


RICOMET 2018

Decision-making processes in post-accidental situations: manifestation of uncertainty

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D 9.65 – Decision processes/pathways


TERRITORIES: Synthesis report of CONCERT sub-task 9.3.3.1

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Reviewed by CONCERT coordination team

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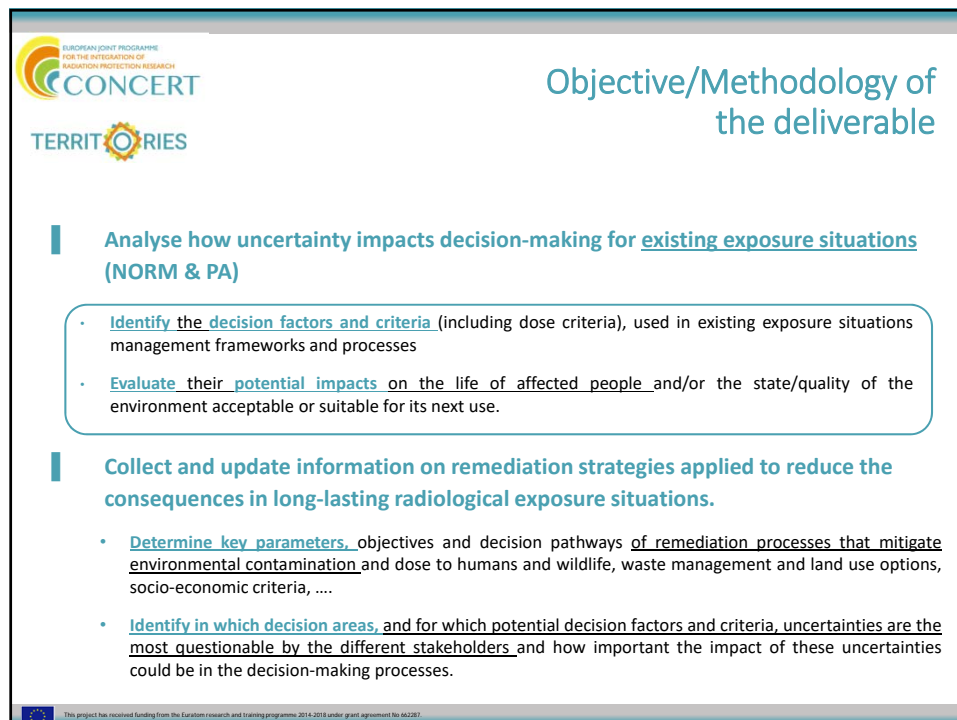
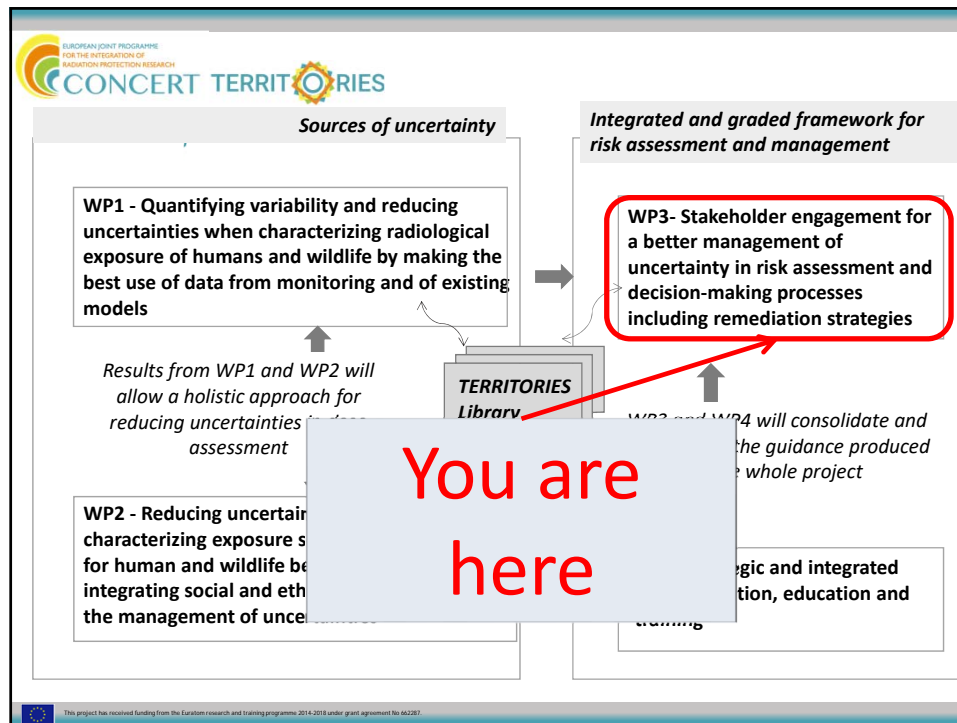




TERRITORIES objectives



TERRITORIES = To Enhance uncertainties Reduction and stakeholders Involvement Towards integrated and graded Risk management of humans and wildlife In long-lasting radiological Exposure Situations


- To fill the requirements that emerged after the recent Fukushima experience and the publication of International and European Basic Safety Standards [building upon a background: previous research experience; guidelines and recommendations]
- To reduce uncertainties to a level that can be considered fit-for-purpose (graded approach)
- To bridge NORM vs post-accident (after transition phase), monitoring vs modelling, human vs wildlife population, experts vs decision makers vs the general public in management (integrated approach)

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 	Content of the Deliverable
INTRODUCTION	<ul style="list-style-type: none"> • 7 different teams: CIEMAT, SCKCEN, CEPN, MUTADIS, NRPA, Univ-Tartu, IRSN.... • Multi disciplinary skills: social sciences, radioprotection, radioecology, metrology....
PART 1: REVIEW OF LITERATURE FROM INTERNATIONAL, EUROPEAN AND NATIONAL BODIES	
<ol style="list-style-type: none"> 1. POST-ACCIDENT SITUATIONS 2. CONTAMINATION WITH NATURAL RADIONUCLIDES 	
PART 2: INSIGHTS ON PAST EXPERIENCES OF POST-NUCLEAR ACCIDENT SITUATIONS AND ANALYSIS OF RELATED UNCERTAINTIES	
<ol style="list-style-type: none"> 1. FEEDBACKS FROM PAST EXPERIENCES 2. Manifestation of uncertainty in post-accidental context 	
PART 3: INSIGHTS ON NORM CONTAMINATION SITUATIONS AND ANALYSIS OF RELATED UNCERTAINTIES	<ul style="list-style-type: none"> • Multi disciplinary skills: social sciences, radioprotection, radioecology, metrology....
PART 4: TRANSVERSAL ISSUES: UNCERTAINTY MANAGEMENT IN THE CONTEXT OF EXISTING EXPOSURE SITUATIONS	
PART 5: PRELIMINARY UNDERSTANDING OF THE WAY THE MANAGEMENT OF UNCERTAINTY COMES INTO PLAY WITHIN THE OVERALL MANAGEMENT OF EXISTING EXPOSURE SITUATION	

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<p>Existing exposure situations: result from sources that already exists and where a decision to control needs to be made</p> <ul style="list-style-type: none"> • <u>Post-accident rehabilitation situations and exposures from natural sources</u> are considered as existing exposure situations 											
<p>Wide range of stakeholders are involved (local communities, public, authorities, experts, etc.)</p>											
<p>Uncertainties: refer to any situation for which a fact/data/phenomenon or their causes or consequences are not known with certainty by a specific actor in her/his decision context ; embracing many aspects: social, economic, environmental, health, etc.</p>											
<p>Management of existing exposure situations clearly raise various uncertainties</p> <p>Exposure scenarios, radiological impact assessments, reactions of affected population, future of the territories..</p>											



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TERRITORIES

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1. POST-ACCIDENT SITUATIONS
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2. **Manifestation of uncertainty in post-accidental context**

PART 3: INSIGHTS ON NORM CONTAMINATION SITUATIONS AND ANALYSIS OF RELATED UNCERTAINTIES


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PART 5: PRELIMINARY UNDERSTANDING OF THE WAY THE MANAGEMENT OF UNCERTAINTY COMES INTO PLAY WITHIN THE OVERALL MANAGEMENT OF EXISTING EXPOSURE SITUATION

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MANIFESTATION OF UNCERTAINTY IN POST-ACCIDENTAL CONTEXT



I Feedback from past experiences



- Illustrations from post-**Chernobyl** situation
- Illustrations from post-**Fukushima** situation
- Kazakhstan case study – **Semipalatinsk** Test site



I Uncertainties identify

- Radiological characterization and impact assessment
- Zoning the affected areas
- Feasibility and effectiveness of the remediation options
- Short and long-term health consequences
- Socio-economic and financial aspects
- Quality of future life in the territory
- Social distrust

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MANIFESTATION OF UNCERTAINTY IN POST-ACCIDENTAL CONTEXT - EXAMPLES

I Zoning of affected areas



Post-accident radiological characterization in terms of contamination of areas and projected exposures define the zoning of the affected areas ; useful for decision-makers to :

- Define role of the various stakeholders (state departments, municipalities, population, etc.)
- Prioritize radiological protection and recovery actions : design allocation of resources, health surveillance, information and communication efforts, etc.

→ Can lead to uncertainties, :

- **discrimination and stigmatization effects of affected communities** (Create black and white stereotypes)
- Engenders a sense of unfairness and **generates serious doubts about recommendations** "you can/ should not stay or return", "you can/should not drink water and eat food"
- **May leads to inappropriate countermeasure** : evacuation order on too large (over estimation of the dose) or too small areas (under estimation of the dose)

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MANIFESTATION OF UNCERTAINTY IN POST-ACCIDENTAL CONTEXT - EXAMPLE



I Feasibility and effectiveness of the remediation options

Definition of a remediation strategy is one of the key element to try to reduce the exposure of the population. It requires to define criteria that can not be based only on "radiological" criteria

→ Many uncertainties can challenge this strategy such as the management of wastes

- whatever the remediation strategy chosen ; **the radioactive waste management activities exceed the states capabilities** (japan 20 millions m³ → 10 000 olympics pools of 2500 m³ → 20 to 40 billions euros for the Fukushima prefecture). 
- **Evolution of the waste management laws and rules (threshold values)** with use of conventional installations to treat contaminated LL contaminated wastes and potential reuse or recycle of contaminated waste (Japan) ? 
- **No adapted disposals adapted to their dangerousness of HL contaminated waste** , implementation of temporary disposals which stay in place longer than expected (*lack of funds, strong local opposition, etc.*)

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CONCLUSION: WP3

How to implement these first results ?

Radiological characterization and impact assessment

Zoning of affected areas

Feasibility and effectiveness of the remediation options


Socio-economic and financial aspects

Health consequences

Quality of future life in the territory

Social distrust

- Transversal issues identify: uncertainties may be of different importance depending on the considered stakeholder(s), the evolution over time (at after the beginning of the situation), and the modalities of governance.
- These first results need to be implement within stakeholders panels and through different methodologies by the TERRITORIES partners.

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CONCLUSION: TERRITORIES

- TERRITORIES will produce recommendations and guidance
 - For reducing sampling uncertainty in field characterization,
 - For selecting fit-for-purpose level of model complexity,
 - For quantifying improvement in models,
 - For reducing uncertainties related to the exposure scenarios,
 - For integrating social and ethical considerations,
 - For managing existing situations NORM/post-accident
- They will be discussed/disseminated:
 - On the web:
 - TERRITORIES Website: <http://territories.eu>
 - TERRITORIES Blog: <https://territoriesweb.wordpress.com/>
 - CONCERT Website: <http://www.concert-h2020.eu/>
 - During events:
 - Workshops
 - Final Event in October 2019

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