

The role of the radiological protection expert in stakeholder involvement in the recovery phase of post-nuclear accident situations: Some lessons from the Fukushima-Daiichi NPP accident

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- Feedback experience from the management of the long-term consequences of the Fukushima-Daiichi NPP has clearly emphasized the importance of local stakeholder involvement, as already highlighted following the Chernobyl accident
- In this context, RP experts has a key role in the development of RP culture and for the implementation of the so-call co-expertise process
- This requires due considerations of ethical issues and governance to address properly the challenges for restoring decent living and working conditions for people living in affected areas

- Key issues of the post-accidental situation for affected populations
- The role of RP experts in the co-expertise process
- Ethical considerations and governance issues

Key issues of the post-accidental situation for affected populations

The context of nuclear post-accidental situation

- Great complexity of the situation
- Lack of experience of people
- Profound disturbances of living conditions in the affected territories
- Multitude of points of view of people confronted with an unknown situation
- Distrust of authorities and experts
- Difficulty to reach a consensus on the way forward

What is at stake in the recovery phase?

- The rehabilitation of **living conditions** of the affected population
- The management of the **radiological situation** in the affected areas
- The long term organisation of the **vigilance** related to the health status of the population

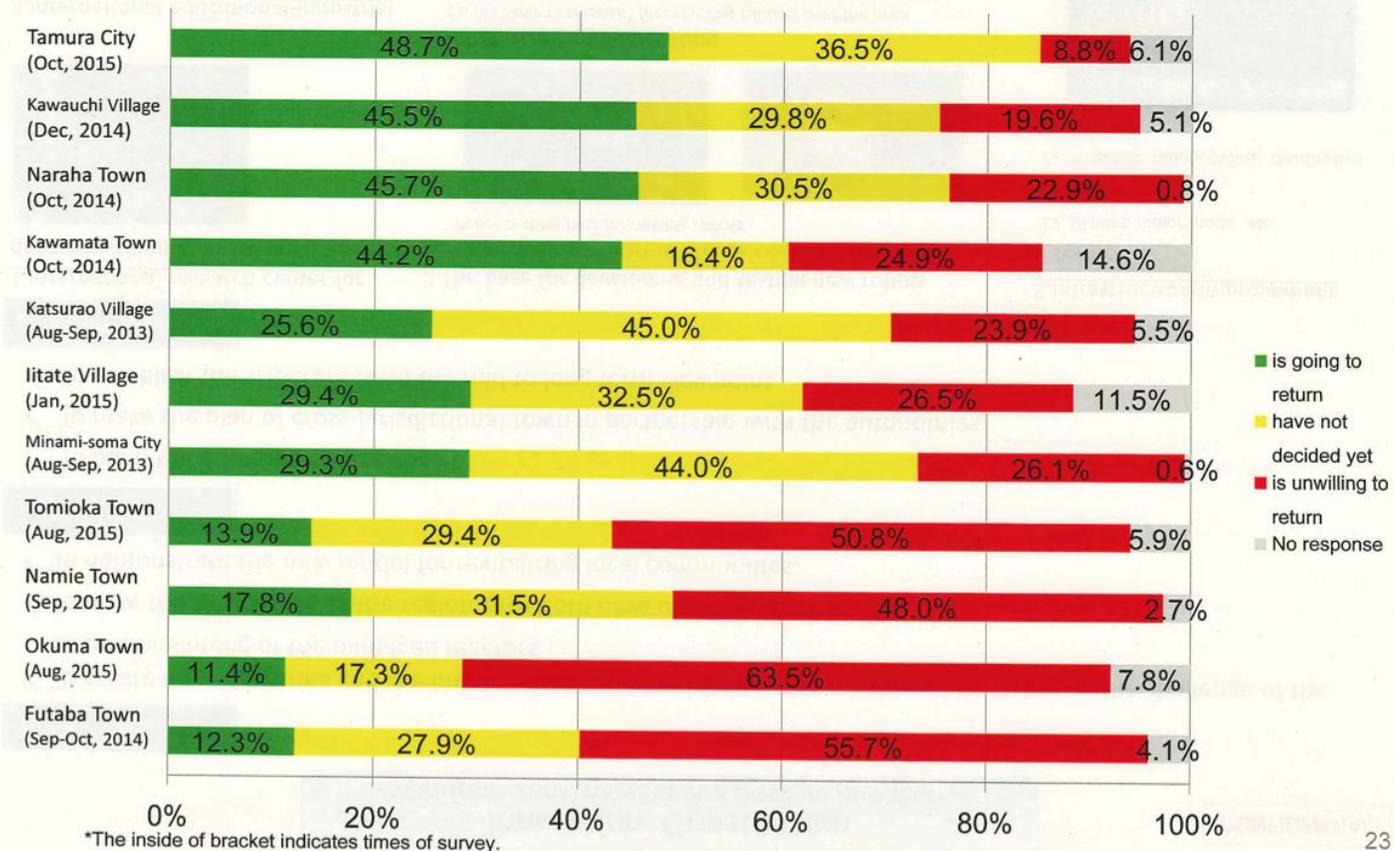
- Key issues at stake:
 - Social and economic activities
 - Well-being of individuals
 - Quality of the living together
 - Traditions and culture
 - Value of homeland and environment
 - Dignity of individuals

Living conditions in temporary houses



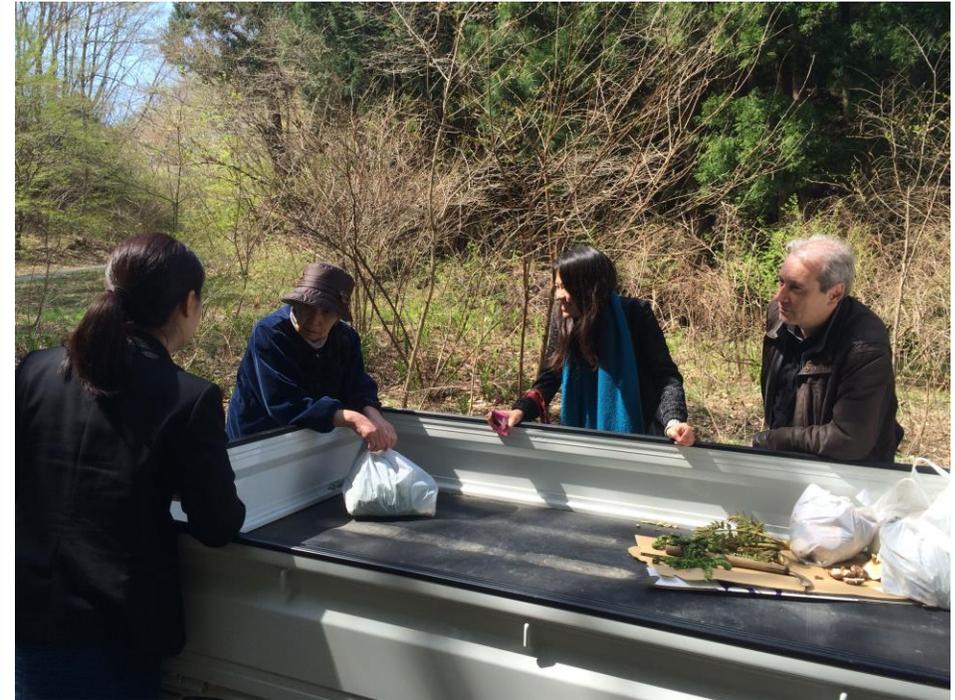
The Survey on the Residents' Will to Return

✓ The survey on the residents' will to return was conducted by Reconstruction Agency, Fukushima Prefecture and each municipalities.



- Key issues at stake:
 - Radiological characterisation
 - Radiation monitoring
 - Control of foodstuffs
 - Support of business
 - Decontamination and waste management
 - Adaptation of agricultural activities
 - Forest management
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Collecting sansei in Kawauchi



Complex waste management

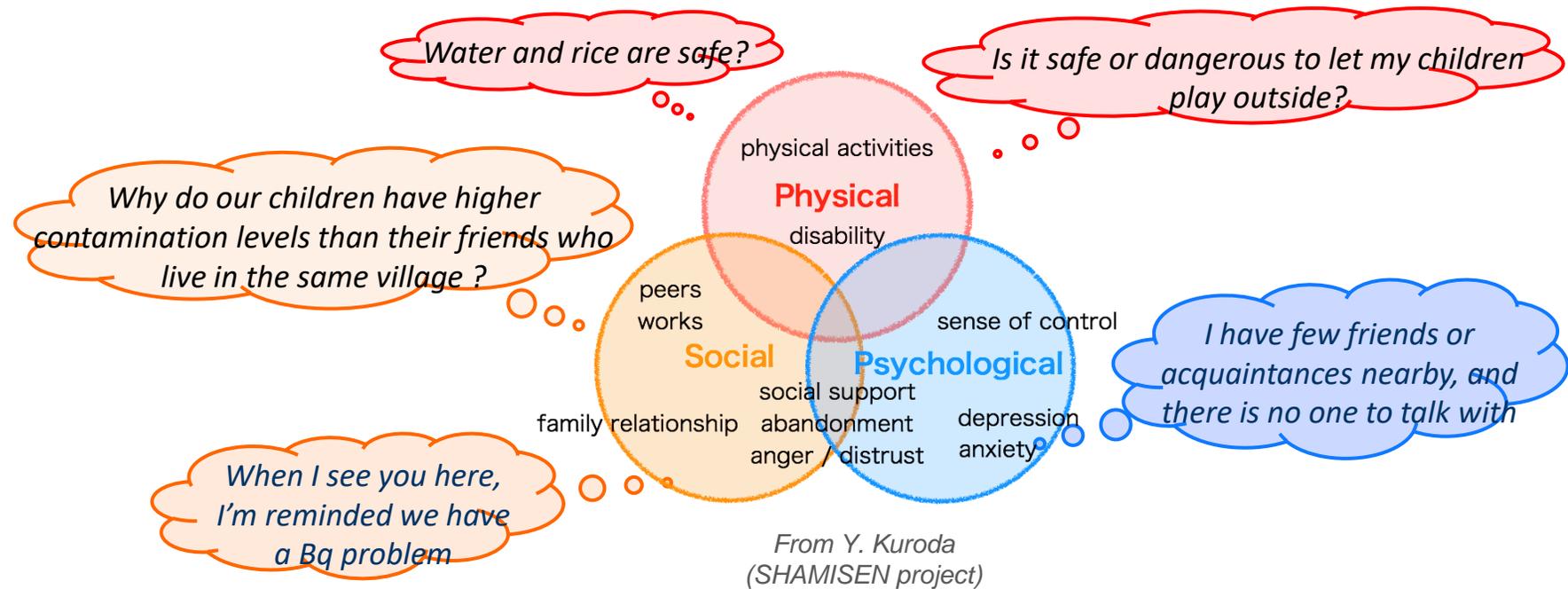


Possible attractiveness for new citizens?



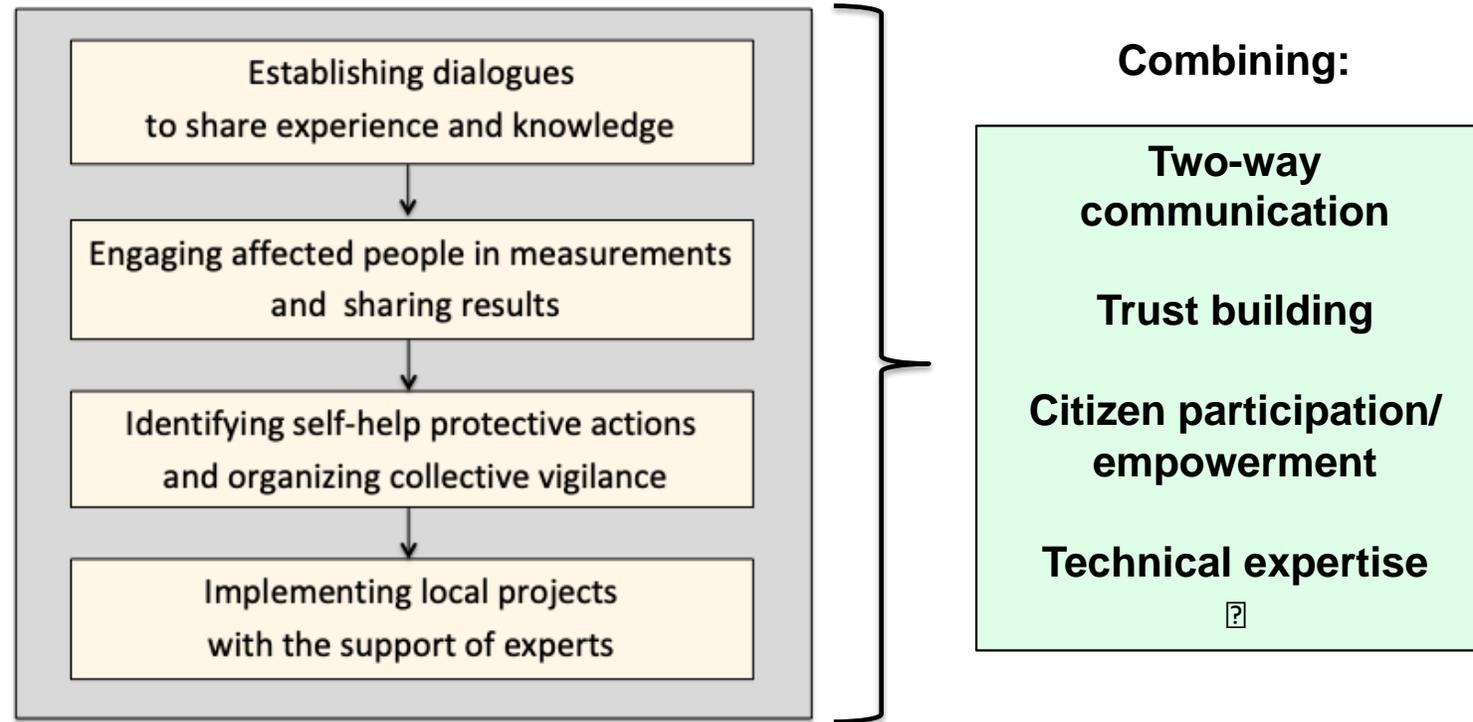
- Key issues at stake:
 - Public health follow-up
 - Epidemiological studies
 - Health care provision
 - Adaptation of the health system
 -

Coping with the various dimensions of health



The role of RP experts in the co-expertise process

- To accompany the rehabilitation of living conditions of the population in the affected territories under the constraint of the presence of radioactivity in the environment and the uncertainty as to its potential effects on health.
- This implies:
 - Serving public authorities (traditional expertise) and affected people (co-expertise)
 - Empowering stakeholders
 - Respecting the ethical values that underpin radiological protection
 - Communicating about radiation risk



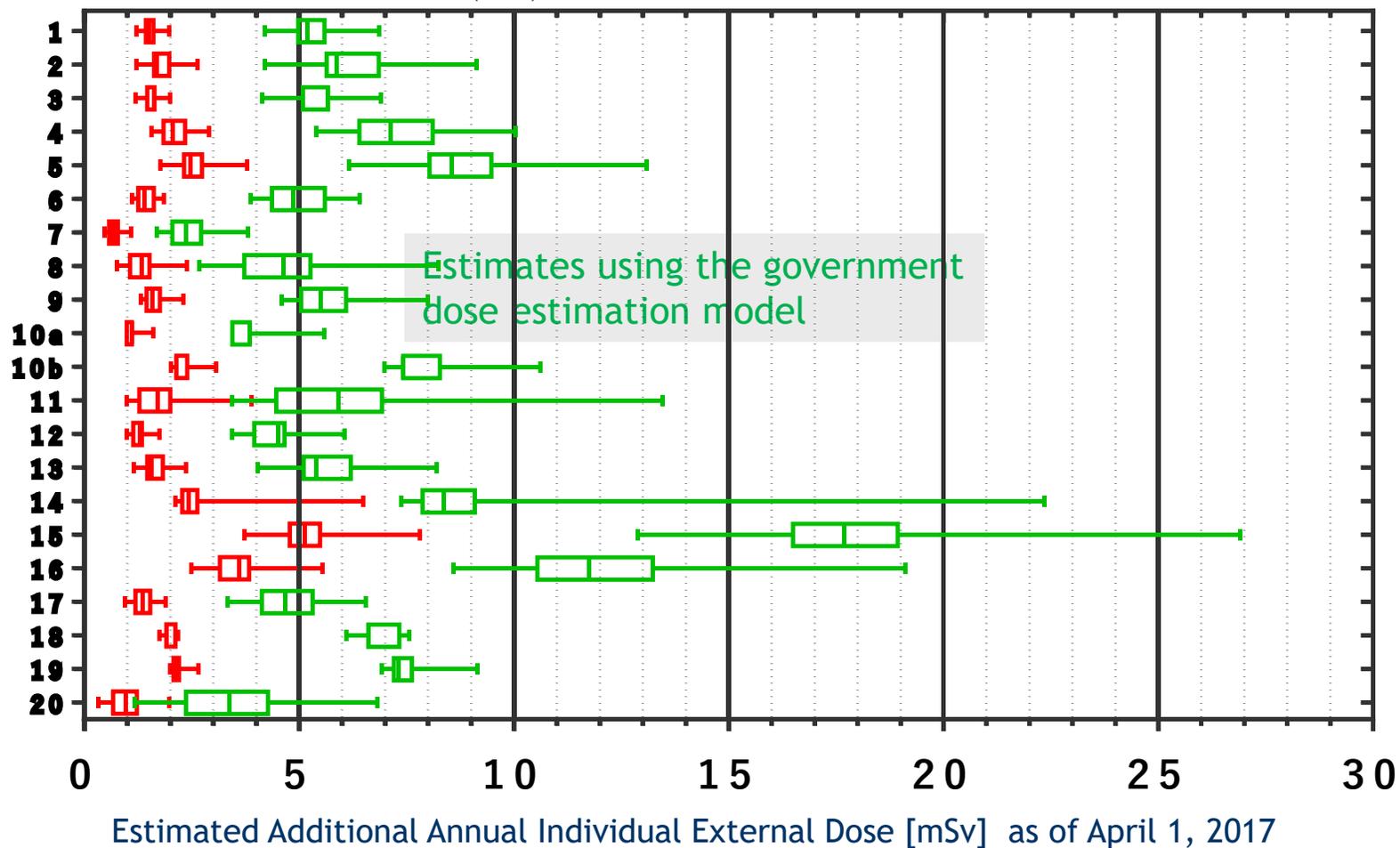
Dialogue, measurements and **local projects** are the three pillars of the co-expertise process

- The empowerment of affected people through their direct engagement in the evaluation of the local situation is the condition for each individual to:
 - Regain control on her/his radiological situation
 - Restore her/his autonomy of decision, her/his freedom to make choices: i.e. to restore her/his dignity
 - Develop a practical radiological protection culture
 - Participate to the decision making processes addressing the rehabilitation of the living conditions

- Measurement is a way of making the invisible and the frightening visible and of giving everyone the keys to understand **where, when and how he/she is exposed** and thus apprehending reality.
- Whether it is those who have decided to stay, those who wish to return or even those who want to come and settle in the affected areas, all must understand the reality they are or will be faced with in order to make **informed decisions**
- Experience has shown that **sharing results** of measurements to discuss and compare individual situations is a powerful means to **identify possible actions** to improve the protection of involved people

Variation of individual dose estimates based on local inhabitants habits from litate

From W. Naito et al., J. Radiol. Prot. 37 (2017) 606



Variation of the order of a factor 4 in comparison with estimates made on the basis of official assumptions (Wataru Naito et al 2017 J. Radiol. Prot. 37 606)

Measuring and sharing information together *Fukushima Prefecture, Suetsugi village, 2013*



The crucial role of local projects

- Importance for the recovery of local projects initiated and led by inhabitants and communities to:
 - Motivate and engage stakeholders
 - Rebuild the quality of living together
 - Revitalize economic and social life
 - Prepare for the future
 - Maintain vigilance
- Need for sustainable mechanisms and resources to support these projects
- Key role of experts to elaborate, evaluate, and accompany the implementation of these local projects together with authorities and concerned stakeholders

About radiation risk communication

- When communicating about radiological risk, experts should:
 - Address properly the prudent approach for managing risk, recognising the assumption of the existence of this risk at low doses
 - Promote protection strategies improving the quality of life taking into account the specific situation
 - Engage dialogue with stakeholders while preserving their autonomy of choice
 - Keep in mind that the issue at stake is not to make people accepting the risk but allowing them to make informed decisions about their life choices and their protection
 - Favour the interaction with stakeholders at the occasion of individual measurements, one of the most effective way to communicate about radiation risk
 - **And never forget that risk communication only works if there is trust**

Involvement of experts with local citizens



Dr. Tsubokura, Minamisoma



Dr. Miyasaki, Suetsugi

Inspection visit by villagers and experts of the Suetsugi decontamination waste storage site



Ethical considerations and governance issues

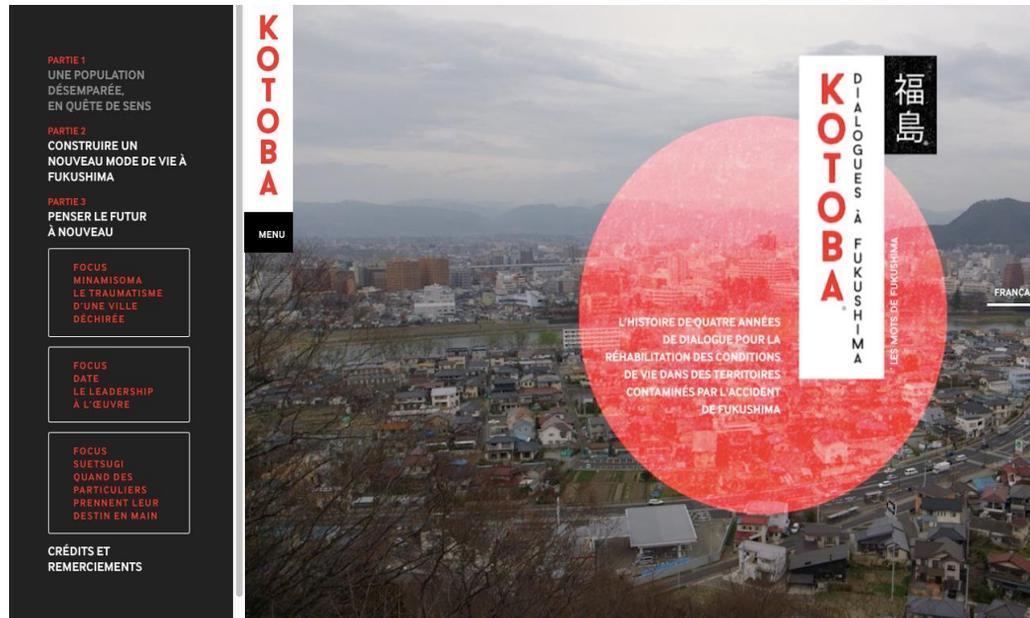
- Developing the co-expertise process while respecting the ethical values structuring radiological protection:
 - **Beneficence and non-maleficence**: promote the well-being of individuals and the quality of living together
 - **Prudence** : promote health surveillance because of scientific uncertainties and public concerns
 - **Justice**: support all those affected by the accident
 - **Dignity**: empower the people concerned so that they regain their autonomy
- Involve stakeholders (**inclusiveness**), in all honesty and openness (**transparency**) and in explaining, justifying, and taking responsibility for the proposed actions (**Accountability**)

The main features of the governance

- The rehabilitation of decent and sustainable living conditions must be based on a '**long term vision of the territory**' co-negotiated between all the actors concerned: national, regional and local authorities, experts, scientists, professionals and of course the people directly affected by the accident
- The challenge is to articulate a **sustainable framework**:
 - The restart of social and economic activities put in the aftermath of the accident
 - The emergence of new and innovative activities in line with the local context
 - The support for local projects led by individuals or communities
- It must also aim at:
 - The **constant improvement of the radiological situation**
 - **The development of education and training to ensure the transmission**
 - **The dissemination of the approach to other communities**

- To be successful the co-expertise process must rely on:
 - An **open dialogue** between all stakeholders
 - **Experts at the service** of the affected people
 - The **empowerment of individuals and local communities** to decide together the values and principles for a common future
 - The **support of authorities**
 - The **respect of individual autonomy**

Thank you for your attention



Webdoc developed by IRSN
https://www.irsn.fr/EN/Kotoba-EN/Pages/Kotoba-EN_Introduction.aspx

Dialogue with citizens
Fukushima Prefecture, Suetsugi village, 2013

- ICRP, 2016. Proceedings of the International Workshop on the Fukushima Dialogue Initiative. Ann. ICRP 45(2S).
- ICRP, 2018. Ethical foundations of the system of radiological protection. ICRP Publication 138. Ann. ICRP 47(1).
- ICRP, 2020. Radiological protection of people and the environment in the event of a large nuclear accident. Publication 146. Ann. ICRP 49 (4).
- Michio Murakami, Akiko Sato, et al. Communicating with residents about risks following the Fukushima nuclear accident. *Asia Pacific Journal of Public Health*. Vol. 29(2S), 2017, 74S–89S
- Noboru Takamura, Makiko Orita *et al.* Recovery from nuclear disaster in Fukushima: collaboration model. *Radiation Protection Dosimetry* (2018),1–4
- Jacques Lochard, Thierry Schneider, *et al.* An overview of the dialogue meetings initiated by ICRP in Japan after the Fukushima accident. *Radioprotection* 2019, 54(2), 87–101
- Schneider T., Maitre M., Lochard J. & al – The role of radiological protection experts in stakeholder involvement in the recovery phase of post-nuclear accident situations: Some lessons from the Fukushima-Daïchi NPP accident. *Radioprotection*, Vol. 54, n° 4 (octobre-décembre 2019), 259-271.
- Oughton D., Liutsko L., Midorikawa S., Pirard P., Schneider T., Tomkiv Y. – An ethical dimension to accident management and health surveillance. *Environment International*, Vol 153, 2021.