



*The Abdus Salam
International Centre for Theoretical Physics*



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Joint ICTP-IAEA School of Nuclear Energy Management

8 - 26 August 2011

Emergency Preparedness and Response

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*IAEA, Vienna
Austria*

Emergency Preparedness and Response

International EPR Regime

R. Martincic
Incident and Emergency Centre



IAEA

International Atomic Energy Agency

What you will be listening to

- Early Notification and Assistance Conventions
- Role of IAEA
- Role of Incident and Emergency Centre
- Response and Assistance Network

The Radiological Accident in Goiânia



INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, 1988

The Radiological Accident in Samut Prakarn



Health consequences of the Chernobyl accident

Results of the IPHECA pilot projects and related national programmes

Scientific Report



World Health Organization
Geneva, 1990

The Radiological Accident in Lilo



THE RADIOLOGICAL ACCIDENT IN SAN SALVADOR

A REPORT PREPARED BY IAEA IN CO-OPERATION WITH PAHO/WHO



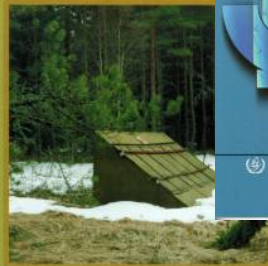
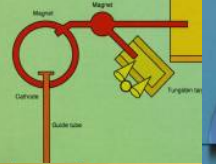
INVESTIGATION OF AN ACCIDENTAL EXPOSURE OF RADIOTHERAPY PATIENTS IN PANAMA

The Radiological Accident in Nueva Aldea



IAEA
International Atomic Energy Agency

AN ELECTRON ACCELERATOR ACCIDENT IN HANOI, VIET NAM



The Radiological Accident in Tammiku

The Radiological Accident in Istanbul



THE CRITICALITY ACCIDENT IN SAROU

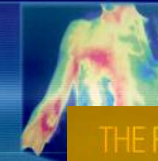


INTERNATIONAL ATOMIC ENERGY AGENCY

The Radiological Accident in Soreq



The Radiological Accident in Gilan



INTERNATIONAL ATOMIC ENERGY AGENCY

THE RADIOLOGICAL ACCIDENT IN THE REPROCESSING PLANT AT TOMSK

Vapour-gas phase
Nitric acid, 1.3 m ³
Organics
Product 401a 4 m ³ beta active solution of Nb, Ru, Zr
Pu and U
Product 166 19.5 m ³ Pu and U



INTERNATIONAL ATOMIC ENERGY AGENCY

THE RADIOLOGICAL ACCIDENT AT THE IRRADIATION FACILITY IN NESVIZH



IAEA

Report on the preliminary fact finding mission following the accident at the nuclear fuel processing facility in Tokaimura, Japan



INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, 1999

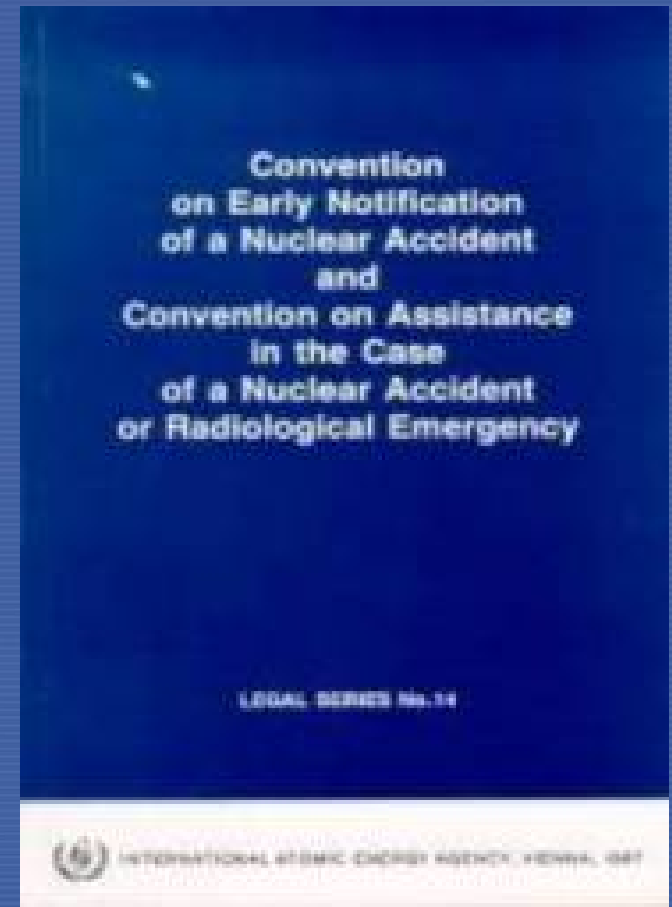
Nuclear and radiological emergencies

They DO occur!

We have to be
PREPARED
to respond!

International EPR Regime

- Convention on Early Notification of a Nuclear Accident
- Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency
- IAEA's standards, guides and tools
- Operational arrangements



Notification Convention

- Date of adoption: 26 September 1986
- Depositary Governments: IAEA
- Scope of Application
 - in the event of any accident involving facilities or activities of a State Party from which a release of radioactive material occurs or is likely to occur and which has resulted or may result in an international transboundary release that could be of radiological safety significance for another State
- Places obligations on State Parties and IAEA Secretariat



Notification Convention

Response Obligations

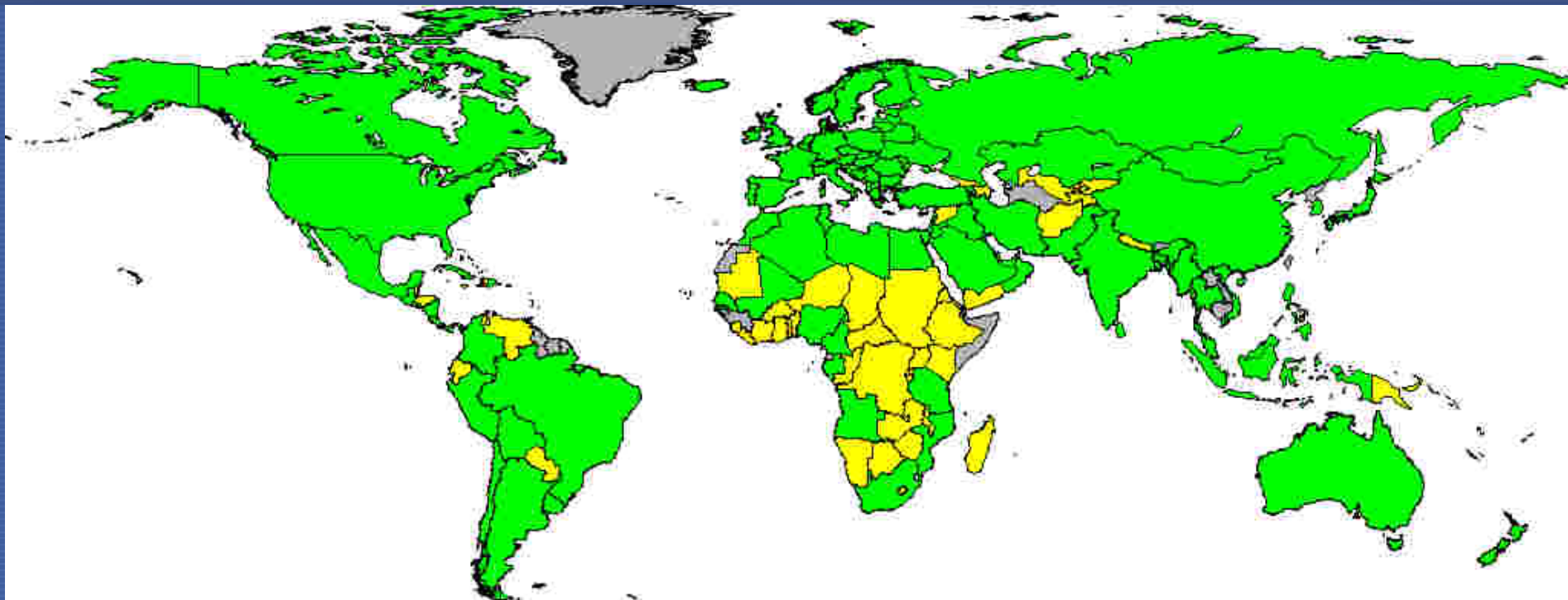
- Forthwith notify potentially affected States and relevant international organizations
- Promptly provide additional information
 - time, location and nature of event
 - facility or activity involved
 - assumed or established cause
 - general characteristics of radioactive release
 - meteorological conditions
 - monitoring data
 - protective actions, and
 - predicted behavior of radioactive release

Notification Convention

Preparedness Obligations

- State Parties
 - make known their competent authorities and point of contacts
 - National Warning Points should be available continuously (24 h/day and 7 days/week)
- IAEA
 - keep, maintain and distribute list of contact points and competent authorities to all Parties

Notification Convention



151 Member States
108 Parties including
FAO, WMO, WHO & EURATOM
(April 2010)

Assistance Convention

- Date of adoption: 26 September 1986
- Depositary Governments: IAEA
- Places obligations on State Parties and IAEA Secretariat



Assistance Convention

Response Obligations

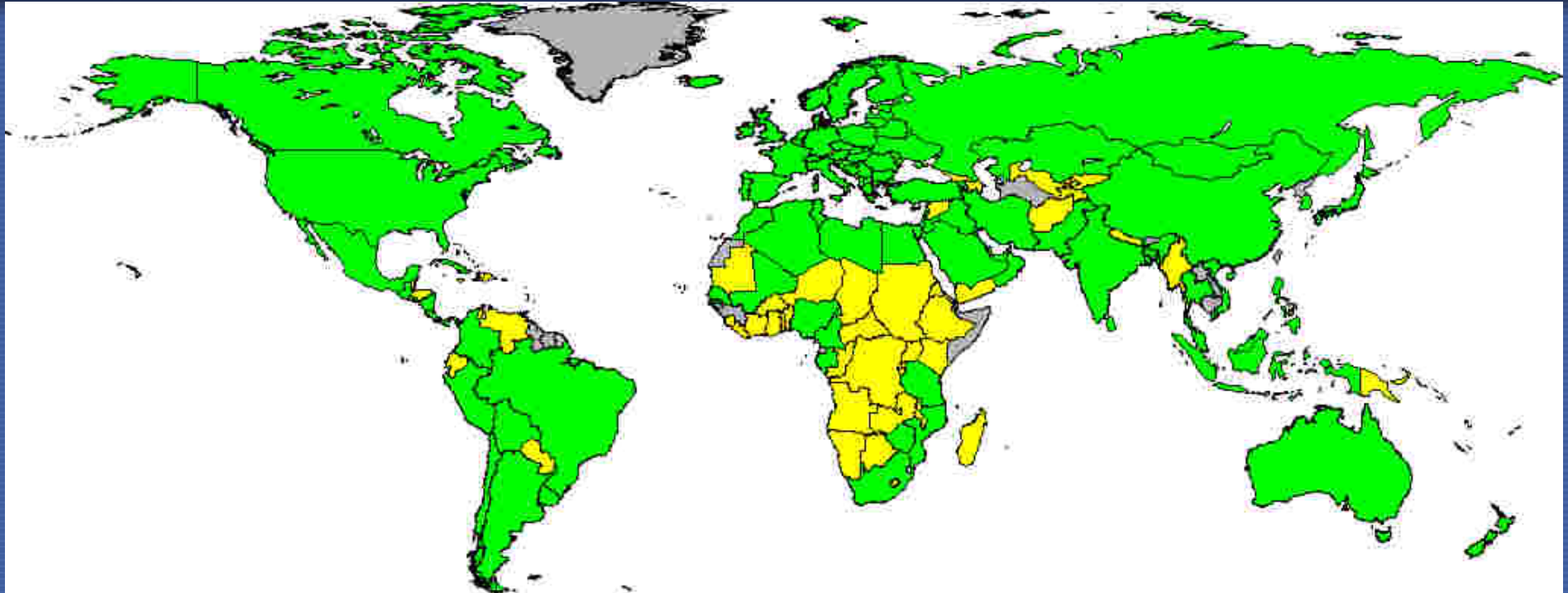
- State Party may call for assistance in event of nuclear accident or radiological emergency to minimize its consequences and to protect life, property and environment
- Agency shall make available appropriate resources, transmitting request to other State Parties and international organizations and to coordinate assistance on international level, if so requested




Assistance Convention

Preparedness Obligations

- IAEA
 - Keeps, maintains and distributes contact point list
 - Collects & disseminates information concerning experts, equipment, materials and methodologies
 - Assists, on request, with preparing emergency plans, training programs etc.
 - Makes available resources to conduct initial assessment, offer its good offices and maintain liaison with relevant international organizations

Assistance Convention



-  IAEA Member States, Parties to the Convention
-  IAEA Member States, not Parties to the Convention
-  States, not IAEA Members, not Parties to the Convention

151 Member States
105 Parties including
FAO, WMO, WHO & EURATOM
(March 2010)

IAEA's Main Response Functions

- Official information exchange
- Provision of assistance on request
- Provision of public information

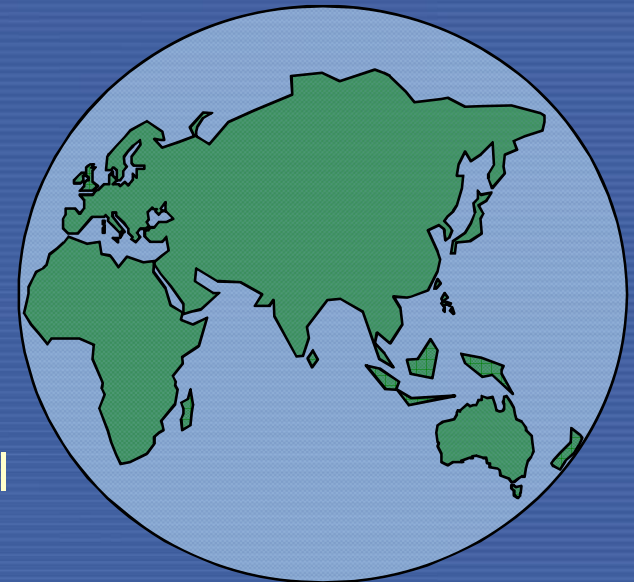
Official Information Exchange

- Condition
 - Apparent, suspected or potential impact for another State
- Actions
 - Accident state notifies Agency
 - IAEA authenticates and verifies notification
 - IAEA provides notification and verified information to States Parties, Member States and relevant international organisations
 - IAEA liaises with Accident State, affected states, other states and international organisations
 - IAEA analyses information and answers requests for information from Member States



Provision of Assistance

- State may request assistance
 - Situations with apparent, suspected or potential radiological consequences
- IAEA
 - Performs initial assessment (field mission if necessary)
 - Offers its good offices or assistance if required
 - Transmits request to States and international organizations (RANET process used)
 - Facilitates and/or coordinates assistance on international level, if requested



Public Information

- IAEA
 - Issues press releases
 - Responds to media questions
 - Keeps staff informed
 - Coordinates provision of information to public/media with State(s) and other international organizations
 - Identifies and corrects false information



IAEA's Incident and Emergency System

- 24-hr contact point for notification & requests for assistance in safety/security related radiation incidents and emergencies
 - On-call officers
- Incident and Emergency Centre
 - Rapid communications arrangements to more than 200 contact points worldwide plus 120 Permanent Missions

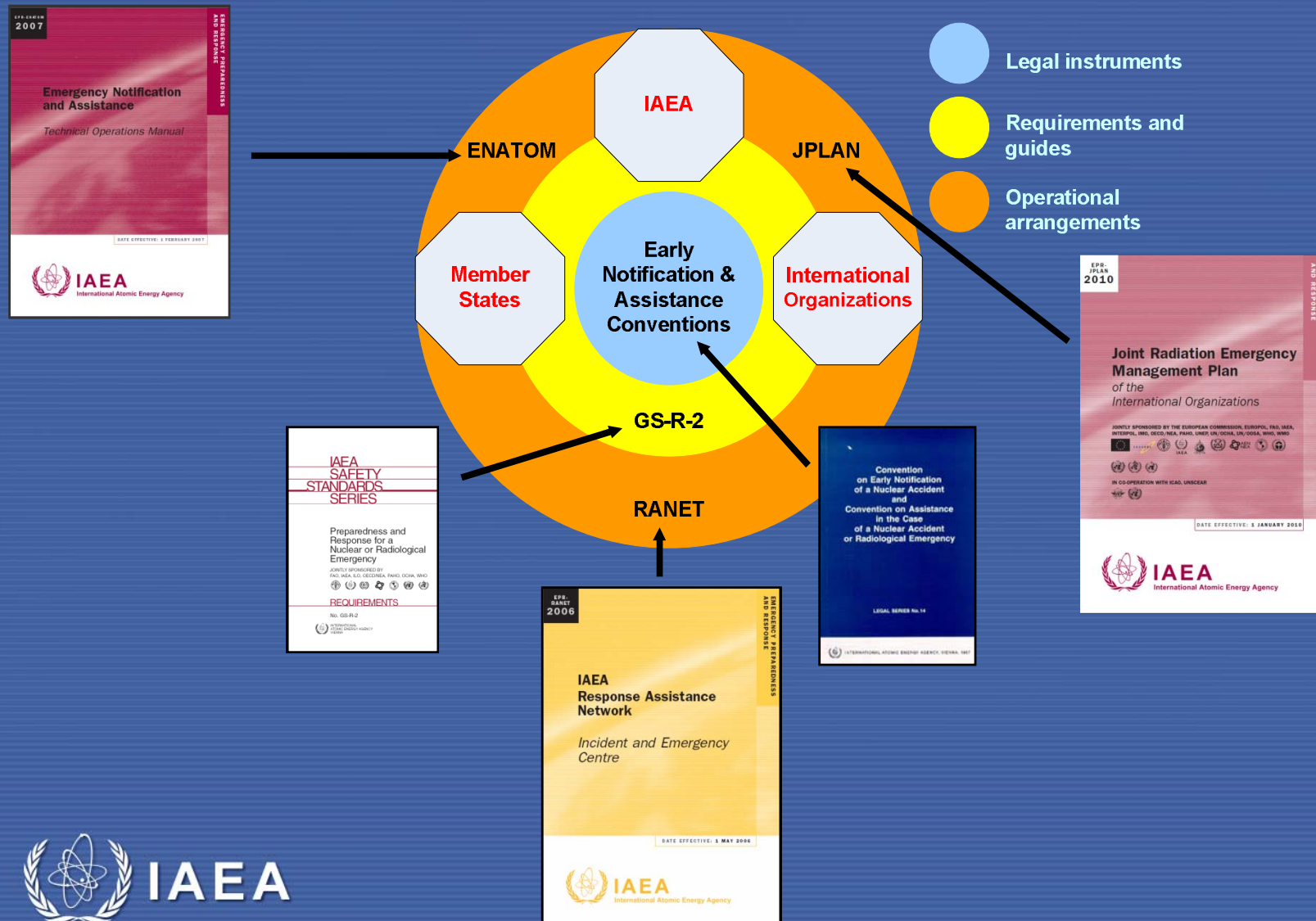
Incident and Emergency Centre



Incident and Emergency Centre – IEC

Global focal point
for international preparedness and response to
nuclear and radiological safety or security
related incidents, emergencies, threats or
events of media interest
and
world's centre for coordination of international
assistance

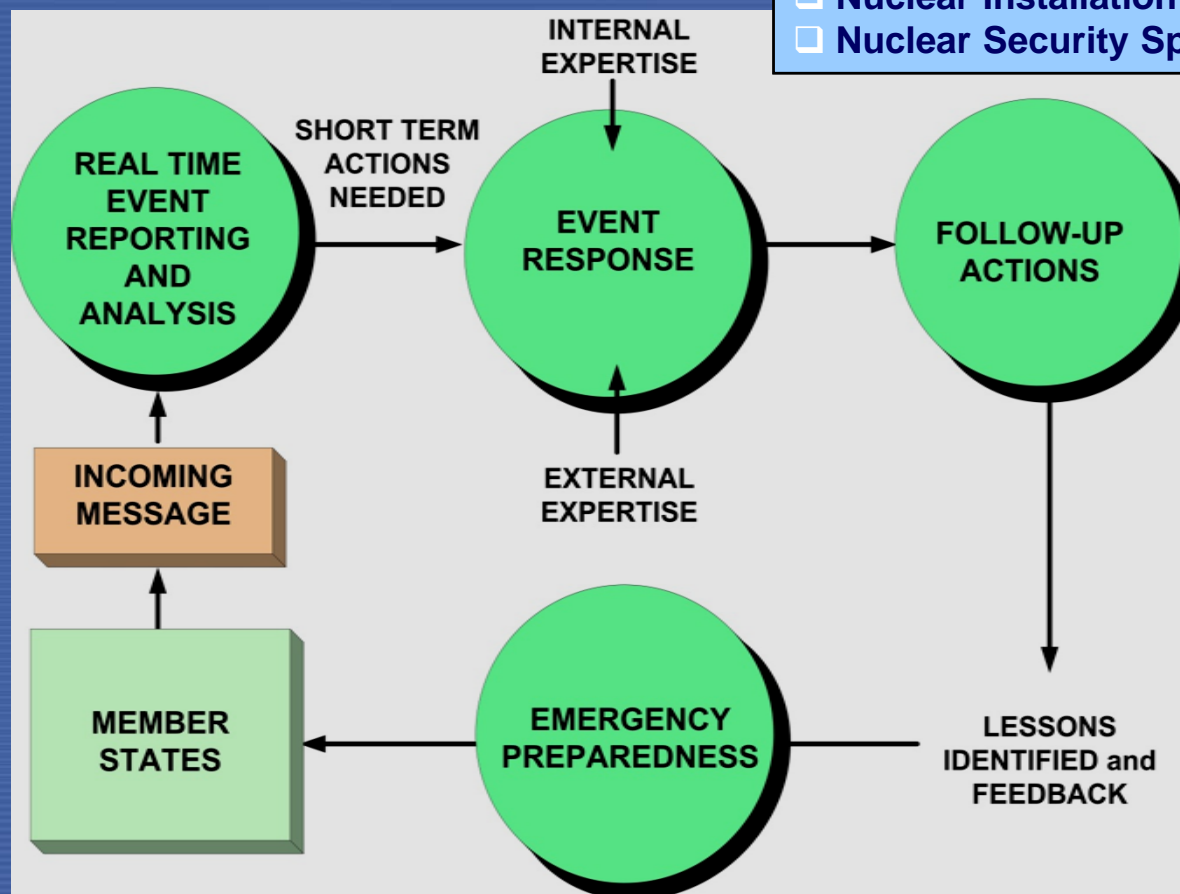
Basis for IEC Activities



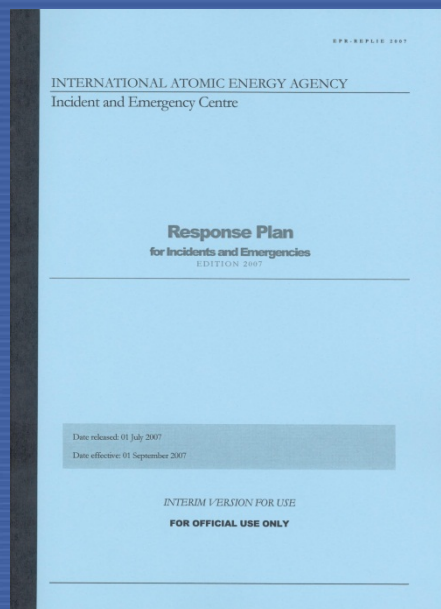
IEC – Concept of Response

24/7 Coverage

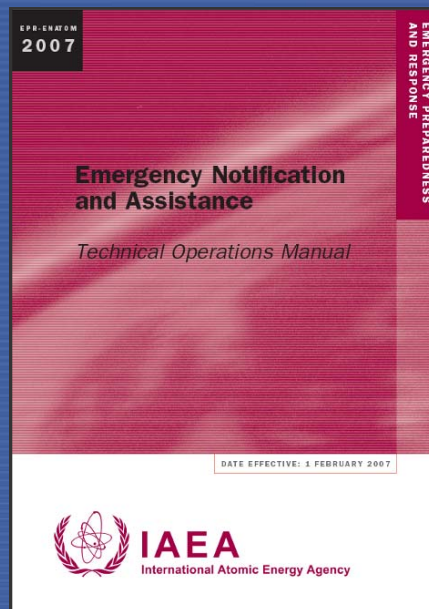
- ON CALL:**
- ☐ Emergency Response Manager
 - ☐ Logistics Support Officer
 - ☐ Radiation Safety Specialist
 - ☐ Nuclear Installation Safety Specialist
 - ☐ Nuclear Security Specialist



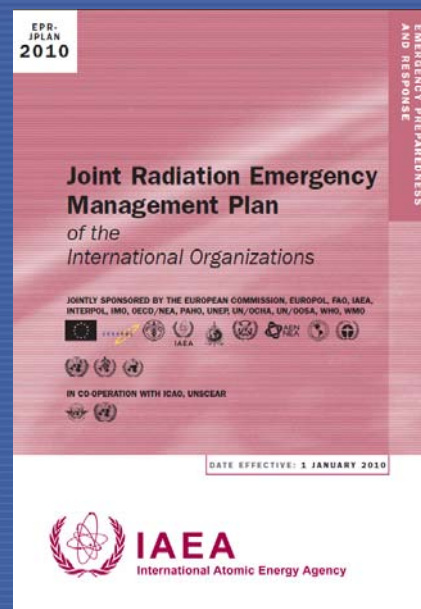
Operational Arrangements



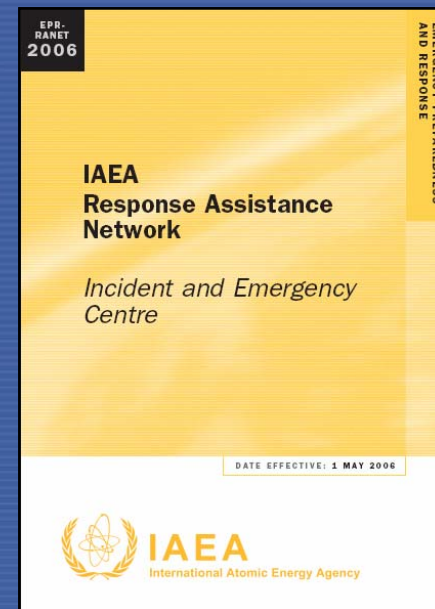
REPLIE



ENATOM



JPLAN

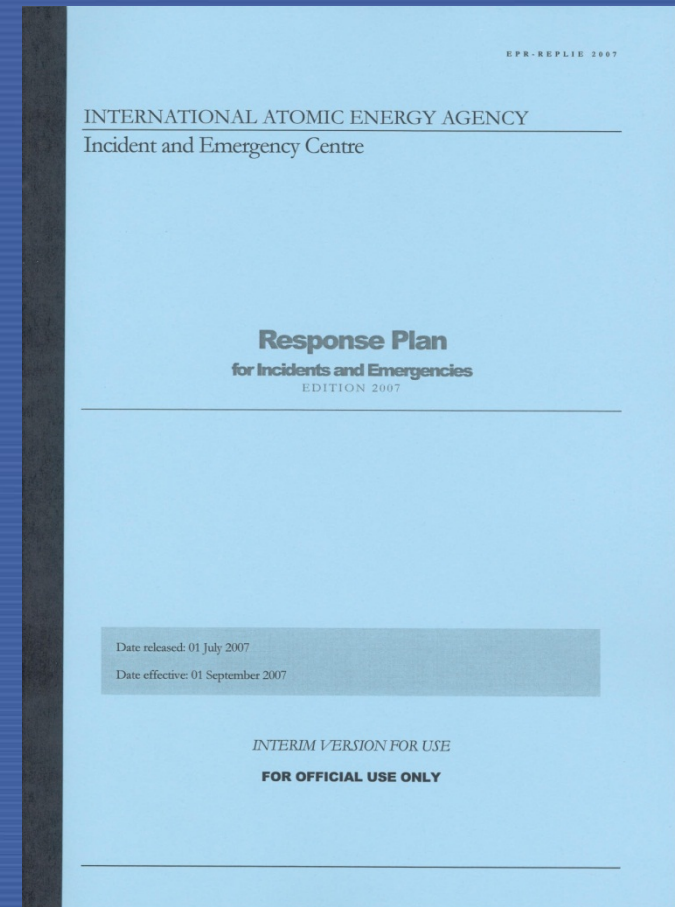


RANET

Operational Arrangements

In-house – REPLIE

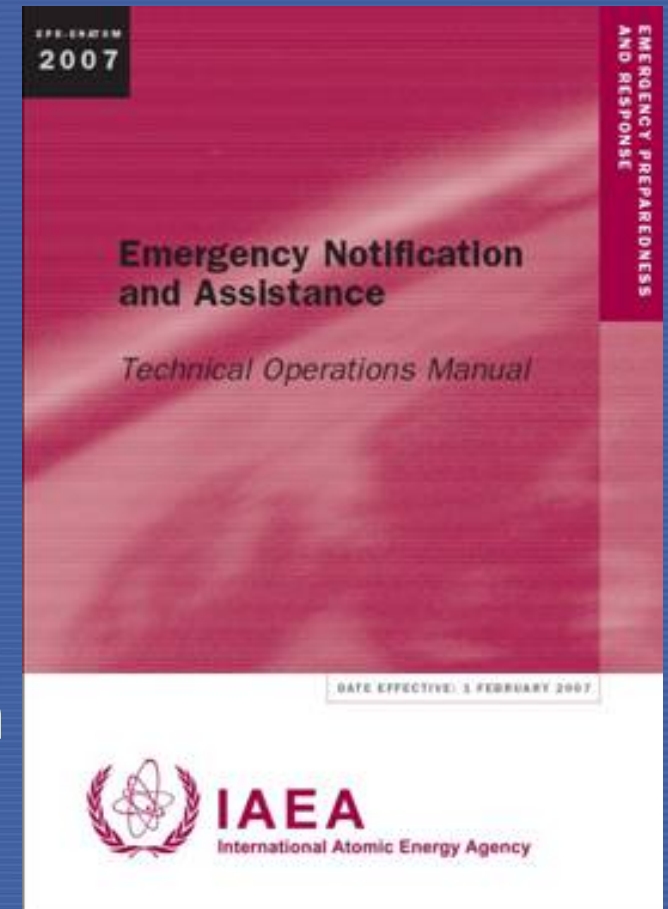
- REPLIE describes
 - In-house high-level arrangements for preparedness and response to any radiation-related event **irrespective of its cause**
 - It does not cover follow-up arrangements



Operational Arrangements

Member States – ENATOM

- ENATOM provides
 - Guidelines for States and relevant international organizations on interface with IAEA within framework of Early Notification and Assistance Conventions
 - Expectations regarding exchange of official information and timely provision of assistance

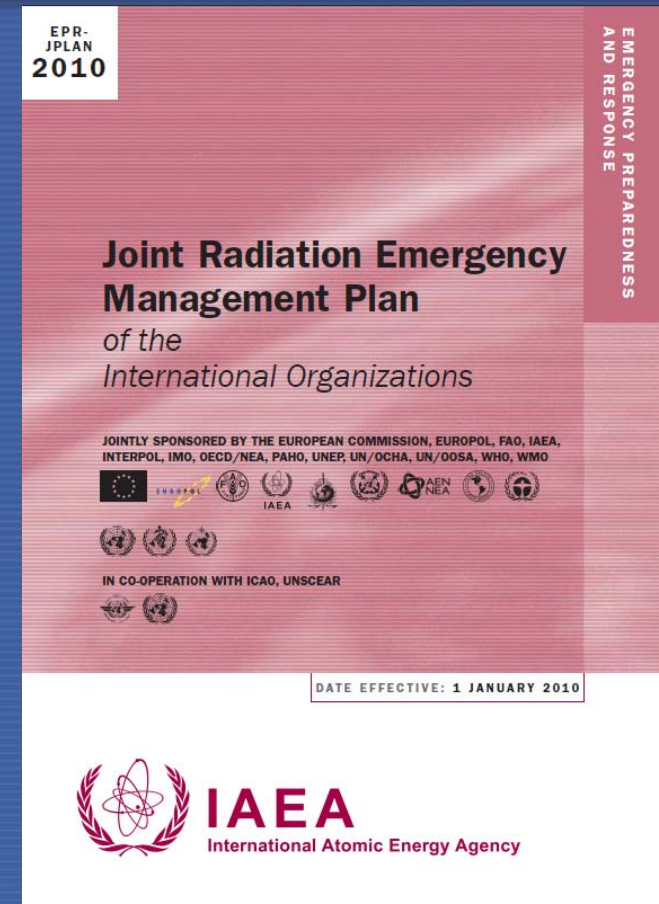


http://www-pub.iaea.org/MTCD/publications/PDF/ENATOM2007_web.pdf

Operational Arrangements

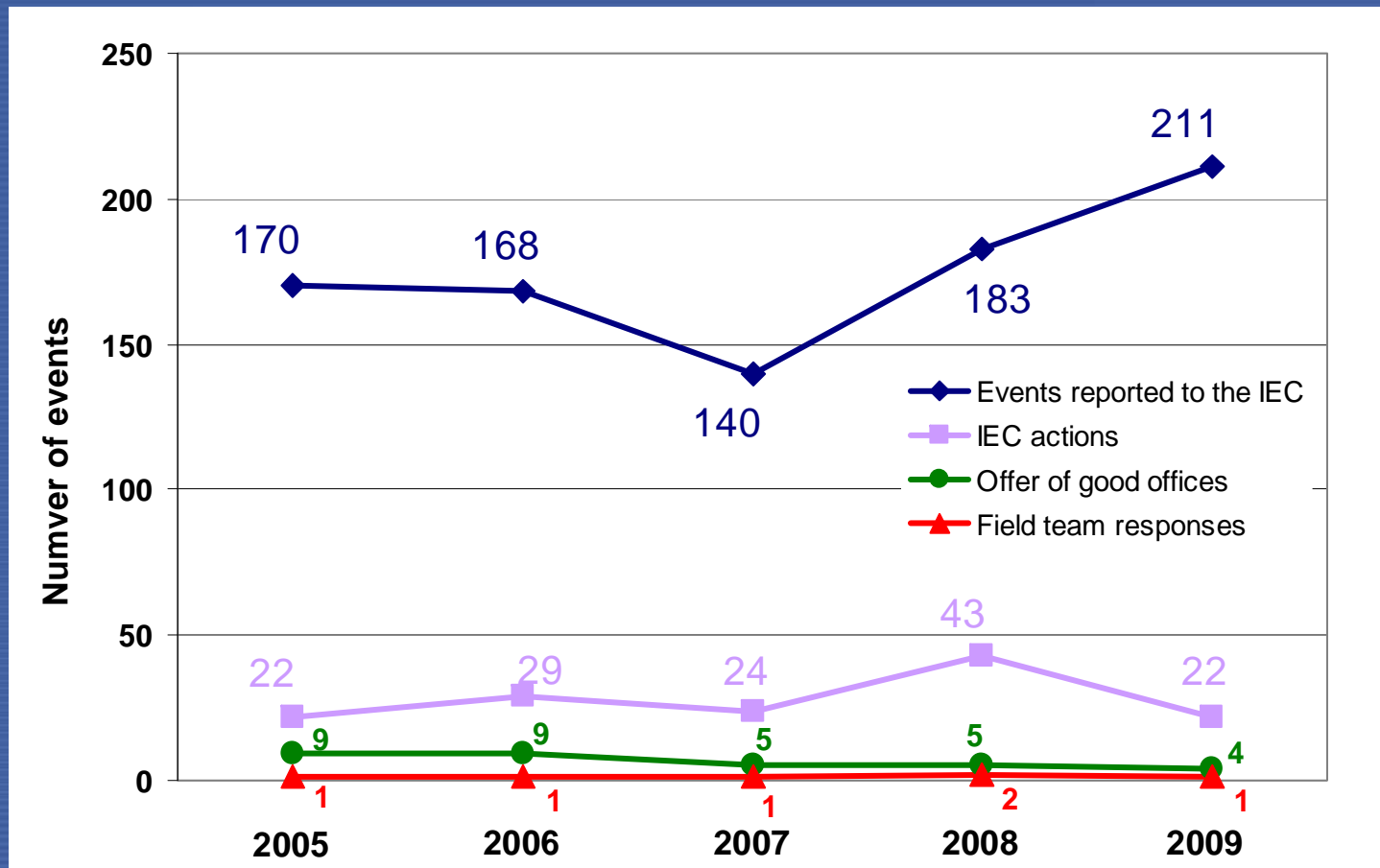
International Organizations – JPLAN

- JPLAN describes
 - Inter-agency framework for preparedness and response to an actual, potential or perceived nuclear or radiological emergency irrespective of its cause

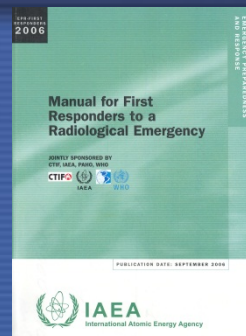
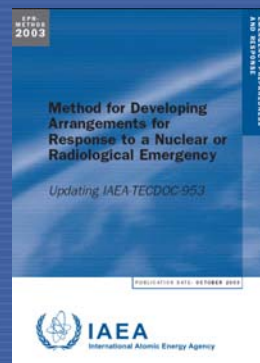
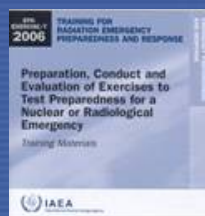
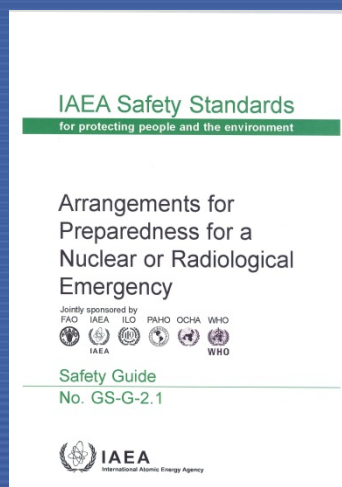
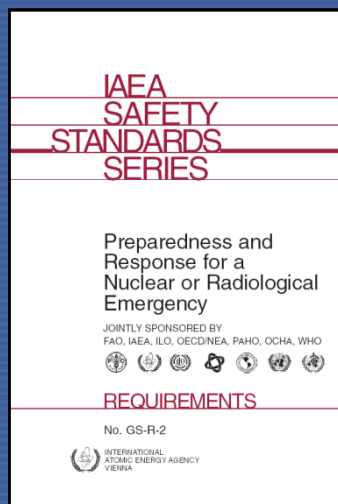


http://www-pub.iaea.org/MTCD/publications/PDF/JPLAN2006_web.pdf

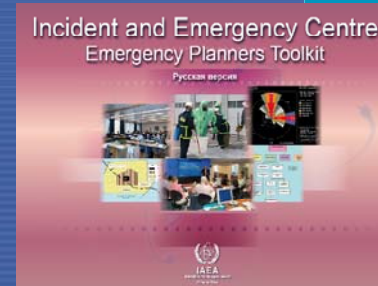
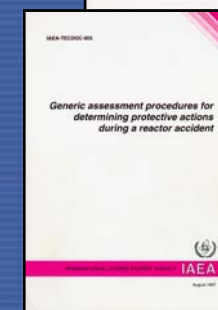
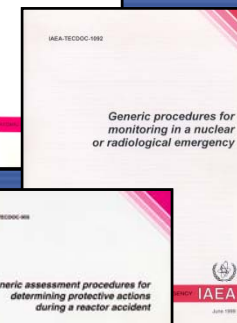
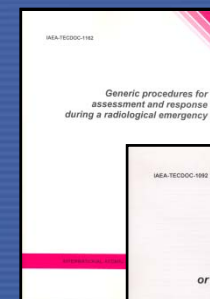
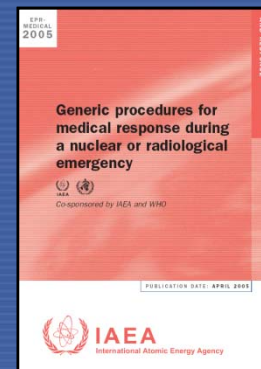
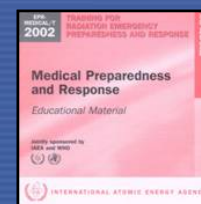
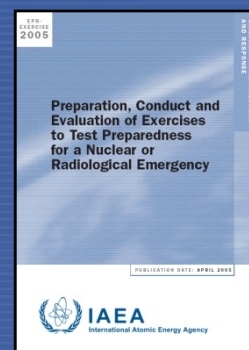
IAEA Responses



Standards, Guides and Tools



EPR Series



Capacity Building in EPR

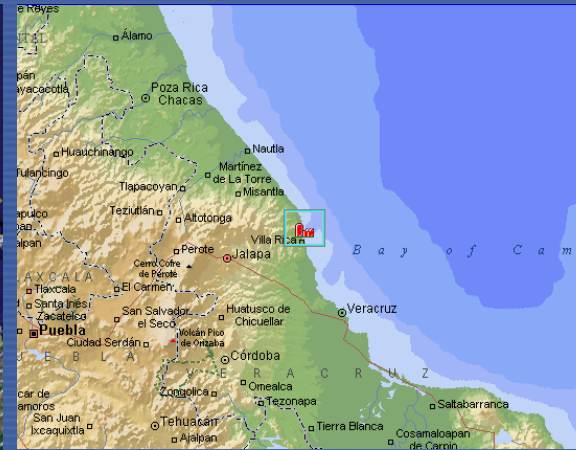
- Development of human resources
 - Providing those participating in EPR with understanding, skills and access to information, knowledge and training that enables them to perform effectively during response
- Organizational and infrastructural development
 - Using 10-steps EPR planning process
- Institutional and legal framework development
 - Enabling responding organizations at all levels and in all sectors to enhance their capabilities

Example: Training in Monitoring



Example: ConvEx-3 (2008)

- Mexico (Laguna Verde NPP)



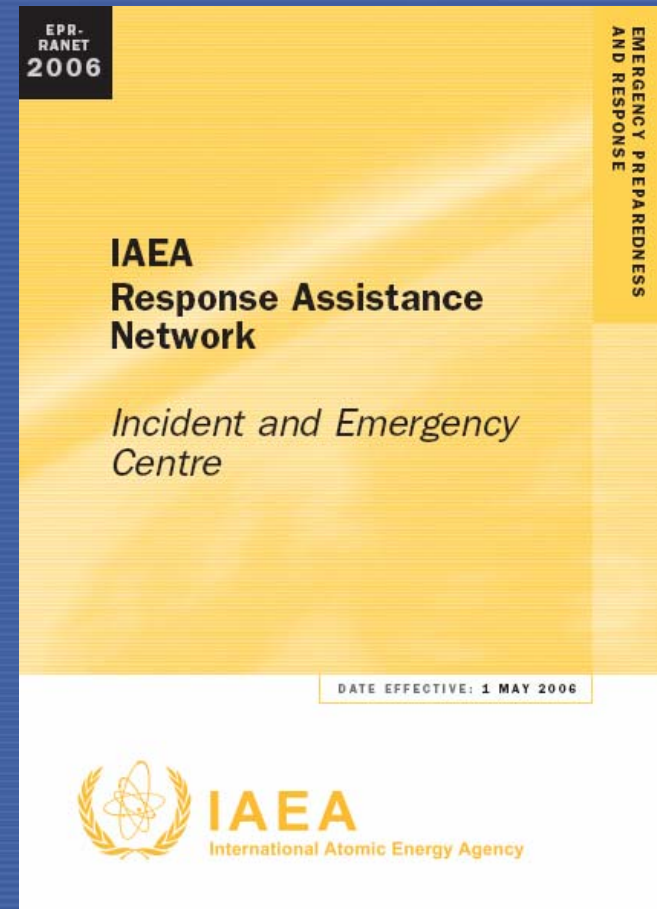
What is RANET



- RANET is network of States capable and willing to provide, upon request, specialized assistance by appropriately trained, equipped and qualified personnel with ability to respond quickly and effectively to radiation emergencies

Aim of RANET

- To facilitate
 - Provision of requested international assistance (preferably on regional basis)
 - Enhancement and harmonization of response capabilities
 - Exchange of relevant information and feedback of experience



Scope of RANET

- Nuclear accidents or radiological emergencies in context of Conventions
- Nuclear or radiological incidents
- Radiological consequences that exceed State's response capabilities

National Assistance Capabilities – NAC

- NAC resources
 - qualified experts
 - equipment and facilities
 - materials

that can be activated to provide assistance either

- by deploying or
- from external base

Form of Assistance

- Assistance Mission
 - Group of qualified experts providing assessment, advice, training, medical monitoring, etc
- Joint Assistance Team
 - In more complex situations Joint Assistance Team is formed comprising of Field Assistance Teams
- External Based Support
 - Any support provided from assisting party offices or facilities

NAC Activities

- Detect, locate, identify and characterize radioactive material
- Assess and evaluate consequences
- Provide modelling and prognosis
- Provide technical advice
- Initiate stabilization activities
- Provide medical advice/consolation, medical assistance, advice on public health
- Provide sampling, measurements and analyses

Expectation

**Through RANET
emergency response capabilities
worldwide should improve and
become compatible**

RANET Application – Practical Steps

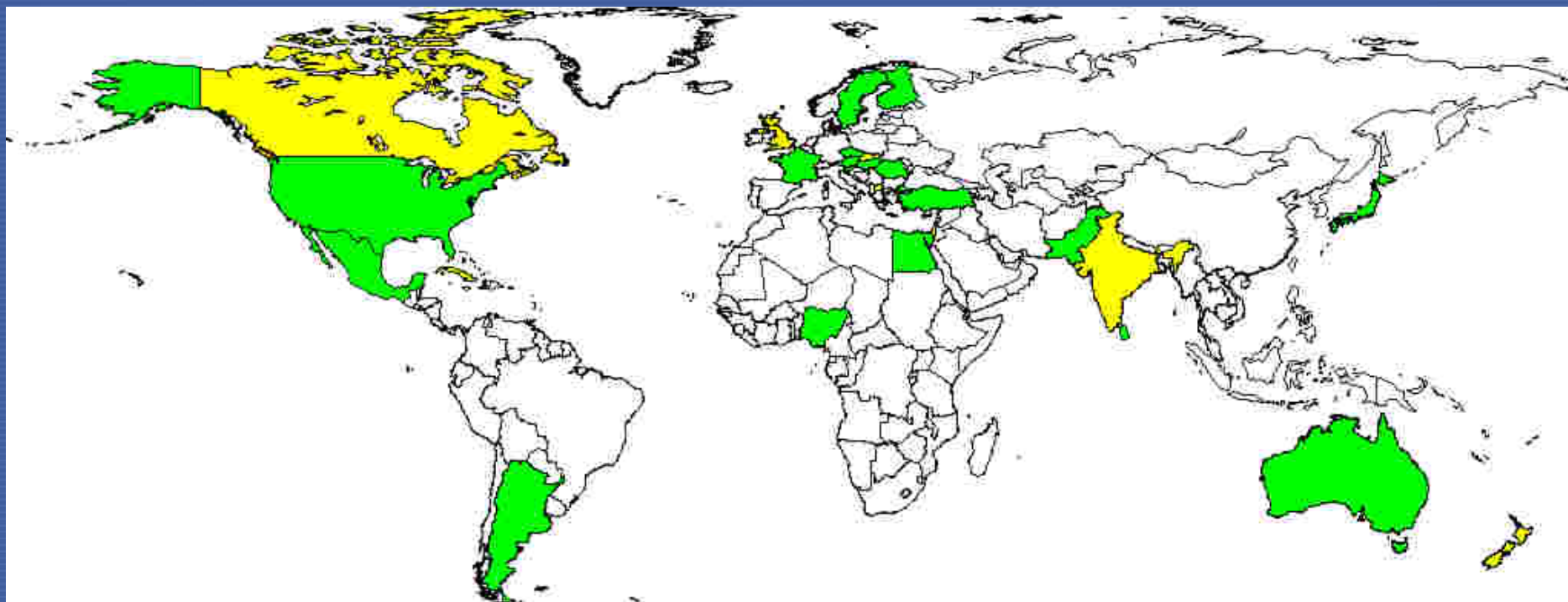
- **Step 1:** Decide to register your assistance capabilities in RANET
- **Step 2:** Make a list of capabilities you may wish to register (you may register capabilities in parts and not all in one application)
- **Step 3:** Check consistency with RANET Technical Guidelines
- **Step 4:** Prepare registration form and send it to IEC

Is it Compulsory to Assist?

No!

**When requested, State decides on
availability of its resources and
willingness to assist**

Countries Registered in RANET



Registered Member States



Preparing Registration

Luck Favors Prepared

Additional information

If you need any additional information or you
have any question

Email us

iec3@iaea.org

A photograph of the United Nations Secretariat Building in New York City. The building is a large, curved, modern structure with many windows. In front of the building, there is a large plaza with many flagpoles, each flying a different national flag. The flags are arranged in a semi-circle, mirroring the curve of the building. The sky is overcast and grey. The text "Thank you" is written in large, blue, sans-serif font across the center of the image, partially obscuring the flags and the building.

Thank you