

Nuclear Security

Objective

To increase State awareness and ability to control and protect nuclear and other radioactive materials, nuclear installations and transports, from terrorist and other illegal activities, and to detect and respond to such events and provide engineering safety measures, as necessary.

Assessing Nuclear Security Needs, Analysis and Coordination

Integrated Nuclear Security Support Plans (INSSPs) have become central to implementing improvements to nuclear security in States. An INSSP offers a centralized platform for work to be done over an extended period of time. By the end of 2004, 12 INSSPs had been developed and transmitted for agreement, and five States had submitted letters indicating agreement.

The Agency's International Nuclear Security Advisory Service (INSServ), which is available to States upon request, involves missions to States by expert teams to assess the need for additional or improved measures related to nuclear security. The recommendations generated by the INSServ team provide a platform for the more specific nuclear security assistance provided subsequently through Agency programmes, or through bilateral assistance. In 2004, INSServ missions visited Argentina, Colombia, Indonesia, Malaysia, Morocco, Nigeria, Serbia and Montenegro, Tunisia, Uruguay, Venezuela and Yemen.

Another service offered by the Agency, the International Physical Protection Advisory Service (IPPAS), reviews physical protection systems related to nuclear material. In addition, an IPPAS type service to assess the physical protection of other radioactive material is currently under development. Three IPPAS missions were conducted in 2004, in addition to other preparatory and follow-up missions.

The design basis threat (DBT) methodology provides the foundation for a State's system of physical protection. In efforts to promote the DBT concept, the Agency provided State officials responsible for the nuclear security of facilities and for the physical protection of nuclear material with basic information about the DBT and its

development methodology. In addition, the Agency conducted workshops to assist authorities in Brazil, Bulgaria, Islamic Republic of Iran, Mexico, Peru and the Philippines in the development and maintenance of their own DBT concept.

A "Contribution Agreement" was signed in December 2004 with the European Commission establishing the modalities for the European Union's support, through the Nuclear Security Fund, to the Agency's efforts to secure nuclear and other radioactive material, including those in non-nuclear use, and to enhance detection and response capabilities in a number of States across southeastern Europe and Central Asia. Following an evaluation of needs, projects will be implemented in three fields: strengthening the physical protection of nuclear material and of other radioactive material in use, storage and transport, and of nuclear facilities; strengthening the security of radioactive materials in non-nuclear applications; and strengthening State capabilities for the detection of and response to illicit nuclear trafficking.

The nuclear security training programme for 2004 included approximately 40 courses covering nuclear security awareness, combating illicit trafficking, training in the use of detection equipment, physical protection, and nuclear forensics (Fig. 1). Other relevant courses cover State systems of accounting for and control of nuclear material and inventory management systems for radioactive sources. In addition, Ukraine is being assisted in establishing an undergraduate education curriculum in nuclear security, material protection and accountability.

Technical, Administrative and Regulatory Arrangements in States to Protect and Control Nuclear Material

Radioactive sources are used in numerous industries throughout the world and, because of their vast number, their protection is a challenging task. Despite the difficulty of this task, the Agency is actively involved in building awareness internationally about the need to control and physically protect radioactive sources at their locations. As the Code of Conduct on the Safety and Security of Radioactive Sources, which was finalized in 2003, states, "the prime responsibility for the safe



FIG. 1. Participants at a regional training course on the practical operation of physical protection systems, Obninsk, Russian Federation.

management of, and security of, radioactive sources [is] on the persons being granted the relevant authorizations”.

Accordingly, during the 11 INSServ missions performed in 2004, broad assessments were made of the security of sources in the respective countries. The Agency conducted two regional training courses on the security of sources and one regional awareness seminar for managers and decision makers on the Code of Conduct. The Agency also continued an important project on developing national strategies for regaining control of orphan sources by hosting a workshop in October.

The Agency entered into a regional partnership with Australia and the USA to increase awareness of the need for the security of sources and to train regulators and users in Southeast Asia. The Agency also continued its efforts to help States develop regulatory infrastructures for the safety and security of sources. In this regard, approximately 21 missions were conducted during the year. And within the framework of its partnership with the Russian Federation and the USA under the ‘Tripartite Initiative’ to dismantle and relocate high activity, vulnerable sources in the former Soviet Union, the Agency completed one contract and negotiated five others for relocating dangerous sources to more secure locations in this part of the world.

The Agency continued to assist States in drafting national legislation in the field of nuclear security, including the development of a legislative framework featuring the basic requirements and procedures for the control of radioactive sources and the physical protection of nuclear material. To facilitate this process, a technical document on

Strengthening Control over Radioactive Sources in Authorized Use and Regaining Control over Orphan Sources: National Strategies (IAEA-TECDOC-1388) was published. Work on this document began at a time when the primary concern was with providing guidance to States on their strategies for controlling radioactive sources in order to prevent accidents. However, it was later recognized that the methodology for identifying and regaining control over orphan sources also contributes to enhancing nuclear security in States.

A report providing guidelines for the identification of vital areas relevant to the protection of nuclear facilities against sabotage was drafted at a meeting of physical protection and international nuclear safety experts. It describes how vital structures, systems and components can be identified for security review, and presents methodologies for protecting them against malicious acts. Another report on guidelines for the self-assessment of engineering safety aspects of the physical protection of nuclear facilities against sabotage integrates safety and security issues related to sabotage at a nuclear installation. These draft guidelines have already been used at several workshops on this subject.

Physical protection against malicious acts by personnel with authorized access is the subject of a project between France and the USA, and coordinated by the Agency. In 2004, work began on a technical document that includes a methodology for addressing ‘insider threats’, specifically with respect to both physical protection against unauthorized removal and sabotage. This publication is intended to provide the foundation for ‘insider threat workshops’ that are being developed in parallel. Work also began on a technical document on improving the capabilities of a nuclear power plant to respond to conditions created by a terrorist attack. The objective is to plan actions that would prevent a potential release of radioactivity.

Detection and Response to Activities Involving Nuclear and Other Radioactive Material

If protection and control of nuclear or other radioactive material should fail, States need effective capabilities to detect, interdict and respond to theft of and illicit trafficking in these materials, as well as to sabotage and threats thereof. The Agency assisted States in the enhancement of these capabilities by conducting evaluation missions, which frequently

resulted in requests for training courses for front line officers. Additionally, the Agency held awareness seminars for managers and decision makers, addressing such issues as the integration of technology into work environments and the continued support from the Agency that is required in the areas of training and sustainability.

An important benefit of nuclear security training initiatives was feedback on instruments used by the participants. User friendliness and accuracy evaluations were compiled and made available to the designers and manufacturers of the equipment. The Agency also conducted topical seminars on the use of instruments and equipment, such as a course on the use of hand-held isotope identification instruments. As a result of the Agency's evaluation missions, upgrades to border monitoring equipment were initiated in Azerbaijan, Belarus, Bosnia and Herzegovina, Croatia, Georgia, The Former Yugoslav Republic of Macedonia, Serbia and Montenegro, the United Republic of Tanzania and Ukraine.

The Agency continued its efforts to strengthen response measures in States. Training on combating nuclear terrorism and incidents involving illicit trafficking in nuclear and other radioactive materials were held in Azerbaijan, Belarus, Bolivia, Georgia, Malaysia, Poland, Romania, Serbia and Montenegro, the United Republic of Tanzania and Turkey. The Agency also carried out an incident response mission to the Netherlands.

The Illicit Trafficking Database (ITDB) continued to expand, both in the number of participating States and the reported incidents. In 2004, there were 81 States participating in the ITDB; a total of 121 incidents were reported by States, 93 of which occurred during 2004 (Fig. 2). This is the highest number of incidents confirmed to the ITDB in a single year since 1993.

In fact, 2004 saw the first increase in the number of confirmed incidents involving nuclear materials since 2001, demonstrating better reporting by Member States, and highlighting the continuing concern posed by nuclear trafficking. One trafficking incident, which was confirmed to the Agency in 2004 but occurred in 2003, involved about 170 g of high enriched uranium (89%). It is also noteworthy that a number of incidents involved the illegal possession of nuclear material, or the intent to sell it.

The data also indicate a continuation of a gradual increase in the annual number of confirmed incidents involving radioactive sources. This illustrates a persisting problem with the security of radioactive sources worldwide, including high risk, dangerous radioactive sources, and a continuing need: to improve the control and protection of these substances; and for measures to detect and respond to such events. Incidents dealing with theft, illegal possession, or intent to illegally sell radioactive sources point to the potential availability of radioactive sources for malicious use. And incidents

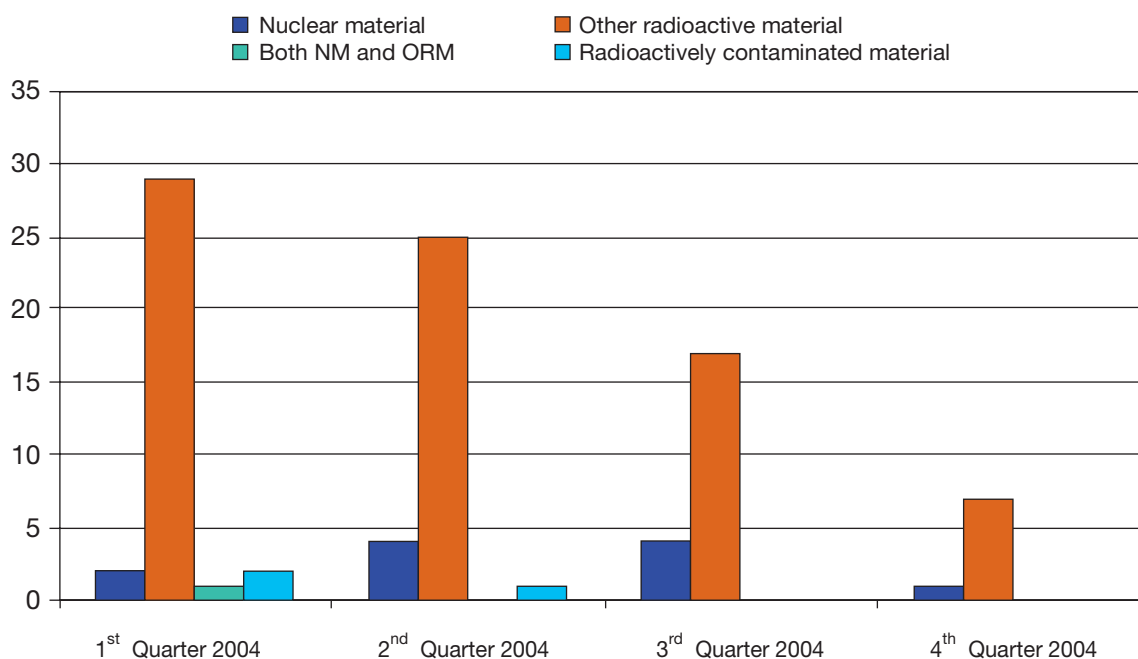


FIG. 2. Confirmed incidents in 2004 as reported to the ITDB (NM: nuclear material; ORM: other radioactive material).

involving the discovery of radioactive sources in metal scrap signify risks to the environment, and may also indicate the attempted breach of environmental regulations through the unauthorized disposal of radioactive sources.

A CD-ROM containing information on illicit trafficking incidents was distributed to participating States and international organizations. Meetings and other exchanges between the Agency and international organizations, including the Organization for Security and Cooperation in Europe and Interpol, established bases for bilateral cooperation and mutual support. Finally, ITDB Quarterly Reports offering evaluation and statistics were issued to States and to international organizations. The importance of the analysis of ITDB information is that it contributes to internal planning and to the prioritization of activities related to nuclear security, in addition to assisting States in preventing, detecting and responding to illicit trafficking in nuclear and other radioactive material.

Convention on the Physical Protection of Nuclear Material

In 2004, a total of 11 additional States became parties to the 1979 Convention on the Physical Protection of Nuclear Material (CPPNM), making a total of 109 States Parties.

The formal process towards amending the CPPNM has started. In July 2004, at the request of the Government of Austria and 24 co-sponsoring States, and in accordance with Article 20, paragraph 1 of the CPPNM, the Director General circulated proposed amendments to all States Parties. These amendments would extend the scope of the CPPNM to also cover the physical protection of nuclear material used for peaceful purposes, in domestic use, storage and transport and the physical protection of nuclear material and the protection of peaceful nuclear facilities against sabotage. At the request of a majority of the States Parties, the Director General will convene a conference to consider the proposed amendments in July 2005. ■