
Incident and Emergency Preparedness and Response

Objective

To maintain and further enhance efficient Agency, national and international EPR capabilities and arrangements for effective response to nuclear or radiological incidents and emergencies independent of the triggering events. To improve exchange of information on nuclear or radiological incidents and emergencies among Member States, international stakeholders and the public and media in the preparedness stage and during the response to nuclear or radiological incidents and emergencies, independent of the triggering events.

Strengthening Emergency Preparedness Arrangements

The Agency assisted Member States in strengthening their emergency preparedness and response (EPR) arrangements and capabilities through its peer review services and EPR training events and workshops. In 2018, the Agency conducted two Emergency Preparedness Review (EPREV) missions — one to Belarus and one to Cuba. The updated *Emergency Preparedness Review (EPREV) Guidelines* (IAEA Services Series No. 36), including the new performance indicators, were issued in October. The Agency also provided, upon Member State request, 32 advisory services on EPR.

The Agency held 51 workshops and training events to assist Member States in implementing the requirements established in *Preparedness and Response for a Nuclear or Radiological Emergency* (IAEA Safety Standards Series No. GSR Part 7) and associated guidance, including 32 events at the interregional or regional level and 19 at the national level. In October, a webinar held jointly by the Agency and the Food and Agriculture Organization of the United Nations, with some 200 participants, raised awareness about GSR Part 7 requirements related to food safety in a nuclear or radiological emergency. The Agency, in cooperation with the European Commission, held a workshop in Luxembourg in December during which participants discussed the EPR requirements in GSR Part 7 and in relevant European Union legislation, along with national experiences of their implementation.

The Agency conducted three Schools of Radiation Emergency Management to address requests from Member States for comprehensive training on all relevant EPR topics. A total of 82 participants from 46 Member States attended the schools, held in Austria in October (Fig. 1), and in Morocco and the United States of America in November.

The Agency published a Safety Guide entitled *Arrangements for the Termination of a Nuclear or Radiological Emergency* (IAEA Safety Standards Series No. GSG-11), jointly sponsored by ten international organizations. It also issued a new Emergency Preparedness and Response Series publication entitled *Medical Management of Persons Internally Contaminated with Radionuclides in a Nuclear or Radiological Emergency: A Manual for Medical Personnel* (EPR-Internal Contamination (2018)), jointly sponsored by the International Federation of

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FIG. 1. The School of Radiation Emergency Management, held in Tulln, Austria, in October, included training on emergency scenarios through virtual reality. (Photograph reproduced courtesy of A. Geosev/BMI.)

Red Cross and Red Crescent Societies, the Pan American Health Organization and the World Health Organization. An Agency report entitled *The Radiological Accident in Chilca* was also published.

In cooperation with 18 participating organizations from 14 Member States, the Agency launched a coordinated research project entitled 'Development of Approaches, Methodologies and Criteria for Determining the Technical Basis for Emergency Planning Zone for Small Modular Reactor Deployment'. During the first research coordination meeting, held in Vienna in May, the participating organizations agreed on the structure of the project and discussed the scope and approach of the research to be conducted.

Response Arrangements with Member States

The Agency organized 14 Convention Exercises (ConvEx) with Member States and international organizations during the year. The exercises, carried out under the framework of the Convention on Early Notification of a Nuclear Accident (the Early Notification Convention) and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (the Assistance Convention), tested emergency communication channels, assistance mechanisms and the Agency's assessment and prognosis process. They also tested Member State capabilities for requesting and preparing to receive assistance, exchange emergency information on appropriate protective actions and communicate with the public during a nuclear or radiological emergency. The ConvEx 2018 schedule was expanded to include new exercises to test specific aspects of an emergency response, such as coordination of public communication among relevant international organizations.

The Agency participated in 35 national emergency exercises, providing support during the events and in their evaluation. This included a major national emergency exercise held in Japan in August, in which the Agency observed and provided feedback on an exercise involving simultaneous events at two nuclear power plants with overlapping emergency planning zones. All exercises included communications using the Unified System for Information Exchange in Incidents and Emergencies (USIE) Exercise web site. The Agency

also tested connections for videoconferencing with emergency contact points in several Member States.

The updated publication *IAEA Response and Assistance Network* (EPR-RANET 2018) was published in July. The manual contains guidance on actions to be performed by States providing and requesting international assistance.

The Ninth Meeting of the Representatives of Competent Authorities Identified under the Early Notification Convention and the Assistance Convention took place in Vienna in June. The 135 participants from 84 Member States and 2 international organizations discussed topics such as implementation of the Early Notification and Assistance Conventions and the Agency's safety requirements dealing with notification, reporting and information exchange, the provision of international assistance (in particular, in education and training on EPR), and communication with the public, as well as training and exercises. The Agency encouraged Member States to establish contact points for emergency communication if they had not yet done so.

The Agency launched an updated version of the USIE web site to enable users to revise information about an event by entering short messages in free text fields, instead of completing new reporting forms. The updated version also allows the transfer and storage of encrypted confidential information. The Agency further enhanced USIE's security by incorporating two factor authentication of user accounts.

A new version of the Emergency Preparedness and Response Information Management System (EPRIMS) was launched, with improved usability and information sharing features. During the year, the Agency held eight webinars on using EPRIMS.

The Agency enhanced the International Radiation Monitoring Information System (IRMIS) by incorporating a new validation tool that improves compatibility with the International Radiological Information Exchange (IRIX) data standard. A new feature was added to IRMIS to enable users to upload and share radioisotope-specific air concentrations and ground depositions.

An International Symposium on Communicating Nuclear and Radiological Emergencies to the Public was held in Vienna in October. The conference included a Young Innovative Communicators Competition open to students and early career professionals.

In view of the importance of communicating with the public during an emergency, the Agency procured a tool that simulates social media use during an emergency to be used in its emergency exercise programme. The tool will be used to test preparedness to cope with this aspect of an emergency and to develop scenarios for exercises with Member States.

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Response to Events

The Agency was informed by the competent authorities, or became aware through earthquake alerts or media reports, of 313 events involving or suspected to involve ionizing radiation (Fig. 2). It took response actions in 60 of these events. It made five offers of good offices, including for events involving lost radioactive sources and those triggered by earthquakes. In response to a request for assistance from the Government of South Africa, an Agency Assistance Mission involving Response and Assistance Network (RANET) capabilities provided medical advice in response to the overexposure of a patient.

Inter-Agency Coordination

The first ConvEx-2f exercise was held in November with representatives of 6 of the 18 international organizations that are members of the Inter-Agency Committee on Radiological and Nuclear Emergencies. The exercise evaluated the coordination of communication with the public among relevant international organizations.

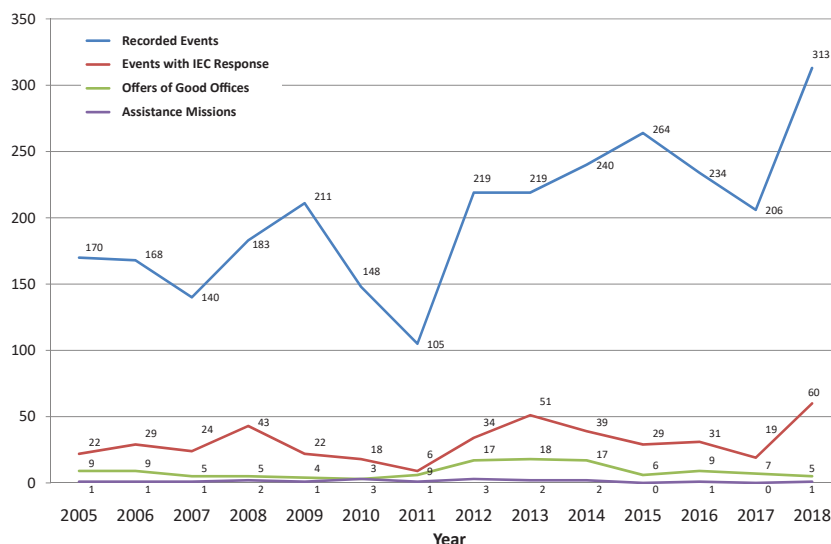


FIG. 2. Number of radiation events the Agency became aware of, and Agency responses, since 2005.

In-house Preparedness and Response

The Agency organized a comprehensive programme of training classes and exercises to enhance the skills and knowledge of Agency staff members serving as qualified responders in the Incident and Emergency System. The programme offered 186 hours of training during the year, including 74 classes for 206 Agency staff responders. The Agency held four full response exercises, including a ConvEx-2c exercise, hosted by Ireland in November, based on a scenario of a transnational radiological emergency triggered by a nuclear security event (Fig. 3). In 2018, 700 external visitors learned about the Incident and Emergency Centre during presentations and tours of its operational area.



FIG. 3. Agency staff participate in a ConvEx-2c exercise hosted by Ireland in November to test arrangements for response to a simulated radiological emergency triggered by a nuclear security event.