

Nuclear Security

Objective

To contribute to global efforts to achieve worldwide, effective security wherever nuclear or other radioactive material is in use, storage and/or transport, and of associated facilities, by supporting States, upon request, in their efforts to establish and maintain effective nuclear security through assistance in capacity building, guidance, human resource development, sustainability and risk reduction. To assist adherence to and implementation of nuclear security related international legal instruments; and to strengthen the international cooperation and coordination of assistance given through bilateral programmes and other international initiatives in a manner which also would contribute to enabling a broader use of nuclear energy and of applications with radioactive substances.

Nuclear Security Assessments

Nuclear security peer reviews and advisory services continued to be the Agency's main tools for helping States to assess their nuclear security effectiveness, identify needs and provide a basis for formulating plans for continuous improvement. In 2011, three International Physical Protection Advisory Service (IPPAS) missions were undertaken

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in France, Sweden and the United Kingdom. With a total of 54 missions, IPPAS has become an important tool to build confidence within the international community with regard to the effectiveness of national nuclear security programmes. Some of the output from these missions provided input to the Integrated Nuclear Security Support Plans (INSSPs) drawn up by the Agency together with States to identify areas where improvements are needed in their nuclear security programmes. In the course of

2011, five States approved their INSSPs, bringing the total number to 30, with five additional INSSPs awaiting formal approval. Fourteen other missions were conducted focusing on legal, regulatory and practical measures for controlling nuclear and other radioactive material.

The Agency undertook other expert missions, at the request of States, to examine arrangements to detect illicit trafficking and respond 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.

Strengthening Global Safety and Security

The Advisory Group on Nuclear Security (AdSec) provides advice to the Director General on the Agency's activities related to the prevention and detection of and response to malicious acts involving nuclear or other radioactive material and facilities. The joint AdSec–Commission on Safety Standards (CSS) task force explored ways to improve the process of reviewing and approving draft IAEA Nuclear Security Series publications in the short term as well as the feasibility of a long term objective of developing an integrated series of safety and security standards. In pursuit of the short term objective of improving the process for the review and approval of draft IAEA Nuclear Security Series publications, the task force recommended to the Director General the establishment of a standing Nuclear Security Guidance Committee (NSGC), open to all Member States, to make recommendations on the development and review of nuclear security publications. It was proposed that the NSGC would also cooperate with the CSS and safety standards committees to ensure that safety and security interface issues are properly addressed and reviewed in the Agency's safety and security publications. As a long term vision for structuring the review and approval of draft nuclear safety and security publications, the joint task force recommended that the establishment of a new Safety and Security Series Commission be considered. The joint task force noted that such a long term vision should be revised, if necessary, in the light of experience acquired with the NSGC.

The primary publication in the IAEA Nuclear Security Series, which deals with the fundamentals

of a State's nuclear security regime, was sent for final approval to the relevant authorities in Member States. Three Recommendations level publications, which were completed in 2010 and published in 2011, present best practices in the application of the nuclear security fundamentals.

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, including illicit trafficking, as well as the provision of equipment for physical protection upgrades. For example, four remote monitoring systems were deployed and made operational in four facilities to secure Category I–III radioactive sources. The Agency also donated 256 handheld monitors to Member States and lent an additional 588 radiation detection instruments.

Building Capacity

Investing in human resource development and capacity building continues to be vital to maintaining effective and sustainable nuclear security programmes in States. To this end, the Agency conducted 52 training events covering all aspects of nuclear security, reaching more than 1300 people from 120 States.

The International Nuclear Security Education Network (INSEN) has been expanding and now comprises over 50 academic institutions. During the second annual INSEN meeting in Vienna, members reviewed the activities of the working groups, focusing on the three action plans of the main areas necessary for the establishment of nuclear security education: exchange of information and development of nuclear security education materials; faculty development and cooperation among educational institutions; and promotion of nuclear security education. The action plans were reviewed to ensure that there was continuous support for nuclear security education. Using the Agency's guide *Educational Programme in Nuclear Security* (IAEA Nuclear Security Series No. 12), five universities in Europe began development of Master of Science programmes in nuclear security for the autumn 2012 semester. This initiative is being supported by the Agency and the European Commission.

The Agency established a network among the nuclear security training community to facilitate collaboration among Nuclear Security Support Centres (NSSCs) and to promote the concept of national NSSCs. This resulted in States signing 'Practical Arrangements' with the Agency. To date, the concept has been successfully implemented in several countries, such as Ghana, Morocco and Pakistan (Fig. 1).



FIG. 1. A nuclear security training session.

Illicit Trafficking Database (ITDB)

The membership of the Agency's Illicit Trafficking Database (ITDB) has continued to expand, with two States joining in 2011, bringing the total number of participating States to 112 Member States and one

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non-Member State. The first web based version of the ITDB was launched, featuring information on all incidents confirmed to the ITDB and solely accessible to ITDB Points of Contact.

As of the end of 2011, States had reported — or otherwise confirmed via the ITDB — 2164 incidents since the database was established in 1995. A total of 147 incidents were reported in 2011. Twenty of these incidents involved illegal possession of and attempts

to sell nuclear material or radioactive sources. In 31 cases, thefts or losses of radioactive sources were reported. The remaining 96 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 2011, there were four incidents involving HEU, one related to an attempted sale and three related to other unauthorized activities. There were also seven incidents involving Category I-III radioactive sources, five of which were thefts.

Coordinated Research Projects

The Agency started a new three year CRP entitled 'Identification of High Confidence Nuclear Forensics Signatures for the Development of National Nuclear Forensics Libraries'. The objective is to identify relevant nuclear forensic signatures and to track their incorporation and modification across the

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stages of the nuclear fuel cycle. By comparing the nuclear forensic signature of a sample encountered out of regulatory control with those of known materials organized within a national nuclear forensics library, Member States can better ensure the security of nuclear or other radioactive materials manufactured, used or stored within the country. The CRP also aims to provide technical guidance and scientific solutions to assist Member States in the development of a national nuclear forensics library.

Another CRP on the 'Development and Implementation of Instruments and Methods for the Detection of Unauthorized Acts Involving Nuclear and Other Radioactive Material' was completed.

International Cooperation and Coordination

The Agency, in cooperation with Member States, continued to play a role in nuclear security related initiatives such as the Global Initiative to Combat Nuclear Terrorism (GICNT) and to work jointly, as

appropriate, with relevant international and regional organizations and institutions. The first information exchange meeting was held in May 2011, with the purpose of exchanging information at the working level.

The Agency engaged Member States and relevant United Nations bodies such as the Counter-Terrorism Implementation Task Force (CTITF) and the Security Council's 1540 Committee to establish a basis for improving cooperation and enhancing dialogue among other international nuclear security related initiatives. The GICNT recognized the leading role of the Agency and has secured an agreement for regular information exchange.

Nuclear Security Fund

In 2011, the implementation of the nuclear security programme continued to rely on extrabudgetary contributions. Revenue to the Nuclear Security Fund amounted to some €18 million in 2011. Financial contributions were received from 16 Member States and the European Union as extrabudgetary funding.¹ In addition, a number of Member States made contributions in kind through the donation of equipment and expert services. Extrabudgetary resources provide 85% of the nuclear security programme's funding.

¹ Canada, China, Estonia, Finland, France, Germany, Italy, Japan, Republic of Korea, the Netherlands, Norway, Spain, Sweden, the Russian Federation, the United Kingdom, the United States of America and the European Union.