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**IMPLEMENTATION OF THE INTERNATIONAL OBLIGATIONS ON EMERGENCY
NOTIFICATION AND RESPONSE**

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Abstract. Nuclear and radiological accidents and situations resulting from malicious acts involving radioactive material can become a serious threat to people's life and health, the environment, the economy and other societal interests over wide geographical areas. The authorities of the states concerned have the responsibility to decide upon and implement appropriate response actions and to ensure that relevant resources are available for mitigation. This demands efficient flow of information, communication and cooperation between all counterparts taking part in response as well as coordination of response. The efficient response to nuclear and radiological emergencies and other events of urgent nature may require resources that exceed the capabilities of single States. In 1986, the International Atomic Energy Agency (IAEA) Early Notification and Assistance Conventions were adopted. The aims of the Conventions are essentially to provide mechanisms for mitigating the consequences of a nuclear or radiological emergency through exchange of information and the prompt provision of assistance among countries. In order to achieve efficient and compatible international response to any nuclear or radiological emergency or incident, it is important that countries implement international obligations and recommendations into national arrangements and keep emergency response capabilities operational.

KEYWORDS: *Early notification and assistance conventions; emergency planning, preparedness, response*

1. Introduction

Nuclear and radiological accidents and situations resulting from malicious acts involving radioactive material can become a serious threat to people's life and health, the environment, the economy and other societal interests over wide geographical areas. Even in case of emergencies or incidents with no transboundary effects a rapid and efficient communication between the states involved is essential to handle the situation and adequately to respond to requests of information by the national authorities, population and media. The rapid development especially in communication techniques enables news in the media and in the Internet spread almost in real time globally.

The authorities of the states concerned have the responsibility to decide upon and implement appropriate response actions and to ensure that relevant resources are available for mitigation. This demands efficient flow of information, communication and cooperation between all counterparts taking part in response as well as coordination of response. The efficient response to nuclear and radiological emergencies and other events of urgent nature may require resources that exceed the capabilities of single States. Therefore, it is important for states to co-operate to be better able to respond together to such emergencies and situations.

After the Chernobyl accident in 1986, it became obvious that international arrangements were needed to establish an effective exchange of information and assistance in case of a nuclear or radiological emergency. Already in 1986, the International Atomic Energy Agency (IAEA) Early Notification and Assistance Conventions were adopted. The aims of the Conventions are essentially to provide mechanisms for mitigating the consequences of a nuclear or radiological emergency through exchange of information and the prompt provision of assistance among countries. Nowadays well more than 100 Member States have signed both the Conventions.

Since 1986, other international arrangements have been established. For instance, the World Health Organisation (WHO) has its own system for communicating during situations that might constitute a public health emergency of international concern. There are also numerous bilateral, multilateral or regional agreements for early notification and response.

International arrangements can be efficient only if Member States are willing to implement the international obligations into their own national response system. Several documents concerning preparedness and response for nuclear or radiological emergencies have been issued to support national responders to improve their capabilities for efficient response in case of an emergency or incident.

2. International obligations and recommendations

2.1 The IAEA Early Notification and Assistance Conventions; other documents

Early Notification Convention

The facilities which are within the early notification arrangements of the Convention are:

- 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.

Facilities for e.g. military purposes are beyond this Convention. It is up to the Member State to notify about nuclear accidents in facilities other than those defined in the Convention.

The state where an emergency takes place should send information to those states which are or which might be affected by the radioactive release. The accident state should do this directly or through the IAEA. The IAEA sends an initial notification and further information to all Member States and to other international organisations such as the European Commission (EC), the World Health Organisation (WHO) and the World Meteorological Organisation (WMO).

The initial notification should be disseminated “forthwith” i.e. immediately even if a limited amount of information about the accident is available for the reporter. Initial notification is sent by fax; information is also made available on the IAEA’s protected web pages established for emergency purposes.

After initial notification, the accident country should provide additional information “promptly”, i.e. as soon as available. Information should be supplemented at appropriate intervals by further relevant information on the development of the emergency situation, including its foreseeable or actual termination. The accident country should also respond quickly to a request for further information or consultations sought by an affected state with a view of minimizing the radiological consequences in that state.

Competent authorities and national warning points

An efficient information exchange should not be dependent on the time of the day or the day of the week. Thus each country which has ratified the Conventions needs to set up a national warning point which can be reached on a 24 hour basis and to nominate a competent authority responsible for issuing and receiving urgent information. The Incident and Emergency Centre (IEC) of the IAEA maintains its up-to-date list of such national authorities and warning points. The information is updated at regular intervals and distributed to all member countries.

Assistance Convention Arrangements

A severe accident and the efforts of minimizing its consequences may require resources beyond a country’s capacity available. At the same time together with the IAEA Early Notification Convention, the Convention on Assistance in the case of a Nuclear Accident or Radiological Emergency was adopted. Thus, if a Member State needs, it may request assistance from any other Member State directly, through the IAEA, or from other international organisations.

A country requesting assistance needs to specify the scope and type of assistance required. The other counterparts shall, within the limits of their capabilities, identify and notify of experts, equipment and materials which could be made available for the provision of assistance, as well as, the terms under which assistance could be provided.

For many years, the IAEA has provided assistance to Member States in relation to nuclear or radiological emergencies. This assistance has included e.g.

- radiological surveys
- source recovery
- in situ verification or radiological conditions and provision of related technical advice
- provision of medical advice and assistance in cases of actual or potential radiation exposure.

The Assistance Convention defines another important role for the IAEA to assist a member country, in advance, in building and improving arrangements for emergency situations in that country. The IAEA assists, if needed and requested, the Member State in

- preparing emergency plans and the appropriate legislation
- developing appropriate training programmes
- transmitting requests for assistance
- developing appropriate radiation monitoring programmes, procedures and standards
- conducting investigations into the feasibility of establishing appropriate radiation monitoring systems.

Safety Requirements and Guides, other documentation

The Safety Requirements publication (Preparedness and Response for a Nuclear or Radiological Emergency, GR-S-2) establishes the requirements for an adequate level of preparedness and response for a nuclear or radiological emergency in any State. The publication is jointly sponsored by several international organisations (FAO, IAEA, ILO, OECD/NEA, PAHO, OCHA, WHO). The Safety Requirements are not legally binding on Member States but are binding on the IAEA on relation to their own activities.

The Safety Requirements publication consists of goals of emergency preparedness and response, general requirements (basic responsibilities, assessment of threats), functional requirements (establishment of emergency management and operations; identifying, notifying and activating issues; safety assessment of situation; taking mitigating and protective actions; public information issues; protection of emergency workers; conduction recovery operations etc.) and requirements for infrastructure (co-ordination issues; plans and procedures; training, drills and exercises; quality assurance programme etc.).

The Safety Guide publication (Arrangements for Preparedness for a Nuclear or Radiological Emergency, GS-G-2.1) supplements the Safety Requirements with more practical guidance in emergency planning and preparedness.

The IAEA has also issued other useful documents for emergency preparedness and response, e.g. manual for first responders, generic procedures for medical response, manual on preparation, conduct and evaluation of exercises and method for developing arrangements for response. These so called EPR documents contain practical information providing help in developing emergency plans, procedures and arrangements.

2.2 Other international obligations

Convention on the Physical Protection of Nuclear Material

The recent amendment to the Convention on the Physical Protection of Nuclear Material includes paragraphs for informing other States as soon as possible in case of e.g. any theft, robbery or other unlawful taking of nuclear material or credible threat thereof. Furthermore, in case of a sabotage of nuclear material or a nuclear facility, information should be rapidly given to those States which are likely to be affected. The amendment is presently under ratification process in States and has not yet entered into force.

World Health Organisation (WHO)

WHO issued a new International Health Regulations (IHR) in 2005. In February 2008, 194 States were parties to it. The IHR includes obligation for States to notify WHO rapidly of all events which may constitute a public health emergency of international concern. Public health emergency may result from chemical, biological or radiation hazards. If the notification received by WHO involves the competency of the IAEA, WHO shall immediately notify the IAEA. Furthermore, IHR requires that each State Party designates a national IHR Focal Point which is available at all times for receiving and sending information of urgent nature with respect to public health issues.

Bilateral and multilateral agreements

The international conventions do not necessarily eliminate the need of the Member States to have additional bilateral or multilateral agreements relating to information exchange or assistance.

These agreements contain additional obligations e.g. for exchange of information, cooperation and communication during emergencies. Contents vary depending on the need of the contracting parties but, in general, e.g. the threshold for initial notification is lower than that in the international Convention.

Especially concerning nuclear facilities located close to national borders, arrangements have been made regarding early warning of local authorities in both countries and direct transmission of on-site data, which is very important for timely response in case of unusual on-site event.

Regional arrangements

Also regions may agree upon special arrangements within a specific region. This is the case e.g. in Europe where Member States of the European Union have arrangements (ECURIE) of their own for early notification and exchange of information during radiological and nuclear emergencies. Also other European States can join the system.

The threshold of ECURIE arrangement is very similar to that of the IAEA arrangement. However, in 2008 competent authorities agreed to inform each other, on voluntary basis, of events of lower threshold. Sharing information, if not confidential, include also e.g. thefts of radioactive sources, which type of event is not included in the original scope of arrangements.

3. Implementation of international obligations and recommendations

Implementation of international obligations is a task that requires communication, cooperation and coordination on national level. In implementation some national modifications are possibly needed, but even then the main principle should take into account all the important and relevant tasks for successful response in other countries.

Many exceptional events are of international interest. It is noteworthy that it is also a benefit to implement international obligations into national arrangement because e.g. requests for additional

information might be decreased. Thus, we all are “in the same boat”, which means that it is important for all of us that countries do implement international obligations into national arrangements and are ready to follow them at any time.

3.1. Implementation procedures of the IAEA Conventions

The ENATOM (Emergency Notification and Assistance; Technical Operations Manual) is a document that conceptually links the IAEA, the IAEA’s Member States, the Parties to the Early Notification Convention and the Assistance Convention, the relevant international intergovernmental organizations (‘international organizations’) and other States. The ENATOM is designed to facilitate the practical implementation of those Articles of the Early Notification and Assistance Conventions that are operational in nature. In addition, it contains practical information relating to when and how to invoke either or both Conventions. The ENATOM manual is updated every second year.

The ENATOM Manual concerns mainly Early Notification Convention and the requirements for its implementation. The implementation of Assistance Convention is covered by the other guidance (RANET).

The ENATOM manual describes the IAEA incident and emergency system and its response during exceptional events. It also consists of expected arrangements in the Member States, e.g.

- designation and contact details of competent authorities and points of contact
- expected functions
- preparedness tasks
- communication with the IAEA
- emergency exercises and drills.

The Manual includes response procedures during different types of emergencies.

The National Competent Authorities of the two Conventions have a joint meeting every second year. In the meeting, topics concerning ENATOM and the needs for arrangements concerning exchange of information of events of acute nature, assistance issues, emergency arrangements and exercises etc. are discussed. The IAEA also keeps National Competent Authorities regularly informed about the progress of emergency planning, preparedness and response and other international efforts related to emergency matters.

3.2. Arrangements for point of contact

ENATOM gives the following requirements for the point of contact:

the National Warning Point (NWP), designated by its Government, should be a single institute in a State

- should be able to receive at any time an initial notification and other information of urgent nature
- should be able to immediately to 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.

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

In ratification process, the point of contact needs to be designated. If there are several organizations having a central role in the national response system in case of a radiological or nuclear emergency, the requirement for a single institute needs to be coordinated on national level.

Furthermore, technical and procedural arrangements have to be established for distribution of incoming messages to other domestic bodies and/or activation of emergency response, when necessary.

...ability to receive information...

Initial notification and other significant information will be sent by fax and made available on a protected web site dedicated for the use during emergencies and other events of urgent nature. Thus, the ability to receive fax messages has to be operational all times. However, in case of domestic problems in phone lines or malfunction of the primary system, a backup system needs to be established. Any changes in the contact information have to be communicated to all the relevant counterparts rapidly.

Operation of domestic communication lines and devices need should to be tested at regular intervals short enough to detect any possible malfunctions. Testing should take place, e.g., once a week.

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

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

There should an alerting function set to ensure that incoming messages are noticed immediately. An alerting function can be, for instance, a sound and light alarm connected to the fax machine. It can also be an SMS message to a duty officer.

A speedy access should be available for any incoming message to evaluate its content and activate relevant response if so needed. This is especially the case when tasks of the National Warning Point are attended elsewhere than in the office outside of office hours. With the help of the modern communication techniques, incoming messages can be automatically forwarded to several various communication systems, including mobile ones, ensuring that messages are truly noticed.

The NWP has to include instructions and procedures detailed enough to adequately respond to messages, e.g. to transmit information to a relevant national organisation, activate national response system, confirm receipt of the message etc. The triggers for response should be included in the procedures.

In national emergency plans, a time limit has to be defined within what the content of a received message is read and relevant actions are launched. Time limit needs to be preferably less than 30 minutes. 30 minutes is the recommended time limit during which the NWP is expected to confirm receipt of message in international communication tests.

...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 of adequate magnitude, roles and responsibilities of national bodies have to be defined in the national emergency plan. This includes mandate of activation of national response, too, and the activation should be done according to agreed means. Technical arrangements with up-to-date contact information should be established and the system shall be tested at regular intervals to detect possible malfunctions.

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

It is a strong recommendation that all information sent for international distribution is written in English. Thus, for a quick response it is important that interpretation of the content of the incoming message takes place without undue delay. If the NWP does not have sufficient knowledge in English, the messages should be rapidly forwarded to those who can quickly translate the content at all times.

Fax forms with prewritten boxes of text are used in transmission of notification. These forms can be translated into each national language to help the reader to recognise quickly the key points in the message even in case of lack of sufficient knowledge in English language. Furthermore, certain codes, e.g. the SRF-Advisory and the GENF-GS-R-2 are used in the forms, too. Explanations of these codes in each national language help the reader.

3.3. Arrangements for competent authorities

ENATOM gives the following requirements for national competent authorities (NCA):

- 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 IEC; it is highly desirable that internet capability is available to be able to send and receive electronic mail and access the ENAC web site.

The ENATOM Manual divides competent authorities into two categories: one for domestic events, and the other for events abroad. The competent authorities for domestic events, the NCA(D), issue information during events and verifies it, and reply to a request for verification/information regarding a nuclear or radiological emergency. The number of designated competent authorities for a domestic emergency is not limited but if there is more than a single authority, they should all be authorized to send or provide relevant information and thus be in an appropriate position within the State's national emergency response system.

Competent authorities for events abroad, NCA(A), should be a single institution which verifies or arranges for the verification of any relevant information provided during a nuclear or radiological emergency originating in another State, and which receives especially requests for assistance, and should be authorized to direct requests for assistance to the IAEA. In addition, the IAEA deems the NCA(A) the responsible body for ensuring that updated copies of ENATOM and its associated annexes, amendments, and user names and passwords for 'read-access' to the IAEA web site (ENAC) dedicated for use during emergencies are distributed to relevant bodies in their State as part of maintaining preparedness.

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

For a timely notification and dissemination of information for international use, the domestic arrangements also need to be established to ensure that exceptional events in each home country are rapidly reported to the relevant NCAs. In national regulations or other relevant documentation there should be thresholds set when authorities should be alerted, how quickly the alert should be done and how. The alerting route should be independent on individuals, being instead between organisations, and it should be preferably independent of the time of the day or the day of the week. Furthermore, it is beneficial if reporting of minor and severe events can be done by using only one system. If there were more than one system, the choice of correct information route could create undue delays, thus delaying the activation of response. Alerting functions should to be tested at regular intervals.

In an emergency organisation, clear responsibilities should be assigned. Procedures should be written on how the information is verified and what is the authorization process before the information is distributed internationally. Up-to-date contact information needs to be in place for domestic and international communication, too.

Qualified staff if needed

During emergencies or incidents there are many tasks to be taken care of to mitigate the consequences of the situation and to disseminate information to all relevant counterparts nationally or internationally. Emergencies require that experts taking part in the emergency organisation are trained and qualified.

An efficient response requires that even in absence of certain number of staff, e.g. during holiday seasons, enough experts should be available or at least a speedy access to them to fulfil all necessary duties and tasks in a timely manner. Tests should be arranged to check the availability of experts to test the internal alerting system and to reach a sufficient number of experts needed in response within the time limit defined in the emergency plans.

3.4. Arrangements for issuing information

The threshold for issuing information is very high in the Early Notification Convention. The Convention defines the threshold for starting dissemination of information: there is an accident 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. However, there is also a need to get information on e.g. events of great public concern but not exceeding official threshold of the Convention.

Notification threshold

The IAEA Safety Requirements for Preparedness and Response for a Nuclear or Radiological Emergency and the ENATOM manual present a new term of transnational emergency which is a threshold when information of an event 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. This includes:

- a significant transboundary release of radioactive material;
- a general emergency at a facility or other event that could result in a significant transboundary release (atmospheric or aquatic);
- 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; and
- 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.

The IAEA General Conference has specifically encouraged Member States “*to implement the Safety Requirements ... and the updated procedures of ENATOM and, in particular, adopt the lower threshold for early notification and information exchange*”.

Evaluation when to send information

It is challenging and difficult to evaluate during the actual event whether or not to send information of an ongoing abnormal situation due to, e.g., the fact that the amount of information is limited in the beginning, the situation is evolving rapidly or clear signals with respect to issuing information are missing. Furthermore, in evaluation when to initiate the exchange of information, it is not enough to use only radiation consequences as the only trigger point but to take into account possible the needs of information in other countries, too.

To assist the evaluation process, procedures that are detailed enough and contain wide spectrum on events of different severities, need to be developed. The main principle during planning as well as during an actual event is to consider if the information might be of acute interest to other states and international organisations. If yes, then the information should be sent. In this consideration, e.g. reactions in media and population must be taken into account. It is better to be proactive than reactive.

Bilateral or regional arrangements have typically other thresholds, and national competent authorities also have to follow those. In Finland, we have had a policy that in disseminating of information we follow the lowest threshold and inform all counterparts including the IAEA irrespectively whether the actual threshold is exceeded or not.

Challenges in issuing information

The amount of information to be provided is considerable: what is going on; what are the consequences with respect to radiation safety of population, environment and society; to what direction is the situation possibly developing and the hazard area; what protective measures are needed and when and where.

The content to be issued for domestic and international use is not identical. Domestic authorities need more guidance regarding possible exposure to population and reasons for protective measures. Whereas the foreign counterparts, that are experts in nuclear safety and radiation protection, need more technical data for their own safety assessments. A third type of information is the material produced for media, where information on radiation is given, what protective measures are being carried out and why, together with the practical guidance, e.g. on other measures needed. Thus, for a timely dissemination of information is it better to have all these three types of status reports prepared in parallel rather than translating the reports addressed to domestic use into English for international use.

The more adequate information is distributed, the fewer requests for additional information is received. In order to facilitate the preparation of status reports during the actual event, there are pieces of information that can and should be written in advance to have them readily available, e.g. descriptions of nuclear facilities, national intervention levels, demographic data concerning emergency zones, graphical templates for results of dispersion calculations etc.

3.5. Arrangements for information management

During emergencies and incidents the typical issues that challenge the information management are:

- in the beginning, the amount of information is limited and it is 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 is necessary where new information is registered in a systematic way, to have the information available and allow it to be transmitted to all relevant organisations / experts.

There has been an international project on going to create a solution where the management of information is improved considerably, thus being of benefit to all players in States and on international level.

3.6. Cooperation among countries

Although the IAEA is a global focal point that disseminates information for all countries, the countries must also cooperate among themselves. Considerably many bilateral and multilateral agreements have been made for this purpose.

In cases of serious accidents or situations with any kind of possible transboundary impact, it is important that the affected States deal with the situation in co-operation with the other affected States. Below are some examples:

- Assessments of the situation and decisions made as regards protective measures may effect decisions in another state. It is therefore important that such decisions are communicated among the affected States, too. The responsible authorities in a State must be able to explain what decisions other States have made and the reasons behind the possible differences.
- When it comes to definition of risk areas, various States use different models and input parameters for dispersion calculations. This, in turn, may lead to slightly different results from the calculations. Therefore it is valuable, if time allows, to compare the calculations made by other States before any decisions are made regarding protective measures and the information is disseminated to the general public.
- All severe accidents and situations have international implications in a sense that all States have interests almost everywhere in the world and an ambition to protect these interests. These include citizens living in the accident State, tourism, trade, transport, travel and production. If an incident or emergency takes place in a far-field country from the point of view of these two countries, the decision should be harmonized - or possible differences should be explicable - when the expected consequences are similar.

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

3.7. Training and exercises

All persons nominated to be a member in an emergency response organisation should be regularly trained for emergencies. A training registry should be kept to follow that all experts get trained at suitable intervals defined in the emergency plans. To make sure that all parts in the emergency plan and procedures are trained at regular intervals, a long term training plan needs to be developed. The duration of this plan may be from 3 to 5 years. A long term plan is supplemented with more detailed annual plan.

Training plan could include issues, e.g. the interval of exercises and the interval of other type of training organized, such as general training of emergency arrangements (domestic and international requirements, consequences of potential accidents, intervention guidelines) or practice of procedures and equipment. In exercises, the scenario (nuclear power plant, radioactive source, malicious use of radioactive material), the phase of an emergency phase (early / intermediate / late) should vary, to gain more experience in handling different types of situations. Some of the exercises may be functional testing certain of parts of emergency response, but also large scale exercises should be organized where “all” domestic organisations involved participate in. The presence of media is also important to get feedback of response concerning public information.

It is advisable to rehearse in all relevant exercises also the transmission of information to foreign countries and international organisations. If NCAs in other countries and / or international organisations do not take part in the exercise, this function can be simulated by transmitting information to experts playing a role of foreign counterparts in that exercise. This is the only way to have a real experience how difficult it is to disseminate information in timely manner for international use when similarly taking into account many other duties that have to be handled during an emergency.

For all exercises the objectives need to be defined, exercise manual prepared for players, evaluators, simulators etc. A report should be written containing findings and recommendations for

improvements. There also should be a plan on how these improvements will be made and the follow-up organized.

Countries should actively seek participation in international exercises, especially ConvEx exercises, as they provide good training for national experts at regular intervals. Convex-3 exercise is organized at the interval of 3-5 years by the IAEA and other sponsoring international organisations. In addition to large scale international exercises, the IAEA organizes annually smaller scale exercises, ConvEx-1 and ConvEx-2 exercises where the players can get acquainted with, e.g. the use of the IAEA's web page ENAC.

ConvEx-1

In ConvEx-1 exercises the objectives are to test that the National Warning Points are continuously available, whether the fax contacts are accurate and that the national competent authorities can properly access the IAEA website for emergencies and incidents (ENAC). The date of the drill is not announced beforehand.

In ConvEx-1 the NWP's should be able to send an acknowledgement of receipt of the test message within 30 minutes to the IEC. Competent authorities should access the ENAC webpage and send an acknowledgement of receipt of the test message to the IAEA no later than during the next working day. Any NCA may also send, as a part of their national training and at most once in three months a test message to IEC without prior arrangement.

ConvEx-2

An overall objective of ConvEx-2 exercises is to test whether the response times to a notification or a request for verification are competent and to drill appropriate procedures for international cooperation as described in the ENATOM Manual.

ConvEx-3

The objective of ConvEx-3 is to test the full operation of the information exchange mechanism. Participation enables competent authorities to gain experience of real time international cooperation and communication with international organisations and other countries.

3.8. Assistance

In order to meet the States Parties obligations and the IAEA functions in relation to the Assistance Convention it has been recognized that appropriate mechanisms shall be organized. A Response Assistance Network (RANET) was established to strengthen the worldwide capability to provide timely assistance and to facilitate harmonization of emergency assistance capabilities. Member States are expected, within limits of their capabilities, to identify which resources they can provide to assist another State.

Types of assistance under RANET cover the following areas: advisory, assessment and evaluation, monitoring and recovery. Assistance can be provided by deploying relevant resources (e.g. for aerial survey) or from an external base (e.g. analysis of samples in a home laboratory) or by combining the two types mentioned above (e.g. making measurements on field but analyzing spectra in a home laboratory).

The magnitude of assistance depends on the situation: assistance may be produced in a group of qualified experts or in several teams especially during complex situations. In addition, external based support may be combined in both cases. The type and resources of assistance to be provided is defined in the Action Plan to be developed together with the IAEA, requesting State and State(s) providing assistance.

All Member States have got an invitation from the IAEA to join RANET by registering their national capabilities for the purpose of giving assistance when requested and if possible. Eleven countries (the

situation in June 2008) have already joined RANET and many countries have shown their intentions for joining.

Competent authorities, NCA(A), are responsible for ensuring that the responding personnel of the national capabilities are qualified to perform the functions and duties they are assigned to and that the responders are equipped with all the necessary items for efficient performance. When possible, the methods selected should be consistent with the IAEA publications concerning emergency response.

In addition to their national training, personnel must be trained further and be aware of the international guidelines and other aspects of international assistance, and also be prepared to respond.

3.9. Quality assurance and maintenance programmes

Maintenance of capabilities for efficient response requires resources.

- All technical arrangements to be used during emergencies need to be tested at regular intervals.
- Facilities, e.g. the emergency response centre, need to be kept operational.
- Emergency plans and procedures together with necessary contact and background information should be up-to-date.
- When changes in emergency arrangements take place, modifications should be made into national system. Personnel need to be informed / trained concerning changes.
- As mentioned earlier, also the availability test of experts should be organized at regular intervals.

A systematic approach is necessary to ensure that all important parts for a successful emergency response are in operation.

It is also important to collect feedback from all of those who have taken part in emergency actions, either during real events or in exercises, to further develop emergency arrangement. A report should be prepared containing, e.g., the actions and the reasons behind them together with comments and suggestions for improvements. The reports are also important for sharing experience.

4. CONCLUSIONS

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. The response system needs to be flexible enough to allow appropriate response to any situation irrespective of its cause or origin.

In order to achieve 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 also allocate adequate resources to fulfil those duties in a proper manner.

There are many obligations in emergency response as a result of various agreements, regulations and conventions. For Member States it is important that coordination takes place between international organisations, too. Deviating obligations / means concerning, e.g. communication and assistance, require multiple resources and national authorities may have difficulties to fulfil all requirements.

Building an efficient national system to respond to any nuclear or radiological emergency or incident requires resources that keep emergency response capabilities fully operational with respect to up-to-date plans, procedures, communication systems, facilities etc. The system also requires that a State has trained and experienced staff to handle nuclear and radiological emergencies and incidents. Only with systematic approach and detailed maintenance plans all essential parts of emergency arrangements can be maintained compatible in a way that the arrangements are fully operational ... whenever they are needed.

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