Role of the Technical Experts in the ConvEx 3

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Context

- IAEA Conventions
- Prepared by IACRNE (AIEA, International Organizations)
- Exercise organized every 3 - 5 years (France, Romania, Mexico)
- 2013 ConVex 3 based on a national exercise hosted by Morocco
- Scenario based on a serious radiological emergency triggered by a criminal act
Exercise Purpose

- Large scale joint international exercise covering the early phase of a severe radiation emergency, based on a national exercise.

- Evaluate response to a major radiation emergency, in particular:
  - Exchange of information,
  - Provision of the international assistance
  - Coordination of public information.
Exercise Objectives

- Allow Member States and International Organizations to assess the response to a serious radiological emergency triggered by a criminal act.

- Assess the international system to respond to radiological emergencies (arrangements) and the bilateral and multilateral communications between States.

- Identify good practices and improvements needed.
Objectives of Morocco

• Assess the efficiency of the ORSEC Plan to respond to a serious radiological emergency triggered by a criminal act
• Test the notification and activation mechanisms
• Assess the coordination between involved parties and emergency centers activated
• Test the control command system
• Test the arrangements for requesting assistance
Participants to the Exercise

- **International Organisations**
  - IAEA
  - eadrcce
  - INTERPOL
  - World Health Organization
  - World Meteorological Organisation
  - IMO

- **58 Member States**

- **At the national level**
  - DGPC, CNESTEN, TMPA, MAEC, GR, DGSN, FAR, DGED, DGST, MI, MJ, MEF, MET, MS, MEMEE, MCE, CNRP, DMN.

ConvEx-3, Rabat les 20 et 21 Novembre 2013
Exercise Scenario

- 20 November, 1\textdegree explosion at port Tangier Med.
- Dirty Bomb
- Many victims Moroccan § foreigners
- Social, economic, psychological Impacts
  - Maritime and aerial traffics, agriculture, tourism
- Strong pressure from the Media
- New Threats
- 2nd Explosion on Marrakech
- Assistance Requests
Exercise Preparation

EADRCCE, EC, EUEOPOL, FAO, ICAO, IMO, INTERPOL, WHO, WMO

IACRNE

EXERCISE DIRECTOR
EXERCISE DEP. DIRECTOR

CHIEF CONTROLLER
DEP. CHIEF CONTROLLER

CHIEF EVALUATOR EN
DEP. CHIEF EVALUATOR

CONTROLLER / EVALUATOR
(TMPA)

CONTROLLER / EVALUATOR
(NEC)

CONTROLLER / EVALUATOR
(TCC)

ConvEx-3, Rabat les 20 et 21 Novembre 2013
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Response Organization

- Operational Command Post (Tanger Med Port Authority TMPA)
- Technical Crisis Center (TCC)
- National Emergency Center (NEC)
- IAEA
NEC Organization

National Emergency Center (NEC)

- International Communication Cell
- Support Cell
- Technical Cell
- Life Saving and Protection Cell
- Security Cell

Support Cell

Technical Cell

Life Saving and Protection Cell

Security Cell

International Communication Cell

Nappe
Technical Crisis Center (TCC)

- Located at Maamora Nuclear Center;
- Missions:
  - Assessment of radiological consequences in case of emergency,
  - Recommendations of protective actions,
  - National Warning Point
- Organization: 4 units
Response Components

- Duration: 25 hours minimum
- Real time
- In addition of information exchange at the national and international levels, other considerations:
  - 1- Radioactive releases in the atmosphere
  - 2- Safety/Security Interface
  - 3- Medical and Health
  - 4- Commerce, industry, agriculture, tourism and aerial and maritime transport,
  - 5- Contamination of products, of vehicles, ships, and infrastructure
  - 6- Public Information
Rôle of the TSO

- Protecting the public, the responders and mitigating the consequences require a clear view and understanding of the situation, the risks and the potential consequences.
- Beside the national agencies in charge of lifesaving, security, etc, several technical organizations played an important role in assisting national authorities responsible for decision making and the protection of the public.
- Specialized organizations with knowledge and expertise in nuclear and radiological safety: Regulatory Bodies and the Technical Support Organization (TSO).
- Other agencies, such as (such as meteorology, aviation, maritime, health provide specialized support as necessary.)
Role of TSO: Preparation Phase

- The technical experts provide a substantial support, in particular in terms of suggesting elements of the scenario, technical injects and expected response actions.
- In particular, CNESTEN as TSO:
  - support to the exercise preparation, conduct and evaluation, in particular the exercise concept and documents.
  - acted as Exercise deputy director.
  - Acted as contact point with IAEA.
Role of TSO: Response Phase

- The technical experts provide a substantial support for the response phase to the national authorities through technical advices, expertise, means and response actions.
- The Technical Crisis Center (TCC) located at CNESTEN site supported the National Emergency Center (NEC) for decision making regarding the protective actions.
- Main mission of the TCC: support the NEC by performing radiological risk assessment and making recommendations on protective actions for the public and the emergency responders.
Role of the TSO: Response Phase

- Support and actions conducted related mainly to:
  - Plume modelling (calculations of radiological consequences (IXP model, Hotspot, etc),
  - On scene radiation safety,
  - Radiological risk assessment (doses rates, contamination level, source identification)
  - Radiological search and survey,
  - Radiological environmental survey,
  - Radioactive waste management.
Technical Center Crisis (TCC)

**TOOLS:**

- Calculation codes and map visualization
  - IXP/GIS
  - HOTSPOT
  - MICROSHIELD
- Detection equipment and PPE
- IAEA USIE interface for notification
- US/DOE online support
- Environmental monitoring laboratory
  - Sampling
  - Gamma spectrometry
  - Gross alpha/bêta
- Others: phone, fax, internet, Visio
Technical Crisis Center (TCC)

- **SERVICES PROVIDED:**
  - Technical support for radiological safety
  - Radiological assessment and Recommendations
  - Reports to NEC
  - NWP
Conclusion

- ConvEx-3 exercise (2013): opportunity to identify improvements needed to respond to radiological emergencies resulting from a nuclear security event and requiring coordination between safety and security authorities.

- The preparation of the exercise requires the support of technical experts specialized in radiological safety to raise and address the issues resulting from a radiological emergency.

- Strong participation of the experts (mainly the TSO) in the preparation and the response phases: two different communities not used to work together discussed, prepared and responded to a radiological event from different perspectives, harmonizing their views and approaches, learning from and understanding each other.
Conclusion

- Response organization and protocols (safety, security, medical, public information, port activities, international cooperation, etc) discussed and agreed.
- Main role of the TSO: provide information on radiological risk assessment based on field measurements and calculations and propose protective actions.
- The TSO contributes to the safety response on the scene or in other locations (radiological search, radiation monitoring, radionuclide identification,)
- The TSO acted/ supported the interface with technical organizations outside the country (IAEA, US DOE) for technical advice or assistance request or provision
THANK YOU