

Nuclear Security

Objective

To contribute to global efforts to achieve effective security of nuclear or other radioactive material, by supporting national and international efforts to establish and maintain effective nuclear security. To assist adherence to and implementation of nuclear security related international instruments and to strengthen the international cooperation and coordination of assistance in a way that underpins the use of nuclear energy and applications.

International Cooperation and Coordination

The Agency, in cooperation with Member States, continued to play a collaborative role in helping to coordinate nuclear security related initiatives, working jointly with relevant international and regional organizations and institutions to avoid duplication and overlap in related activities. In this regard, the Agency organized three information exchange meetings with international and regional organizations in February, May and November, and developed nuclear security initiatives with the United Nations Office for Disarmament Affairs and the G-8 Global Partnership. The Border Monitoring Working Group, involving the Agency and its partners, increased its work beyond the provision of radiation detection equipment and training to include the entire detection and response infrastructure.

Incident and Trafficking Database

The membership of the Agency's Incident and Trafficking Database (ITDB) has continued to expand, with seven States joining in 2012, bringing the total number of participating States to 119 Member States and one non-Member State. In 2012, the title of the database was changed to Incident and Trafficking Database: Incidents of Nuclear and Other Radioactive Material out of Regulatory Control. This was done to better reflect the broad scope of the system and was agreed by participant States at the Points of Contact meeting in July 2012.

At the end of 2012, States had reported — or otherwise confirmed via the ITDB — 2331 incidents since the database was established in 1995, with 147 incidents reported in 2012. Seventeen of these

incidents reportedly involved illegal possession of and attempts to sell nuclear material or radioactive sources. In 24 cases, thefts or losses of radioactive sources were reported. One hundred and nineteen incidents involved discoveries of uncontrolled material, unauthorized disposals and the inadvertent, unauthorized movement or storage of nuclear material, radioactive sources and/or radioactively contaminated material. During 2012, there were two incidents involving high enriched uranium in unauthorized activities. There were also three incidents involving Category 1–3 radioactive sources¹, two of which were thefts.

“At the end of 2012, States had reported — or otherwise confirmed via the ITDB — 2331 incidents since the database was established in 1995, with 147 incidents reported in 2012.”

Peer Reviews and Advisory Services

The Agency continued to provide peer reviews and advisory services, at the request of States, to assess their nuclear security effectiveness, to identify needs, to provide a basis for formulating plans to improve national nuclear security regimes, and to serve as confidence building measures for States. One International Nuclear Security Advisory Service (INSServ) mission was conducted in Kenya as well as modular missions focusing on border monitoring capabilities to Bolivia, Colombia, Indonesia, Libya, Uruguay and Venezuela.

The recognition of International Physical Protection Advisory Service (IPPAS) missions has steadily increased, as demonstrated by requests from countries with large, mature nuclear programmes. The European Union's Ad Hoc Group on Nuclear Security, in its report published in 2012, encouraged

¹ The ITDB categorizes sealed radioactive sources on a scale of from 1 to 5, in accordance with IAEA Safety Standards Series No. RS-G-1.9. Exposure of only a few minutes to a Category 1 source can be fatal. Category 5 sources are potentially the least dangerous; however, even these sources could give rise to doses in excess of the safe limits if not properly controlled.

all European Union Member States with nuclear power plants to host an IPPAS mission at regular intervals.

In 2012, IPPAS missions were conducted in Finland, Kazakhstan, the Netherlands and Romania. In related work, the Agency conducted a technical meeting to review and update IPPAS guidelines to ensure that the service represents best current practices. Several new IPPAS modules were also developed, including a module on cyber security.

The Agency continued to provide other expert missions, at the request of States, to improve detection capabilities for illicit nuclear trafficking and response to nuclear security incidents. It also conducted a number of technical visits, which addressed security needs at locations including border crossings, medical facilities, scientific institutes and industrial sites.

“Investing in human resource development and capacity building continues to be vital to maintaining effective and sustainable nuclear security programmes in States.”

Integrated Nuclear Security Support Plans (INSSPs)

The importance of INSSPs in building and strengthening nuclear security infrastructure was recognized in 2012 at the Agency’s General Conference in a resolution adopted on nuclear security². Also, in the course of 2012, 12 States formally approved their INSSPs, bringing the total number to 42. In addition, review missions were conducted in five States based on existing INSSPs to assess their progress in implementation as well as to plan future activities.

Implementation of the Nuclear Security Plan

A significant step in 2012 was the establishment of the Nuclear Security Guidance Committee (NSGC) – a standing body of senior experts that will review the IAEA Nuclear Security Series publications

and make associated recommendations. At its first meeting, the NSGC approved the *Nuclear Security Fundamentals*, the highest level document in the IAEA Nuclear Security Series.

A further opportunity for Member State involvement was provided through the Working Group on Radioactive Source Security (RSWG), which was convened in November with representatives from 20 Member States. Discussions covered a range of technical issues related to the security of radioactive sources with a view to identifying realistic actions to help States improve source security in a sustainable manner.

Promotion of the Nuclear Security Framework

Despite being adopted in 2005, the Amendment to the Convention on the Physical Protection of Nuclear Material has yet to enter into force. The Agency organized workshops in the African, European and Latin American regions to make States aware of the importance of taking action to allow entry into force of the amendment as soon as possible.

Building Capacity

Investing in human resource development and capacity building continues to be vital to maintaining an effective and sustainable nuclear security programme in States. To this end, the Agency conducted over 80 training events covering all aspects of nuclear security, involving more than 2000 people.

The Agency established a network among the nuclear security training community to facilitate collaboration between Nuclear Security Support Centres (NSSCs) and to promote the concept of national NSSCs. To date, the concept has been implemented in Ghana, Morocco and Pakistan.

Major Public Events

To provide guidance on nuclear security at major public events, the Agency published *Nuclear Security Systems and Measures for Major Public Events* (IAEA Nuclear Security Series No. 18) in 2012. It also assisted nuclear security preparations by Poland and Ukraine for the UEFA European Football Championship held in June 2012.

² GC(56)/RES 10 on nuclear security adopted on 21 September 2012.

Nuclear Forensics

Nuclear forensics is a crucial tool to support law enforcement investigations and to assess and remedy nuclear security vulnerabilities of States. Important activities in 2012 included an international nuclear forensic methodologies training course for practitioners in conjunction with US national laboratories, identification of core capabilities required for nuclear forensic analysis, as well as extensive collaboration with technical experts on guidance on the development of a national nuclear forensics library (Fig. 1).



FIG. 1. Participants localize radioactive material as part of a measurement exercise in an IAEA–US National Nuclear Security Administration training course on nuclear forensic methodologies, held at the Pacific Northwest National Laboratory, Richland, Washington.

Crime Scene Management

Enhancements to plans, roles, responsibilities and procedures to better enable law enforcement to respond to a nuclear security event were included in technical guidance and training materials for radiological crime scene management. This work emphasized heightened awareness of the hazards and forensic considerations involving a crime scene containing nuclear or other radioactive material, or contaminated by such material.

Provision of Equipment to Member States

A major element of the Agency's nuclear security assistance to States is the provision of equipment for detecting and responding to the unauthorized movement of nuclear and other radioactive material, and for physical protection upgrades (Fig. 2). For example, acceptance tests of 259 portable radiation detection instruments were performed and a number of radiation portal monitors installed. In addition, there were 49 shipments to Member States carried

out for the donation of 209 instruments and the loan of 386 instruments.

“Enhancements to plans, roles, responsibilities and procedures to better enable law enforcement to respond to a nuclear security event were included in technical guidance and training materials for radiological crime scene management.”

Nuclear Security Fund

In 2012, the implementation of the nuclear security programme continued to rely on extrabudgetary contributions. Revenue to the Nuclear Security Fund amounted to some €25 million. Financial contributions were received from 19 Member States and the European Commission as extrabudgetary funding.³ In addition, a number of Member States made contributions in kind through the donation of equipment and expert services.



FIG. 2. Officials from Malaysia's Atomic Energy Licensing Board along with customs, police and port officials discuss a reading with Indonesian counterparts as part of a training exercise on inspecting suspicious cargo held in Kuala Lumpur.

³ Belgium, Canada, China, the European Commission, Denmark, Estonia, Finland, France, Germany, India, Italy, the Republic of Korea, the Netherlands, New Zealand, Norway, the Russian Federation, Spain, Sweden, the United Kingdom and the USA.