IAEA
Emergency Preparedness and Response Programmes

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Incident and Emergency Centre

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International Atomic Energy Agency

IEC - Mission Statement

Global Focal Point

for

International Preparedness, Communication and Response

For

Nuclear and Radiological Safety or Security Related Incidents, Emergencies, Threats or Events of Media Interest

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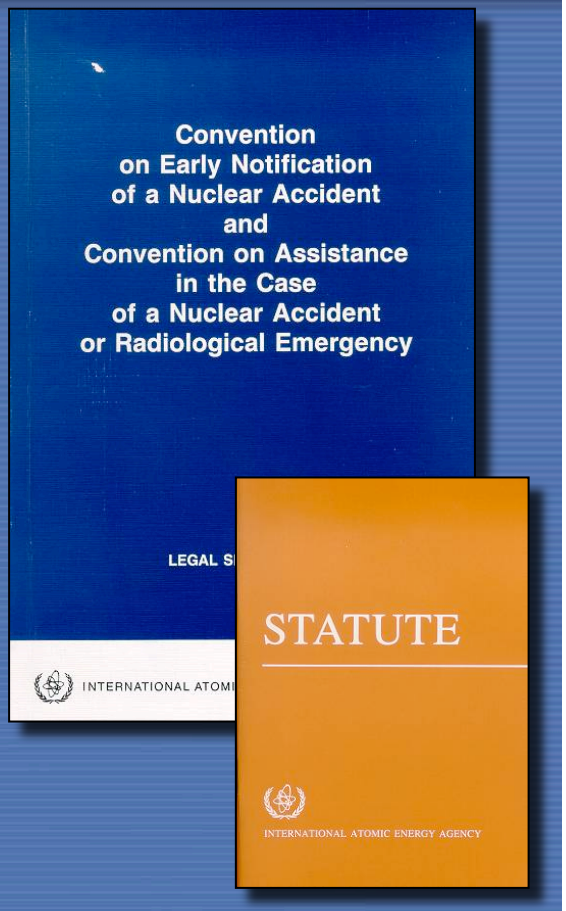
IEC – Rationale

IEC Activities based on:

- IAEA Statute
- Convention on Early Notification of a Nuclear Accident
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Physical Protection of Nuclear Material



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Response

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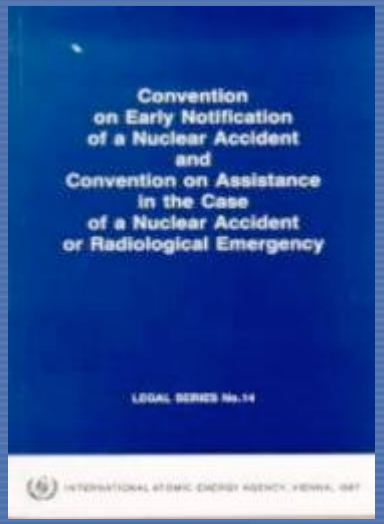
Immediate response

- Convention on Early Notification and Assistance

- Incident and Emergency Centre provides the 24/7 contact point



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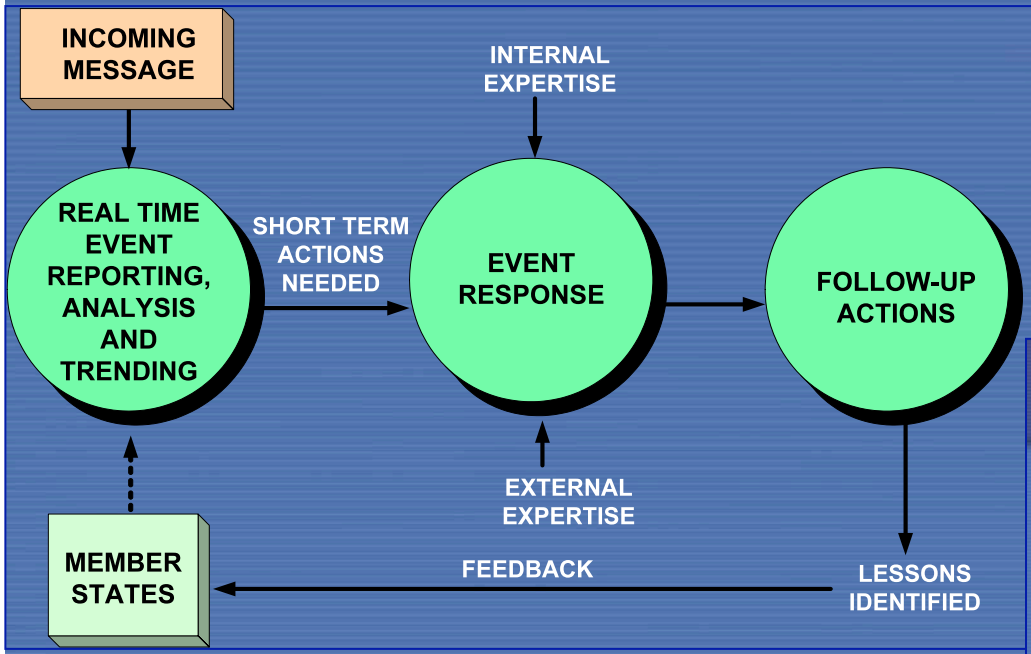
IEC Response

24/7 Coverage



ON CALL:

- Emergency Response Manager
- Logistics Support Officer
- Radiation Safety Specialist
- Nuclear Installation Safety Specialist
- Nuclear Security Specialist

Practical Implementation

- Telephone
- Facsimile
- ENAC
- Email
- Video conferencing

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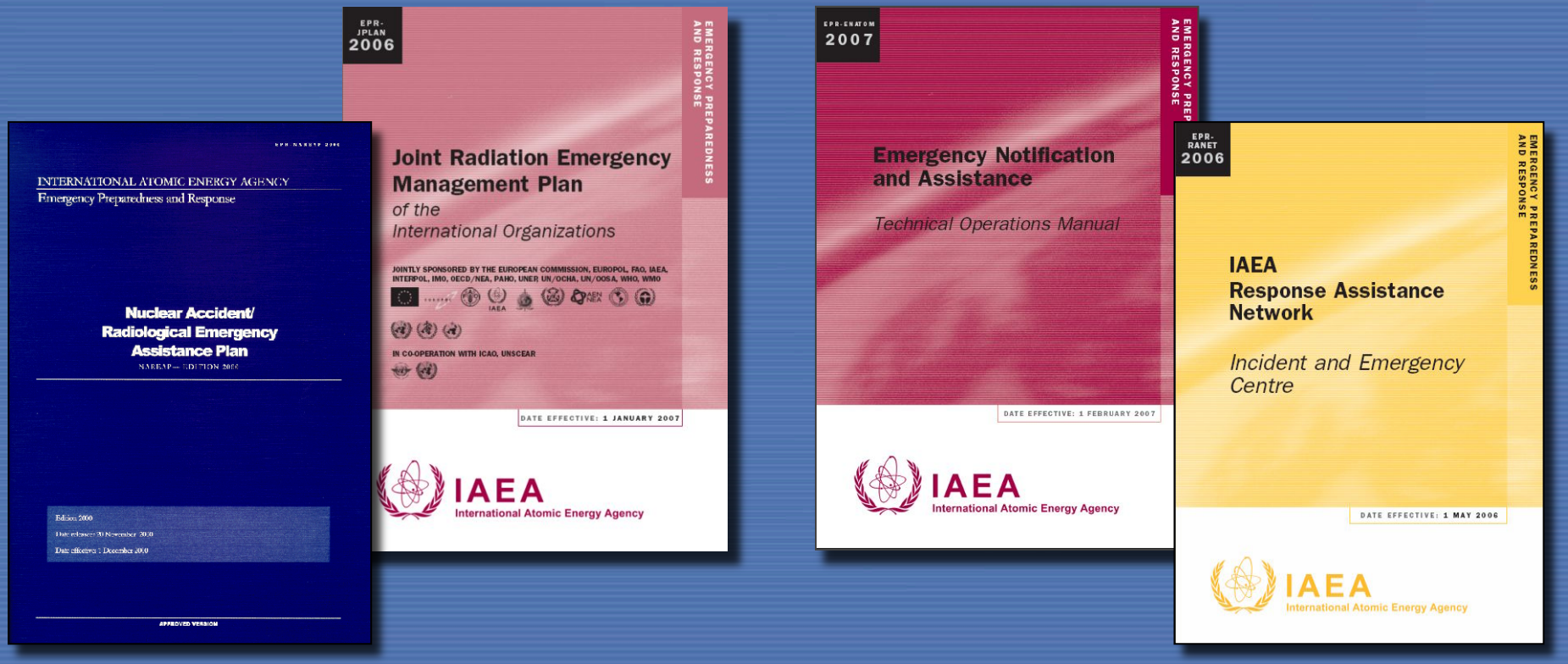
Response Plans and Protocols

We follow procedures as agreed with MS:



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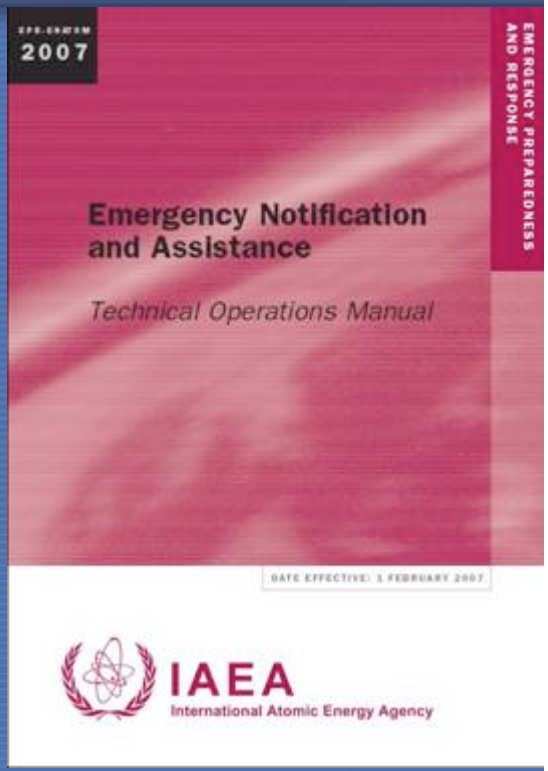
International Network of Contact Points

- State Parties and Member States make known to IEC their contact points – required by Convention
- IEC informs you of accidents abroad (24/7)
- You can request assistance from or through the IAEA
- Documented in ENATOM manual
- Regularly tested and exercised



ENATOM manual:
http://www-pub.iaea.org/MTCD/publications/PDF/ENATOM2007_web.pdf

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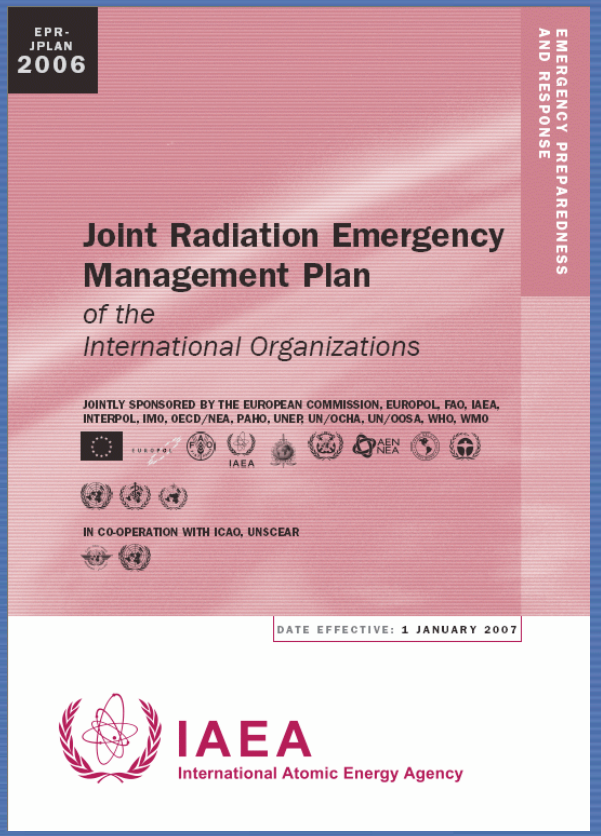
Operational Arrangements JPLAN

- Joint Plan describes:
  - objectives of response
  - organizations involved in response
  - roles and responsibilities
  - interfaces among them and between them and States
  - operational concepts
  - preparedness arrangements



http://www-pub.iaea.org/MTCD/publications/PDF/JPLAN2006_web.pdf

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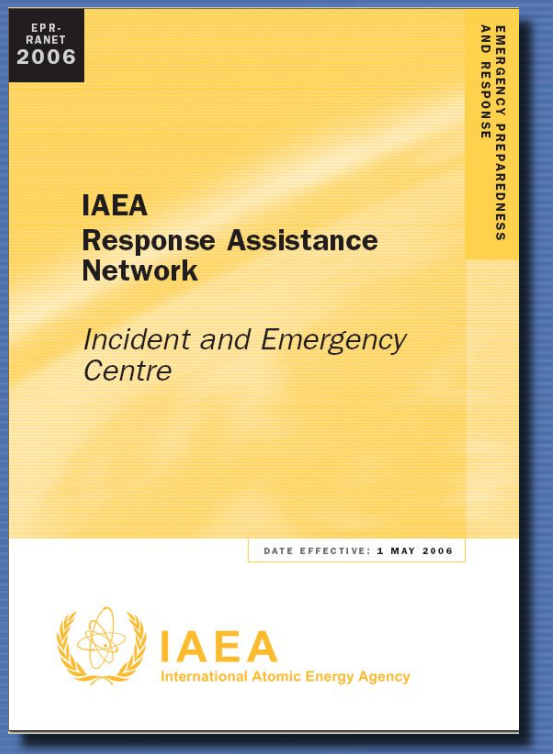
IAEA – Member States Operational Arrangements Response Assistance NETwork (RANET)

- Practical implementation of Assistance Convention
- Network of Competent Authorities and their National Assistance Capabilities (NAC)



http://www-pub.iaea.org/MTCD/publications/PDF/Ranet2006_web.pdf

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Preparedness

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Counterparts

- Member States' Competent Authorities
- Regulatory Bodies
- Emergency Planners
- Emergency Managers
- First Responders
- Radiological Assessors
- Medical Community

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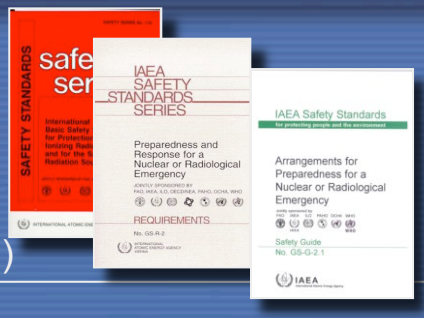
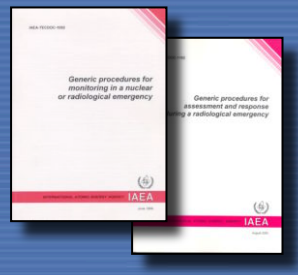
Strengthening National EPR Capabilities:

IAEA EPR Standards, Guidance and Tools

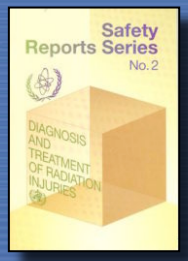


Safety Standards
(fundamentals, requirements and guides)

EPR Series



TecDoc:s



Safety Reports

Accident Reports

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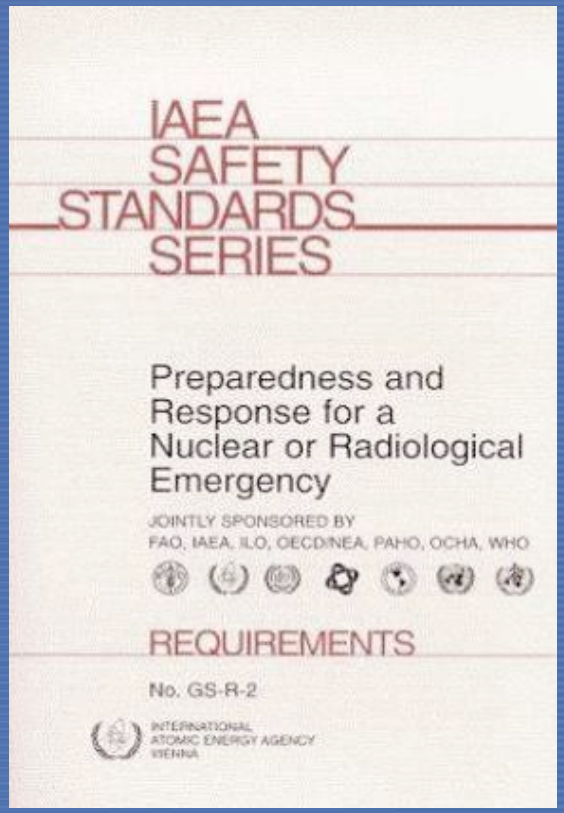
GS-R-2

- Requirements for Preparedness and Response for a Nuclear or Radiological Emergency
  - Infrastructure needed and functions to be performed
  - Co-sponsored by FAO, IAEA, ILO, NEA, OCHA, PAHO and WHO



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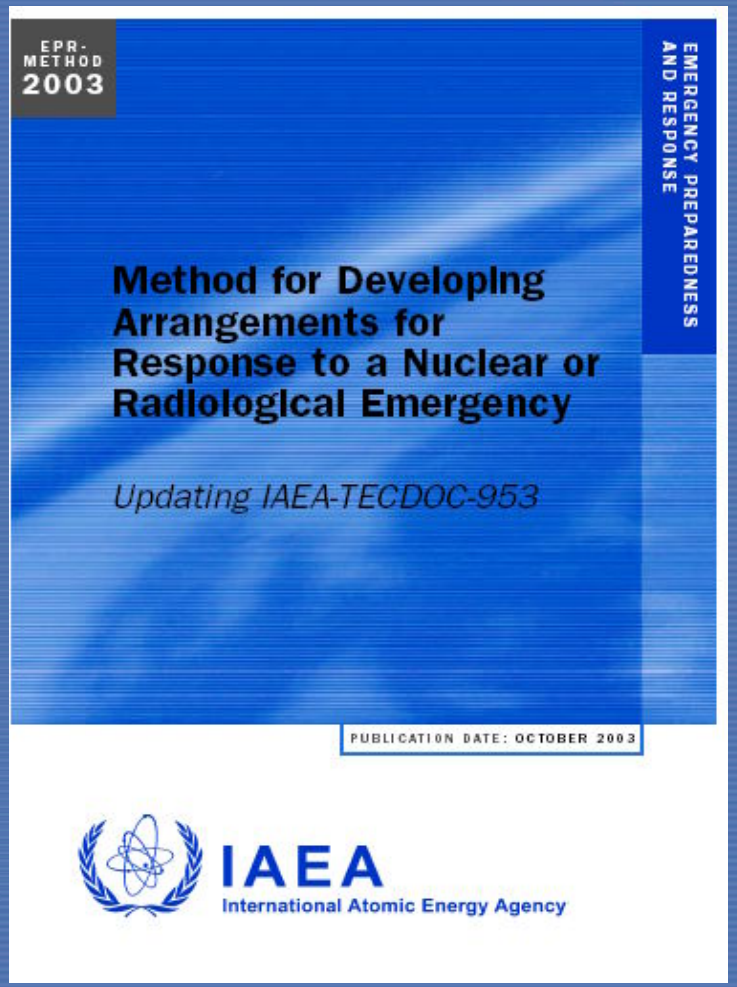
EPR-Method

- Method for Developing Arrangements for Response to a Nuclear or Radiological Emergency
- Provides guidance for meeting the requirements (GS-R-2)



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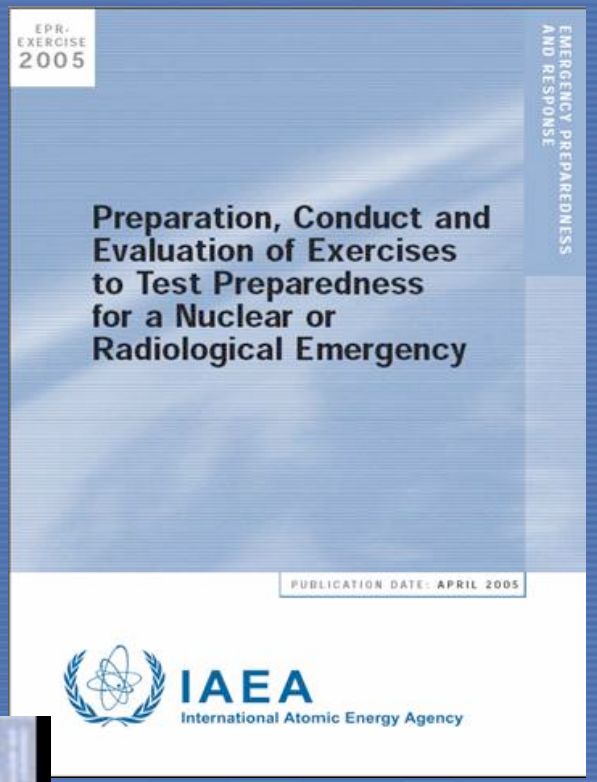
EPR-Exercise

- Preparation, conduct and evaluation of exercises to test preparedness for a nuclear or radiological emergency
  - Provides practical guidance for planners to efficiently and effectively prepare, conduct and evaluate emergency response exercises



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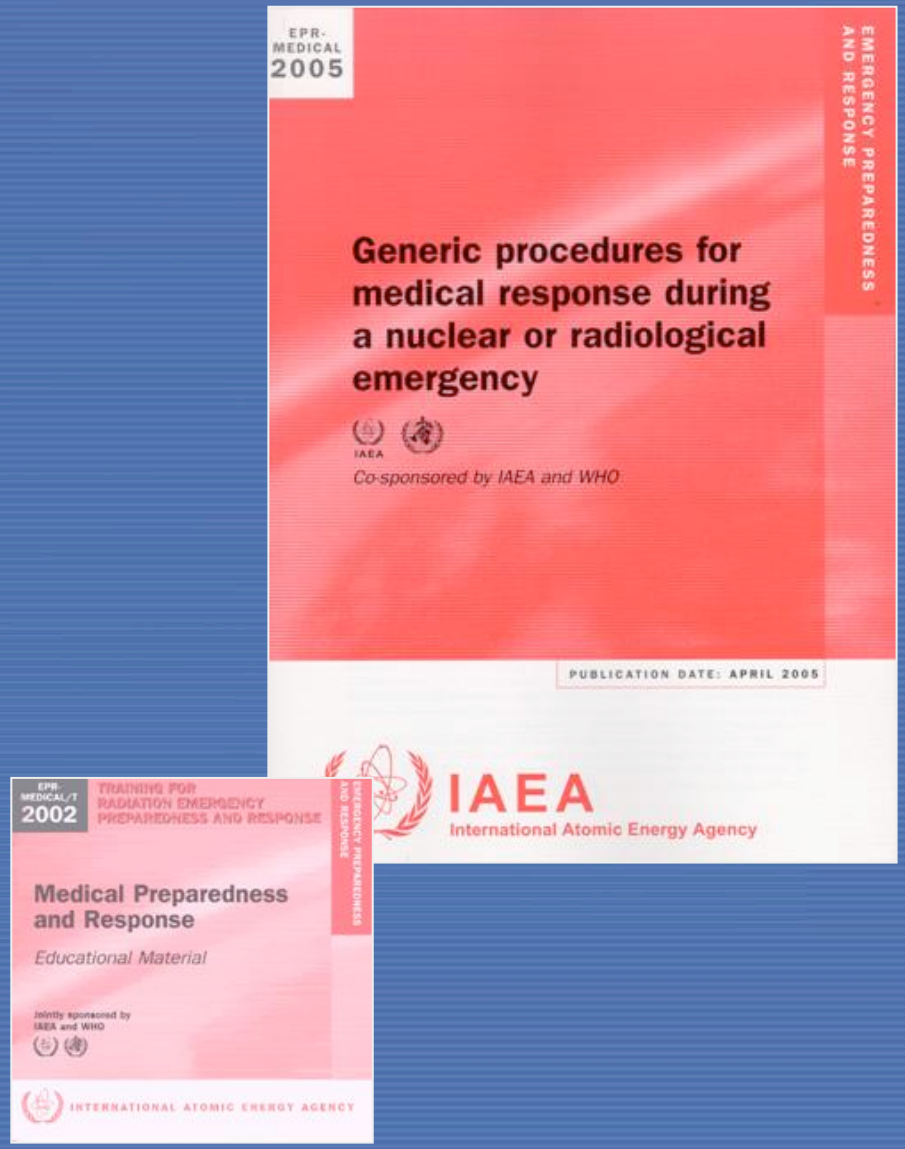
EPR-Medical

- Generic procedures for medical response during a nuclear or radiological emergency
  - Provides generic response procedures for medical personnel responding to different types of radiation emergencies
  - Co-sponsored by WHO
  - Available in English, Chinese, Russian
- CD with training materials is under review to be consistent with RANET technical specifications



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Case Studies

http://www-pub.iaea.org/MTCD/publications/accres.asp

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Manual for First Responders to a Radiological Emergency

- Guidance for first responders who will respond during first few hours and for national officials who would support this early response
  - Action guides, instructions, data
  - Cosponsored by CTIF, PAHO and WHO
- Translated into Arabic, French, Russian, Spanish

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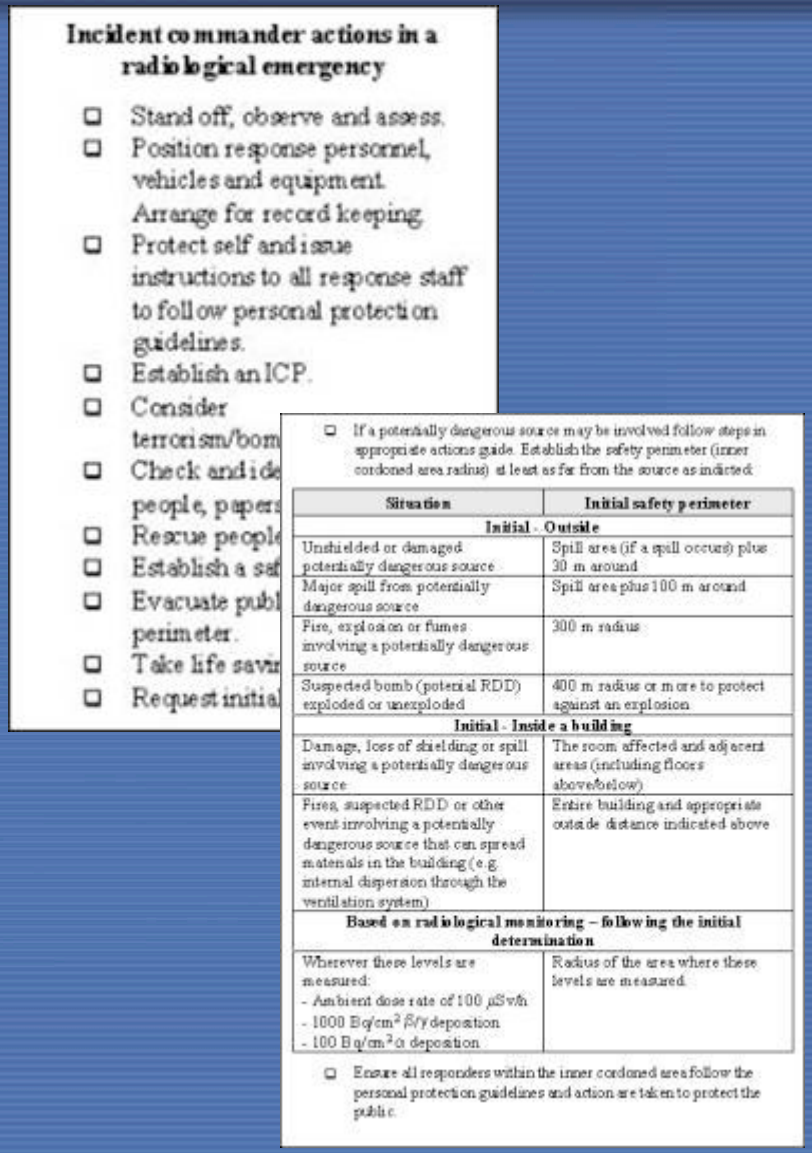
http://www-pub.iaea.org/MTCD/publications/PDF/EPR_FirstResponder_web.pdf

Response cards

- For all members of response
- Format (A6 and 60 mm × 90 mm) ready for reproduction and use in the field



Incident commander actions in a radiological emergency

- ☐ Stand off, observe and assess.
- ☐ Position response personnel, vehicles and equipment. Arrange for record keeping.
- ☐ Protect self and issue instructions to all response staff to follow personal protection guidelines.
- ☐ Establish an ICP.
- ☐ Consider terrorism/bom
- ☐ Check and ide people, paper
- ☐ Rescue peopl
- ☐ Establish a saf
- ☐ Evacuate publ perimeter.
- ☐ Take life savi
- ☐ Request initia

☐ If a potentially dangerous source may be involved follow steps in appropriate actions guide. Establish the safety perimeter (inner cordoned area radius) at least as far from the source as indicated:

Situation	Initial safety perimeter
Initial - Outside	
Unshielded or damaged potentially dangerous source	Spill area (if a spill occurs) plus 30 m around
Major spill from potentially dangerous source	Spill area plus 100 m around
Fire, explosion or fumes involving a potentially dangerous source	300 m radius
Suspected bomb (potential RDD) exploded or unexploded	400 m radius or more to protect against an explosion
Initial - Inside a building	
Damage, loss of shielding or spill involving a potentially dangerous source	The room affected and adjacent areas (including floors above/below)
Fires, suspected RDD or other event involving a potentially dangerous source that can spread materials in the building (e.g. internal dispersion through the ventilation system)	Entire building and appropriate outside distance indicated above
Based on radiological monitoring – following the initial determination	
Wherever these levels are measured: - Ambient dose rate of 100 μSv/h - 1000 Bq/cm² β/γ deposition - 100 Bq/cm² α deposition	Radius of the area where these levels are measured

☐ Ensure all responders within the inner cordoned area follow the personal protection guidelines and action are taken to protect the public.

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Website for First Responders

IAEA.org
International Atomic Energy Agency

What to do in a radiological emergency

This site provides guidance for first responders on how to respond to a radiological emergency. The guidance is based on the IAEA Manual for first responders to a radiological emergency.

Caution: This guidance should only be used once it has been integrated with national and local emergency arrangements including translation; revision to be consistent with local organizations and concepts of operation; training conducted and finally tested during drills and exercises. Although great care has been taken to maintain the accuracy of information on this site, neither the IAEA nor its Member States assume any responsibility for consequences, which may arise from its use.

For further information please contact IEC Information

http://www-ns.iaea.org/tech-areas/emergency/iec/frg/

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Portable First Response Assistant

IAEA.org
International Atomic Energy Agency

Portable First Response Assistant

The Portable First Response Assistant for Radiological Emergencies is a tool that may be used by emergency service personnel as an aid in the field when responding to a radiological emergency. It is based on the material in the IAEA Manual for first responders to a radiological emergency and contains quick guides with response actions, instructions and information useful in the first response to a radiological emergency.

The tool has been designed for use on portable devices, such as handheld computers and smart phones, and requires only a web browser to be used.

Caution: The Portable First Response Assistant for Radiological Emergencies should only be used once it has been integrated with national and local emergency arrangements including translation; revision to be consistent with local organizations and concepts of operation; training conducted and finally tested during drills and exercises. Although great care has been taken to maintain the accuracy of information contained in the tool, neither the IAEA nor its Member States assume any responsibility for consequences, which may arise from its use.

- Download (4.3MB)
- Try out online

This product has been made available for download with the professional contribution of experts from Iceland and the United States.

For further information please contact IEC Information

http://www-ns.iaea.org/tech-areas/emergency/iec/frg/fra.htm

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First Responders Toolkit

- Manual for First Responders to a Radiological Emergency
- Training Materials for First Responders
  - CD with lectures, work sessions, exercises for 2 weeks course
- Portable Digital Tool for Assisting First Responders
  - CD with installation file
- E-Learning Tools for First Response to a Radiological Emergency
  - CD with 24 modules for E-Learning process

Available in UN languages

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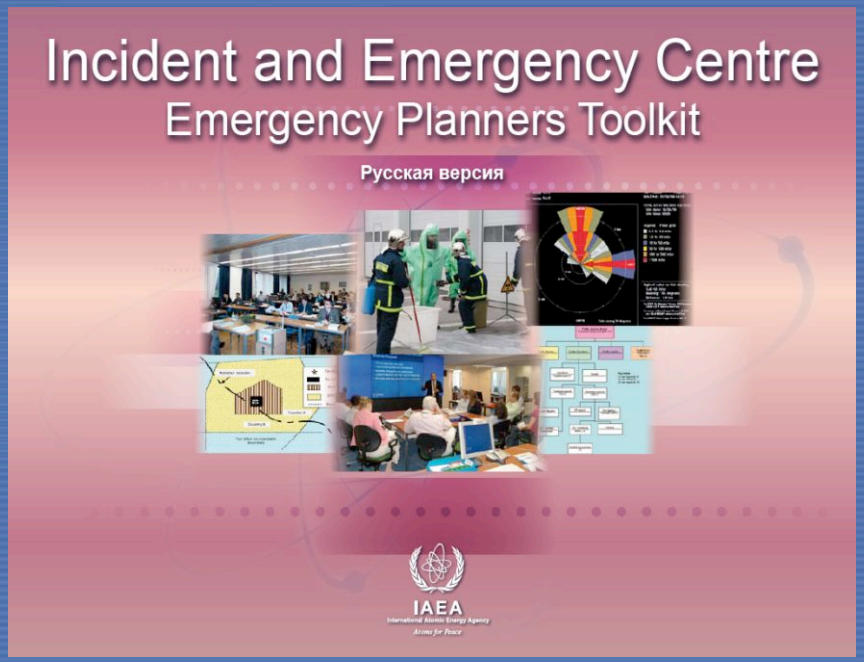
Emergency Planners Toolkit

- Method for Developing Arrangements for Response to a Nuclear or Radiological Emergency (EPR-Method)
- Preparation, Conduct and Evaluation of Exercises to Test Preparedness for a Nuclear or Radiological Emergency (EPR-Exercise)
- Associated training materials
- EPR-ENATOM

Available in UN languages



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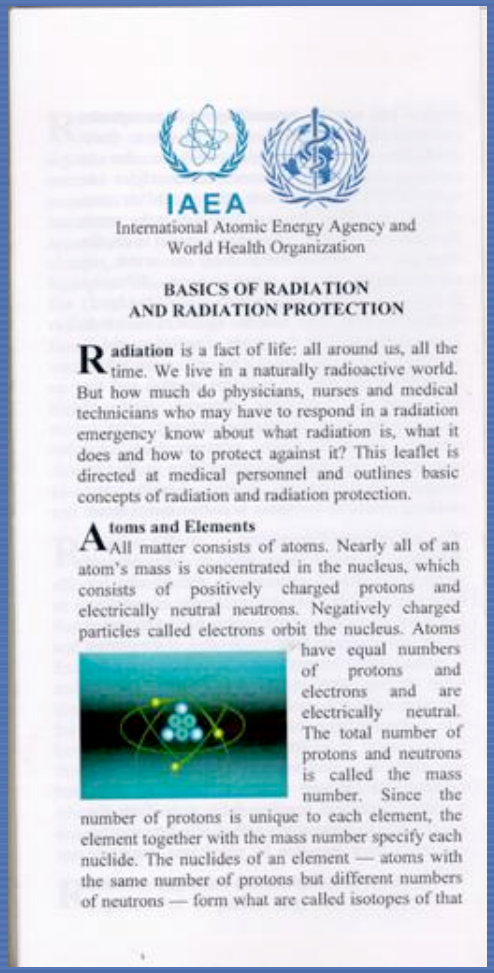
Practical application of fundamental knowledge (cont'd)

- IAEA-WHO Leaflet on "Basic of Radiation and Radiation Protection"
  - What is radiation
  - Atoms and Elements
  - Radioactivity and Radiation
  - Types of Radiation
  - Radiation Dose
  - Radiation and Living Tissue
  - Radiation Effects
  - Radiation Exposure and Radiation Protection
  - In a Radiation Emergency…



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International Atomic Energy Agency and
World Health Organization

BASICS OF RADIATION AND RADIATION PROTECTION

Radiation is a fact of life: all around us, all the time. We live in a naturally radioactive world. But how much do physicians, nurses and medical technicians who may have to respond in a radiation emergency know about what radiation is, what it does and how to protect against it? This leaflet is directed at medical personnel and outlines basic concepts of radiation and radiation protection.

Atoms and Elements

All matter consists of atoms. Nearly all of an atom's mass is concentrated in the nucleus, which consists of positively charged protons and electrically neutral neutrons. Negatively charged particles called electrons orbit the nucleus. Atoms have equal numbers of protons and electrons and are electrically neutral. The total number of protons and neutrons is called the mass number. Since the number of protons is unique to each element, the element together with the mass number specify each nuclide. The nuclides of an element — atoms with the same number of protons but different numbers of neutrons — form what are called isotopes of that

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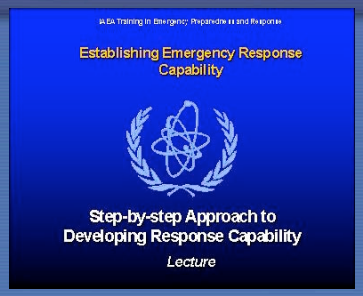
Training

Example of standard lecture



- Lecture: *Step-by-step Approach to Developing Response Capability*
- Author(s): R. Martinėič
- Status: Ready
- Modified: 28/10/2003
- Purpose:
  - To present and explain the main features of the methodology for developing response capability
- Learning objectives: Upon completion of this lecture, the participants will:
  - understand that developing a national emergency response capability requires a systematic approach
  - know that this process is modular, requires extensive consultation with all relevant organizations and that it is iterative
  - understand and learn a ten-step process
  - be aware of implementing considerations
- Duration: 1 [hrs]
- References:
  1. INTERNATIONAL ATOMIC ENERGY AGENCY, Method for developing arrangements for response to a nuclear or radiological emergency, IAEA- EPR- Method 2003, Vienna, (2003)
  2. INTERNATIONAL ATOMIC ENERGY AGENCY, Preparedness and Response for a Nuclear or Radiological Emergency, Safety Standards Series No. GS-R-2, Vienna (2002)

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IAEA Regional Train-the-trainers Workshop
RER/9/064

Procedures for Medical Response during Radiation Emergency

20 – 24 May 2002
Zagreb, Croatia

WORKSHOP MANUAL

Prepared/Modified: 25/02/2002

INTERNATIONAL ATOMIC ENERGY AGENCY IAEA

Radiological Emergency Response Exercise

Medical scenario

Exercise Manual

INTERNATIONAL ATOMIC ENERGY AGENCY IAEA

February 2005

Example of standard working session

- Drill: *IVHW_3 Projection of Protective Action Distances*
- Author(s): G. Winkler
- Status: Master In development
- Modified: 07/05/2003
- Purpose:
  - Add drill's (work session) goals that trainer has to meet; see Lesson Plan
- Learning objectives: Upon completion of this work session/drill, the participants will:
  - Add performance goals for the participants— what they are expected to be able to do upon completion of the lesson; see Lesson Plan
- Duration: Add duration time [hrs]
- Resources: List needed resources (equipment)
- References:
  1. List references for this lesson (if any)

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IAEA Training in Emergen

Nuclear E

Examples of the IAEA training events

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Training on Emergency Monitoring in Chernobyl Exclusion Zone

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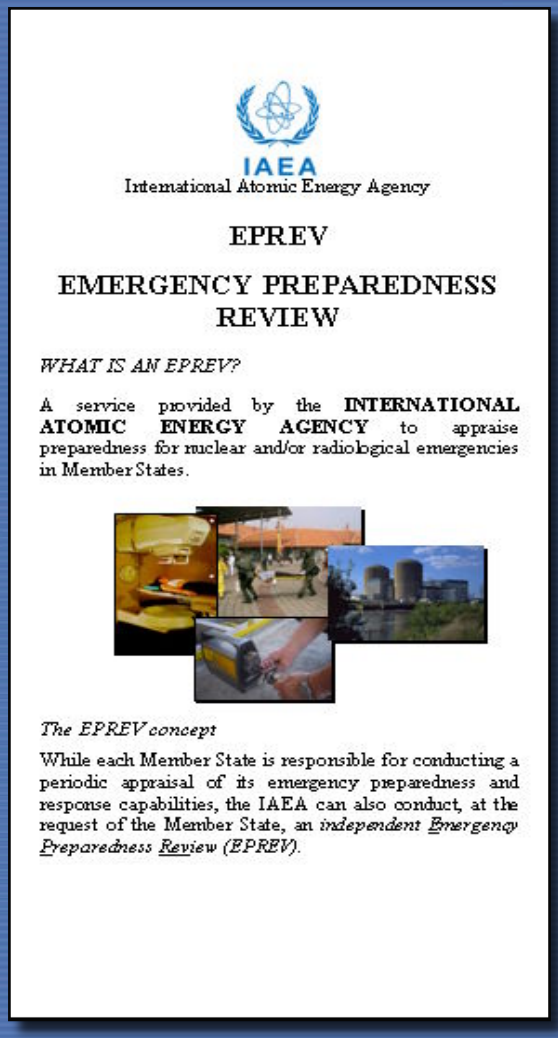
First Responders Manual Exercise

RDD Exercise in Indonesia using
FIRST RESPONDER MANUAL
(IAEA, 2005)

Emergency Preparedness Review

EPREV missions

Self assessments



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EPREV

EMERGENCY PREPAREDNESS REVIEW

WHAT IS AN EPREV?

A service provided by the **INTERNATIONAL ATOMIC ENERGY AGENCY** to appraise preparedness for nuclear and/or radiological emergencies in Member States.

The EPREV concept

While each Member State is responsible for conducting a periodic appraisal of its emergency preparedness and response capabilities, the IAEA can also conduct, at the request of the Member State, an *independent Emergency Preparedness Review (EPREV).*

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In Conclusion……..

- Existing IAEA guidance and practical arrangements are assisting MSs in responding to radiation emergencies

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Thank

you!

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