

## Nuclear Safety and Security



### Emergency Preparedness and Response: The IAEA's Incident and Emergency Centre

#### What should I know?

Nuclear and radiological incidents and emergencies do occur and we must be prepared to respond to them. The IAEA's Incident and Emergency Centre (IEC) is the global focal point for emergency preparedness and response (EPR) for nuclear and radiological incidents and emergencies, regardless of whether they arise from accidents, natural disasters, negligence or deliberate acts.

Emergency preparedness and response arrangements for nuclear and radiological incidents and emergencies are based on the international EPR framework.

#### What is the international EPR framework?

The international EPR framework facilitates development and maintenance of capabilities and arrangements for preparedness and response to nuclear and radiological incidents and emergencies. The framework consists of three elements:

- **Legal instruments:** The Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (commonly referred to as the "Emergency Conventions") are the main legal instruments dealing with EPR which form the legal basis for the international EPR framework. They place specific obligations on the States Parties and the IAEA.
- **IAEA safety standards:** The IAEA safety standards on EPR along with a range of technical guidance documents, tools and training materials provide a robust framework of fundamental principles, requirements and guidance for building sound emergency preparedness and effective emergency response.



Technical team members in the IAEA's Incident and Emergency Centre assess conditions at a nuclear power plant during a full response exercise.

(Photo: W. Gruenwald/IAEA)

- **International operational arrangements:** These arrangements are the practical means by which the IAEA, its Member States and the relevant international organizations maintain preparedness and effectively respond to any nuclear and radiological incident or emergency.

#### Who we are

In 2005, the IAEA announced the establishment of the IEC to serve as a global focal point for preparedness, event reporting, information sharing, and response to nuclear and radiological incidents and emergencies irrespective of their cause.

While emergency response capabilities have existed within the IAEA since the conclusion of the Emergency Conventions in 1980, including the original IAEA Emergency Assistance Services and Emergency Response System, the decision to create an integrated centre within the IAEA became more pressing with the anticipated increase in the use of nuclear applications as well as heightened concern over the malicious use of nuclear and other radioactive materials.



Participants at the International Workshop on Emergency Preparedness and Response for first responders on how to correctly detect and assess radiation sources, Vienna, Austria, May 2016. (Photo: S. Harvey/IAEA).

## What we do: Emergency Preparedness

Through the IEC, the IAEA fulfils its roles and responsibilities for emergency preparedness by:

- Developing EPR-related safety standards, guidance and tools and assisting Member States in their implementation;
- Offering services such as Emergency Preparedness Review (EPREV) missions, which are provided to Member States upon request to appraise their level of preparedness for nuclear or radiological emergencies based on IAEA safety standards;
- Developing, implementing and sustaining a comprehensive EPR capacity building programme for both the IAEA Secretariat and Member States;
- Developing and maintaining the inter-agency EPR arrangements; and
- Testing preparedness for response through exercises of various complexities.

The IEC offers a wide range of training courses and workshops to address the needs of Member States in the development, maintenance and testing of their EPR arrangements.

The School of Radiation Emergency Management, conducted by the IEC since 2015, helps to

disseminate comprehensive information on the basic elements of preparedness for and response to nuclear and radiological emergencies, including emergency management systems, protective actions, public communication and international arrangements in EPR.

The IEC also assists Member States in strengthening and maintaining their on-site, local, regional and national response capabilities through various activities, including some carried out under national and regional cooperation projects in Africa, Asia and the Pacific, Europe and Latin America and the Caribbean.

The Centre also conducts 'Convention Exercises' (ConvEx) to test and further improve the response arrangements and capabilities of the IAEA and its Member States.

Emergency preparedness demands an effective and regular exchange of information. The IEC maintains the Emergency Preparedness and Response Information Management System (EPRIMS), an interactive, web-based tool for Member States to share information on their EPR capabilities, and the International Radiation Monitoring Information System (IRMIS), a mechanism for the reporting and visualization of large quantities of environmental radiation monitoring data during nuclear and radiological emergencies.



Participants in the IAEA School of Radiation Emergency Management in Traiskirchen, Austria, October 2016.  
(Photo: E. Waller/IAEA)

## Emergency Response

The IEC maintains the Incident and Emergency System (IES) to ensure that the IAEA is prepared to respond in a timely, appropriate and efficient manner to any event that may have actual, potential or perceived radiological consequences to health, property or the environment.

The IES comprises staff of the IAEA Secretariat who are trained to perform specific functions within the system, which is operational 24 hours a day, 7 days a week. Annual training requirements include classroom training, hands-on practice and full-scale exercises that simulate nuclear and radiological incidents or emergencies.

The IAEA's emergency response role consists of:

- Notification and official information exchange;
- Assessment of potential emergency consequences and prognosis of possible emergency progression;
- Provision of public information;
- Provision of assistance upon request; and
- Coordination of inter-agency response.

### *Notification and official information exchange*

The Unified System for Information Exchange in Incidents and Emergencies (USIE) is the IAEA's secure emergency communication website that

enables countries to exchange urgent notifications and follow-up information during a nuclear or radiological emergency. Over 1000 users from more than 160 Member States and more than 25 international organizations are currently registered in USIE.

### *Assessment of potential emergency consequences and prognosis of possible emergency progression*

During a nuclear or radiological emergency, the situation and the actions required for an effective response can change rapidly. Assessment of the situation and prognosis of how such an emergency may evolve are important to support effective emergency response.

The IAEA's assessment and prognosis process is based on technical information and monitoring data provided by the State in which the event occurred, on scientific knowledge and on the capabilities and expertise of Member States and international organizations.

The assessment and prognosis process builds on the existing international EPR framework and utilizes the IAEA's own arrangements and capabilities, guidance, tools and expert staff, as well as the capabilities of Member States.

### *Provision of public information*

The IAEA works with Member States and international organizations to release consistent, accurate and timely information to the public



IAEA staff working in the technical team of the Incident and Emergency System during a full response exercise in the IAEA Incident and Emergency Centre. (Photo: W. Gruenwald/IAEA)

during nuclear and radiological incidents and emergencies.

#### *Provision of assistance upon request*

If a State needs assistance in the event of a nuclear or radiological incident or emergency, it may request such assistance from, or through, the IAEA.

The IAEA also maintains a Response and Assistance Network (RANET) made up of States Parties to the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency that have identified and registered in RANET national assistance capabilities consisting of qualified experts, equipment and materials that could be made available to assist another State. These States are capable and willing to provide, upon request, specialized assistance by appropriately trained, equipped and qualified personnel to minimize the actual or potential radiological consequences of a nuclear or radiological incident or emergency for health, environment and property.

#### *Coordination of inter-agency response*

Effective international response to a nuclear or radiological incident or emergency requires efficient cooperation and coordination. That is the reason why the IAEA, together with relevant international intergovernmental organizations, established the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE), which coordinates the arrangements of all these organizations for preparing for, and responding to, an incident or emergency. The IAEA's IEC provides the Secretariat for the Committee.

The members of IACRNE develop, maintain and co-sponsor the Joint Radiation Emergency Management Plan of the International Organizations. The IAEA is the main coordinating body for the development and maintenance of the Joint Plan. The Joint Plan defines the mechanisms for cooperation among the relevant international intergovernmental organizations to ensure a coordinated and consistent response by all the organizations involved to a nuclear or radiological incident or emergency.

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