

# **International Conference on Nuclear and Radiological Emergencies: Building the Future in an Evolving World**

**Monday, 1 December 2025 - Thursday, 4 December 2025**

**Riyadh, Saudi Arabia**

## **Themes and Topics**

## **Innovative technologies for EPR: Opportunities, Lessons Learned and Challenges**

### **Examples include:**

- Digital tools:
  - Artificial Intelligence, Natural Language Processing, Data Science
  - Digital Twins
  - Telemedicine and remote assistance for radiological injuries
  - Communication and notification
  - Radiological assessment
  
- Virtual tools:
  - Virtual Joint Information Center
  - Virtual Emergency Operations Centre
  - Virtual/Augmented Reality training
  - Simulation/exercises
  
- Remote controlled and Autonomous devices:
  - Drones
  - Robots
  - Optical monitoring devices

## **Challenges and proposed solutions in Protection Strategies**

### **Examples include:**

- Emerging reactor technologies such as advanced reactors, small modular reactors (SMRs), and floating nuclear power plants (FNPPs), including legal and regulatory considerations, Emergency Planning Zones (EPZs), and public acceptance
- Nuclear Harmonisation and Standardization Initiative (NHSI) for SMRs
- Assessment and prognosis
- Radiation monitoring strategy
- International Radiation Monitoring Information System (IRMIS) expansion
- Protection of the Public
- Protection of emergency workers and helpers
- Protection of food, agricultural products, water, and other aspects of the environment
- Environmental assessment
- Emergency response in non-permissive environments due to:
  - armed conflicts
  - natural disasters
  - industrial accidents
  - infectious outbreaks
  - other global crises
- Implications of new transport technologies including commercial maritime nuclear propulsion, drone transport of radioactive sources, electric/hydrogen-powered ground transport, and

autonomous vehicle transport

## **Termination, recovery and long-term response considerations**

**Examples include:**

- Good practices and lessons learned
- Transition from emergency exposure situation to existing exposure situation
- Preparedness and response aspects in mitigating the long-term impact
- Non-radiological impacts

## **Nuclear Safety/Security Interface**

**Examples include:**

- Impact on protective measures
- Effective arrangements for information sharing
- Balancing effective law enforcement and public safety
- Harmonisation in transboundary emergencies

## **Supporting First Responders: fire, police, civil protection, medical, military-civilian disaster response**

**Examples include:**

- Training, exercises and guidance/information materials
- Past experiences and lessons learned
- Challenges and considerations
- Use of innovative tools for dose monitoring (e.g., autonomous devices, virtual tools, remote monitoring, etc.)

## **Capacity Building**

**Examples include:**

- Drill and exercise programs
- Feedback from ConvEx-3
- Opportunities for training, knowledge management, and education (Post-graduate programmes)
- Capacity Building Centres, and Member States offering capacity building
- Good practices on national training programmes, including classroom, remote, hybrid, and hands-on/practical training

- Capacity/Skill/Knowledge retention

## **Communication in Emergencies**

### **Examples include:**

- Advances in coordinating and delivering timely, clear, accurate, understandable, empathetic, and consistent messages
- Communicating across local, national regional, and international levels
- Communication strategies to mitigate radiological consequences (e.g. how people can reduce their own exposure)
- Communication strategies to mitigate non-radiological consequences
- Knowing your audience - the shift toward public acceptance of nuclear power
- Building trust in authoritative information
- Data to support an understanding on how disinformation and deception potentially trigger unwarranted behaviours
- Public communication strategies for facilitating termination and recovery
- Communication systems resiliency
- Dealing with social media during an emergency

## **Public Health and Medical Response**

### **Examples include:**

- Medical triage and management of mass casualty event
- Advances in bioassay and biodosimetry
- Practical aspects of iodine thyroid blocking (ITB)
- Management of psychological impacts
- Addressing other non-radiological consequences, either acute or long-term
- Lessons from COVID and other mass public health threats with application to EPR
- Development of radionuclide decorporation agents
- Decontamination
- Medical follow-up programmes

## **Coordination and Cooperation Mechanisms in Emergency Preparedness and Response**

### **Examples include:**

- Training, procurement, interoperability, mobility of resources
- Unified Command and Control System (UCCS) features & principles
- All-hazards approach
- Convention on Assistance - International Assistance: RANET experiences and perspectives
- Experiences in operating an Emergency Operations Centre
- Regional cooperation arrangements
- Lessons learned from coordinating different assistance mechanisms

## **Strategy for Establishing EPR arrangements for radiological emergencies in every Member State**

### **Examples include:**

- Non-nuclear and nuclear neighbours - harmonisation
- Border control
- Scrap metal
- High-activity radioactive sources
- Conditions for countries establishing radiotherapy and radiopharmaceutical programmes (e.g., IAEA Rays of Hope initiative)
- Addressing nuclear and radiological emergencies within a national all-hazard emergency management system
- Radiological transport incidents and accidents
- Loss or theft of dangerous radioactive sources
- Malicious acts involving radioactive or nuclear material