

# Nuclear Security

## Objective

*To improve the worldwide security of nuclear material, other radioactive material and their associated nuclear facilities, in use, storage and transport, through support and assistance to Member States for the establishment of effective national nuclear security systems.*

## Nuclear Security Plan and Financial Resources

The IAEA Nuclear Security Plan for 2010–2013 was approved by the Board of Governors in September 2009 (Fig. 1). The new plan is built on lessons learned from the implementation of previous plans and is designed to respond to priorities identified by the Secretariat in conjunction with Member States, with particular regard to changes in the nuclear security situation since the introduction of the previous plan and recommendations generated in external evaluations. It seeks to move from ad hoc interventions to providing long term, sustained improvements in nuclear security. The plan envisages a budget of approximately €23 million per year, the majority of which comes from the Nuclear Security Fund (NSF).

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support the establishment of an effective nuclear security information platform, the development and publication of nuclear security recommendations and guidance, the provision to States, upon request, of services for nuclear security assessment and evaluation, and the development of human resources. Regular Budget funding will be used specifically to provide for the necessary staffing and to fund the participation of senior experts from Member States in Agency nuclear security activities. Notwithstanding the increase, the Agency will continue to rely on extrabudgetary funding from the NSF to implement the majority of the new plan.

## Nuclear Security Assessments

Nuclear security advisory missions continued to be key tools to assess the needs of States. During 2009, the Agency conducted 14 such missions. More than half dealt with physical protection and with legal, regulatory and practical measures for controlling nuclear and other radioactive material. Several additional missions reviewed measures for the detection of illicit nuclear trafficking and the response to nuclear security incidents. The Agency also conducted a number of technical visits, which addressed security needs at locations including border crossings, medical facilities, scientific institutes and industrial sites.

The Agency develops Integrated Nuclear Security Support Plans (INSSPs) on behalf of States to facilitate the comprehensive implementation of nuclear security improvements. Two States approved INSSPs during the year, bringing the total number of approved INSSPs to 18. In addition, meetings were held with ten other States to finalize their INSSPs.

## International Symposium on Nuclear Security

The Agency convened an international symposium on nuclear security issues in March–April in Vienna which attracted more than 500 participants from 76 States. The symposium noted the need to: strengthen legal elements of the international nuclear security framework; continue to harmonize efforts in the areas of



FIG. 1. The IAEA Nuclear Security Plan for 2010–2013.

security, safeguards and safety; and promote participation in initiatives for the exchange of nuclear security information, particularly with regard to lessons learned. The symposium encouraged the strengthening of national efforts to secure nuclear and other radioactive material, associated facilities and transports, which should be complemented by increased efforts at the global level. Specific proposals included the production of model elements of legal frameworks, the extension of threat assessment to sensitive technologies, the improvement of reporting on security incidents, and the creation of nuclear forensic reference data. The Secretariat took account of the symposium findings and specific proposals in preparing the *IAEA Nuclear Security Plan for 2010–2013*.

### Capacity Building in Member States

The Agency completed its largest project to date, focused on capacity building in States for the physical protection of facilities. Funded by Canada, the project involved the upgrading of the nuclear security training facilities at the Interdepartmental Special Training Centre (ISTC) in Obninsk, the Russian Federation (Fig. 2). Completed upgrades to ISTC's technical infrastructure in 2006 — including the equipping of a training auditorium — supported indoor nuclear security training. Subsequently, two training laboratories were furnished with equipment for a central and a local alarm station. Three outdoor training areas were also constructed, featuring a full scale model of a nuclear power plant perimeter fencing area, a range of fences used at power plants,

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and equipment for studying separate models of detection sensors. The ISTC's new facilities were inaugurated in May 2009, with the first international training courses taking place there in October and November 2009.

### Human Resource Development

The Agency continued to assist States in the area of nuclear security human resource development. In 2009, it conducted 51 training events on all aspects of nuclear security, reaching 1275 people from 120 countries (Fig. 3).

The third and fourth Agency assisted Master's programmes in nuclear security commenced in 2009. These are designed to underpin nuclear security improvements through the development of core technical skills. Supported by the Agency, the Tomsk Polytechnic University launched a Master of Science course in nuclear security, the curriculum of which is based on the Agency's guidance. The Naif Arab University for Security Sciences (NAUSS) in Saudi Arabia offered a course entitled 'Introduction to Nuclear Security' as a component of its existing Master of Science Programme in Security. NAUSS has requested the Agency's support in developing teaching materials and providing guest lecturers to implement the courses.

### Guidance on Nuclear Security for Member States

The tenth and eleventh publications in the IAEA Nuclear Security Series were issued during the year.



FIG. 2. The Interdepartmental Special Training Centre in Obninsk, the Russian Federation.



FIG. 3. Participants at an Agency regional training course for trainers in radiation detection techniques, Accra, Ghana, April 2009.

The *Implementing Guide — Development, Use and Maintenance of the Design Basis Threat* is intended for decision makers from organizations involved in establishing measures for protecting nuclear material against potential internal and/or external adversaries. The other *Implementing Guide — Security of Radioactive Sources* includes recommended measures for preventing, detecting and responding to malicious acts involving radioactive sources. It also provides guidance on preventing the loss of control of sources.

### Illicit Trafficking Database

The Agency's Illicit Trafficking Database (ITDB) contains information on illicit trafficking and other unauthorized activities and events from 1993 onward. Membership in the ITDB programme grew by five States, of which four were African, bringing the number of participating States to 109. By 31 December 2009, States had reported, or otherwise confirmed, a total of 1801 incidents to the database; 239 incidents were reported by States in 2009, of which 124 had occurred during the year (others having occurred earlier). Of those that had occurred during the year, nine incidents involved illegal possession of and attempts to sell nuclear material or radioactive sources. In 26 cases, thefts or losses of radioactive sources were reported. The remaining 89 incidents involved discoveries of uncontrolled material, unauthorized disposals, and inadvertent unauthorized shipments and

storage of nuclear material, radioactive sources and radioactively contaminated material. Additional incidents included one involving both HEU and LEU, one incident involving both depleted uranium and thorium, one involving both natural uranium and thorium, and two incidents involving uranium in which the information reported for use in the database was not sufficient to determine the category of material involved. Three of these incidents involved theft, six involved attempted sales, five involved unauthorized possession of nuclear material, 11 involved unauthorized disposal, five involved discovery, four involved unauthorized or undeclared storage, and two involved either missing or lost materials.

Information provided to the ITDB demonstrates that illicit trafficking in both nuclear material and radioactive sources is continuing, pointing to vulnerabilities in protection, accounting and detection systems, and in regulatory infrastructures. It provides evidence for the need for further improvement of measures to control and secure nuclear and other radioactive material, wherever it is used or located, and of capabilities to detect illicit trafficking and other unauthorized acts involving such material.

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### Nuclear Security Equipment Laboratory

An essential 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. Through the Nuclear Security Equipment Laboratory, the Agency provided to States 471 instruments for radiation detection, including remote monitoring systems and radiation portal monitors.

## **Risk Reduction**

The Agency continued to assist States in establishing systems and technical measures for protecting against malicious access to nuclear

material, and the associated facilities and transports, as well as to radioactive material and waste. In more than a dozen countries, the Agency completed upgrades to facilities housing nuclear material or radioactive sources.

In 2009, the Agency was an implementing partner in operations to repatriate to the Russian Federation more than 225 kg of spent HEU fuel from Kazakhstan, the Libyan Arab Jamahiriya, Poland and Romania, as well as 18.9 kg of fresh HEU fuel from Hungary. In addition, 597 vulnerable radioactive sources, of which 54 were Category 1 or 2 sources, were recovered in seven countries.