

# The European platform on preparedness for nuclear and radiological emergency response and recovery (NERIS Platform)

**MUSTONEN R.<sup>1</sup>, RASKOB W.<sup>2</sup>, NISBET A.<sup>3</sup>, SCHNEIDER T.<sup>4</sup>, LILAND A.<sup>5</sup>, DURANOVA T.<sup>6</sup> and CROTEAU C.<sup>4</sup>**

<sup>1</sup> Radiation and Nuclear Safety Authority (STUK), Laippatie 4, 00880 Helsinki, Finland

<sup>2</sup> Karlsruhe Institute of Technology (KIT), Hermann-von-Helmholtz Platz 1, 76344 Eggenstein-Leopoldshafen, Germany

<sup>3</sup> Health Protection Agency (HPA), Chilton, Didcot, Oxon OX11 0RQ, United Kingdom

<sup>4</sup> Centre d'étude sur l'Évaluation de la Protection Dans le domaine Nucléaire (CEPN), Expansion 10000, 28, rue de la Redoute, F-92260 Fontenay-aux-Roses, France

<sup>5</sup> Norwegian Radiation Protection Authority (NRPA), P. O. Box 55, N-1332 Østerås, Norway

<sup>6</sup> VUJE, Inc., Okružna 5, 918 64 Trnava, Slovak Republic

**Abstract.** European organisations that participated in the European integrated research project EURANOS (2004-2009) decided, at the end of the project, to create a unique European Platform (NERIS) on preparedness for nuclear and radiological emergency response and recovery, combining researchers, operational communities and relevant stakeholders. To date, 37 organisations have already joined the NERIS Platform. It comprises national and local authorities, technical support organisations, professional organisations, research institutes, universities and non-governmental organisations.

The first General Assembly of the Platform was organised in June 2010 in Helsinki. Two working groups have been created so far. The first working group on *“the practical implementation of the ICRP-103 recommendations”* aims to understand the implications of these recommendations and how they can be adopted into national systems. The group will also develop guidance on how to adapt existing Decision Support Systems RODOS and ARGOS to the new approach. The objectives of the second working group on *“processes and tools for emergency and rehabilitation preparedness at community level”* are to exchange experience on local-national cooperation and stakeholder engagement in developing emergency and recovery strategies. The second General Assembly was held in May 2011 in Paris. The drafts for the Vision and the Strategic Research Agenda of the Platform were discussed and are at the moment under consultation of the Platform members.

The main structure of the NERIS Platform is described in its Terms of Reference accepted in the first General Assembly. Membership of the Platform is open to all European organisations concerned with nuclear and radiological emergency response and recovery having expressed their interest in the activities of the Platform and having agreed to the Terms of Reference.

**KEYWORDS:** *Nuclear emergency, emergency management, response, recovery, European co-operation*

## INTRODUCTION

In the past 25 years, major progress has been made at the European, national and regional levels in the management of response to and recovery from nuclear and radiological emergencies. In particular the multi-national project EURANOS (Raskob et al. 1010), funded by the European Commission and 23 European countries, 2004 – 2009, integrated 17 national emergency management organisations and 33 research institutes to bring together best practice, knowledge and technology to enhance the preparedness for Europe's response to any radiation emergency and long term contamination.

Notwithstanding the broadly adequate provisions now in place in most countries and internationally, complacency would be misplaced and continuing vigilance remains important. Improvements, of a technical, organisational or political nature, are still needed in emergency management. The accident at the Fukushima 1 nuclear power plant in Japan proved that an event regarded as almost impossible was possible and a very small risk became reality. Nuclear and radiological safety and security have common goals and the systems and measures used to achieve these goals need to be complementary. Therefore, a well-coordinated approach in management of nuclear and radiological accidents and unauthorized acts is essential.

Organisations that participated in the EURANOS project decided, at the end of the activity, to create a unique European Platform on nuclear and radiological emergency response and recovery combining researchers, operational communities and relevant stakeholders. The NERIS Platform (The European platform on preparedness for nuclear and radiological emergency response and recovery) was established in June 2010 in Helsinki.

### **MISSION AND VISION OF THE NERIS PLATFORM**

The mission of the NERIS Platform was discussed in the second General Assembly in May 2011 in Paris. It is to:

- build confidence in capabilities of the key players and methods used in the management of nuclear and radiological emergencies in Europe among European citizens and decision-makers;
- encourage European, national, regional and local authorities, technical support organisations (TSOs), operators, professional organisations, research institutes, universities, non-governmental organisations (NGOs), and national and local stakeholders to co-operate to achieve the vision;
- facilitate access to expertise and technology and maintain competence in the field of management of nuclear and radiological emergencies for the benefit of European countries and citizens.

The **vision** is that by 2015, the self-sustaining association for development of the joint European approach in responding to and recovering from nuclear and radiological emergencies exists, and by 2020, all European organisations being members of the association are developing and using compatible technology and methods for consequence management of the emergencies.

To reach the vision the NERIS Platform has defined the following general objectives:

- 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 Europe through the establishment of networking activities.
- Maintaining and improving know-how and technical expertise among all interested stakeholders in Europe by developing a supranational training programme.
- Identifying needs for further developments and addressing new and emerging challenges in the field of preparedness for nuclear and radiological emergency response and recovery.

Membership of the Platform is open to all European organisations concerned with nuclear and radiological emergency response and recovery preparedness having expressed their interest in the activities of the Platform and having agreed to the Terms of Reference. To date, 37 organisations from 20 countries have already joined the Platform which comprises national and local authorities, technical support organisations, professional organisations, research institutes, universities and non-governmental organisations.

### **ONGOING ACTIVITIES OF THE NERIS PLATFORM**

The NERIS Platform is operated by a Management Board that defines the work programme and a secretariat in charge of the technical administration of the Platform including the management of the

NERIS website - [www.eu-neris.net](http://www.eu-neris.net) - and the publication of two 'NERIS Newsletters' per year. An R&D Committee will elaborate the strategic orientation of the Platform based on the new areas of interest identified by the Working Groups and the expectations and demands of the Partners. The Platform members meet once a year on the occasion of the General Assembly.

The first General Assembly of the Platform was organised in June 2010 during the third European IRPA Congress in Helsinki to launch the NERIS Platform activities. The second General Assembly took place in May 2011 in Paris to review the initial results of the Platform's activities, elect new members to the Management Board and to discuss the long-term future of the Platform.

Following the first NERIS General Assembly, two working groups were created:

- A Working Group on « *the practical implementation of the ICRP recommendations* ».
- A Working Group on « *processes and tools for emergency and rehabilitation preparedness at community level* ».

New Working Groups on specific topics could be created in the future should there be sufficient interest. The first working group on « *the practical implementation of the ICRP recommendations* » aims to explore the implications of these recommendations and how they can be adopted into national regulations. The group will also develop guidance on how to adapt existing Decision Support Systems to the new approach proposed by ICRP. The first meeting of this Working Group took place in November 2010 in France. 21 participants from 15 different countries discussed how the ICRP 103, ICRP 109 and ICRP 111 recommendations could be implemented into national emergency management procedures and regulations. It was concluded, that in most European countries the implementation has not started, although first attempts have been made to investigate the consequences for national regulations. The group also agreed on modifications that might be required to computer programs to simulate (a) all exposure pathways for the calculation of the residual dose in a given time period and (b) the impact of early and late phase countermeasures. It was agreed that the dose from consumption of contaminated food might be estimated in a simplistic way. It was recognised that the simulation tools should also contain a component to define and evaluate various scenarios to support emergency preparedness. In conclusion, the Working Group supported the idea of organising an international workshop in February 2012 in Bratislava, Slovak Republic, on « *the practical implementation of the ICRP recommendations* » The Workshop will provide a forum for discussion and sharing of experiences on the implementation of ICRP recommendations and for exploring the methodological and computational aspects related to the practical introduction of these recommendations in existing decision support tools used in European Countries.

The objective of the second Working Group on « *processes and tools for emergency and rehabilitation preparedness at community level* » is to exchange experiences on local-national cooperation and stakeholder engagement in developing emergency and recovery strategies. The Group also aims to adapt or develop user-friendly processes and tools to assist communities in preparing for local cooperation, to test them in national or international exercises and to organize seminars on lessons learnt. The first meeting of the Working Group took place on November 2010 in France. 26 participants from 13 different countries discussed existing preparedness experiences with local communities in their respective countries as well as the topics of interest for these local communities in the future (e.g. management of water resources, agricultural and industrial areas, information and communication strategies). These experiences were presented through 3 phases: crisis management, end of the emergency and the transition phase; and the long-term. It included for example the presentation of a Nordic workshop (FOOD) on late phase countermeasures and safe food production in nuclear and radiological emergencies organised by NRPA in Norway, the French CODIRPA experience led by ASN in France that address the post accident phase management issues, and the organisation by VUJE of workshops and training courses with stakeholders in the Slovak Republic. The meeting also provided a good opportunity for the participants to share their views concerning the future of the Working Group. Notably, it was

agreed to design a template to collect information on the different initiatives, experiences and tools in a standardised format. Concerning the next Working Group meetings, specific topics will be addressed to further discuss the issues at stake at the community level.

The NERIS Platform also supports the organisation of training courses. The next editions of these courses have been scheduled as follows:

- The training course on "*Preparedness and Response for Nuclear or Radiological Emergencies*" organised by SCK·CEN, will take place on 17-21 October, 2011 in Mol, Belgium. The main objective of the training course is to provide fundamental knowledge and practical advice to all those involved in emergency planning and response. The course offers a comprehensive overview of nuclear and radiological emergency management in Europe. This includes, but is not limited to, principles of intervention; radiological evaluations; decision-support tools; different aspects of planning and organisation in off-site emergency response; economic, social and psychological impacts.
- The training course on "*Preparedness for Nuclear and Radiological Post-Accident Rehabilitation*" organised by CEPN, will take place in 2012 in Fontenay-aux-Roses, France. This training course deals with the post-accidental period, i.e. weeks, months and years that follow a nuclear accident or a radiological event. The main objective of the course is to provide fundamental knowledge and practical advice for those interested in the rehabilitation of living conditions in contaminated territories following a nuclear accident or a radiological emergency with long-term consequences for the population.

In the context of the 7<sup>th</sup> Euratom Research Framework Programme, a research project has been launched in February 2011. The project "*Towards a self sustaining European Technology Platform (NERIS-TP) on Preparedness for Nuclear and Radiological Emergency Response and Recovery*" (<http://resy5.fzk.de/NERIS-TP/>) is a three-year research project involving 19 organisations from 13 countries. NERIS-TP is co-ordinated by the Karlsruhe Institute of Technology (KIT). The working program reflects the two objectives of the project: firstly to solve urgent research needs such as the implementation of the new ICRP recommendations in the simulation models, the coupling of decision support systems such as ARGOS and RODOS to early notification systems and to carry out research activities to improve emergency management on the local and the national level; and secondly to establish the NERIS Platform as a sustainable platform on emergency response and recovery preparedness within the project duration of three years.

## THE WAY FORWARD

The process for establishing technology platforms was suggested by the European Commission in 2003 (Commission of the European Communities. 2003). The Communication includes e.g.: *Sector-specific issues should be taken into account, including through setting specific objectives and milestones in some areas such as information and communication technologies. Increased coherence and co-ordination is needed at the level of the various stakeholders involved in the development and deployment of key technologies in Europe. This can be promoted by **European technology platforms**, bringing together the main stakeholders concerned, in order to set a common strategic agenda addressing research as well as, where appropriate, regulatory and standardisation issues.*

The European Commission launched a call for establishing a *European platform on emergency and post-accident preparedness and management* in the EURATOM research programme for 2010 (Commission of the European Communities. 2009). A European consortium responded to this call by sending a proposal for the NERIS-TP project.

The process for establishing NERIS Platform will continue by writing a Strategic Research Agenda (SRA) in this field, and how to implement the Strategic Research Agenda (Deployment Plan, DP). Ideas for the SRA and needs for further development will be discussed in a special workshop in Brussels to be arranged at

the Belgian Nuclear Research Centre (SCK-CEN) in September 23 this year. The SRA will be a description of the main deficiencies in the present knowledge and the major challenges both in short and long term perspectives. When developing the SRA, the input and comments from all interested stakeholders will be essential to ensure the future activities comply with the Vision. The work has to be a joint effort of the participating partners and the European Commission.

## **REFERENCES**

- Commission of the European Communities (2003). Communication from the Commission - investing in research: an action plan for Europe; COM(2003) 226, 4.6.2003, Brussels
- Commission of the European Communities (2009). Fission-2010-3.3.1: <http://cordis.europa.eu/fp7>, 13.11.2009.
- Raskob, W., Gering, F., Lochard, J., Nisbet, A., Starostova, V., Tomic, B. (2010). Overview and main achievements of the EURANOS project: European approach to nuclear and radiological emergency management and rehabilitation strategies. Raskob, W., Hugon, M. (eds.): Enhancing Nuclear and Radiological Emergency Management and Rehabilitation, Key Results of the EURANOS European Project, Radioprotection Vol. 45, 2010, No 5, Supplement, pp. S9-S22