



RC-16. Implementation of the international obligations on emergency notification and response

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- 3. Implementation of international obligations / recommendations into national emergency response arrangements**
- 4. Conclusions**

Part 1:

Introduction

Introduction (1)

- **nuclear or radiological emergencies may have transboundary consequences; even if no radioactive cloud crossed the national borders, there is a major need for rapid information / verification of on-going event, its severity and possible consequences**
- **rapid development especially in communication techniques enables to spread news in media and Internet globally almost in real time**
- **some emergencies have shown that decisions made in one country may affect decisions to be made elsewhere; contradictory decisions with no clear reasons behind them may create confusion or distrust among people**
- **circumstances may exceed the capabilities of a country to take care of the situation, and therefore assistance from other countries or international organisations is needed**

Introduction (2)

- **Chernobyl launched a rapid process of preparing international conventions and bilateral / multinational agreements on early notification and assistance in case of a nuclear or radiological emergency, and many of those agreements have been in force for more than 20 years.**
- **several documents for emergency preparedness and response concerning nuclear or radiological emergencies have been issued to support national responders in improving their own capabilities for efficient response in case of an emergency or incident.**

Part 2:

Short summary of international obligations and recommendations on notifying and response during a nuclear or radiological emergency

International arrangements on emergency notification and response

International Atomic Energy Agency (IAEA)

- Early Notification and Assistance Conventions
- Safety Requirements and Guides, other documentation

Other international obligations

- Convention on the Physical Protection of the Nuclear Material
- the International Health Regulations (IHR)
- Bilateral and multilateral agreements between States

Early Notification Convention (1)

Gives the obligation to rapidly notify other countries directly or through the IAEA that are or might be affected by radioactive release resulting in a nuclear accident and continue issuing information throughout the event.

The IAEA is a global focal point distributing information to all countries and to international organisations.

Early Notification Convention (2)

Concerns accidents in the following facilities:

- any nuclear reactor wherever located
- any nuclear fuel cycle facility
- the transport and storage of nuclear fuels or radioactive wastes
- the manufacture, use, storage, disposal and transport of radioisotopes for agricultural, industrial, medical, and related scientific and research purposes
- the use of radioisotopes for power generation in space objects

Assistance Convention

If a nuclear or radiological emergency exceeds state's resources when taking efforts to minimize consequences, assistance may be requested from any other Member State directly or through the IAEA, or from other international organisations.

The country requesting assistance has to specify the scope and type of assistance needed. The other counterparts will, within the limits of their capabilities, identify resources they could provide for assistance.

Early Notification and Assistance Conventions

Each country should

- **set up a national warning point that can be reached continuously on 24 hour basis**
- **nominate competent authorities responsible for issuing and receiving urgent information and requests for assistance**

Additional IAEA documents (1)

Safety Requirements: “Preparedness and response for a Nuclear or Radiological Emergency”, GS-R-2

- not legally binding for Member States
- contains requirements for an adequate level of preparedness and response
 - general requirements: such as responsibilities, assessments of threats
 - functional requirements: such as establishment of emergency management & operations; identifying, notifying and activating issues, safety assessments of situation; taking mitigating & protective actions, public information issues; protection of emergency workers, conducting recovery operations
 - requirements for infrastructure: such as co-ordinations issues; plans and procedures; training and exercises, quality assurance etc

Safety Guide: “Arrangements for Preparedness for a Nuclear or Radiological Emergency”, GS-G-2.1 supplements with more practical guidance.

Additional IAEA documents (2)

The ENATOM document (*Emergency Notification and Assistance; Technical Operations Manual*)

- designed to implement in practice those articles of the Conventions that are operational in nature
- also contains practical information relating to when and how to fulfil obligations and recommendations for providing information and/or assistance
- is updated every second year

The RANET document (*IAEA Response Assistance Network*)

- describes arrangements for assistance requested from the IAEA and Member States

Other international obligations (1)

Amendment to the Convention of the Physical Protection of Nuclear Material

- gives an obligation to inform other States as soon as possible in case of
 - any theft, robbery or other unlawful taking of nuclear material or credible threat
 - a sabotage of nuclear material or a nuclear facility

Note! Amendment presently under ratification process, not yet entered into force.

Other international obligations (2)

The WHO International Health Regulations (IHR)

- includes obligation to notify WHO rapidly of all events that may constitute a public health emergency of international concern; public health risk may result from chemical, biological or radiation hazards
- in case the information involves the competency of the IAEA, WHO will immediately notify the IAEA
- includes obligation that each State Party designates a single national IHR Focal Point that is available to receive and issue information of urgent nature.

Other international obligations (3)

Bilateral / multilateral / regional agreements

The international conventions do not necessarily eliminate the need of Member States to have additional bilateral, multilateral or regional agreements, for exchange, regarding information and assistance in case of a nuclear or radiological emergency.

Contents vary depending on the need of contracting parties but typically contain issues such as communication and cooperation during emergencies and incidents.

Part 3:

Implementation of international obligations and recommendations into national arrangements

Content of part 3

- Arrangements for point of contact
- Arrangements for competent authorities
- Arrangements for issuing information
- Arrangements for information management
- Cooperation among countries
- Training and exercises
- Assistance
- Quality assurance and maintenance programmes

Arrangements for point of contact (1)

ENATOM gives following recommendations:

- **the National Warning Point (NWP), designated by its Government, should be a single institute in a State**
- **should be able to receive an initial notification and other information of urgent nature at any time**
- **should be able to immediately act upon all messages it receives**
- **should possess both the authority and the means to activate a national response system**
- **should be available continuously (24/7)**
- **must have persons or have speedy access to persons who can speak English**
- **in case of a request of assistance, should be able to rapidly forward information to the relevant body**

Arrangements for point of contact (2)

... a single institute in a state ...

- in a ratification process a single institute needs to be designated
- if there are several organisations having a central role in the national response system, coordination within these organisations is necessary, and technical and procedural arrangements need to be established, e.g. for domestic distribution of incoming messages or activation of emergency response

Arrangements for point of contact (3)

... ability to receive information ...

- notification and other important information sent by **fax** and made available on **protected web site** dedicated for use during emergencies and other events of urgent nature
- ability to **receive fax** messages; fax machine has to be operational continuously; a backup system is necessary in case of malfunction of the primary communication arrangements; access to Internet is strongly recommended
- any **changes** in contact information have to be communicated to all relevant counterparts rapidly
- function of communication lines and devices must be **tested at regular intervals** and often enough, e.g. once a week, to detect possible malfunctions

Arrangements for point of contact (4)

...should be available continuously (24/7)...

...should be able to immediately to act upon all messages...

- there should be an **alerting function** to make sure that any incoming message is immediately noticed; alerting function can be, e.g. sound or light alarm of a fax machine, or an SMS to a mobile phone
- there should be **speedy access** to all incoming messages to evaluate their content and to activate relevant response; this is specially when tasks of NWP are attended elsewhere than in the office outside office hours; a backup system must be arranged to make sure that all incoming messages can be read rapidly
- there should be **procedures** and instructions that are detailed enough in order to respond to messages adequately (e.g. transmit messages to relevant national organisations / activate national response system, send confirmation to the sender of receipt an urgent message...)
- a **time limit** must be defined in what time the incoming message must be read and relevant actions launched; time limit is preferably less than 30 minutes

Arrangements for point of contact (5)

...should possess both the authority and the means to activate a national response system...

...in case of a request of assistance should be able to rapidly forward information to the relevant body...

- in case of an emergency, to ensure rapid national response, **roles and responsibilities** of national bodies, and practical procedures have to be described in the national emergency plan
- **technical arrangements** to activate response or transmission of messages to relevant national bodies must be established
- technical arrangements should be **tested** at regular intervals to find possible malfunctions

Arrangements for point of contact (6)

...must have persons or have speedy access to persons who can speak English...

- it is a strong recommendation that **information** sent for international distribution is written **in English**; for rapid and adequate response it is important that the content of an incoming message can be understood / interpreted without undue delay
- fax forms having prewritten textboxes are used in transmission of notifications; these forms can be translated into national language to help the reader quickly recognize some key points in the message in case a lack of sufficient knowledge in English language
- certain codes are also used in the fax forms; explanations of these codes in domestic language help the reader

Arrangements for competent authorities (1)

ENATOM divides competent authorities into two categories:

Competent authorities for domestic events, NCA(D)

- **issues information during events**
- **replies to a request for verification / information regarding a nuclear or radiological emergency**
- **number of designated competent authorities not limited**

Competent Authorities for events abroad, NCA(A)

- **a single institution in a State**
- **receives especially requests for assistance, and is authorized to direct requests for assistance to the IAEA**
- **verifies any relevant information provided during a nuclear or radiological emergency originating in another country**

Arrangements for competent authorities (2)

ENATOM gives following recommendations:

- competent authority should be **authorized to send** notification and additional information of ongoing event and to reply to requests for information or assistance
- need not to be continuously staffed but should have a **capability at all times** to receive fax messages and should also be able to establish direct telephone communications with the IAEA's Incident and Emergency Center (IEC); it is highly desirable that internet connection is available to be able to send and receive electronic mail and access the ENAC web site

Arrangements for competent authorities (2)

... should be authorized to send notification and additional information of ongoing event and to reply to requests for information...

- to activate efficient response and timely notification / dissemination of information for international use, domestic arrangements need to be established to ensure that **exceptional events** are rapidly **reported** to relevant **NCA**s; in national regulations or other relevant documents, thresholds / triggers should be set for providing initial information from the event site
- information / alerting route should be **independent of individuals, the time of the day or the day of the week**; it would also be beneficial if severe and minor nuclear or radiological events are reported through the same system to avoid undue delay in choosing a correct information route
- to avoid undue delay, **clear responsibilities** should be assigned in an emergency organisation and procedures written, to prepare, approve and transmit information for international use

Arrangements for competent authorities (3)

Qualified staff is needed

- during emergencies there are **many tasks** in order to mitigate the consequences of the situation and to disseminate information to all relevant counterparts nationally or internationally
- for efficient response it is necessary that even in absence of certain number of staff, e.g. during holiday seasons, there are enough **qualified and trained experts** or speedy access to them to take care of tasks in a timely manner
- tests to check the **availability of experts** should be organized at regular intervals to see that
 - **internal alerting system works**
 - **sufficient number of experts needed are reached**

Arrangements for issuing information (1)

Threshold for issuing notification very high in the Early Notification Convention. Lots of efforts have been made to encourage NCAs for issuing information at a lower threshold.

ENATOM presents a list of situations when notification should be submitted promptly.

A transnational emergency is a nuclear or radiological emergency of actual, potential or perceived radiological significance for more than one State.

Transnational emergency

- a significant transboundary release of radioactive material;
- a general emergency at a facility or other event that could result in a significant transboundary release;
- discovery of the loss or illicit removal of a dangerous source that has been transported across or is suspected of having been transported across a national border;
- an emergency resulting in significant disruption to international trade or travel;
- an emergency warranting the taking of protective actions for foreign nationals or embassies in the State in which it occurs;
- an emergency resulting in or potentially resulting in severe deterministic effects and involving a fault and/or problem (such as in equipment or software) that could have serious implications for safety internationally;
- an emergency resulting in or potentially resulting in great concern among the population of more than one State owing to the actual or perceived radiological hazard.

Arrangements for issuing information (2)

Evaluation when to send information

- challenging and difficult during real situations: amount of information is usually limited in the beginning, situation may be still evolving or clear signals with respect to issuing information are missing
- it is not enough to use only radiation consequences as the only triggering point but the possible needs of information in other countries must be taken into account, too
- procedures that are detailed enough and contain a wide spectrum of events of different severities, need to be developed. The main principle during planning as well as during actual event is to consider if information might be of acute interest to other States and international organisations

It is always necessary to consider whether information of an ongoing event might be of acute interest to others. If yes, information should be submitted even if the predefined threshold is not exceeded!

Arrangements for issuing information (3)

Challenges in issuing information

- **the more adequate information can be distributed the fewer requests of additional information are received**
 - amount of information to be transmitted by the country where an emergency happens is considerable taking into account the timeliness
 - there are pieces of information that can and should be written already during the planning phase, e.g. descriptions of nuclear facilities, national intervention levels, demographic data concerning emergency zones, graphical templates for results of dispersion calculations etc.
- **information to be submitted nationally and internationally are not identical**
 - domestic authorities need more guidance on exposure to population and recommendations for protective measures; foreign counterparts, being experts in nuclear safety and radiation protection, need more technical data for their own safety assessments

Arrangement for information management

Typical issues

- in the beginning, the amount of information is limited; difficult to obtain reliable information quickly
- at a later phase, the amount of information is huge and it is difficult to distinguish the important pieces of information for own response purposes
- there are several communication routes and sources of information

An efficient information management system must be available when new information is registered in a systematic way and it should be available and / or transmitted to all relevant organisations / experts.

Cooperation among countries

In case of emergency with transboundary impact, it is important that the affected States have good cooperation and communication among them

- **E.g. safety assessments of the situation and decisions made regarding protective measures and reasons behind them should be rapidly communicated among countries; this is important especially if chosen intervention strategy differs from one country to another.**
- **Furthermore, all severe emergencies have international implications in a sense that States have interests almost everywhere in the world and an ambition to protect these interests. These include, e.g. citizens living in the accident State, tourism, trade, transport, travel and production. If an emergency takes place in a far-field country from the point of view of the two countries, the decisions should be harmonized to extent possible differences, or the differences should be at least explicable, because expected consequences are similar.**

Thus arrangements especially with neighbouring countries need to be established but still avoiding duplication of duties during emergencies.

Training and exercises (1)

All persons nominated to be a member in a response team should be regularly trained for emergencies. A training registry should be maintained to follow that all experts nominated are trained at defined intervals.

A long term (for 3 - 5 years) training programme together with a detailed annual plan should be made to make sure that all parts of emergency organisation get trained at regular intervals.

- exercises should not only be limited to the acute phase but issues concerning later phases of an emergency should also be trained
- also other scenarios than nuclear power plant accidents should be used.
- if possible, it would be beneficial to organize some exercises also at an unannounced time

Training and exercises (2)

Training should consist of e.g.

- **general training concerning**
 - **arrangements, requirements etc. of emergency preparedness and response in the organisation in question, on national level, in neighbouring countries and on international level**
 - **nuclear safety and radiation protection issues related to emergency matters, intervention guidelines etc**
- **practice of procedures and equipment**
- **exercises and drills**

Training and exercises (3)

Various types of exercises and drills:

- in-house exercises and drills
- small scale exercises with limited number of national responders
- full scale national exercises
- exercises and drills with neighbouring countries
- international exercises and drills

It is recommended that countries

- take part in the international / multinational exercises to test their own ability to communicate, respond to and cooperate with competent authorities in other countries and with international organisations.
- also take part in international drills in order to get national experts acquainted with, e.g. the use of communication tools such as ENAC

Training and exercises (4)

For each exercise

- objectives need to be defined
- exercise documentation should be prepared for players, evaluators, simulators etc.
- evaluation and feedback from all participants should be systematically collected
- a report should be written containing findings and recommendations for improvements
- a plan should be made for improvements needed / considered feasible
- follow-up should be organized

Assistance

Member States are expected, within limits of their capabilities, to identify which resources that could be made available to assist another State. IAEA have established a Response Assistance Network (RANET) concept.

RANET cover following areas: advisory, assessment and evaluation, monitoring and recovery.

Assistance can be provided

- by deploying relevant resources (e.g. for aerial survey)**
- from an external base (e.g. analysis of samples in a “home” laboratory)**
- by combining these two types mentioned above (e.g. making measurements on field but analyzing spectra in a “home” laboratory).**

Note. Countries may also have assistance arrangements on bilateral or multilateral basis.

Quality assurance & maintenance programmes (1)

Maintenance of capabilities for efficient response requires resources:

- arranging tests at regular intervals regarding all technical arrangements and maintaining facilities, e.g. emergency response centre, operational
- keeping emergency plans and procedures together with necessary background information (e.g. contact information) up-to-date
- making modifications rapidly when changes in response system takes place
- keeping staff trained and informed of possible changes
- testing availability of experts at regular intervals

A systematic approach is necessary!

Quality assurance & maintenance programmes (2)

For evaluation of quality of response

- **collecting actively feedback from those involved in emergency actions for further development**
- **those responding during an emergency / incident must keep a detailed logbook of all actions taken and a report should be written containing also possible comments or suggestions for improvements etc.**
- **the report should be distributed to all relevant national experts for sharing experience**

Part 4:

Conclusions

Conclusions (1)

1. It is important that **emergency plans and procedures** are **detailed** enough to guide responders to fulfil their duties and meet goals of adequate protection of population, environment and society but also taking into account other harmful effects than radiation consequences. **Response system** needs to be **flexible** enough to allow appropriate response to any situation irrespective of its cause or origin.
2. For efficient and compatible international response to any nuclear or radiological emergency or incident, it is vital that all countries **implement international obligations** and follow international recommendations, and **allocate adequate resources** to fulfil those duties in a proper manner.
3. There are many obligations in emergency response resulting from various agreements, regulations and conventions. For Member States it is very important that **coordination** takes place **between international organisations**, too. Deviating obligations / means, concerning e.g. communication and assistance, require multiple resources and therefore national authorities may have difficulties to fulfil all requirements.

Conclusions (2)

4. Building an **efficient national system** for responding to any nuclear or radiological emergency or incident **requires resources**
- to keep emergency response capabilities fully operational with respect to up-to-date plans, procedures, communication systems, facilities etc.
 - to have trained and experienced staff to handle nuclear and radiological emergencies and incidents.

Only with a **systematic approach** and **detailed maintenance plans** all parts of emergency arrangements will stay compatible in a way that the arrangements are fully operational ... whenever it is needed.



IRPA 12

BUENOS AIRES - ARGENTINA - 19 / 24 OCTOBER 2008

Thank you

