

Enhancing On-Site Inspection Capabilities Under the CTBT: Integrating Lessons from the Co-Expertise Process in Radiological Risk Communication and Stakeholder Engagement

THU ZAR WIN

Graduate School of Biomedical Sciences, Atomic Bomb Disease Institute, Nagasaki University, Japan



INTRODUCTION AND MAIN RESULTS

On-Site Inspections (OSIs) under the **CTBT** may face radiological concerns where trust is as vital as data. Lessons from **Chernobyl** and **Fukushima** show that **dialogue, participatory monitoring, and transparency foster cooperation**.

Applying **co-expertise process** plus digital tools and AI enhances awareness, trust, and credibility, making OSIs more effective and resilient.



Introduction

On-Site Inspections (OSIs) under the CTBT may face radiological concerns beyond technical verification. Past nuclear accidents (Chernobyl, Fukushima) showed:

- One-way communication of radiation data was not enough.
- Trust and cooperation depended on stakeholder involvement.

One-way communication was insufficient.

The co-expertise process: **structured dialogue, participatory monitoring, and trust-building.**

Aim: Adapt these methods to improve OSI training and field practice.

Methods

Reviewed co-expertise lessons from nuclear accident recovery.

- Identified **practices** relevant to **OSI**:
- **Structured dialogue** with stakeholders
- Participatory **radiation monitoring**

Transparent communication strategies

Explored use of digital tools & AI for real-time, interactive risk assessment.

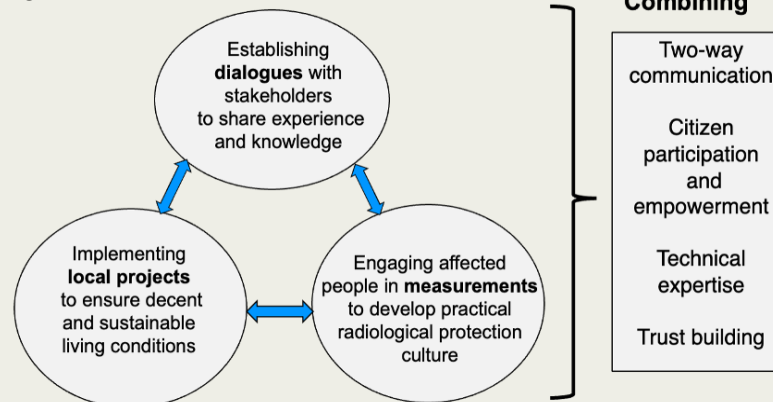
DISCLAIMER The views expressed are those of the author(s) and do not necessarily reflect those of the CTBTO Preparatory Commission.

Main Results

- **Improved situational awareness** through local input + joint monitoring.
- **Trust & cooperation** grew with transparent communication.
- **Risk fears reduced** when stakeholders engaged directly in monitoring.
- **Digital/AI tools** enabled fast, clear data visualization and analysis.
- **Training & protocols** can embed stakeholder engagement into OSIs.

THE CO-EXPERTISE PROCESS

Key elements of the process include its theoretical and methodological foundations: risk assessment, risk management, risk perception, risk communication and risk governance.

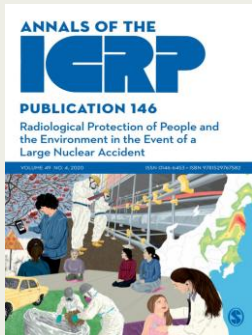


THE THREE PILLARS OF THE CO-EXPERTISE PROCESS

Conclusions

Co-expertise process is the abbreviation of 'co-operation between experts and stakeholders.'

The **co-expertise process**, recommended by the International Commission on Radiological Protection (ICRP), supports affected populations in **understanding radiological risks and making informed decisions.**



Combining **co-expertise** with **digital tools** makes OSIs:

- More **effective** technically
- More **credible** socially
- More **resilient** operationally

Builds trust, cooperation, and confidence in CTBT verification outcomes.

References:

- ICRP, Radiological protection of people after a large nuclear accident, ICRP Publication 146, 2020.
- Lochard J. et al., The co-expertise process after Fukushima, Radioprotection 55(HS1), 2020.
- Thu Zar W. et al., Risk communication after nuclear accidents: co-expertise lessons, Radioprotection 57(4), 2022.
- CTBTO (2024) On-Site Inspection Techniques.