

Preparation of an “Information booklet for returnees” – Building trust through collaboration with local communities

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Received: 30 September 2020 / Accepted: 17

November 2020

Abstract – This paper describes an exercise in helping scientific experts find common ground with local residents following the 2011 Fukushima nuclear accident. The first section discusses the effects of the accident in Iitate Village, which was fully evacuated after the accident, and the village’s sociocultural background, and presents a case study of a collaboration between experts and villagers in preparing an information booklet for the villagers. The second section discusses the potential for collaborations of experts in different disciplines to connect science and people, clarifies what experts learned from such a collaboration, and explains that cross-disciplinary collaboration is essential to avoiding confusion among residents. Concerns and questions from local residents were specific to their situation; residents needed specific information and advice on specific situations at specific times. The residents considered those concerns important and needed answers that would allow them to regain control over their lives. An information booklet was prepared to help local experts to build trust with the residents by providing them with the information they sought. The experts considered the process of developing the booklet to be a good example of collaboration with residents. Understanding the social values of residents, sharing those values, and making a commitment to the community were significant steps in building trust.

Keywords: Stakeholder engagement / risk communication / local knowledge / co-expertise process

1 Introduction

The executive summary of the Fukushima 2017 White Paper by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) stated that “in general, doses were low and that therefore associated risks were also expected to be low” (UNSCEAR, 2017), supporting the conclusion of the Committee’s 2013 report. The 2017 White Paper provided extensive information, including newly available data and literature on radiation levels throughout Japan, radionuclide deposition densities in the environment, radionuclide concentrations in food and drink, and exposure doses to the Japanese public. It also reviewed background information such as population demographics, patterns of food consumption, occupancy factors, location (dose reduction) factors, land use, and protective measures.

However, the words of scientific discourse are not always compatible with people’s lived experience, so radiation is still one of people’s biggest concerns. Referring to the situation in Fukushima, a specialist in radiation wrote: “When it will be safe to return is entirely dependent upon how you define safe. As we’ve learned, the term safe means low risk, and not everyone agrees on what low risk means” (Jorgensen, 2016). This arbitrariness suggests that each of us bases our perception of radiation exposure risk on unique judgments and interpretations (Morioka, 2014; Kusumi *et al.*, 2017). To find a way to bridge science and people, especially those exposed daily to low-dose radiation, experts involved in Fukushima’s recovery need to understand the social, cultural, and historical construct of the reality of affected residents, which influences their perception and interpretation of scientific knowledge.

This paper explores potential intersections between science and people. The first section discusses the effects of the Fukushima nuclear accident in Iitate Village, which was fully evacuated after the accident, including the village’s sociocultural background. Then it moves on to a case study of a

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collaboration between experts and villagers. The second section discusses the potential for collaborations of experts in different disciplines to connect science and people, clarifies what experts learned from such a collaboration, and discusses why such cross-disciplinary collaboration is necessary.

2 Iitate Village after the nuclear accident

Located on the northern Abukuma Plateau, Iitate Village was a small rural village with a population of about 6500 people. In 2010, it was certified as one of “the most beautiful villages in Japan” by a well-known non-profit organization. However, its cool climate is not always friendly to agriculture, and the village economy has always been one of the worst three in the prefecture. But by practicing a concept of “slow life” called *madei* (“respectfully”), which refers to doing everything with care, the villagers fostered a unique community (Chiba and Matsuno, 2012). Some farmers took advantage of the highland location and specialized in raising *Eustoma* and Japanese gentian. Others raised cattle, and their “Iitate Beef” Wagyu brand earned a high-grade evaluation (Sakaino *et al.*, 2011).

However, their *madei* life came to an end, albeit temporarily, when they were forced to evacuate the village after the nuclear accident. The evacuation lasted 6 years. Although the evacuation order was lifted at the end of March 2017 (except in the hamlet of Nagadoro, where the contamination level remained high), the majority of the villagers did not return: some chose to stay in evacuation, others chose to build a new life elsewhere (Kuroda *et al.*, 2018; Crouail *et al.*, 2020).

For the Iitate villagers, the post-accident experience could be divided into three phases: emergency, evacuation (exile), and recovery. The village did not suffer from the earthquake as much as other areas did, and because the village is far inland, the tsunami did not reach it. However, on 30 March 2011, the International Atomic Energy Agency (IAEA) announced that radiation levels in some locales in the village exceeded the IAEA operation criteria and highlighted the lack of an emergency response plan in Japan. In retrospect, it was perhaps this former statement that triggered the declaration of an emergency. It took the Japanese Government more than a month to order a full evacuation of residents from the village: the evacuation order was officially issued on 22 April, and it was not until June that the evacuation was completed. In the meantime, the majority of the residents remained in the village. During this phase, the village became the focus of national and international attention; reporters and experts swarmed into it (Chiba and Matsuno, 2012), but the extent of the radiation exposure and contamination levels in the village remained unclear. With little concrete information, the residents had to make important decisions about their lives by the end of this initial phase without official guidance (Chiba and Matsuno, 2012).

The second phase was the evacuation (exile) period of 6 years. Many villagers were settled into newly built temporary housing called *kasetsu-jutaku* or in government-leased apartments. Some others relocated themselves outside the Fukushima prefecture or built their new houses outside the village to start a new living. It was during this period that critical differences emerged among people—for example, they

came to form to different perceptions of radiation effects and received different amounts of compensation. While both were significant causes for dividing people, the latter was perhaps more sensitive yet definitive reason because it involved money. The payment for mental anguish was a hundred thousand yen a month per person. But the payments to cover loss of housing, land, property, and employment, as well as reimbursement for renting accommodation differed from one person to another. For example, people with property consisting of a new house and large land were able to receive more money than the ones with an old house and small land. Not to mention that those who were renting did not receive this payment. Also, people who were able to continue their work or find a new job during evacuation did not receive the compensation to cover their loss of employment. The tricky part was that one could be willing to be unemployed to be eligible for this payment, while others were working to make money. At the end of March 2017 when the Japanese government lifted their evacuation order, the prefectural government closed free temporary housing and TEPCO ended reimbursement for renting for Iitate Village residents. A year later, TEPCO also stopped paying them for mental anguish.

Evacuation and displacement of people broke not only the physical function of the village community but also the psychological sense of community belonging (Kuroda *et al.*, 2017). Traditionally, this sense of community has been defined as “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through commitment to be together” (Chavis and Pretty, 1999). In the Japanese context, the sense of community is a more emotionally-charged feeling. A Japan-based anthropologist Tom Gill pointed out that “love for one’s home community is an emotion endorsed by the national culture in a similar way to love for one’s mother” (Gill, 2014). For Iitate Village, what represented their rural community was the slow life movement associated with organic farming, healthy life styles and “*madei*” life. In fact, to a great extent the village was successful in establishing an alternative rural lifestyle as opposed to the modern urban lifestyle long before the nuclear accident. However, the concept of this “alternative rural life” was no longer supposed by many Iitate residents as they started enjoy the new convenient life in urban environments (Gill, 2014). Thus, the sense of community was lost somewhere in the reality of prolonged evacuation.

The third phase started at the end of March 2017, when the evacuation order was lifted in most parts of the village. It was meant to be the long-awaited return for the residents, but most did not return. Only about a thousand people returned, most of them elderly. Some had already chosen not to return and had started a new life elsewhere; others could not decide whether or not to return. Meanwhile, many bags of contaminated soil remain piled up across the village, spoiling its beautiful landscape. Although summer grasses grew in the rice fields as before, it was strange to see very few people working there. The village, being more marginalised than before, was in danger of vanishing (Kuroda *et al.*, 2019).

Did residents rebuild their previous slow life in this beautiful village? Many did not, and continue to live in the diaspora, but they do not wish to abandon the village or their

membership of the community (Gill, 2014). In a village-wide survey conducted in 2017, most villagers answered that they wanted to maintain their connection with the village community (Kuroda, 2017a). Although they were forced to make a difficult decision, they were not just victims: many became motivated to build resilience through self-initiated activities.

3 Making sense of the nuclear accident and broken trust

This section discusses the self-determination of the villagers and the responses of experts, which resulted in a collaboration between the two groups. Self-determination was perhaps key to the villagers' resilience under the difficult circumstances after the accident (Ando, 2018; Schneider *et al.*, 2019). For example, under the leadership of Mr Nagasho, a district leader, Ookubo-Yosouchi district began various activities during the second phase. The villagers started holding meetings and organizing study groups to discuss the district's rehabilitation after returning, mowing to protect the district's landscape during visits to the village, and publishing newsletters and a yearbook so that the community members could keep up to date. Also, with the help of external experts in radiation science and medicine, they started measuring radiation – soil contamination and individual doses – in the district.

However, “Radiation is our problem”, said Mr Nagasho. “The fact is, radiation is here to stay in our community. Whether we like it or not, we must get to the bottom of this problem. It's not enough to know the dose in Fukushima city or the village office. We need more specific data in our living space, around the home, in the garden and fields. Also, we must figure out the possible effects. We can't just accept the data measured by experts. We must make sense of it.”

Mr Nagasho thus insisted that villagers need to make sense of scientific knowledge and data in order to make their life decisions. When they do so, they are no longer passive receivers of knowledge or information. Rather, they choose to contribute to the production of knowledge that can affect their lives. This raised the question of how experts can work with them to encourage their self-determination.

After the accident, many external experts in various fields came to Iitate Village (in phase 1) to give lectures and counsel to the villagers (Kuroda, 2017a). Some of them thought that the villagers would lose their anxiety once they were given accurate, expert knowledge about radiation, but this was not always true. The problem was that the experts came with different opinions, and therefore they ended up creating confusion among the villagers and distrust towards experts. In the 2012 survey, more than 60% of respondents answered that “There are too many different opinions and it is difficult to know what is correct” (Kuroda, 2017b). Thus, villagers' trust in experts was weakened.

There were also “local experts” such as public health nurses and local officers who were responsible for public health and welfare in local communities. After the accident, they were at the forefront of risk communication, providing the villagers with health-related advice (Goto *et al.*, 2014). More importantly, not only were they closely involved in the lives of

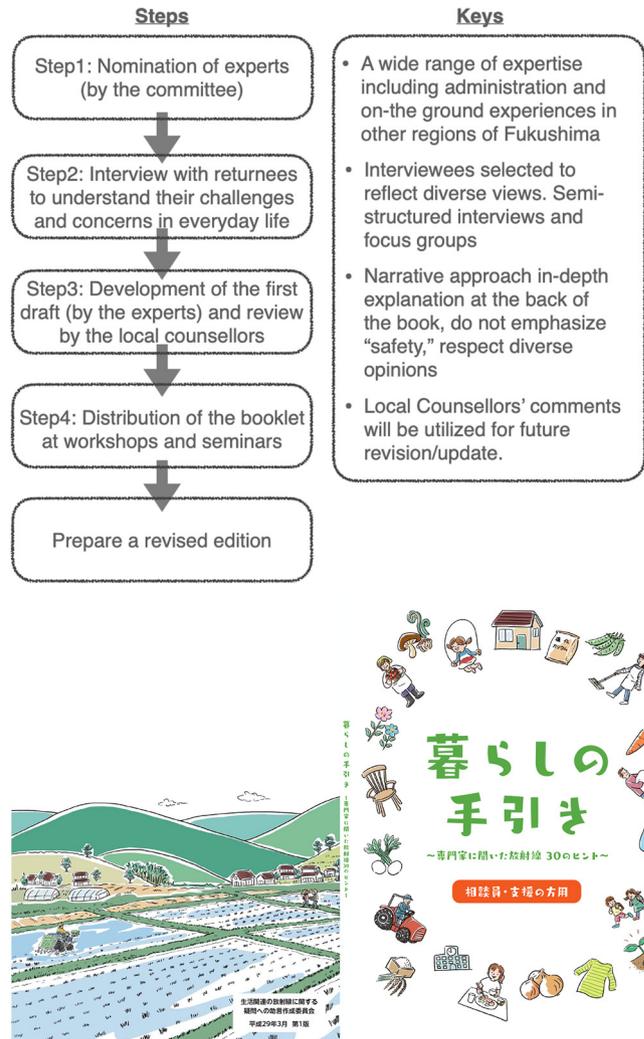


Fig. 1. Making of “Information booklet for returnees” – Steps and key points.

the villagers, they also belonged to the same community, becoming the mediators between the villagers and the outside experts (Inkeles, 1975). But once the former's trust with the latter was broken, risk communication, as well as mediation, became difficult.

4 Creation of an “Information booklet for returnees”

In August 2018 (in phase 3), one of us (YK) facilitated a workshop for the local experts from the towns of Okuma, Iwaki, Futaba, Hirono, Kawauchi, and Minami-soma to share their successes and failures in maintaining social cohesion and to discuss the possible keys to their success. The main key was the trust between experts and residents, but that trust had been broken in these 5 towns. Local experts were struggling to regain the trust of residents. In addition, although there were many books and booklets about nuclear accidents and radiation effects, the local experts needed more specific information to help residents who came with diverse and complex problems,

Table 1. Contents of the booklet: 30 questions.

Preparation period (before evacuation orders are lifted)

Section 1: An elderly couple

1. Is it really safe to live in Iitate [or hometown]?
2. How can I know the radiation exposure of my family and the dose in and around my house?
3. Can I grow vegetables in my garden?

Section 2: A mother

4. I can't make up my mind to return with my children ...
5. What is the effect of radiation on children?
6. Is it true that pediatric thyroid cancer is increasing in Fukushima Prefecture?
7. What should I do if I am concerned about my children?
8. I am concerned about the dose at school or on the way to school ...
9. Are school lunches safe?

Life after returning to the village

Section 3: A homemaker

10. Can I open the window for ventilation?
11. Is it safe to dry laundry and bedding outside?
12. Can I hang persimmons under the eaves to dry?
13. Can I use the furniture I left behind?

Section 4: A farmer

14. Is it safe to work in the fields as before?
15. Why are radioactive materials detected in vegetables?
16. Are some vegetables more likely to be contaminated?
17. When I measured the vegetables, the result was “ND”. What does that mean?
18. My paddy field has been decontaminated; will it become contaminated again by filling it with water from the mountains?
19. Won't rice be contaminated unless the footpaths and waterways are decontaminated?
20. How can I avoid the transfer of radioactive cesium to vegetables or rice?
21. Is it safe to use pooled rainwater?
22. Can I turn fallen leaves into compost?
23. Is it risky to visit forests?
24. Is it safe to raise shiitake mushrooms outdoors?
25. Is it safe to drink milk?

About the future of life

Section 5: Why do we have to keep measuring radiation?

26. Why do we have to measure water, food and internal exposure?
 27. When can I start eating wild herbs and mushrooms I picked in the forest?
 28. Is it safe to drink tap water or well water?
 29. When can we be free of having to measure our exposure?
 30. I want to invite workers from outside Fukushima Prefecture into my workplace. How should I explain about radiation in Iitate [or hometown]?
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as well as guidelines to help them to make decisions on their own. After discussing these problems with Ministry of Environment officials, YK was given an opportunity to create a tool for communication between experts and residents – an “Information booklet for returnees” – which the Ministry agreed to fund. The booklet was also intended to give advice to local experts on how to advise concerned residents on radiation protection.

To begin, YK and a Ministry official nominated various external experts to form a production committee (Fig. 1). We chose experts with a wide range of expertise in areas including radiation protection, mental health, medical care, risk assessment, agriculture, and health literacy. We chose those with on-the-ground experience in Fukushima. Next, YK interviewed 20 villagers who were evacuated. We selected interviewees from a variety of backgrounds to represent the

diversity of the community. The voices of the residents drove the content of the booklet. Next, the committee reviewed the issues and questions brought up in the interviews (Supplements 1-A, 1-B and 1-C). The creation of the booklet began after the evacuation order was lifted at several locations. The committee selected the issues and questions that would meet the residents' concerns at that particular time (Tab. 1). Then, each committee member drafted explanations and advice. Next, after the draft was reviewed by all members of the committee, each expert made revisions. Finally, the booklet was printed and distributed to local experts at workshops and seminars, where we explained how to use it (Fig. 2).

It was important that the various external and local experts were involved in all stages. Their involvement allowed us to regularly discuss concerns and receive their feedback. This process made it possible for us to learn the social values of the



Fig. 2. How to use the booklet – Instructions for readers. (1) When villagers ask you a question, look for similar questions in the booklet. The answers to those questions can be useful; (2) You can ask villagers to read sections that are relevant to their concerns. The booklet can be a communication tool – it can be used to open up in-depth discussions; (3) If villagers have complicated questions or concerns, or you want to know more about the topic yourself, you can refer to the detailed explanations at the end of this book; (4) A toll-free number and a website are provided for local counselors to easily reach us when they have questions or face problems.

local communities; for example, what was important for residents and what they wanted to know. As the evacuation dragged on, their concerns varied widely depending on their situation. Vague general advice proved to be useless: they needed practical and specific advice. What they needed was not advice on how to become experts in radiation science, but advice on how to carry on with their lives after the accident.

The committee was concerned about the residents' distrust of local experts. To help the experts regain this trust, we repeatedly discussed how the advice should be presented. All agreed that the advice was not intended to persuade residents to understand that "it is safe". Convincing them of expert views was not the solution, and the advice needed to go beyond quantitative scientific findings to address the villagers' own narratives. While external experts tend to focus on scientific evidence and quantitative data, villagers are concerned with their own narratives: qualitative data over quantitative data. Such narratives cannot be quantified. Because both scientific evidence and narratives are equally important, we tried to understand what scientific evidence meant in the social and cultural context. For example, we examined which specific activities in their everyday life could have been potential risk of radiation exposure. The first half of the booklet takes a narrative approach, and the second half consists more of quantitative data and science-based explanations.

Each topic corresponds to a specific concern or question raised by residents, and experts provided explanations and advice on the specific situation for a specific phase (Tab. 1). For example, one section features a mother concerned about radiation effects on her child, including the risk of thyroid cancer, the radiation level at school and on the way to school, and the safety of school lunches. Although she is not sure that they should have returned to their hometown, she was pressed to make the decision because her child is about to start school. Another section features a homemaker who has returned to her hometown. As she becomes aware of the radiation contamination around the house, this awareness raises many questions about her everyday living concerning furniture, laundry, cleaning the house, and the like. Another section features a farmer who has returned to his village. He has many concerns about exposure while working in the field, transfer from soil contamination, the effectiveness of decontamination, and so on. He wonders whether he has to change his farming methods completely to adapt to the new situation. These questions are addressed in the booklet. Although they are small and ordinary, and they might seem even trivial, the residents' daily lives are made up of such details. These questions need to be answered for them to regain control over their lives.

The booklet is meant to help the local experts to build trust with villagers by providing them with needed information. The process of creating the booklet is a good example of

collaboration between external experts and villagers by using local experts as intermediaries. Understanding the social values of villagers, sharing those values with them, and making a commitment to the local community were significant steps in building trust. The development of the booklet is not aimed at promoting the return of residents; it is a communication tool that enables residents to regain control of their lives and to make better decisions after a long period of evacuation. Yet it is merely a small step; to make the residents' wishes come true will require continuous and long-term involvement with them and their community.

The Fukushima nuclear disaster affected not only the health of residents but also how the community functions. Because the villagers faced a wide range of issues, a multidisciplinary approach was required to help them to retrieve their lives. Creating the booklet involved many experts from different disciplines as well as the participation of local residents. It was in fact an example of the co-expertizing process (Schneider *et al.*, 2019; Lochard *et al.*, 2020) that has recently been highlighted in the area of radiation protection.

However, there are limitations to this approach. The experts who participated in the development of the booklet recognized that the residents can choose to return but also to regain some aspect of their lives in the area even if they do not return. However, the booklet has not reached those who have not yet returned to their hometown, because counsellors are required by government to support “returnees”. To overcome these limitations, it will be necessary to promote efforts through a collaborative process in cooperation with non-profit organizations that support those who have not returned.

5 Conclusion

The content of the “Information booklet for returnees” and the process of its preparation, as reported at international meetings of the OECD/NEA and the IAEA, have inspired several projects, such as the CODIRPA project (Geysmans *et al.*, 2020). French radiation protection researchers proposed to make a French version of the booklet by using a similar process and by emphasizing the local stakeholder involvement in the process to promote a better understanding of radiation protection. Several reports have also mentioned the importance of stakeholder involvement in the recovery phase after a nuclear disaster (Figueroa, 2013), but few have illustrated the specific procedures. As a part of the making of this booklet, we have shown the process of how we could connect experts with each other, external experts with intermediaries (local experts), and intermediaries with residents. The lessons learned from Fukushima should be taken into account in other countries.

The nuclear power plant accident has changed the lives of many villagers. Nine years has taught that reclaiming daily life is a great challenge. There is no magic solution. But no matter how trivial the problems appear to be, it is important to work on those small things together with villagers in order to help them “make sense” of life after the accident. And perhaps it is the only way to bridge the gap between science and people.

Supplementary Material

Supplement 1-A. Summary of residents' concerns before returning home (preparatory period).

Supplement 1-B. Summary of residents' concerns after returning home (reconstruction period).

Supplement 1-C. Summary of future concerns.

The Supplementary Material is available at <https://www.radioprotection.org/10.1051/radiopro/2020081/olm>.

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Cite this article as: Kuroda Y, Koyama Y, Yoshida H, Naito W. 2020. Preparation of an “Information booklet for returnees” – Building trust through collaboration with local communities. *Radioprotection* 55(4): 309–315