

Role of IAEA in emergency preparedness and response

IAEA-KINS Workshop on the Emergency Preparedness and Response to Nuclear and Radiological Emergencies

19 - 23 June 2023, Daejeon, Republic of Korea

Incident and Emergency Centre (IEC)



“To protect the public and the environment in the event of a nuclear or radiological emergency, we must build effective national and international response arrangements. The IAEA’s **Incident and Emergency Centre** is the global focal point for international preparedness and response to such an emergency, whether it arises from an accident, natural disaster, negligence or a security event.”

Rafael Mariano Grossi
Director General of the IAEA



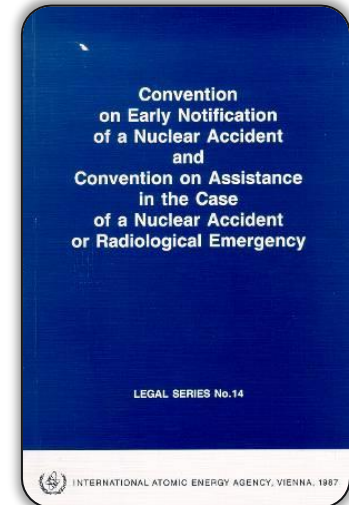
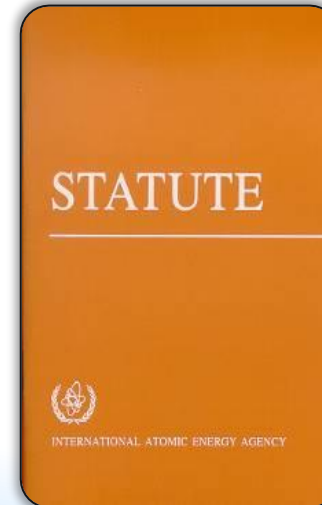
Incident and Emergency Centre (IEC) (cont.)

- Implementing IAEA functions in EPR
- Focal point for EPR and custodian of IAEA's IES
- Global focal point for emergency preparedness and response to nuclear or radiological incidents and emergencies irrespective of their cause, including coordination / provision of international emergency assistance upon request.



Basis for Secretariat's EPR

- IAEA's Statute
- Early Notification Convention
- Assistance Convention
- Other Conventions under auspices of the IAEA
- IAEA safety standards
- Relevant decisions of policy-making organs
- International agreements



International EPR Network

International EPR framework comprises:

- International legal instruments;
- IAEA safety standards; and,
- Operational arrangements



IAEA's functions and responsibilities in EPR are assigned by:

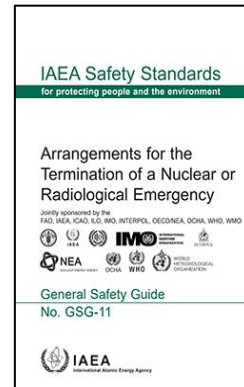
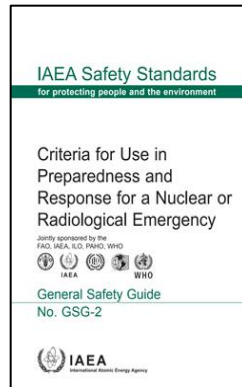
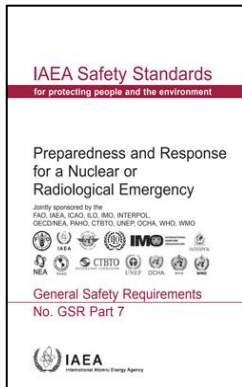
- IAEA Statute
- Convention on Early Notification of a Nuclear Accident
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Other relevant Conventions
- Decisions of IAEA's Policy Making Organs

IAEA's Role in Preparedness

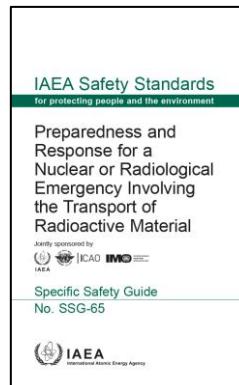
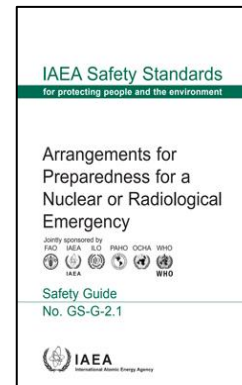
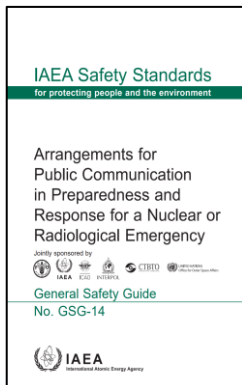
1. IAEA Safety Standards, guidance and tools in EPR
2. Capacity building in EPR (CBC)
3. Emergency Preparedness Review (EPREV)
4. IAEA's in-house preparedness (protocols, OPs)
5. Preparedness for assistance capabilities
6. Inter-agency preparedness



IAEA Safety Standards in EPR



- Provide requirements and recommendations for effective EPR in any State
- Applicable for any nuclear or radiological emergency, irrespective of the cause
- Technology neutral
- Co-sponsored by a number of international organizations



Technical Guidance in EPR

- Provide practical guidance, procedures and tools to support application of EPR safety Standards
- Address various areas of EPR (e.g. protection strategy, medical EPR, biodosimetry, public communication, first responders etc.)
- Currently available:
 - Over 20 EPR Series publications
 - Over 20 Accident Reports



Associated training materials available

Capacity Building in EPR

- Developing training materials in EPR and sharing with Member States
- Conducting training courses, workshops and exercises
- Providing on-line networks for knowledge sharing
- Developing tools and operational arrangements
- E-learning, digital training and webinars



**International
Network for
Education and
Training on EPR
(INET-EPR)**



Capacity Building in EPR



Human resources
development

**Building skills, qualification
and competences in EPR**



Institutional and
infrastructural
development

**Improving existing
arrangements and
capabilities in EPR at
institutional and national level**



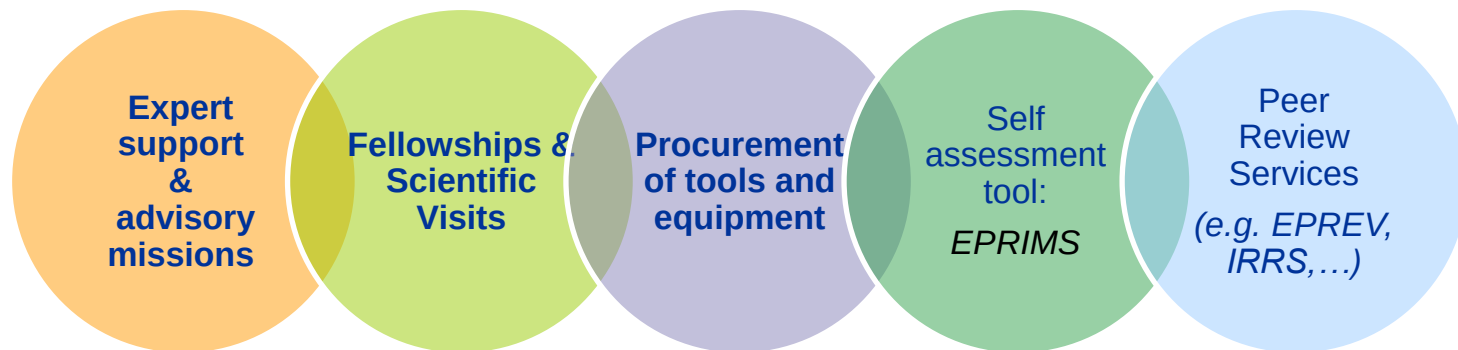
Knowledge
management and
networking

**Ensuring sustainable EPR
nationally and internationally**



Capacity Building in EPR

- Targeting all Member States
- State of the art EPR tools and capabilities
- Sound EPR arrangements in line with Agency's standards and best practices



Example-learning and digital training

- E-learning — Communication with the Public in a Nuclear or Radiological Emergency



Training courses / Workshops offered by the IEC



- Method for Developing Arrangements for Response to Nuclear or Radiological Emergencies
- Development of Protection Strategy for Nuclear or Radiological Emergencies



- Application of *GSR Part 7— Preparedness and Response for a Nuclear or Radiological Emergency*
- Arrangements for Termination of a Nuclear or Radiological Emergency



- Preparedness and Response for a Nuclear or Radiological Emergency Combined with Other Incidents or Emergencies
- Emergency Preparedness and Response for Embarking Countries

Training courses / Workshops offered by the IEC



- Training for First Responders to a Safety or Security-related Radiological Emergency
- Self-Assessment in EPRIMS of National Arrangements Against GSR Part 7 Requirements



- Developing On-Site Emergency Plans for NPPs
- Actions to Protect the Public During an Emergency due to Severe Conditions in a Light Water Reactor



- Preparedness and Response for an Emergency at a Research Reactor
- Radiation Monitoring during Nuclear or Radiological Emergencies

Training courses / Workshops offered by the IEC



- Preparation, Conduct and Evaluation of Exercises to Test Preparedness and Response for a Nuclear or Radiological Emergency



- Development and Use of *Operational Intervention Levels (OILs) for Reactor Emergencies*
- Development and Use of *Operational Intervention Levels (OILs) for Radiological Emergencies*



- Medical Response to Nuclear or Radiological Emergencies: Training for Doctors
- Medical Response to Radiation Emergencies

Training courses / Workshops offered by the IEC



- Cytogenetic Dosimetry: Applications in a Nuclear or Radiological Emergency
- Response to Nuclear or Radiological Emergencies: Training for Medical Physicists



- Communication with the Public in a Nuclear or Radiological Emergency
- Social Media Simulator Training



- Training for INES National Officers
- Notification, Reporting and Requesting Assistance in the Case of a Nuclear or Radiological Emergency
- Communication with the Public in a Nuclear or Radiological Emergency

Technical Cooperation Activities in the IEC



- 130 of the 171 IAEA's Member States are benefiting from TC projects in development and capacity building
- All activities in TC are undertaken in the framework of a project
- Several IEC activities are implemented through TC projects

IAEA's Role in Response

- Notification and official information exchange: USIE
- Provision of public information
- Assessment of potential emergency consequences and prognosis of possible emergency progression
- Provision of assistance on request: RANET
- Coordination of inter-agency response: IACRNE



Incident and Emergency System (IES)

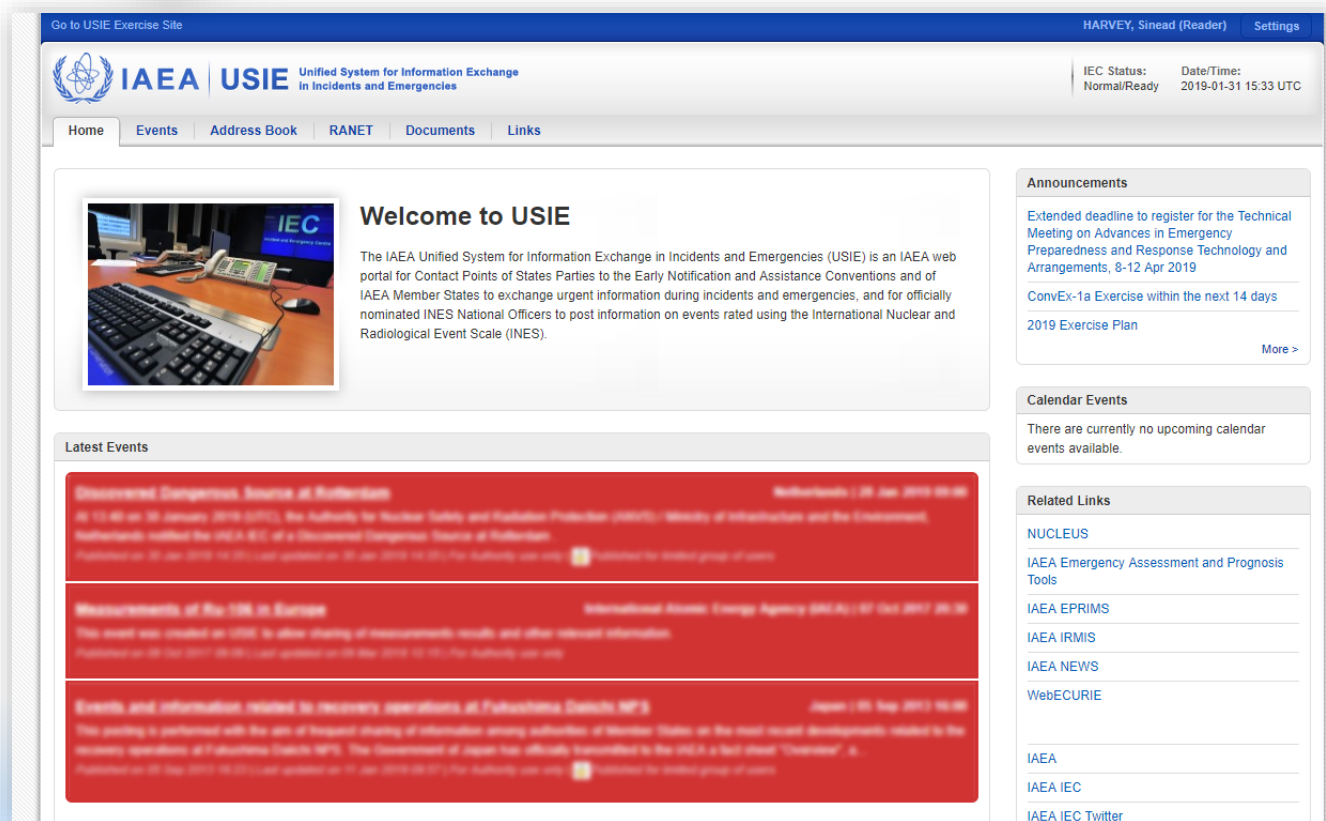
- The IES covers the IAEA's emergency preparedness and response arrangements to nuclear and radiological incidents and emergencies irrespective of the initiator
- The IAEA Incident and Emergency Centre (IEC) serves as the Agency's focal point for emergency preparedness and response and as the custodian of the IES.



Notification and Official Information Exchange

20 YEARS
OF
OPERATION

Through officially designated Contact Points



The screenshot shows the IAEA USIE (Unified System for Information Exchange in Incidents and Emergencies) website. The header includes the IAEA logo, the text 'USIE Unified System for Information Exchange in Incidents and Emergencies', and user information: 'HARVEY, Sinead (Reader)' and 'Settings'. Below the header is a navigation bar with links: Home, Events, Address Book, RANET, Documents, and Links. The main content area features a 'Welcome to USIE' section with a photo of a computer monitor displaying 'IEC' and a keyboard. To the right of the photo is a paragraph describing the USIE's purpose. Below this is a 'Latest Events' section with three red-bordered boxes containing news items: 'Discovered Dangerous Source at Rotterdam', 'Measurements of the TBM in Europe', and 'Events and information related to recovery operations at Fukushima Daiichi NPS'. On the right side of the main content area are three sidebar sections: 'Announcements' (with links to a technical meeting and an exercise plan), 'Calendar Events' (stating no events are currently available), and 'Related Links' (listing NUCLEUS, IAEA Emergency Assessment and Prognosis Tools, IAEA EPRIMS, IAEA IRMIS, IAEA NEWS, WebECURIE, IAEA, IAEA IEC, and IAEA IEC Twitter).

Convention
on Early Notification
of a Nuclear Accident
and
Convention on Assistance
in the Case
of a Nuclear Accident
or Radiological Emergency



INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, 1987

IAEA's IES Structure



ON-CALL

Emergency Response Manager
Logistics Support Officer
Radiation Safety Specialist
Nuclear Installation Safety Specialist
Nuclear Security Specialist
External Event Specialist
Public Information Officer

Provision of Assistance

- RANET was established in 2000
 - Operational tool to implement the Assistance Convention
 - Provision of international assistance upon request
- RANET is network of States
 - Capable and willing to provide assistance upon request
 - Appropriately trained, equipped and qualified personnel
 - Respond quickly and effectively to emergencies



RANET Functional Areas



**Source Search
and Recovery
(SSR)**



**Radiation
Survey
(RS)**



**Sampling
and
Analysis
(SA)**



**Nuclear
Installation
Assessment and
Advice (NAA)**



**Radiological
Assessment
and Advice
(RAA)**



**Decontaminatio
n (DE)**



**Medical
Support (MS)**



**Dose
Assessment
(DA)**

Assessment and prognosis

Assessment of potential emergency consequences and prognosis of possible emergency progression

IAEA Action Plan on Nuclear Safety

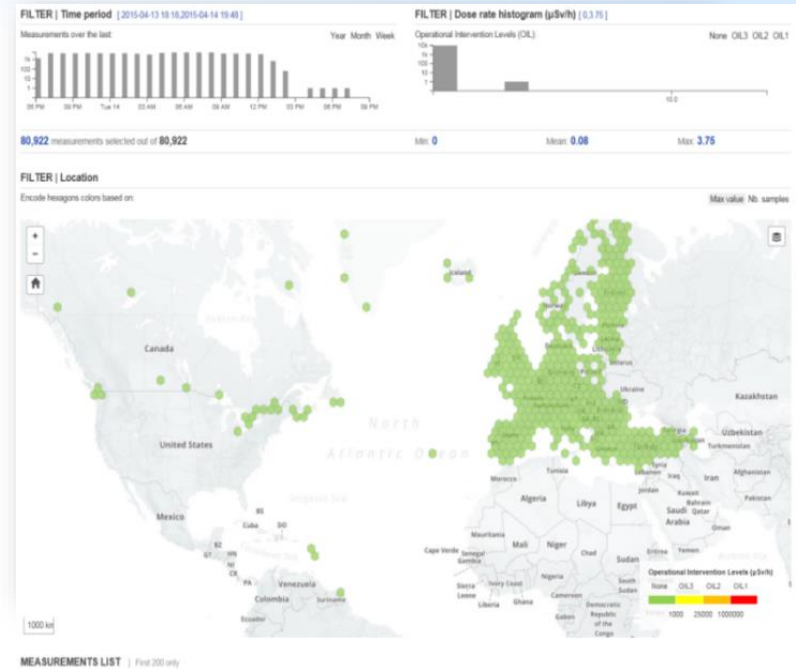
‘Enhance transparency and effectiveness of communication and improve dissemination of information’

- “The IAEA Secretariat to provide Member States, international organizations and the general public with timely, clear, factually correct, objective and easily understandable information during a nuclear emergency on its potential consequences, including analysis of available information and prognosis of possible scenarios based on evidence, scientific knowledge and the capabilities of Member States.”

IRMIS - International Radiation Monitoring Information System

Based on IAEA emergency information standards (IRIX)

Share routine and emergency monitoring data



- Common understanding of possible impacts and consequences
- Harmonizing inter-agency response to nuclear or radiological emergencies to achieve synergy, and speaking with 'many voices - one message' to media/public



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A UNITED NATIONS SPECIALIZED AGENCY

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ASIA AND THE PACIFIC | 15 APR 11

UN AGENCIES: CURRENT SITUATION POSES NO RISK TO TRAVEL TO AND FROM JAPAN

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CONTENT





PR No.: PR11034

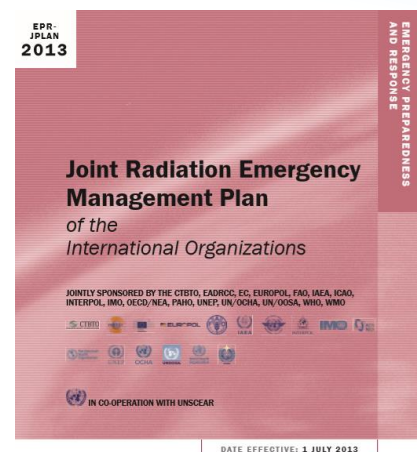
Current situation for travel and transport to and from Japan

The United Nations organizations (WHO, IAEA, UNWTO, WMO, IMO, ICAO, ILO) closely monitoring the effects of the damaged Fukushima Daiichi plant remain confident that radiation levels do not present health or transportation safety hazards to passengers and crew.



Inter-agency response (cont.)

- To facilitate and coordinate inter-agency cooperation in emergency, IAEA, together with other relevant international intergovernmental organizations, established Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE):
 - Established in September 1986 in the aftermath of the Chernobyl NPP accident
- Members of IACRNE develop, maintain and co-sponsor Joint Radiation Emergency Management Plan (Joint Plan), which:
 - describes common understanding of how each organization acts during response and in making preparedness arrangements
- IAEA provides secretariat for IACRNE and coordinates development and maintenance of Joint Plan



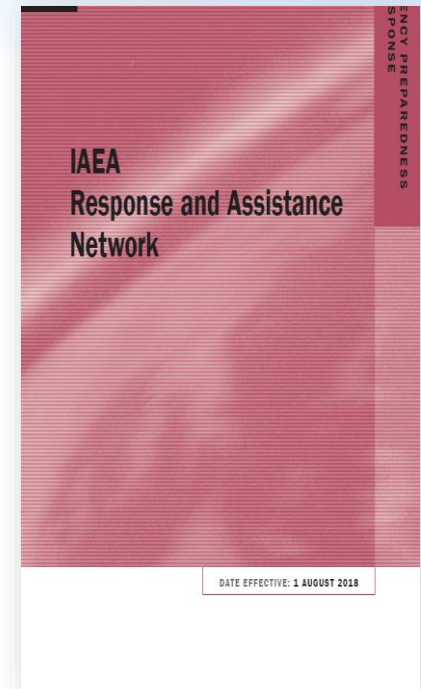
Examples of Past Assistance Missions

Requesting State	Nature of event	Mission Date	Assisting State(s)	Functional Areas
Peru	Overexposure from industrial source	January-2012	France, USA	Dose Reconstruction, Biodosimetry and Medical Support
Cambodia	Sources not recovered into medical device	February-2012	Australia	Source Search and Recovery and Dose Reconstruction
Peru	Overexposure from industrial source	January-2012	France, Chile	Medical Support
Sierra Leone	Discovery of source	June-2013	IAEA	Source Search and Recovery and Dose Reconstruction
Peru	Overexposure from industrial source	April-2014	France, Brazil	Medical Support and Dose Reconstruction
Georgia	Overexposure from lost source	March-2016	France	Medical Support
South Africa	Medical overexposure	Dec-2018	France	Medical Support
Georgia	Overexposure from lost source	March-2019	France	Medical Support
Nigeria	Discovered dangerous sources	June-2019	Germany, Netherlands, UK	Fact Finding Mission
Peru	Medical overexposure	December-2019	France, Russian Federation	Medical Support
Lebanese Republic	Explosion	September - 2020	Denmark, France	Radiation Survey, Sampling & Analysis and Decontamination

Provision of assistance on request. Response and Assistance Network (RANET)



- **RANET was established in 2000**
- Operational tool to implement the Assistance Convention
- Provision of international assistance upon request
- **RANET is network of States**
- Capable and willing to provide assistance upon request
- Appropriately trained, equipped and qualified personnel
- Respond quickly and effectively to emergencies



Provision of assistance on request.

National Assistance Capabilities



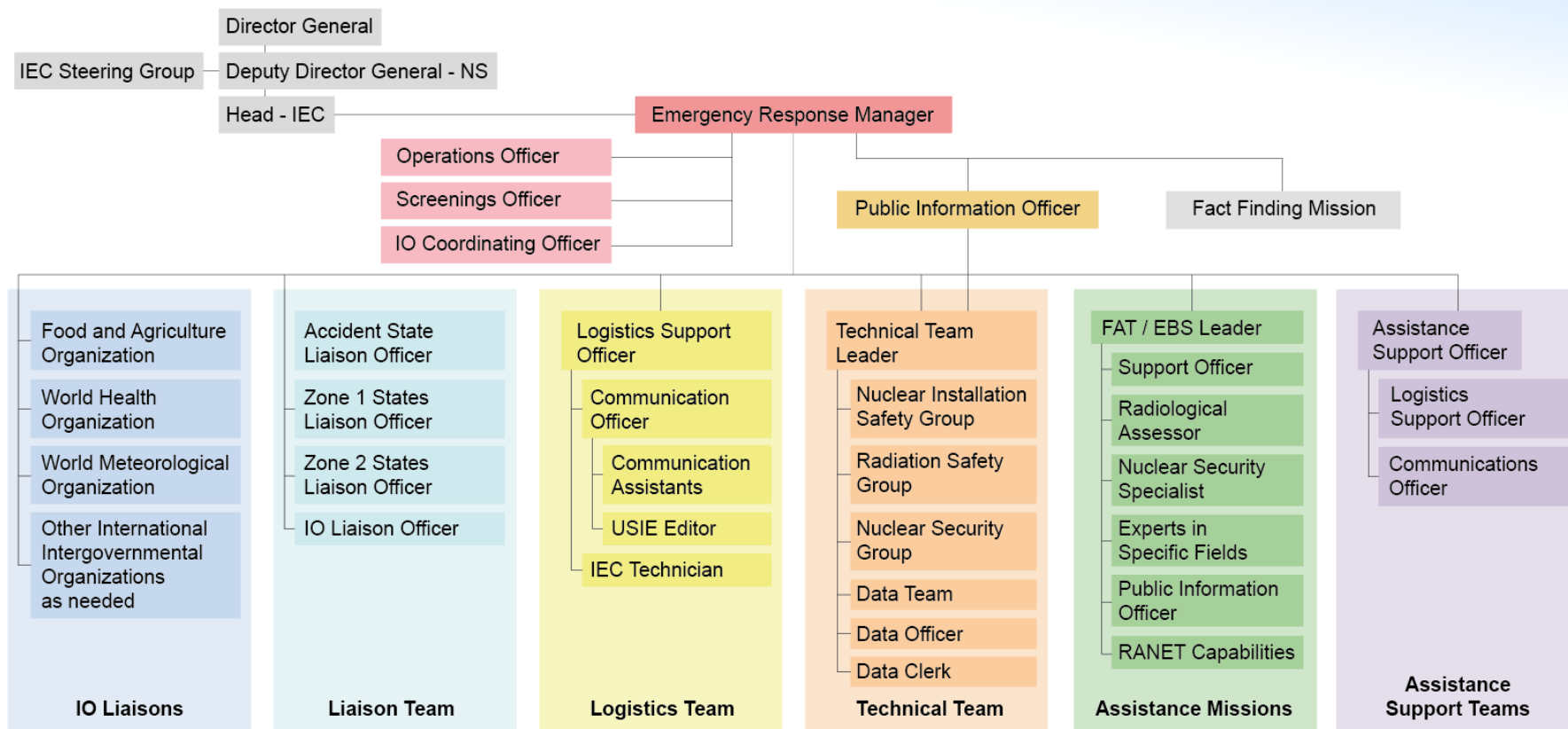
- State Parties register National Assistance Capabilities (NAC) in RANET
- **Field Assistance Teams (FAT)**
- Deployable assets consisting of qualified and equipped experts
- **External Based Support (EBS)**
- Reach-back or off-scene capabilities
- Assessment, analysis and advice

Emergency Response Manager (ERM). Duties and Responsibilities



- Ensures timely initial response
- Arranges for authentication and verification of incoming messages
- Engages on-call specialists as needed
- Ensures prompt transmission of notification
- Offers Agency's Good Offices
- Declares activation of IEC and decides to activate additional human resources
- Informs relevant staff

IAEA's IES Structure in Full Response Mode



Remarks:

- Positions are activated based on needs
- On-call officers continue to be available at all times
- In Basic response mode, more than one function may be assigned to a person

EBS
FAT
IEC
IO

External Based Support
Field Assistance Team
Incident and Emergency Centre
International Organizations

OPIC
RANET
USIE

Office of Public Information and Communication
Response and Assistance Network
Unified System for Information Exchange
in Incidents and Emergencies

IEC Modes of Operation

- **Normal/Ready Mode**
 - IEC day-to-day activities
 - 24 hour warning point provided by UN Security Control Centre in VIC:
 - Faxes and USIE notifications
 - Telephone calls to IAEA IEC received
 - On-call Officers available to respond 24/7
- **Basic Response Mode**
 - Responses that do not require 24/7 staffing
 - Requires activation of additional response staff (duty officers)
 - IEC operations room becomes focal point of response
 - 24 hour warning point provided by UN Security Centre in VIC
- **Full Response Mode**
 - Responses that require 24/7 staffing; examples:
 - General Emergency at Nuclear Installation
 - Detonation of RDD
 - Other transnational emergency
 - IEC operations room staffed continuously
 - Duty officers activated as needed
 - Communications made directly to IEC



IAEA's in-house preparedness

- IAEA's Incident and Emergency System (IES)
- IAEA Response Plan for Incidents and Emergencies – **REPLIE**

IEC as IAEA's focal point

- Develops and keeps response arrangements up-to-date
- Maintains and enhances state of the art response infrastructure and capabilities
- Develops and implements effective training and exercise programme



Key points

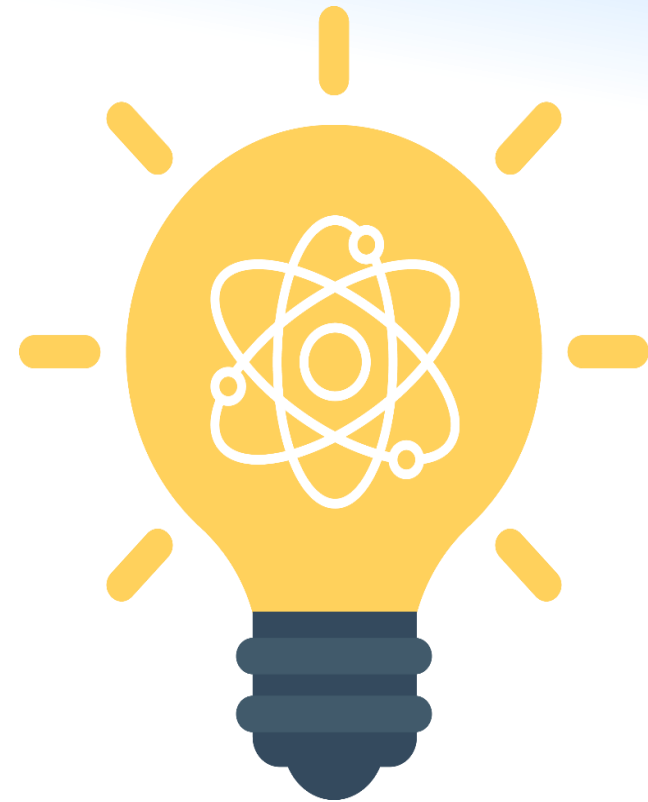
IAEA's roles in preparedness are:

- Provision of IAEA Safety Standards, guidance and tools
- Encouragement of Capacity building in EPR / Capacity Building Centres on EPR
- Provision, upon request, of Emergency Preparedness Review (EPREV)
- Ensuring IAEA's in-house preparedness
- Ensuring Inter-agency preparedness

IAEA's roles in response are:

- Notification and official information exchange
- Provision of public information
- Assessment and prognosis
- Provision of assistance on request
- Coordination of inter-agency response

IAEA's Incident and Emergency Centre (IEC) is focal point for these tasks



Where to get more information

- IAEA Statute (1956)
- Convention on Early Notification of a Nuclear Accident (1986)
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1986)
- IAEA GSR Part 7 (2015)
- IAEA EPR-JPLAN (2017)
- IAEA EPR-RANET (2018)
- IAEA EPR-IEComm (2019)

iec.iaea.org

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Thank you!

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