Participating countries

• Austria
• Belgium
• Brazil
• Canada
• Finland
• France
• Germany
• Italy
• Norway
• Sweden
Objective:
Explore the concept of environmental sensitivity in rural and semi-natural environments in the framework of assessments after an emergency situation

Main tasks:
• Clarify the concept of environmental sensitivity
• Compile a list of sensitivity factors
• Design scenarios
• Carry out modelling exercises
<table>
<thead>
<tr>
<th>Task</th>
<th>Deadline</th>
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<tbody>
<tr>
<td>Review of the concept of environmental sensitivity</td>
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<tr>
<td>Literature review</td>
<td>June 2009</td>
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<tr>
<td>Draft concept document</td>
<td>November 2009</td>
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<tr>
<td>List of environmental sensitivity factors</td>
<td></td>
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<tr>
<td>Initial list</td>
<td>January 2010</td>
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<tr>
<td>Final list</td>
<td>2011</td>
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<td>Scenario Development</td>
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<tr>
<td>Design</td>
<td>January 2010</td>
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<td>Modelling exercises</td>
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<tr>
<td>Model results completion</td>
<td>End 2010</td>
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<tr>
<td>Analysis of model results</td>
<td>June 2011</td>
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<tr>
<td>Final report</td>
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<tr>
<td>Preparation of final report</td>
<td>End 2011</td>
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</table>
What is meant by environmental (or radioecological) sensitivity?

“The relation between the response of a particular environmental component to a given stress, and the severity of that stress.” [Buckley 1982]

ES  = Measure of an environmental effect
     Measure of an external stimulus
Factors that can affect or alter sensitivity

- Environmental pathways
- Variation in environmental characteristics
- Habits (dietary etc.)
- Ecosystem response or community countermeasures
Benefits of environmental sensitivity modelling

- **Risk management & decision-making**
  - Emergency planning and preparedness for existing installations
    - Identification of areas that may be particularly sensitive
    - Development of standard response scenarios
    - Land-use planning
  - Emergency response
    - Strategic overview of potentially affected territory
    - Priority setting for resource allocation in the management of contaminated territories
  - Decision aid for the location of new installations
Model uncertainty and sensitivity analysis

- **Uncertainty analysis:**
  - where the greatest uncertainty lies in the model and which parameter estimates need to be improved in order to achieve better predictions

- **Sensitivity analysis:**
  - which environmental parameters are most “responsible” for ecosystem sensitivity and can thus lead to higher doses
Focus is on non-urban environments

• Agricultural
• Temperate forest
• Alpine
• Arctic
• Tropical (?)
Source term

• Start with the same radionuclide deposition per unit area in different environments
• Use a suite of radionuclides to determine which ones are most important in the different environments
• Field measurements of deposition following the Chernobyl accident could be one starting point.
Time frame of deposition

• The deposition event must be short-term, since we are modelling accident scenarios
• We may want to look at the same deposition during different seasons of the year
• We need to look at the long term effects (weeks, months, years, decades?) after the deposition event
Environmental compartments

• Abiotic
  – Water bodies
  – Soil
  – Sediments
  – Air (re-suspension)?

• Biotic
  – Plants
  – Animals
  – Humans
Endpoints

• Radionuclide concentrations in selected abiotic and biotic compartments
• Doses to non-human biota
• Doses to humans
Tentative agenda for WG 8

Monday 25 January
09:30 – 13:00  Opening Plenary
14:00 – 17:30  Presentation of models and concepts

Tuesday 26 January
09:30 – 17:00  Presentation of models and concepts (cont)

Wednesday 27 January
09:00 – 12:00  Plenary
13:00 – 17:00  Discussion and design of scenarios

Thursday 28 January
09:30 – 17:00  Design of scenarios (continued)

Friday 29 January
09:00 – 13:00  Closing Plenary