

Largely inspired by:

NERIS R&D Committee
Summary of activities since last GA

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NERIS:

The European Platform on Preparedness for Nuclear and Radiological Emergency Response and Recovery

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*Fourth European IRPA Congress
Geneva, June 23-27, 2014*

- **Improving the effectiveness** of current European, national and local approaches for preparedness concerning nuclear or radiological emergency response and recovery.
- **Promoting more coherent approaches** in preparedness for nuclear or radiological emergency response and recovery throughout Europe.
- **Identifying gaps** and needs for further developments in preparedness for nuclear or radiological emergency response and recovery.
- **Addressing new and emerging challenges** in the field of preparedness for nuclear and radiological emergency response and recovery.
- **Maintaining and improving know-how** and technical expertise in preparedness for nuclear or radiological emergency response and recovery among all interested stakeholders in Europe.

- Created in 2010 at the occasion of the IRPA Regional Congress in Helsinki
 - Financial support from the European Commission to structure the Platform
 - Adoption of a legal statutes in May, 15, 2012 in Glasgow
 - Legal registration under the French Law: August, 28, 2012
- 26 countries
 - 50 member organizations
 - 24 *supporting organizations*
 - 24 in college 1 (*authorities, TSOs, operators, professional organizations*)
 - 26 in college 2 (*research institutes/universities, consultants, local and national stakeholders, NGOs*)

- Working Groups
 - *Implementation of ICRP recommendations*
 - *Local preparedness*
 - *Management of contaminated goods*
- Users Groups
- Research coordination
 - *NERIS TP*
 - *PREPARE*
- Topical Workshops
- Training Courses
- Cooperation with key organisations
- Dissemination Activities (Website, Newsletters...)

NERIS R&D Committee
meeting September
2013, Brussels

Review current SRA & priorities

- Main topics:
- NERIS members have been invited to comment on the existing SRA;
- The feedback was grouped and discussed
- List of priorities was made



Issues discussed

- An overall **assessment of the completeness** of the SRA, taking into account lessons learnt from Fukushima
 - How to take into account technological and societal evolutions
 - How to make a more clear distinction between research, development and practical implementation issues (are the last ones of interest for EC funded research?);
- Nuclear & Radiological emergency versus **security research** (CBRN)
- Relation to **other organizations and platforms**
- A **systematic analysis** of the comment received per key topic (including lessons learned Fukushima);
- A systematic analysis per research topic of its **current status**: already dealt within DETECT, NERIS-TP, PREPARE or other organizations (e.g. ALLIANCE-radioecology) or not yet started
- An **onset of priority setting** for the different research questions
- So far monitoring not a high priority → how to **bring in monitoring?**
- **Validation** of tools and **uncertainty** not very visible

Setting priorities

One key topic renamed: Usage of the existing tools in the best possible way → improving the decision making processes

Priorities:

- Extend the capabilities of the atmospheric dispersion models by considering the “wet” deposition by snow; to be started by a review of the current approaches;
- Development of models for the urban areas focusing on waste water from decontamination actions and contamination of water in urban areas in general;
- Develop local radio-ecological models and integrate them into a general Decision Support Systems (DSS) to interlink with monitoring information and the more global food chain and dose models. Applicable at farm level, simple to use, but integrated in the overall picture;

Priorities (cont'd)

- Investigate model uncertainties and how this can be communicated in the model results and in the DSS to help decisions maker in understanding the usefulness of a map result;
- Improving the decision making processes and their interactions in an emergency event and the recovery
 - Decision making for all involved stakeholders taking into account the complexity and the large uncertainty of the situation;
 - Robust decision making;
 - Develop the best possible way how to use the results of a DSS;
 - Usage of formal decision aiding tools for the various concerned stakeholders (e.g. Multi Criteria Decision Analysis);
 - This may have many subtopics which require further prioritisation;
- Monitoring strategies – how to learn from past events
 - How to integrate results from professionals and lay people into one common operational picture at the various stages of an emergency and recovery situation.

**New tables created with indication of priorities, current status
(example next slide)**

Example: Improving the decision making process

Research sub-topics for Improving the decision-making process	Description	Project addressing the topic or Priority (for new topics)
5.1 Assessment and communication of uncertainties	Investigation of data uncertainties (model or monitoring results) and how they can be communicated, e.g. in model results and in DSS to help decision-makers to understand the radiological situation. Inter-comparisons (models or measurements).	High priority* *Subtopics will be defined for further prioritisation
5.2. Coupling of DSS with Command and Control (C2) systems	Coupling of the existing strategic DSS such as ARGOS and RODOS to Command and Control (C2) systems	
5.3 Robust decision making	Structuring the decision process with the help of formal decision aid tools, such as multi-criteria analysis. Feedback from stakeholder processes	High priority
5.4 Guidance on the use of DSS		
5.5 Serious gaming	Development of serious gaming tools to train the emergency actors	
5.6 Revision of European handbooks	Revision of European handbook sections (creation of addendum) for consideration of malicious dispersion scenario	

Research sub-topics for Improving the decision-making process	Description	Project addressing the topic or Priority (for new topics)
5.7 Development of tools for the usage at the local level		Partly NERIS TP
5.8 Countermeasure strategy preparedness	Analysis of countermeasure strategies for relevant accident scenarios, ensuring that parameters governing the radiological consequences can be identified in time to enable optimized remediation	Partly NERIS TP
5.9 Use of dose reconstruction information	<p>Procedure for health surveillance, including sampling of population.</p> <p>Should be performed in collaboration with MELODI</p>	
5.10 Monitoring strategies	<p>Optimised use of monitoring resources, including mobile units. Use of new monitoring technologies.</p> <p>Integration of monitoring results from experts and lay people into a common operational picture.</p> <p>Information fusion (e.g. radiological, land-use, etc</p>	<p>High priority (Partly addressed in DETECT for fixed stations)</p> <p>Subtopics will be defined for further prioritisation</p>

Signature of a Memorandum of Understanding between MELODI, ALLIANCE, EURADOS and NERIS on 5 Dec. 2013



- Joint commitment towards the consolidation and implementation of a strategic vision of radiation protection research in Europe

Updated version of NERIS SRA on April 8, 2014

Three research areas have been identified with 7 topics:

- 1. New challenges in atmospheric and aquatic modeling – needs for improvement**
- 2. New challenges for better dose assessments and decision support based on improved knowledge: source term, scenarios, etc.**
- 3. New challenges in stakeholder involvement and local preparedness and communication strategies**

- **To make more reliable and precise forecasts on atmospheric dispersion of radioactive materials in different environments:**
 - Urban, confined spaces
 - Models for non-conventional emissions
 - Simulation of (very) long-duration releases to air
 - ...
- This will extend the capabilities of Decision Support Systems and will provide decision makers and other actors with a more reliable picture of the situation.

- **To improve forecasts on aquatic dispersion of radioactive materials in different environments** (urban hydrology systems and coastal waters)
- This will extend the capabilities of Decision Support Systems and will provide decision makers and other actors with a more reliable picture of the situation by allowing to assess:
 - The vulnerability of urban hydrology systems to nuclear emergencies regarding the freshwater supply system and waste- water contamination from deposited radionuclides.
 - The dispersion of radioactivity in coastal waters and radioactivity levels in fish and seafood

- **To obtain a better analysis of the radiological situation** (source-term, scenarios, etc.), **and to support the decision-making processes during emergency and recovery phases**
- Expected results are:
 - A better source-term input within dispersion models
 - An improvement of radio-ecological modelling
 - A better customization of Decision Support Systems according to local information
 - A better response to malevolent acts
 - A better analysis and response in the different exposure situations

- **To foster the information exchange between all interested stakeholders, and to provide means for a more transparent decision-making process**
- Expected results are:
 - To develop an information exchange platform for all relevant organisations in Europe
 - To allow decision-makers to learn lessons from historic events

- **To improve decision processes**
- Expected results are:
 - Better structured decision processes at national, regional and local levels involving the different categories of stakeholders (public authorities, professionals, inhabitants)
 - A more accurate information to the emergency and recovery stakeholders
 - A more efficient use of existing Decision Support Systems and tools
 - A better allocation of resources and improvement of the efficiency of protective strategies during emergency and recovery phases

- **To improve the acceptability and social robustness of emergency response, ensuring that stakeholders are involved in decisions impacting their lives**
- Expected results are:
 - To maintain the inclusion of social aspects of emergency response and stakeholder engagement
 - A greater recognition of the importance of stakeholder and public engagement
 - To improve understanding of the factors and criteria for successful stakeholder engagement

- **To better understand the ways in which social media and other media are used in the flow of information and communication**
- Expected results are to improve preparedness for media and social media communication through:
 - Analysis of public behaviour response
 - Assessment of the mechanisms by which the public gains information in media and social media
 - Assessment of important factors for social trust in emergency situations

- ***Consultation on the NERIS SRA through the OPERRA questionnaire***
- ***Organisation of a NERIS workshop on April 27-29, 2015 in Milano (Italy)***
- ***Reinforce the cooperation with the European Research Platforms***
- ***Cooperation with international organisations and Japanese organisations***

Next NERIS R&D Committee

- Meeting in autumn?
- Apart from discussion SRA, scientific coordination/organization of NERIS Workshop can be on agenda.
- To be decided at IRPA, Geneva.

Thank you for your
attention

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