

<http://somatosphere.net/2018/12/risk-is-your-business.html>

Risk is Your Business: Citizen Science after Fukushima

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By Maxime Polleri

I began to sweat profusely when my Geiger counter registered a radiation level of 13 microsieverts per hour—a number that indicated a high level of radioactivity. Worried, I glanced at my guide, Mr. Kan'no. The latter seems unperturbed, replying with a wry smile: “See? I told you the radiation level would be high near the gate!” Mr. Kan'no is not a nuclear scientist, but a farmer from the village of Iitate in the prefecture of Fukushima, Japan. With other villagers, he belongs to a citizen science non-profit organization that aims to revitalize the lives of those affected by the release of harmful radioactive pollutants after the 2011 Fukushima nuclear disaster. In this village, various technological means to measure and analyze the residual radioactivity are helping farmers like Kan'no to see a form of contamination that was not too long ago invisible.



A member of an NPO measuring radiation levels in Iitate, Fukushima.
Photo by the author

In Fukushima, Mr. Kan'no's story is far from unique. Indeed, public skepticism has increased significantly following the release of radioactive contaminants throughout Japan. Notably there was a growing concern over the legitimacy of state institutional experts in their ability to manage and explain the risks of radioactivity after Fukushima. As a result, members of the population have dealt with the risks of radioactive contamination by mobilizing expert practices of their own. In litate, many residents possess Geiger counters, devices that measure an area's current level of radiation, as well as personal dosimeters, wearable devices that record a person's cumulative dose of external radiation. Such widespread grassroots action became epitomized by the creation of citizen science centers, where Japanese citizens collectively track and monitor radioactive contamination.



Monitoring devices like Geiger counters have enabled citizens to measure external levels of radioactive exposure in Fukushima. Photo by the author

While many of these civic efforts have been praised by different scholars as representing a much more democratic endeavor, my own research in Fukushima leads me to believe that there is also a darker side hidden behind the phenomenon of citizen science in post-Fukushima Japan. Citizen science might notably echo a worrisome neoliberal shift in the management of contamination, which exemplifies reduced public expenditure, minimal government intervention, and risk privatization. In this, citizen science can indirectly act as a means through which state agencies delegate the problems of radioactive contamination to the victims

of a nuclear catastrophe.



An abandoned town in Fukushima. Photo by the author

One example of such was made apparent to me during a visit in a radiation monitoring center, situated in the town of Iwaki, Fukushima. There is a strong odor that hits visitors right in the face when the door of this citizen science center opens. Sweet, salty, smoky; the jarring feeling of an aggressive and ever-changing smell. This is the result of the various foods on display waiting to get tested for radioactive contamination levels in the food radiation screening system. The director of the center was a housewife before the disaster. Now, she no longer slices vegetables for supper, but as samples for radioactive measurements. Food monitoring is an activity that keeps the center particularly busy. Currently, the state guarantees the safety of food products on the market. However, since Fukushima is mostly a rural region, much of the food that people bring to the center comes from different sources like personal gardens or forested areas. The center's food testing has revealed an extreme range of contamination. Mushrooms or honey, for example, have had high radiation levels that exceed the allowable state threshold of radiation levels in food. It is against this background that the center was created; as a stopgap measure to fill important voids in government oversight. While testing amidst citizen science centers is usually kept affordable, the intricacies of radioactive testing can become problematic. As an elderly woman from Iwaki explains: "If we want to test food we need to chop everything in small cubes of 1 centimeter for up to a minimum of 500 grams. That's fine

for big root vegetables, but for smaller stuff like garlic cloves or mushrooms it's either too expensive or impossible..." While those tests are made to provide peace of mind to the affected citizens, they do not always consider the expensive amount of foodstuff that needs to be tested. This is money that comes directly out of the pocket of affected citizens, rather than from government interventions for food monitoring.



Many citizen science centers in Japan have scintillation radiation counters that can measure the level of radioactivity in different food products. Photo by the author

Many farmers were also dissatisfied by the state-sponsored radioactive decontamination that is supposed to provide them with a safe environment to pursue life in Fukushima. As an angry local man from Iitate argues: "The government has decontaminated a 20-meter radius around our houses, but they didn't do any kind of follow-up. And every time it rains, the radioactive pollutants in the nearby mountains are washed down and it gets re-contaminated." This is due to the fact that many radioisotopes, like Cesium-137, are very volatile. They move easily and propagate throughout ecosystems. Doubting the effectiveness of the state's management of decontamination, residents of Iitate have gradually devised their own strategies to mitigate the radiation threats.



As a testament to the decontamination projects launched by the government, mountains of black vinyl bags filled with contaminated soil and debris have been left in Fukushima. Photo by the author

During my stay in the village, I witnessed many experiments conducted in rice paddies in order to develop decontamination processes that farmers carry out themselves. Water is first induced into a rice paddy up to 5 cm deep and then mixed with the surface soil using traditional weeding tools. The muddy water is then pushed out using tennis court brushes. During such work farmers are only outfitted with everyday clothing—wearing a pair of rain boots and a straw hat. This is a sharp contrast with the official decontamination workers, who have to wear special outfits to protect themselves against radiation. By being engaged in such activities, which are technically supposed to be restricted to professionals, citizens expose themselves to dangerous radioisotopes, such as Cesium-137 or Strontium-90. If inhaled or ingested these radioisotopes can lead, with various probabilities, to adverse health effects like cancers or reduced immunity.



Citizen scientists tentatively trying to decontaminate a rice paddy field in Iitate, Fukushima. Photo by the author

Recently, the Japanese state has also begun to encourage the endeavor of citizen science in Fukushima. This is notably the case of the [Decontamination Info Plaza](#), a public center where citizens learn to properly manipulate radiation measuring devices. Indeed, measuring radiation levels is still necessary in places like mountains or forest areas, as it is impossible to decontaminate these areas due to the risk of landslides. When I inquired about the fact that mountain and forest areas cannot be decontaminated – hence representing an important risk of exposure – a technical advisor from the center replied with the following: “Well, there won’t be any additional dose if people don’t enter those areas. If they do enter, at least they can measure the levels by themselves, they have the [technical] means to do so.” What the technical advisor fails to mention, however, is that the region of Fukushima is composed of more than 70% of forest and mountainous areas. For many citizens, the joy of living in Fukushima is precisely linked with activities that take place in nature, like hiking or mushroom picking. If they want to pursue these traditions with an ease of mind, they have to purchase expensive monitoring devices. In other words, citizens are becoming responsible for their own safety. In such a context, empowering citizens with monitoring capacities is a mean of shifting some of the state responsibility for ensuring safe living conditions onto the shoulders of the nuclear victims.



Citizens can learn to manipulate radiation monitoring devices in state-sponsored centers. Photo by the author

The grassroots actions described so far could have represented a wonderful opportunity for citizen-government collaboration. For instance, citizens could have merged their local knowledge of contamination in Fukushima with the manpower and resources of the Japanese state. Yet, now that the nuclear disaster is slowly entering its 8th year, we are rather seeing an increased delegation of risk by the state to the citizen. This is best epitomized by the recent governmental decision to retire all radiation monitoring posts in Fukushima. So far, these cylindrical monitoring devices are still visible all over Fukushima. Each post displays the current atmospheric level of radiation on an electronic board, allowing citizens to gage the risk of exposure. When levels are too high, some worried mothers forbid their children to play outside. If these posts are retired, citizen scientists will have to take on the full burden of monitoring. With minimum or inefficient state interventions, citizens looking to lower their exposure will have to do so on their own. Here, risk management becomes a matter of personal business and the responsibility for radiological protection is slowly shifted from the nuclear polluters to the residents, who began to blame themselves, saying things like "I shouldn't have spent so much time in the forest..." or "I shouldn't have eaten those mushrooms..."



Numerous radiation monitoring posts were installed in Fukushima prefecture. Photo by the author

Ultimately, the fact that the Japanese state is now increasingly encouraging and relying on the work of citizens as a strategic and deliberate delegation is problematic. The danger lies in a normalization of risk that produce societies in which self-responsible citizens have to take care of themselves amidst an increasingly polluted environment. In Fukushima, I've seen children wearing dosimeters pinned to their jackets, as one would do with a piece of jewelry. For these children, small monitoring devices were a game; a kind of modern-day *tamagotchi* which taught you about life, but at a more insidious level. In that context, what will be the legacy of citizen science?



A radiation dosimeter small enough to wear around the neck. Photo by the author

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