

CEPN

Nuclear Protection Evaluation Centre



ATOMIC BOMB DISEASE INSTITUTE, NAGASAKI UNIVERSITY

**Social Sciences and Humanities
in the management of the recovery process
after the Fukushima accident**

Summary of the May 25, 2024 on-line meeting

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CEPN-R-333 -Sept. 2024

INTRODUCTION

During the ICRP Symposium held in Tokyo (7-9 November 2023) and the Annual Meeting of the Society for Risk Analysis of Japan (SRAJ) held in Sapporo, Japan (11-12 November 2023), a series of discussions with social scientists and Japanese experts highlighted the desire to share on-going reflections on the role of social sciences in the management of the recovery process following the Fukushima accident. In the framework of their formal cooperation, this leads CEPN and Nagasaki University to propose the organization of a workshop devoted to the role of social sciences and humanities in structuring the process of recovery at work in the territories affected by the Fukushima accident.

In order to prepare this workshop an online meeting was held on May 25, 2024, with the participation of 15 scientists (see the list in annex) allowing to get to know each other and to have a first exchange of views on the subject. The programme of this online meeting was divided in three parts (see the detailed programme in annex):

- a series of presentations from CEPN, Nagasaki University, University of Osaka, University of Hokkaido and IRSN to set up the scene;
- a general discussion on the role of social sciences and humanities in the management of the recovery process after Fukushima;
- preliminary proposals for preparing a workshop to be held in October 2024.

This summary highlights the key points presented and discussed during the online meeting.

SUMMARY OF THE PRESENTATIONS

Societal issues associated with the recovery process in Fukushima – Thierry Schneider, Jacques Lochard

This presentation summarizes the contribution and the place of social sciences and humanities in the ICRP Publication 146 (2020) on “Radiological Protection of People and the Environment in the Event of a Large Nuclear Accident”. Drawing on the lessons from the management of the consequences of the Chernobyl and Fukushima accident, ICRP clearly emphasizes that the consequences of an accident are far beyond radiation-induced health effects due to radiological exposures. It is mentioned that an accident has “large and long-lasting societal, environmental, and economic consequences”. In this perspective, it is acknowledged that “the objectives of radiological protection is to mitigate radiological consequences for people and the environment whilst, at the same time, ensuring sustainable living conditions for affected people, suitable working conditions for the responders, and maintaining the quality of the environment”. Then ICRP discusses the societal, economic and psychological consequences as well as the health impacts of changes in lifestyle associated with protective actions.

Beyond the mention of these consequences, the main contribution of this Publication in terms of social sciences and humanities relies on the introduction of the co-expertise process with the role of dialogue, measurements of radiation and local projects to develop the practical radiological protection culture. Lessons from the Fukushima Dialogues initiated in 2011 by ICRP and pursued by the NPO Fukushima Dialogue highlighted that the empowerment of local citizens in the management of the consequences of the Fukushima accident is essential to cope with the human and social dimensions of the accident.

The presentation concludes with a preliminary list of current and future social sciences and humanities issues at stake:

- Rebuild family and community life

- Establish and ensure economic and social sustainability
- Resources allocation, financial support mechanisms
- Decision processes, governance mechanisms for the management of the consequences
- Public health issues
- Dialogue, participation and cooperation
- Ethical considerations

13 years after Fukushima disaster: remaining social issues and academic perspectives – Michio Murakami

This presentation categorizes the progress after the Fukushima disaster and identifies the social challenges that remain. In addition, it provides perspectives that are considered necessary for academic fields. Progress after the Fukushima disaster is categorized into (1) Radiation, (2) Thyroid examination, (3) Environment, (4) Health, (5) Survey pollution, (6) Economy, (7) Communication, (8) Treated water, (9) Decommissioning, (10) Evacuation, lifting, and reconstruction, (11) decontamination, and (12) final disposal. Based on these, the following eight issues are mentioned as those that remain to be addressed:

- Health assessment and support for non-communicable diseases (diabetes, psychological distress, caregiving, well-being) for evacuees, new residents, and decommissioning workers,
- Improvements in the public understanding of the advantages and disadvantages of thyroid examination as well as in the design of its implementation at school,
- System design of how to reduce the size of various tests and health programs based on supply and demand,
- Social systems to accommodate diversity, including new residents,
- Recognition and guidelines to prevent survey pollution,
- Monitoring of treated water and ensuring sustainability of fisheries,
- Decision on how and where to promote final disposal and reclamation,
- Fostering understanding about Fukushima, including radiation effects outside the prefecture and outside the country.

Academic perspectives are summarized in two respects: (a) Multiple dimensions, and (b) Structural changes. Regarding multiple dimensions, the presentation confirms that there are diverse risks, diverse values and stakeholders, and time constraints. It is necessary to deepen the science that enables rapid evaluation of risks and options with diverse values, including various costs, justice, and procedures, as well as discussions among stakeholders based on the results and decision-making that ensures procedural fairness. Regarding structural changes, the presentation highlights that the Fukushima disaster has brought about structural changes as the adverse effect of regulations on people's lives, the population aging and decline, the diversification of having different characteristics of people, and the need to downsize programmes. Fukushima is now experiencing the cutting-edge issues associated with these structural changes that Japan and the world is facing or will face. It is important to spread the science of how to respond to them and to accumulate practical solutions. Furthermore, given the large body of knowledge that is relevant not only to the field of radiation disasters but also to others, it is promising to promote more interdisciplinary and cross-disciplinary integrated knowledge.

Distributive justice and procedural justice in the removed soil issue: process design for dialogue – Susumu Ohnuma

The presentation focuses on the removal soil issue and reports the results of an empirical analysis from the perspective of distributive and procedural justice.

First, a brief history of the removed soil issue is introduced. It is underlined that this issue is a matter of justice, and that residents of Okuma and Futaba towns can be regarded as the least advantaged people. Following that, surveys and experiments are introduced. Two studies notice that distributive justice, particularly inequitable distribution, is critical for public acceptance, while efficiency, a utilitarian way of thinking, did not help encourage public acceptance as it did not affect mitigating inequity. Next, a series of group decision experiments is presented. One experiment reveals that participants unfamiliar with the issue tend to decide to make a point of rationality as utilitarianism and undervalue the consideration for Fukushima residents if they are not provided the information on their narrative and story. The other group experiment indicates that minority opinions are less likely to be reflected when they are discussed in the controversial frame, while participants found a reasonable compromise when discussing in the inclusive frame.

The case study of citizen participation workshops provides insights. Participants express concerns about procedural fairness, discussing both positive and negative aspects of the issue. Overall, they demonstrate a good understanding of the removed soil issue and a willingness to accept the policy. However, a limitation is observed in the Osaka group, where participants are less likely to consider Fukushima residents, possibly due to the geographical distance, requiring perspective-taking.

To help perspective-taking, a gaming specific to the removed soil issue was developed. The results suggest that the more perspective-taking, the more the goal is achieved. It is underlined that perspective-taking is a key to deep understanding and good-quality discussion and decision-making.

Main lessons from IRSN and current topics of interest – Jean-Christophe Gariel, Michael Tichauer, Elsa Gisquet

This presentation highlights the main milestones reached by IRSN in the field of post-accident expertise, with a focus on the social sciences and humanities and the challenges IRSN wishes to tackle in this field.

IRSN has been notably involved in post-accident studies since the Fukushima accident occurred, with a set of studies and research on waste management and decontamination, co-expertise and recovery. It culminated in its participation in the nuclear regulator post-accident policy scheme at the national level. IRSN shows a strong interest in topics which are directly linked with the public decision process on various levels (surveillance, protection of the population and medical countermeasures, post-accident resilience...). As such, a major challenge is to blend SSH with positivist sciences and radiological protection in order to grasp the full extent of the complexity of post-accident situations.

In order to provide an efficient and useful expertise to the public authorities and the population in the aftermath of a nuclear accident, IRSN therefore identifies challenges in the field of:

- Information, mediation and citizen empowerment
- infrastructure sharing between different actors
- preparedness beyond the acute phase of an accident
- continuity of health care and environmental monitoring
- development of a radiological protection culture
- co-expertise and more broadly speaking the role of RP experts in the post-accident situation

- socio-economic consequences of protection regimes opted in by the decision-making system
- epistemological approach to complex, multi layered and multi-dimensional situations as such

These challenges mobilize several disciplines in the field of SSH as well as radiological protection and nuclear sciences. They therefore call to pluri-disciplinary efforts and borderless partnerships. The upcoming workshop which involves a wide array of specialists and SSH researchers, with a strong focus on issues arising from the field, is therefore a tremendous opportunity for seeding a network of professionals who wish to share their work and progress on post-accident situations.

MAIN TOPICS ARISING FROM THE DISCUSSION

The second part of the meeting was dedicated to identifying the current issues at stake in the recovery process and the role of social sciences and humanities to:

- better characterize the situation,
- better understand the social and economic mechanisms,
- and identify possible improvements for the management of the recovery process with a view to preparing for future accidents.

Complexity and human dimensions

Managing the consequences of a nuclear accident is characterized by a prime importance of the human dimensions in addition to the technical issues. Due to the impacts of the accident on the different facets of the daily life, including economic, social, health, environmental, and ethical dimensions, it is necessary to better understand and characterize these human dimensions and to address the complexity of the situation with due considerations on the governance mechanisms to cope with this situation.

Empowerment, co-expertise and dialogue

Empowering citizens and the different stakeholder both in the assessment of the situation and the decision process is crucial for the success of recovery. However, this is not usually discussed neither implemented. It was acknowledged the importance of considering this empowerment in the public decision-making process at the different relevant levels (local, regional, national and even international) and for the different facets of the recovery process. The aim is notably to re-establish the autonomy of affected people following the nuclear accident and to provide them the necessary resources and support.

Developing co-expertise process and setting up dedicated framework to foster and ensure this empowerment have been highlighted. The role of the experts needs to be revisited and specific skills have to be developed, including ethical considerations.

Establishing place of dialogue and securing the rules for a fair participation are also key important features for the success of the recovery process. Investigating the conditions of success for a sustainable participation to the indispensable dialogue must be considered.

Contextualization, testimony and historical perspective

Taking care of the specific context is essential to manage the recovery process. The historical perspective of each community is important and influences the robustness and adequacy of the protective actions or decisions. Due to the complexity of the situation, it is not efficient to only consider radiological issues. The habits and specific socio-economic and historical contexts play a significant role to identify the relevant management options for each community.

In this perspective, relying on testimonies and empowering local citizens are crucial. Experts are not knowledgeable of the specific context and need to discuss and cooperate with local citizens to establish and implement the recovery process. In addition, the training of experts to cope with these situations and the development of framework for the role of experts, including ethical considerations must be addressed.

Power balance and justice

A key point in the recovery process is the balance of power and the sharing of responsibilities between the stakeholders:

- It is worth mentioning that the nuclear accident significantly disturbs the family life, and particularly put pressure of the mothers who are in front line to protect their children. In this context, the empowerment of women in the recovery process is crucial as it was the case following the Chernobyl accident.
- In addition, the involvement of young generations is not straightforward. It appears difficult to embark them although they are directly concerned about the future.
- It is also important to ensure the diversity of stakeholders in the decision-making process, notably by involving people who returned to their homeland, people who are still evacuees and do not want to return, new residents, and people outside the Fukushima Prefecture.

In this reflection on the power balance, it is needed to carefully consider the role and responsibilities of the different stakeholders and to avoid the transfer of responsibilities from the authorities to the citizen within the recovery process. In this perspective, fostering the cooperation process must be investigated.

Compromise versus consensus

Acknowledging the diversity of point of views, both from the different local citizens, the experts and the other stakeholders is essential to restore trust in such a situation. On this basis, due considerations on the difference between consensus and compromise must be addressed for managing the recovery process. Allowing the emergence of a compromise and managing the implementation of the recovery process with this compromise require key ethical values and an adequate governance framework.

Due to the long duration of the recovery process, revisiting regularly the compromise is essential and adapting the recovery process accordingly must be considered. Clear rules and mechanisms must be established to secure such a process.

Holistic approach and sustainable development

Applying holistic approach is essential to cope with the various dimensions of the consequences of the accident and to address the complexity of the recovery process. Investigating the relevant framework for balancing the different factors and identifying the priorities for managing the situation is challenging and may address conceptual issues, including ethical considerations.

Of particular concern is the application of the sustainable development goals and the resilience of the affected territories in the recovery process.

Such developments could be addressed broadly, and not only focused on the consequences of a nuclear accident. Enlarging the reflection with the management of other disasters and other social issues would be beneficial for addressing social sciences and humanities issues.

Politics of science

Prioritization of scientific issues and the way to address them must be considered in a global and historical context. Especially in Japan, articulating the radiological, social and technical consequences of the A-Bombs with the history of the nuclear development and with the management of the consequences of the Fukushima accident covers several aspects related to the politics of science. An epistemological approach to accidents is therefore desirable in order to grasp the socio-political context, the ethics involved and the role of science in the decision-making process.

Better investigating the rationale of expertise in radiological protection may also contribute to improve the understanding of the recovery process and better address the tensions in the decision-making process between the view of experts and decision-makers and the view of citizens. The role of dialogue as well as the limits of such dialogue with a political science angle, and the production of knowledge through citizen sciences are crucial to foster the concertation and the emergence of compromise.

WAY FORWARD

At the end of the online meeting, there was a strong agreement for re-enforcing the contribution of social scientists in the reflection on the recovery process. It was mentioned the need to:

- Draw the lessons on the role of Social Sciences and Humanities so far in the recovery process
- Further investigate the current issues at stake in the recovery process
- Improve the characterization of the situation from the human point of view
- Better understand social and economic mechanisms
- Challenge these issues in light of the different Social Sciences and Humanities disciplines
- Identify possible improvements for the management of the recovery process with a view to preparing for future accidents

For this purpose, the proposal to organize an in-person workshop (with possible hybrid participation) was welcome. The proposed title of the workshop will be: ***Workshop on Social Sciences and Humanities in the management of the recovery process after the Fukushima accident.***

This workshop will be organized by University of Osaka (Michio MURAKAMI), in partnership with CEPN, Nagasaki University, IRSN and ICRP. The proposed dates are ***26-27 October 2024 at Osaka University.*** The envisaged timing is:

- Saturday 26 Oct. from 10:00 am to 6:00 pm (Japan Standard Time)
- Sunday 27 Oct. from 9:00 am to 1:00 pm (Japan Standard Time)

The aim of the workshop will be to further investigate how Social Sciences and Humanities can contribute to the recovery process and then to discuss the possibilities to set up a Social Sciences and Humanities Network on Fukushima issues (including: objective, topics of interest, exchange modalities, dissemination of the research, international cooperation...). Contributions from all participants are welcome.

This workshop will be proposed to the researchers having expressed interest in the topics (see annex) and to enlarge it to young scientists, and to other researchers from Japan and abroad.

ANNEX 1. Agenda of the May 25, 2024 on-line meeting

First part: 2:00 pm – 3:30 pm

- Short introduction by participant (1 minute maximum each)
- Some societal issues associated with the recovery process in Fukushima: Thierry SCHNEIDER (10 minutes)
- Michio MURAKAMI: 13 years after Fukushima disaster: Remaining social issues and academic perspectives (20 minutes)
- Susumu OHNUMA: Distributive and procedural justice in the removed soil issue: Process design for dialogue (20 minutes)
- Institute of Radiation Protection and Safety (IRSN): Main lessons learned from IRSN and current topics of interest: Jean-Christophe Gariel, Michael Tichauer, Elsa Gisquet

Second part: 3:30 pm – 4:30 pm

- General discussion: Moderator Jacques LOCHARD on the role of Social Sciences and Humanities in the management of the recovery process after Fukushima accident and perspectives

Third part: 4:30 pm – 5:00 pm

- Preparation of the Workshop: Moderator Thierry SCHNEIDER
- Organisational aspects: Proposal from Michio MURAKAMI
 - o Dates: 26-27 October 2024
 - o Place: Osaka University
 - o Timing:
 - Saturday 26 Oct. from 10:00 am to 6:00 pm
 - Sunday 27 Oct. from 9:00 am to 1:00 pm
- Programme proposals (tentative)
 - o Summary of the on-line meeting + discussion
 - o How in your respective domain, Social Sciences and Humanities can contribute to the recovery process?
 - o Toward a Social Sciences and Humanities network on Fukushima issues (including: objective, topics of interest, exchange modalities, dissemination of the researches, international cooperation...)

ANNEX 2. List of participants of the May 25, 2024 on-line meeting

- Ryoko Ando – Fukushima Dialogue – koume.k@gmail.com
- Pascal Crouail – Nuclear Protection Evaluation Centre –pascal.crouail@cepn.asso.fr
- Elsa Gisquet – IRSN - elsa.gisquet@irsn.fr
- Pr. Michiaki Kai – Nippon Bunri University, Oita - kaima@nbu.ac.jp
- Jacques Lochard – Nagasaki University – lochard@nagasaki-u.ac.jp
- Kaname Miyahara – F-REI - kanmiyah.x4a@f-rei.go.jp
- Pr. Murakami – Osaka University - michio@cider.osaka-u.ac.jp
- Pr. Ohnuma – Hokkaido University- ohnuma@let.hokudai.ac.jp
- Dr Kyoko Sato - Stanford University kyokos@stanford.edu
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- Michael Tichauer – IRSN - michael.tichauer@irsn.fr
- Pr. Masaharu Tsubokura – Fukushima Medical University - tsubokura_tky@me.com
- Pr. Tsuchida – Kansai University tsuchida@kansai-u.ac.jp
- Pr. Yasutaka – National Institute of Advance Industrial Science and Technology - t.yasutaka@aist.go.jp

Excused:

- Jean-Christophe Gariel – IRSN - jean-christophe.gariel@irsn.fr
- Pr. Aya Goto – Fukushima Medical University - agoto@fmu.ac.jp
- Pr. Igarashi - University of Tsukuba – vyl03222@nifty.com
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- Pr Tomoaki Tamaki – FMU - tamakit@fmu.ac.jp
- Pr. Mikihiro Tanaka - Waseda University (Media, STS) steman@waseda.jp
- Pr. Shunishi Yamashita – FMU & F-REI - shun@nagasaki-u.ac.jp

ANNEX 3. Presentations of the May 25, 2024 on-line meeting

- Thierry SCHNEIDER, Jacques LOCHARD: Some societal issues associated with the recovery process in Fukushima
- Michio MURAKAMI: 13 years after Fukushima disaster: Remaining social issues and academic perspectives
- Susumu OHNUMA: Distributive and procedural justice in the removed soil issue: Process design for dialogue
- Michael TICHAUER, Elsa GISQUET, Jean-Christophe GARIEL: Main lessons learned from IRSN and current topics of interest