Principle, at least on the surface, where it can. But there are limits: it appears that the costs will be so great, and the nuclear power industry has always been so closely intertwined with government and bureaucracy, and citizen demands have been so unceasing, that the government has realized that it will be unable to avoid paying a significant portion of the cleanup and compensation costs directly.

Environment (and Bodies)

In the case of the environment there are some great differences as well as some similarities between Minamata and Fukushima. One key difference has been noted above: TEPCO feels more able to blame the disaster on nature rather than on its own negligence. But of course it is also argued that the tsunami should not have been a completely unforeseen event, given what scholars of

earthquakes and tsunami know of the history of Japan's northeast coast going back to the ninth century. In Chisso's case, it was argued that the company should have been aware of medical reports of organic mercury poisoning from the 1940s.

Human bodies are part of the environment, and the poisons put into the environment therefore also poison the human body.[5] In some ways methyl mercury and radiation as poisons are more similar than one might expect. Both organic mercury in seafood, and radiation in air, water, soil, and food are impossible to see, taste, or feel. Of course radiation fades away according to its half-life, but mercury remains in the environment and can only be reduced in concentration by being spread more widely. However, mercury does in fact have what one might call a half-life in the human body, which tends to expel it at a regular rate.

Some six months after March 11, a plan was announced for monitoring the health of several hundred thousand children living in the vicinity of the Fukushima plant throughout their lives for thyroid problems possibly caused by radiation. This plan was launched because thousands of cases of thyroid cancer are believed to have been caused by the 1986 Chernobyl accident in Ukraine. No true comprehensive health study has ever been done for Minamata and its environs, but Minamata does remind us to pay attention to how much the subjects and others will be told of what is learned about their bodies. Kumamoto prefecture and its neighbor to the south, Kagoshima prefecture, tested mercury levels in human hair in 1960 and 1961 but did not inform the subjects of the results. Ten years later researchers looked for some of those whose hair had had the highest concentrations of mercury, only to find that a number of them had died. A significant number of these people had lived relatively far from the Chisso plant and had likely continued eating fish without realizing how contaminated they were.

Both Minamata and March 11 polluted the sea and took the lives or destroyed the livelihoods of many people who had depended on fishing, often for generations. Those who were still able to fish found themselves unable to sell their tainted catch.

Children measured for radioactivity following the March 11 disaster

Another similarity is in ways of dealing with polluted water. TEPCO has had to try to store the most radioactive water while finding ways to deal with it in the long term. In Minamata from 1983 to 1990, the sludge from the most polluted parts of the bay was dredged up and used to reclaim the innermost part of the bay. Chisso paid the bulk of the cost of creating this new land, which consisted of a top layer of "clean" dirt over a plastic sheet covering the material dredged from the areas of the bay where the concentration of mercury in the sludge was over 25 parts per million (ppm).

This reclaimed land illustrates the effects on the environment of human projects to "clean up" and prevent recurrences of pollution disasters. They can never return the "natural" environment to its pre-disaster state, much less to some sort of "natural" state, partly because virtually all of it had been significantly transformed by human activity for centuries before the disasters.

Fukushima and Minamata

There are better and worse ways to respond to "natural" disasters, and perhaps Minamata does offer some lessons, positive and negative, to those in a position to decide, and some hints to observers of what we should watch for. The two disasters are not completely different, as some might assume because they see the Higashi Nihon daishinsai as a "natural disaster" and Minamata as manmade. Rather it is the mutual influences of human beings and nature on each other that make natural disasters.

In Tohoku, seawalls and tetrapods were overwhelmed

Earthquakes and tsunamis are dramatic natural processes, but not natural disasters, if they do not affect humans and their built environments. There is really no such thing as a "natural" disaster: only human presence, and human choices and actions and responses, make natural processes into "natural" disasters. Human actions, refracted through the environment of Minamata Bay and the Shiranui Sea, caused Minamata disease. Every part of Japan's March 2011 triple disaster: the earthquake, the tsunami, and the nuclear crisis—faced the consequences it did because of what human beings did before and after the great earthquake. Some of those human actions were failed attempts to protect against disaster, such as the concrete seawalls and tetrapods that lined so much of the shoreline. Others were planning errors, such as the emergency generators and fuel tanks at Fukushima Daiichi that were not placed out of reach of the tsunami.

Anger over Minamata and other major pollution incidents contributed to the flowering of citizen activism in the late 1960s and early 1970s, and helped force the government and the ruling Liberal Democratic Party to become more responsive. The Environment Agency was created. Laws were passed in a Diet session nicknamed the "Pollution Diet" to require meaningful reduction of at least some types of pollution, particularly air pollution. Japanese companies found ways to profit from the need for pollution controls, and consumers became better informed. By the 1990s Minamata was a national leader in recycling. Whether the disasters of 2011 will be a significant turning point, and the nation will redefine itself (perhaps by phasing out nuclear power and becoming more of a global leader in renewable energy), or whether March 11 will merely accelerate the slide of Japan's global relevance and the depopulation and economic decline of its rural northeast Pacific coast, is yet to be seen.

To return to the question of when a disaster can be over: even if we wanted to, we cannot recreate or rebuild the past. Life in Minamata can never revert to what it was in 1932 when the mercury pollution began, or 1956 when Minamata disease was discovered. Minamata Bay will never be like it was then either, since so much of it has been dredged, filled in, and walled. Northeastern Japan, too, and to some extent the nation as a whole, will not be recovering their pre-disaster past but will be creating a new environment, society, and economy. That creation is a constant process, so the question is not when the disaster will be over and its problems solved. The disaster marked an end to many things, but also a beginning. But a beginning to what, we cannot yet say.

Minamata named Japan's "Environmental Capital" in 2011

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Notes

[1] The company's name was Nihon Chisso Hiryō K.K. from its founding in 1908 to 1950, Shin Nihon Chisso Hiryō K.K. until 1965, and Chisso K.K. from 1965, but for simplicity it will be referred to here simply as Chisso.

[2] For the details of the Minamata story, see Timothy S. George, Minamata: Pollution and the Struggle for Democracy in Postwar Japan, (Cambridge, MA: Harvard University Asia Center, 2001).

[3] See Daniel P. Aldrich and Martin Dusinberre (2011), "Hatoko Comes Home: Civil Society and Nuclear Power in Japan." Journal of Asian Studies 70(3): 1-23, for a study of such efforts in the 1980s in Kaminoseki, a town on the Japan Sea that is, ironically, relatively close to Hiroshima.

[4] Quoted in Hiroko Tabuchi (2011), "Japan Courts the Money in Reactors," New York Times, October 10, (link) , accessed October 11, 2011.

[5] See Brett L. Walker, Toxic Archipelago: A History of Industrial Disease in Japan (Seattle: University of Washington Press, 2010).

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