

Nuclear Security

Objective

To improve worldwide security of nuclear material, other radioactive materials and their associated nuclear facilities, in use, locations and transports, through support and assistance to Member States for the establishment of effective national nuclear security regimes.

Nuclear Security Assessments

To provide effective and comprehensive assistance and coordination, the Agency expanded the use of Integrated Nuclear Security Support Plans (INSSPs). These plans are intended to serve as a reference and framework for implementing nuclear security activities and improvements in States. At the end of 2007, 44 INSSPs were in varying stages of development and completion.

With the aim of assessing the status of technical and administrative arrangements, the Agency continued to offer nuclear security advisory missions, fact finding missions and technical visits. Fifteen nuclear security advisory missions were carried out in 2007, including: International Physical Protection Advisory Service (IPPAS) missions; International Team of Experts (ITE) missions to advise States on their adherence to or implementation of international instruments relevant to enhancing protection against nuclear terrorism; IAEA SSAC Advisory Service (ISSAS) missions to evaluate States' regulatory, legislative, administrative and technical components of the respective State systems for accounting and control of nuclear material at both the national and facility levels; and Radiation Safety and Security of Radioactive Sources Appraisal (RaSSIA) missions.

Illicit Trafficking Database

Established in 1995, the Agency's Illicit Trafficking Database (ITDB) benefits from the voluntary participation of 98 IAEA Member States and one non-Member State. As of 31 December 2007, States had reported or otherwise confirmed 1340 incidents to the ITDB. Of these, 303 incidents involved the seizure of nuclear material or radioactive sources from persons who possessed them illegally and, in some cases, attempted to sell them or smuggle them across borders.

Of particular concern are those incidents involving the unauthorized possession of high enriched uranium and plutonium. From 1993 to 2007, 15 such incidents were reported to the ITDB. Some of these cases involved an attempt to sell material or smuggle it across national borders.

In 389 of the confirmed cases, the material was reported stolen or lost. A total of 571 incidents involved other unauthorized activities, such as detection of material disposed of in unauthorized ways, discovery of uncontrolled, or orphan, material, and other incidents that appear to be inadvertent in nature. In 77 cases, the nature of the incident is unknown. Expanded reporting to the ITDB of events in countries from all regions of the world demonstrates a clear need for further improvement in measures to control and secure nuclear and other radioactive material, wherever used or located.

The Agency developed subregional workshops on illicit nuclear trafficking information management and coordination with the goal of strengthening Member State capacities to cooperate in preventing and combating illicit nuclear trafficking. Two workshops took place in Singapore in July 2007 and South Africa in August 2007. The Agency also adopted a more proactive information collection strategy, including information collection visits to States. The results of such visits provided more comprehensive and complete information to the ITDB and contributed to the Agency's assessment of countries' nuclear security needs. ITDB analytical products were used in awareness briefings at various national, regional and international training activities, at international conferences and seminars, and to support Agency nuclear security activities, such as missions, needs assessments and the development of documents.

International Conference on Illicit Nuclear Trafficking

In November, the Agency organized an international conference entitled 'Illicit Nuclear Trafficking: Collective Experience and the Way Forward'. Held in Edinburgh, the conference objectives were to: take stock of achievements in recent years; examine the challenges in combating illicit nuclear trafficking; and explore avenues for future action. The findings of the conference — discussed in greater detail in the Overview chapter

of this document — included a range of actions through which international efforts to deal with the challenge of illicit trafficking could be strengthened.

New Cooperation Arrangements with Member States

In June, the Agency signed a cooperation arrangement with Qatar for Agency assistance in enhancing the effectiveness and efficiency of Qatar's nuclear security. In addition, work continued under a partnership programme between the Agency and the Pakistan Nuclear Regulatory Authority, which included training courses, on the job training and the provision and procurement of detection equipment.

Capacity Building

Supporting the development of nuclear security education mechanisms continued to be a priority for the Agency in 2007. For example, educational programmes at the Sevastopol National University of Nuclear Energy and Technology in Ukraine and at the Interdepartmental Special Training Centre in Obninsk, Russian Federation, received Agency support. In May, the Agency provided Saudi Arabia's Naif Arab University for Security Sciences with a set of arrangements for enhancing cooperation between the university and the Agency. These arrangements promote institutional visits, facilitate the exchange of information, and help organize symposia, meetings and training on nuclear security issues.

The Agency continued to provide nuclear security training to improve and expand the practical nuclear security skills of technical and non-technical personnel in States. More than 950 participants from 87 countries participated in nuclear security training in 69 courses held during the year. Regional and national training courses in the areas of physical protection and of combating illicit trafficking constituted the majority of these activities. A peer to peer meeting on the management and coordination of illicit trafficking information was conducted for one national and two regional groups. In April, the Agency inaugurated a Nuclear Security Support Centre (NSSC) in Islamabad, Pakistan. The Agency also procured equipment for the establishment of an NSSC in Ghana and conducted initial discussions

with Brazilian and Malaysian authorities on establishing NSSCs in those States.

Risk Reduction

The removal and repatriation of vulnerable radioactive sources continued to be priorities for the Agency. In 2007, 127 sources were repatriated to the USA from a country in Latin America. The majority of the sources were transuranic neutron sources, but

also included transuranic gamma, caesium-137 and radium-226/beryllium sources. Two high activity disused sources were recovered in Africa

and were conditioned and repatriated to Canada. In addition, one very large disused source, one disused Russian teletherapy source and one disused brachytherapy machine were removed from their respective locations and consolidated in a secure facility.

Guidance on Nuclear Security for Member States

In 2007, the Agency published *Engineering Safety Aspects of the Protection of Nuclear Power Plants against Sabotage* (IAEA Nuclear Security Series No. 4), which provides methods for evaluating and proposing corrective actions aimed at reducing the risk related to any malicious act directed at a nuclear power plant that could endanger human health and safety and the environment through radiation exposure or the release of radioactive substances. Another publication in this series, *Identification of Radioactive Sources and Devices* (IAEA Nuclear Security Series No. 5), serves as an aid to non-specialist individuals and organizations in initially identifying radioactive sources, devices and packages with which they may come into contact in performing their duties. It also provides information on precautionary actions to be taken if a suspected uncontrolled source or device is found. This publication complements the Agency's International Catalogue of Sealed Radioactive Sources and Devices database.

Nuclear Security Equipment Laboratory

The Nuclear Security Equipment Laboratory (NSEL) continued to provide technical support to Member States. In 2007, the NSEL organized 25 training courses and technical missions to Member

“The removal and repatriation of vulnerable radioactive sources continued to be priorities for the Agency.”

States, conducted acceptance tests of 915 portable and 4 fixed installed pieces of radiation detection equipment, and evaluated eight new instruments for nuclear security and safeguards applications.

Security at Major Public Events

Following the successful implementation of previous projects that assist Member States in ensuring the nuclear security of major public events, the Agency established projects with Brazil and China in preparation for the 2007 Pan-American Games (Fig. 1) and the 2008 Summer Olympic Games. The Agency's assistance to Brazil included supplying radiation detection equipment, providing up to date information on illicit trafficking activity and conducting national workshops on illicit trafficking awareness, on response to criminal or unauthorized acts involving nuclear or other radioactive material, and on nuclear security awareness for security officers and mobile expert support teams. To enhance China's capabilities for ensuring the nuclear security of the 2008 Olympic Games, the Agency initiated a training programme that to date has trained more than 150 participants.

Financial Support to the NSF

The implementation of the Agency's nuclear security programme continued to depend largely on the donation of extrabudgetary funds by Member States and others to the Nuclear Security Fund (NSF). In 2007, financial and in-kind contributions with a cumulative value in excess of \$20 million were received from more than a dozen Member States and the European Union. This was the largest amount received in a single year since the programme was set up, equal to more than 40% of all funding received prior to 2007. In part, this was due to the contribution in 2007 of over €7 million by the European Union,

"... the Agency established projects with Brazil and China in preparation for the 2007 Pan-American Games and the 2008 Summer Olympic Games."



FIG.1. Assistance for nuclear security was given by the Agency to the Pan-American Games.

the single largest contribution ever made to the NSF. Increased emphasis on programme delivery resulted in expenditures of nearly \$19 million during the year, which considerably exceeded the previous year's expenditures of approximately \$15.5 million.

The NSF continued to rely on relatively few donors. Coordination with these donors and other multilateral initiatives continued to reduce duplication. The Agency also provided assistance to individual State efforts to improve nuclear security by bringing together representatives of other national and multilateral assistance programmes carrying out activities in that particular State.