
# Outcome from the ICRP Working Party on Business affected by Emergencies

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# GENERAL CONTEXT

## Following the Fukushima accident

- **Significant economic disruptions** with effects extending over years and impacting the whole region of Fukushima and beyond;
- In addition to the direct economic impacts, **socio-economic actors experienced various difficulties;**
- **Lack of technical supports from radiological experts** as business activities have not been broadly considered in the implementation of the RP system.

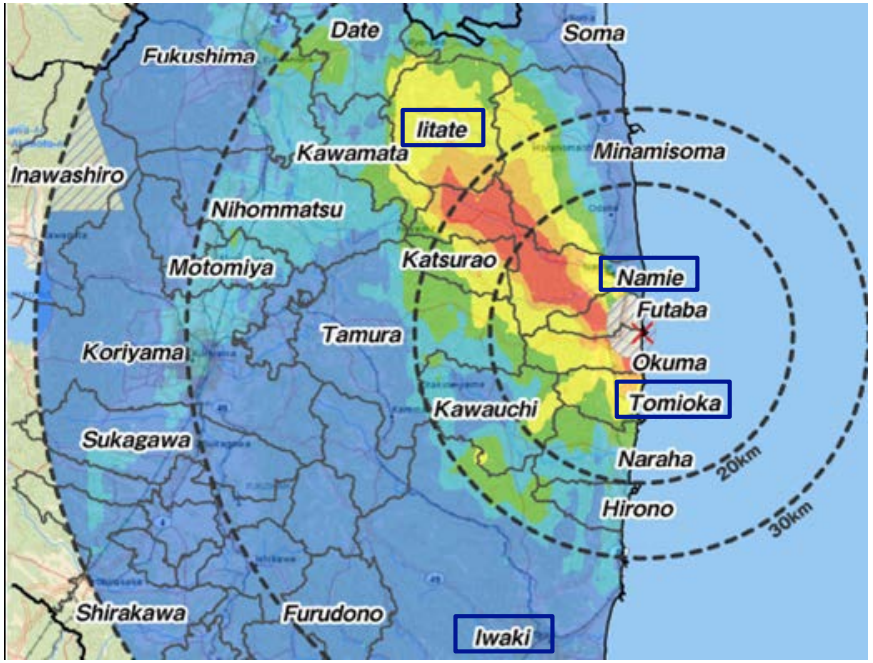
## In 2017, creation of a dedicated working party on 'Business interest', as part of the ICRP C4

# AIM OF THE WORKING PARTY (1/2)

- Elaboration of relevant recommendations to better accompany the economic activities in the implementation of the RP system
- Identification of the main issues at stake for economic activities:
  - **The preservation of their activity**;
  - **The management of employees and their families** in terms of radiological protection;
  - **The quality assurance** process of their products;
  - **The loss of image** of their products and consumer boycott.
- Inputs in the updated version of ICRP Publications 109 & 111

# AIM OF THE WORKING PARTY (2/2)

## Feedback analysis from 6 case-studies:




Iitate – non-evacuated company which was authorized to continue its activity.

Namie – Quarry contaminated during the emergency phase, which had impacts on the long-term phase.

Tomioka – evacuated company whose return had to be managed and organized.

Iwaki – company located on the border of an evacuation zone.

- Case of the forest and the wood sector
- Case of the tourism

# PRESERVATION OF THE ACTIVITY

## Case of a non-evacuated company in Iitate

- Plant producing electronic components decided to **pursue its activity although the village was evacuated.**

## Case of an international company at the border of the evacuation zone, in Iwaki

- **Decision to continue the activity** despite some questioning about RP issues.

## Case of an evacuated company in Tomioka

- To progressively restart the economic activity, agreement to **open the company during the day time** before the lifting of evacuation order.

## Case of the quarry in Namie

- **The quarry was operated until April 22, 2011**, before being declared as part of the evacuated area.

# THE MANAGEMENT OF EMPLOYEES AND THEIR FAMILIES (1/2)

## Case of a non-evacuated company in Iitate

- Key concern of employees about their exposure, not only at their workplace but also in their personal home;
- **Distribution of individual monitoring devices** 2-3 years after the accident.

## Case of an international company at the border of the evacuated zone, in Iwaki

- **No clue on RP issues at the time of the accident**, collaboration with Nagasaki University;
- **Development of a monitoring programme** (e.g. external exposure, WBC, food monitoring) for the workers and their family;
- **Training of health professionals** to be in charge of the long-term follow-up.

# THE MANAGEMENT OF EMPLOYEES AND THEIR FAMILIES (2/2)

## Case of an evacuated company in Tomioka

- **Lack of devices and information** for monitoring the workers;
- Application of the **same radiological criteria than for housing**;
- Support from the trade and industry committee, but **no significant support for radiological protection issues**;
- After the lifting of evacuation order, **provision of individual monitoring devices (D Shuttle) by the municipality office** but nothing for the workers themselves.

# THE QUALITY ASSURANCE PROCESS (1/2)

## Case of a non-evacuated company in Iitate

- Detection of contamination at the time of shipment of the products in the Iwaki harbour;
- Contamination concentrated on transport packages;
- Replacement of packages and **certification of the absence of contamination** for the electronic components.

## Case of the quarry in Namie

- **Heterogeneous contamination** of the materials during the emergency phase;
- Identification of 940 sites having received aggregates from the Namie quarry, causing ambient dose rate up to 1.24 µSv/h in new buildings;
- **Definition of a radiological criteria** for the aggregates shipment: <100 Bq/kg (Cs).

# THE QUALITY ASSURANCE PROCESS (2/2)

## Forest and wood sector

- **Massive contamination of the forest areas**;
- **Multiple uses of wood and forest**: building materials, firewood, paper industry, furnishing and decoration materials, place of leisure, etc.
- **Which radiological protection criteria to apply?** How to **adapt** to the various sectors?
- How to ensure the **traceability** of the materials?

# LOSS OF IMAGE AND CONSUMER BOYCOTT

## Case of an international company at the border of the evacuated zone, in Iwaki

- **Main concern of the international board to avoid boycott** of the product;
- **Pro-active communication and cooperation at the local and international levels** to promote the quality of the management of RP issues, including quality of the production.

## Tourism

- **What support for maintaining/recovering tourism activities?**
- **How to provide understandable information to the tourists** and help them to make informed decision about their venue in affected areas?

# CHALLENGES FOR THE IMPLEMENTATION OF THE RP SYSTEM (1/2)

## Some considerations on the RP principles

- Justification
  - Maintenance/recovery of economic activities in evacuated areas?
  - Marketing of products and use of a contaminated environment?
- Optimisation
  - Need to characterize the radiological situation and to set up **reference levels** allowing (i) life/work in contaminated areas and (ii) sale of products from contaminated areas.
  - What evolution of the reference levels over time?

## Management of workers following a nuclear accident

- **Which information and training to provide to the workers** and what is the employer's responsibility?
- Key role of the RP culture.

# CHALLENGES FOR THE IMPLEMENTATION OF THE RP SYSTEM (2/2)

## A necessary radiological monitoring/surveillance

- for **protecting the public** notably concerning the use/consumption of products from the contaminated areas;
- for **workplace management**;
- for **health surveillance of employees**.

## Ethical considerations

- Ensure **access to information** for all the concerned actors and promote informed decision-making processes;
- Undertake a **joint assessment of the situation** involving all stakeholders;
- Organize the **long-term vigilance**;
- Ensure **fair arrangements** between the different affected areas, the different publics, etc.

# HOW TO BE BETTER PREPARED? (1/2)

## Some recommendations from the CONFIDENCE European research project

**Further develop decision support tools integrating potential economic impacts of protection strategies**

- Based on feedback analyses, develop models to calculate direct and indirect costs and further elaborate risk / benefit analysis elements for various sets of rehabilitation scenarios taking into account local and national sensitive issues.

**Consider the needs of socio-economic actors to promote early resumption of economic activities**

- Based on practical case studies, discuss with local socio-economic actors to gather their expectations and needs to resume their activities rapidly after a nuclear accident.

# HOW TO BE BETTER PREPARED? (2/2)

## Some recommendations from the TERRITORIES European research project

**Engage dialogue with local stakeholders to better address the notion of "affected community" and anticipate post-accident provisions**

- Initiate a local-national multi-actor dialogue to identify the socio-economic issues of the potentially impacted regions and see how to adapt protection strategies in accordance with the local vulnerabilities and local needs.

**Better understand the financial mechanisms that can help the affected community**

- Review existing financial support mechanisms allocated to compensation and revitalisation and analyse, together with the socio-economic actors, the relevance of these financial mechanisms with the local challenges.

# THANK YOU FOR YOUR ATTENTION!