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EDITORIAL

Editorial

Introduction

In the past decade, significant progress has been made in the area of radiological and nuclear emergency management and rehabilitation. In particular, the multi-national project EURANOS (April 2004–July 2009, funded by the European Commission, the Research Council of Norway and 23 European Member States) integrated 17 national emergency management organisations with 33 research institutes and brought together best practice, knowledge and technology to enhance the preparedness for Europe's response to any radiation emergency and long-term contamination.

Key objectives of the EURANOS project were to collate information on the likely effectiveness and applicability of a wide range of countermeasures, to provide guidance to emergency management organisations and decision-makers on the establishment of an appropriate response strategy, and to further enhance advanced decision support systems (DSS), in particular RODOS, but also ARGOS and MOIRA, through feedback from their operational use. Furthermore, the project aimed to develop guidance to assist Member States in preparedness for nuclear and radiological emergency response and recovery, and to maintain and enhance knowledge and competence through emergency exercises, training and education.

Having reached their objectives, some further necessary tasks were identified at the end of the EURANOS project. This included firstly the fact that the new ICRP 103 recommendations, issued in 2007, followed by ICRP 109 on emergencies and ICRP 111 on recovery, were not adequately addressed in the simulation programs. So far, the simulation models address particular countermeasures individually and do not include an integrated approach that is requested by the new ICRP approach. As the ICRP recommendations in the future will become part of the EC safety standards, there was a clear need to improve current modelling.

Early notification systems in case of nuclear or radiological events are available at European and worldwide levels. So far, the systems provide information on the event, but do not include any estimation of the potential consequences in the neighbouring countries. Thus, the coupling to an assessment system was the second point missing. This, however, is the most important information for the authorities and radiation protection experts when establishing an adequate response to the given information.

A third point identified was the preparedness at the local level, which has been identified in the EURANOS project as a key factor for successful implementation of mitigating measures. Therefore, work started within the framework of EURANOS to address this issue, but the activity was far from being completed at the end of the project. Substantial work was still needed to gain appropriate levels of preparedness at a local level in most countries.

Finally, the EURANOS project had, to some extent, established a European-wide network integrating operational emergency management organisations, the research community and in some countries local stakeholders. To maintain such a network would be unique since it would include both research communities and national emergency preparedness authorities together with local communities. The broad participation of actors would be an added value compared with networks or platforms such as the OECD/NEA in exercises, and the EPAL working group on harmonisation of intervention levels in Europe – to list only some of the existing networks or working groups. However, none of them include both research and operational communities as well as regional and local actors.

Realisation

The NERIS-TP project (Towards a self-sustaining European Technology Platform (NERIS-TP) on Preparedness for Nuclear and Radiological Emergency Response and Recovery) started in February 2011 and combined eleven leading research organisations in the nuclear emergency management area with four SMEs and four governmental organisations from 13 countries. It was

structured in five scientific work packages and one work package dealing with the management of the project. Within the three years of operation, the project achieved results in the following areas:

- establishment and operation of a European platform on emergency and post-accident preparedness and management (The NERIS platform) to further improve emergency response and recovery preparedness in Europe;
- development of a screening model to test the new ICRP-103 recommendations in respect to national implementation plans;
- improvement of the two late-phase models ERMIN (for inhabited areas) and AgriCP (for agricultural production) to better adress the requests from end users;
- coupling the emergency information system of the IAEA with the existing European Decision Support Systems (RODOS/ARGOS) by developing an appropriate interface and a meteorological model chain that provides meteorological data for the assessments from freely available worldwide data; and
- strengthening of the preparedness at the local/national level by setting up dedicated fora, developing new tools or adapting the tools developed within the EURANOS project.

The new simulation models were integrated in ARGOS and JRodos and delivered to the end users. Furthermore, dissemination workshops and exercises were conducted in the second half of the project to distribute the information on the new tools to all interested parties. This resulted in several national exercises testing the new products and providing feedback to the developers. The dedicated local-national fora also tested the tools in some countries. These fora contributed to a strengthening of the preparedness at national, regional and local levels through joint knowledge building, networking and sharing of expertise and ideas for more resilient communities in Europe towards nuclear or radiological disasters.

A dissemination workshop with 82 participants was conducted at the end of the project, bringing national experts and international organisations as well as local stakeholders from 20 countries together to discuss the results of the project, experience from different European countries and Japan, and the way forward. It was a good venue for co-expertise reflection with a wide range of stakeholders. The conclusions of the workshop included:

- International guidelines and initiatives are important in nuclear/radiological emergency preparedness work, but are not sufficient to create robust societies.
- Each country must work actively with emergency preparedness issues across all sectors, levels and actors.
- Such national initiatives can be promoted by national authorities, research institutes or other dedicated organisations.
- Local-national fora proved to be a good method to build a common understanding of challenges, roles and responsibilities in an emergency situation.
- The use of adapted modelling tools proved useful in meetings and exercises of such fora.
- Cooperation among researchers, national and local authorities, economic sectors, NGOs, and civil society is necessary to create resilient communities.

Of particular importance is the establishment of the European platform NERIS on emergency and post-accident preparedness and management. The platform provides a forum for national bodies, expert organisations, universities and research institutes, as well as non-governmental stakeholders. Sustainability has been achieved as 49 members joined the platform at the end of the NERIS-TP project and 20 of them were supporting members providing fees for the operation of the secretariat of the platform. The platform will play an important role in identifying future research needs at the European level. Such information is essential when defining future research programmes and prioritising radiation protection research in general, as is on-going within Horizon2020.

In this way, the NERIS-TP project helped to achieve a greater harmonisation in Europe by improving European decision support systems and establishing a sustainable platform that combines all important players in emergency and post-accident preparedness and management in one single organisation. It promoted in particular the usefulness of modelling tools and stakeholder involvement in the preparedness processes necessary to create resilient societies.

Structure of the special issue

The objective of this special issue is to present the major achievements of the NERIS-TP project presented at the final dissemination workshop in 2014 in Oslo. The first paper describes the creation and running of the NERIS platform, that was supported by the NERIS-TP project. The following five papers focus on various model developments within the project. Next comes six papers on the use of local-national fora and stakeholder involvement in Europe and Japan. The last paper is dedicated to the PREPARE project, which takes the work started in NERIS-TP further and expands on the needs identified for emergency preparedness and recovery research in Europe.

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Partner number	Partner full name	Short name
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2	Centre d'étude sur l'Évaluation de la Protection dans le domaine Nucléaire	CEPN
3	Norwegian Radiation Protection Authority	NRPA
4	VUJE Inc.	VUJE
5	Radiation and Nuclear Safety Authority of Finland	STUK
6	Universidad Politécnica de Madrid	UPM
7	Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas	CIEMAT
8	MUTADIS	MUTADIS
9	"Horia Hulubei" National Institute of R&D for Physics and Nuclear Engineering	IFIN-HH
10	National Centre for Scientific Research "Demokritos"	NCSRD
11	Risø National Laboratory for Sustainable Energy Technical University of Denmark	Risø-DTU
12	Danish Emergency Management Agency	DEMA
13	Prolog Development Centre	PDC
14	Health Protection Agency	HPA-CRCE
15	Norwegian University of Life Sciences	NMBU
16	Ukrainian Centre of Environmental and Water Projects	UCEWP
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