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Resilience Design and Community Support in Iitate Village in the Aftermath of the Fukushima Daiichi Nuclear Disaster

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Preface

The March 11 2011 accident at the Tokyo Electric Power Company (TEPCO) Fukushima Daiichi Nuclear Power Plant caused radioactive contamination to a number of surrounding villages; among them Iitate village, located approximately 28-45km northwest. With colleagues at Nihon University and NPO Ecology Archiscape, I had worked to support the village administration for around 20 years. Through these pre-existing connections we were able to form the "Iitate support team" only five days after the disaster, on March 16. Since then, we have worked with local government and villagers.

An ecological village through villagers' participation

Iitate village is in average 450m above sea level, and its total area of 230 km^2 comprises nearly 75% of forest and gently rolling farmland. The population is approximately 6,100 people, living in around 1,700 households. For 1985-2004, the local government made a 20-year Plan for the Quality of Life in Villages[1], and gave every settlement within the municipality ¥10 million to carry out environmental improvement, economic activity and exchange activities related to the community plan. For 2005-2016, a new plan[2] was prepared around the theme, *Madei Life*[3], aiming at a harmonious life with nature and agriculture. From 2008, the local government began to implement local production and local consumption (*Chisan Chisho*) of energy; beginning with a biomass-fueled boiler in a nursing home in one village. Our team has developed the Madei Living Center, an energy-saving model eco-house, with the local government. Before the disaster, we had planned that the facility would be run by a newly established community-based non-profit organisation (NPO) in five years.

The radioactive contamination issue

Immediately the nuclear disaster happened, I set up the 'Iitate Support Team' together with the NPO, Ecology Archiscape (EAS). We provided refuge and evacuation and recovery advice to the village and carried out a radioactivity damage situation survey. We cooperated with Dr. Tetsuji Imanaka of Kyoto University, nuclear energy researcher and member of Nuclear Safety Research Group[4] (anti-nuclear power generation group), on March 28 and 29 2011, to carry out an aerial dose rate investigation and soil analysis across the whole village area. Comparable levels of contamination to those after Chernobyl were discovered in the soil analysis for the southern part of the village. We presented these unsettling findings to the village authorities, which refused to show these to the villagers so we published them openly on the EAS website[5].

Based on these measurements, in the beginning of April 2011 we requested urgent evacuation of the residents and decontamination measures for the whole village, from the village mayor and

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the central government. We carried out a radioactive contamination investigation for the whole village territory as well as a public opinion survey of the evacuated villagers, supported by *Makenedo Iitate*, a villagers' action group. Since then we have continued to monitor the radioactive contamination situation. Depending on location, the contamination reduced by over 50% over two years. In July 2013, I also investigated contamination inside homes. I discovered that contamination exceeded 0.6 μSv/h, the levels in the radiation control zone[6] and in homes which suffered high exposure, it remained more than 5 times those levels at the time of writing. Interior contamination is also affected by the contamination of the surrounding forests and differs greatly depending on the specific location. Usually, levels on the second floors were higher than those on the first floor, which differ again from those of the attic and roof. However, despite this radioactive contamination, villagers were still allowed to return for short visits[7]. There is an urgent need to investigate the pollution status of all housing in the village, and decontaminate house interiors. After these measures are implemented, such short visits would be safer.

75% of Iitate is forested. These areas are heavily contaminated with Caesium-137 (half-life, 30 years). The decontamination of the forest is not easy and in our view, the village authorities should not give priority to its decontamination. Instead, priority should be given to evacuation to safe places outside of the village, and the building of new settlements there. The government should acknowledge that it is only safe to return in the long run, when radiation levels have decreased sufficiently.

We suggest developing a long-term plan as well as a long-term support system for recovery. Currently, it is complicated to continue support activity when relations with local government are strained over differences in recognition of the radiation risks. However we continue to work with the authorities. Our support activities are as follows:

(1) Providing information to the village authorities and to the media about radioactive contamination findings, the results of decontamination, and evacuation suggestions;
(2) Collecting donations for local government and villager volunteer groups;
(3) Conducting radioactivity surveys outside and inside of houses with nuclear experts;
(4) Carrying out study sessions on radioactivity and heath risks, and supporting the making of a record book by the *Makenedo Iitate* NPO;
(5) Developing plans for construction of a new, decentralized village, including houses and farmland, and suggesting a long-term, exceptional dual residence system for the evacuated villagers, that allows villagers and their descendants to live in temporary communities in other municipalities and to return to Iitate once radiation has dropped to safe levels - this is achieved through workshops with both villagers of Iitate and local people of those municipalities to where the evacuees were relocated;
(6) Carrying out public opinion surveys of evacuees, and creating strategies for reviving the village;
(7) Holding spring and summer camps for children and families for psychological support, and establishing a self-help group of like-minded mothers to protect children;
(8) Opening artwork shops to facilitate the mental healing of traumatized villagers;
(9) Supporting the establishment of community vegetable gardens near the new temporary housing;
(10) Establishing a villagers' group that seeks to maintain the traditional and unique food

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culture;

(11) Setting up a support room in Fukushima City for the first year after the disaster.

Divided communities and families

The 1,715 households that lived in the village before the disaster had multiplied to 3,094 households by June 2012, and this household separation is still continuing. 90% of Iitate households have evacuated elsewhere within Fukushima prefecture, and Fukushima City, near the village, has provided refuge to 57%. 603 households, or 20%, occupy nine temporary housing sites in Fukushima City and 1,607 households (50%) are living in various dispersed houses and apartments. There are many young households in apartments in Fukushima City paid for by the prefecture. On the other hand, many elderly Iitate residents were allocated to the temporary housing areas, because the young households had evacuated earlier, and when temporary facilities were finally completed mostly elderly households left for them.

The confusion of the villagers between return and permanent evacuation

We investigated the views of the villagers in temporary housing units in early October 2011. 40% of the respondents “wanted to come back to the village” and 70% “might move outside the village.” Some elderly people replied that they felt they did not want to return to a life in which children and grandchildren could not join them because of uncertain health risks. They wanted to live together with their families and preferred to improve the present situation, away from their old homes, rather than to become separated households.

We carried out further surveys of villagers for two years. In October 2012, we surveyed all villagers and obtained answers from 1,366 people, or 28.2% of the population. Over 38% agreed that they would return home when the radiation levels dropped to 1mSv/year – the normal background level - but 21.9% said that they would “never return home.” Only 2.4% agreed with the national government position that under 20mSv/y, the residents are no longer considered as involuntary refugees, showing that many villagers disagree with government assurances.

As to the question of how to decide when to return, the villagers are indicating that they want some self-determination on this issue. Nearly 38% believe the decision to return should be decided by villagers’ vote, and a further 33% think that the decision should be in consultation with villagers. Only 12.4% think the government should decide. If evacuation is prolonged, 37.9% wanted to continue living in the evacuation housing, 30.3% wanted to own a new home outside the village, and 17.3% wanted to live in Public Restoration Housing. Villagers have come to expect a range of measures from authorities. These include compensation negotiations with TEPCO and the national government, long-term health management measures especially for children, thorough decontamination of the site and creation of a reconstruction plan in close consultation with the opinion of villagers.

Community resilience and long-term revival through a dual residence system without immediate return

In 1986, after the nuclear disaster in Chernobyl, the Kremlin enforced an evacuation plan with an

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iron hand in areas exposed to more than 5 mSv/year. In Japan, on the other hand, evacuation measures have been weak. The prospect of successfully decontaminating an area of which more than 70% is covered with forest is slight. Some wisdom and adjustment is necessary to acknowledge the long half-life periods of some radioactive elements in relation to human life spans. Currently, we would rather improve the resilience of family life of the villagers and the community, rather than to attempt a futile decontamination process that might further frustrate survivors if it is inadequate.

What is needed is a project to build new villages. These do not need to be large, but located away from radiation and close to employment opportunities. They should include a school, a nursery school, a space for festivals, a shared farm, factory and market space, where it will be possible for villagers to recreate and develop both life and work. We need a new set of standards for this unprecedented situation in which whole communities have to recover from a nuclear disaster. In my view, this is the right of people whose lives have been disrupted by radioactive contamination. This consists of the following elements:

(1) The right of refuge, the right to a new village outside of the contaminated area, and the right of return to the original village in the future (the ‘three rights’);
(2) In order to secure life-long medical security, all those who are suffering from radiation should be given a “Radiation Victim Health Maintenance Notebook” by the state;
(3) The national government and TEPCO should negotiate the location of an alternative village, settle land lease arrangements and pay for the building of houses. Villagers should be able to have two resident’s cards: one for Iitate and one for the evacuee community. Normally, the residence registration system in Japan is very restrictive and allows only for a single residency.
(4) The alternative village should be built as an eco-model-village, based on renewable energy and traditional agriculture – a ‘Madei life’. When villagers return to Iitate in the future, this temporary village could be re-used as an ecological life education center.
(5) The central government should lease the radioactively polluted Iitate land for 30 to 50 years and TEPCO should pay the villagers lease charges. When the villagers are able to return after successful decontamination in the near future or in the longer-term, or when the natural half-life of radioactive elements has reduced the radiation to safe levels, the government should duly return the land rights to the villagers or their descendants.
(6) The central government should organize land use meetings with the village administration and carry out decontamination and management of the land, and not these areas into dumping grounds for radioactive waste.
(7) Temporary visits to the village should be allowed for managing homes and properties, visiting family graves, or holding traditional festivals.

Conclusion

Through this specific example, I have tried to explain some of the complex and unprecedented issues of decontamination, evacuation, resettlement and return with which many communities around the Fukushima Daiichi nuclear plant are confronted. The village authorities are decontaminating the western part of the village and are intending to create a new ‘smart village’ there. However, the six surveys that we carried out clearly show that villagers, especially

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younger families, have given up hope of returning to the village anytime soon. They hope to live together with their family members, other fellow villagers and friends somewhere where they feel safe. Village authorities should acknowledge this, develop an alternative revival plan with the villagers, and prepare some small, new alternative settlements elsewhere. The authorities should support this process so that villagers have a greater variety of choices than just evacuation, individual resettlement or return. Furthermore, the affected local governments should actively push the policy agenda forward. A new regional plan should include all these provisions for dealing with a nuclear disaster, which has imposed severe long-term implications on the lives of so many people.

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Notes:

1. The 4th Comprehensive Plan.
2. The 5th Comprehensive Plan.
   http://www.vill.iitate.fukushima.jp/groups/kikaku/jousetsu/gojisoukeikaku_vill.html
3. Madei is a local dialect word meaning ‘slowly and carefully’.
4. A member of Nuclear Safety Research Group, Kyoto University.
5. www.ecology-archiscape.org
6. On April 22, 2011, the government designated the 20km radius around the Fukushima Daiichi Nuclear Plant as a restricted area and prohibited entry into the area excluding those engaged in emergency response. At the same time, the government designated 2 more different areas, “deliberate evacuation areas” and “evacuation prepared areas in case of emergency”. Those designations were rearranged on December 26, 2011. Current zoning map is seen at: http://www.meti.go.jp/english/earthquake/nuclear/roadmap/pdf/20130807_01.pdf
7. From May 10 2011.
   http://www.bousai.go.jp/kaigirep/hakusho/h24/bousai2012/html/honbun/1b_1h_2s_02_01.htm