IAEA 1st CG-Meeting on Radiation Protection of the Environment
Vienna, January 16-17, 2006

EC-RTD FP 5 & 6 Activities on Radiation Protection of the Environment

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Research is carried out in the EU as part of the Research & Training programme on “Nuclear Energy” within the Framework Programme of European Atomic Energy Community (EURATOM).

It contributes to Fission Energy & Radiation Protection research topics; emphasis is changing with Framework Programme activities.

Current Framework Programme (FP6) activities are:
* Management of Radioactive Waste
* Radiation Protection
* Other activities in the field of nuclear technology & safety
Radiation Protection Research
Radioecology FP4 & 5

- EC funded projects:
  ~ 33 projects with a Community contribution of ~ 18 M€
- Objectives:
  - Improved understanding and modelling of the behaviour and impact of radionuclides in various environments (terrestrial & aquatic)
  - Software packages for environmental decision support (EDS) systems for remediation and counter measurements
  - Protection of the environment
    * provide the conceptual, methodological & scientific basis for policy/standards development
Radiation Protection Research

Protection of the environment FP5

FASSET project (http://www.ERICA-project.org)

- Launched in Nov. 2000 & coordinated by SSI, SE, involved 15 organisations in 7 European countries
- Developed a framework for assessment of environmental impact of ionising radiation in European ecosystems (marine, freshwater & terrestrial) including ~30 reference organisms
- Provided database and models for assessment of the environmental transfer of radionuclides and their uptake and turnover in the identified target organisms, including a handbook on the use of the models.
- Developed radiation dosimetry models for selected target organisms, which can be used to tabulate absorbed dose rate coefficients for each organism and major radionuclide of concern
- Final report in spring 2004; see also:
Quantification of risks at low and protracted doses:
- Epidemiological studies
- Cellular and molecular biology research

Better integration of European research on:
- Medical exposures and natural sources of radiation
- Protection of the environment and radioecology
- Risk and emergency management
- Protection of the workplace
Radiation Protection in FP 6
(2002 - 2006)

• **Quantification of risks at low and protracted doses:**
  - Epidemiological studies
    
    $1 \text{ IP} \& 3 \text{ STREP}$; \hspace{1cm} EC funding $M\varepsilon \sim 12.0$
  
  - Cellular and molecular biology research
    
    $1 \text{ IP} \& 1 \text{ SSA}$; \hspace{1cm} $\sim 10.4$

• **Better integration of European research on:**
  
  - Medical exposures and natural sources of radiation
    
    $1 \text{ STREP}, 1 \text{ CA} \& 1 \text{ SSA}$ \hspace{1cm} $\sim 3.25$
  
  - Protection of the environment and radioecology
    
    $1 \text{ STREP} \& 1 \text{ SSA}$ \hspace{1cm} $\sim 1.55$
  
  - Risk and emergency management
    
    $1 \text{ IP}$ \hspace{1cm} $\sim 7.0$
  
  - Protection of the workplace
    
    $1 \text{ CA}$ \hspace{1cm} $\sim 0.3$
Response to the Call for Proposals
Euratom Call 2005/6 Fixed Call
Cut-off date 11/10/2005

Radiation Protection
(15 proposals received; requested EC grant ~29 M€; call indicative budget 14€)

4 Topics to be implemented through three types of instruments:

- IP on - targeted effects of radiation
- STREPs on - cellular & molecular biology research on the effects of low & protracted exposures to radiation - risk governance & malevolent uses of radiation
- CAs on - nuclear medicine diagnostic techniques - protection of the environment & radioecology
## Radiation Protection in FP6

<table>
<thead>
<tr>
<th>Area</th>
<th>Project acronym &amp; name &amp; coordinating organisation</th>
<th>Instrument</th>
<th>(M€)</th>
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</thead>
<tbody>
<tr>
<td><strong>Protection of the environment &amp; radioecology</strong></td>
<td>• <strong>ERICA:</strong> Environmental risk from ionising contamination: Assessment and management (<em>SSI, SE</em>)</td>
<td>STREP</td>
<td>1,5</td>
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<td></td>
<td>• <strong>RECOIL:</strong> Recommendations on Protection: Dissemination of international radiation results (<em>ICRP, SE</em>)</td>
<td>SSA</td>
<td>0.053</td>
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Nature and goals:
● Provide an integrated approach showing how to go from exposure to radioactive substances, to possible effects (assessment) on animals, plants & ecosystems, to measuring & estimating risks (risk characterisation) and finally to decide what to do (management)

Activities:
● Provide an assessment tool (WP 1)
● Provide risk characterisation methodologies for ecological meaningful estimates of risk (WP 2)
● Provide managerial guidance together with stakeholder involvement; Communication & Decision-making (WP 3)
● Apply and test in case study scenarios for different sites the assessment methodologies (WP 4)
Anticipated achievements: ERICA integrated approach (D-ERICA) will consist of a practical handbook to assessment, risk characterisation and management, and a user-friendly software tool.

Co-ordinator: Dr Carl-Magnus Larsson, SSI, SE

Partners: 15 organisations from 6 EU Member Countries & NO and the End-User Group (EUG) representing stakeholders and experts outside the consortium from European & other countries

Duration: 36 months (01.03.2004 - 28.2.2007)

Total costs / EU-Grant: 3.9M€ /~1.5M€
Nature and goals:
- Utilise research results obtained inter alia through the EC FP 5 & 6 in developing practical advice, in the format of radiological protection recommendations.

Activities:
- Major method will be to draft reports and to meet for critical discussions on reference fauna & flora in 2005/6
- Results obtained will be disseminated and exploited as ICRP reports on: *Radiation effects on non-human species and protection of the environment* in 2007
RECOIL
Recommendations on Protection: Dissemination of International Radiation Results
(http://www.icrp.org)

- **Anticipated achievements:**
  Issue a set of fundamental recommendations on radiological protection by providing a set of reference fauna and flora, and defining quantities and units to be used, disseminating research results from FP 5 & 6

- **Co-ordinator:** Dr. Jack Valentin, ICRP, SE

- **Partner:** 1 from UK (ICRP)

- **Duration:** 24 months (01.03.2005 - 28.02.2007)

- **Total costs / EU-Grant:** 0.053M€ / ~ 0.053M€
Objectives

• Establish a sound scientific & technical basis for the safe long-term management of hazardous radioactive waste

• Promote safer, more resource-efficient and competitive exploitation of nuclear energy

• Ensure a robust and socially acceptable system of protection of man & the environment against the effects of ionising radiation
Proposed Activities SP

- Management of Radioactive Waste
- Reactor Systems
- Radiation Protection
  * Quantification of risks for low & protracted exposures
  * Medical uses of radiation
  * Emergency management & rehabilitation
  * Malevolent uses of radiation or radioactive material
  * Other topics: National research activities in other areas will be more effectively integrated
- Infrastructures
- Human Resources and Training
7th Framework Program
Roadmap

• **April 6th, 05:** Commission adoption of FP7 proposal
  EC & EURATOM FP (COM (2005) 119 final)

• **September 21, 05:** Commission adoption SP proposal
  (COM(2005) 445 final)

• **Mid-Dec. 05:** EP 1st reading EC-, Opinion on EURATOM FP

• **Summer 2006:** Council adoption of
  - **EC + EURATOM FP 7**
  - **EC + EURATOM SP 7**
  - **Rules for participation**

• **Winter 2006:** First call of EURATOM Fission proposal