

NUCLEAR MATERIAL IN THE NIS

EXPERIENCE AND PROGRESS IN ENHANCING SECURITY

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The break-up of the former Soviet Union in 1991 resulted in the creation of 14 newly independent States (NIS), besides the Russian Federation. Eleven States are known to have nuclear activities (including mining activities). These are Armenia, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Tajikistan, Ukraine, and Uzbekistan. Three other States are known to have no nuclear activity or mining activity. These are Azerbaijan, Moldova, and Turkmenistan.

All 14 States have acceded to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). Safeguards agreements have been signed with 12 of the States. There are nine States where a safeguards agreement is in force: Armenia, Azerbaijan, Belarus, Estonia, Kazakhstan, Latvia, Lithuania, Ukraine, and Uzbekistan, and three States — Moldova, Kyrgyzstan, and Georgia — have signed safeguards agreements which are pending ratification. Azerbaijan was the latest State to sign a safeguards agreement, in 1999. Eight States have signed the Additional Protocol. The Additional Protocol has entered into force in four of the NIS: Azerbaijan, Latvia, Lithuania, and Uzbekistan. (See table, page 31.)

Long before the individual NIS ratified the NPT and signed the safeguards agreements, IAEA experts and safeguards staff went on technical visits to locations where the State informed the Agency that there was nuclear material. The purposes of these visits were to advise the country on the initial inventory declarations and possible safeguards activities for each facility, to explain these activities to facility and State representatives, and to demonstrate safeguards equipment that would be used, thereby preparing the facility for eventual inspections.

A wide variety of different types of nuclear facilities (uranium mining, fuel fabrication plant, commercial nuclear power plants, research reactors, and storage facilities) are located in the NIS. (See table, page 32.)

With most NIS becoming parties to the NPT as non-nuclear weapon States, there has been an acute need in these States for considerable assistance for the establishment of the necessary structure and resources to ensure that their commitments to non-proliferation are fully implemented in a timely manner. A number of IAEA Member States (donor States) offered and provided assistance to the NIS on a bilateral level

to set up an appropriate State System of Accounting and Control (SSAC) which includes Import/Export Control and Physical Protection of Nuclear Material in each State. The IAEA and these donor States established the Coordinated Technical Support Programme (CTSP) to ensure that the support given to the NIS was done in a coordinated and transparent manner and to avoid duplication of effort. The IAEA has played a coordinating role for the past eight years by helping to identify detailed needs in individual States, by providing a platform for Member States to identify areas where they could provide the optimum support, and in developing and preparing the Coordinated Technical Support Plans. The donor and recipient countries regularly meet in Vienna to review the focus and implementation status of the coordinated technical support activities in the NIS.

PREPARING FOR SAFEGUARDS

The IAEA had to start its implementation of safeguards

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STATUS OF NPT, SAFEGUARDS AGREEMENTS AND ADDITIONAL PROTOCOLS IN NIS

(STATUS AS OF DECEMBER 2001)

State	NPT Adherence	SAFEGUARDS AGREEMENT		ADDITIONAL PROTOCOL		
		State Signed	Entry into Force	Board Approval	State Signed	Protocol in Force
Armenia	15 July 1993	30 Sept 1993	5 May 1994	23 Sept 1997	29 Sept 1997	29 Nov 2000
Azerbaijan	22 Sept 1992	6 Nov 1999	29 Apr 1999	7 June 2000	5 July 2000	
Belarus	22 July 1993	14 Apr 1995	31 July 1995			
Estonia	31 Jan 1992	24 Nov 1997	24 Nov 1997	21 Mar 2000	13 Apr 2000	
Georgia	7 Mar 1994	29 Sept 1997		23 Sept 1997	29 Sept 1997	12 July 2001
Kazakhstan	14 Feb 1994	26 July 1994	11 Aug 1995			
Kyrgyzstan	5 July 1994	18 Mar 1998				
Latvia	31 Jan 1992	21 Dec 1993	21 Dec 1993	7 Dec 2000	12 July 2001	
Lithuania	23 Sept 1991	15 Oct 1992	15 Oct 1992	8 Dec 1997	11 March 1998	5 July 2000
Moldova	11 Oct 1994	14 June 1996				21 Dec 1998
Tajikistan	17 Jan 1997					
Turkmenistan	29 Sept 1994					
Ukraine	5 Dec 1994	21 Sept 1995	22 Jan 1998	7 June 2000	15 Aug 2000	
Uzbekistan	7 May 1992	8 Oct 1994	14 Sept 1998	14 Sept 1998	22 Sept 1998	

activities in the NIS while the countries concerned were still recovering from problems due to the separation from the Soviet Union. Most of the State authorities and facility operators had insufficient safeguards related knowledge and information. The implementation of safeguards as applied under the comprehensive safeguards agreement was unknown to the NIS. They did not have a sufficient infrastructure including an SSAC, trained personnel, computer and communications systems, accountancy software, and the legal framework to carry out such functions.

To develop or strengthen the infrastructure, donor States and the International Atomic Energy Agency have conducted workshops, seminars, and training courses under the CTSP. Courses have been provided on implementation of safeguards, nuclear material accountancy, physical

protection, and import/export activities.

In addition, there were logistical and communications problems. Reaching the countries and travelling inside were often difficult. Flights were cancelled or unduly delayed causing disruption to Agency schedules. In some places, the Agency had to overcome transportation problems by providing Agency-owned vehicles.

Communications with IAEA headquarters were problematic. In many places, the Agency now has its own communication system to send or receive messages by telephone, facsimile, or electronic mail.

PROGRESS ACHIEVED

Significant work has been carried out in introducing safeguards in the NIS over the last ten years. All nuclear facilities have been placed under safeguards, and the

accessible nuclear materials in the initial inventory declarations have been verified for their correctness.

Routine or ad hoc safeguards inspections are conducted regularly. SSACs have been established in States with nuclear activities. Valuable assistance has been provided by donor States under the CTSP, which has included the provision of physical protection and nuclear material accountancy and control equipment, training, workshops and seminars.

The physical protection of nuclear material in the NIS has been strengthened, particularly for direct use material, as a result of the support provided by donor States. The support has included site assessments; provision of physical barriers, communication systems, and intrusion detection equipment; and training courses.

With respect to the security of nuclear material, several International Physical



TYPES OF FACILITIES & NUCLEAR MATERIAL IN THE NIS

FACILITY	MATERIAL TYPE
15 WWER Reactors	Low enriched uranium, plutonium
6 RBMK Reactors	LEU, PU
10 Research Reactors	High enriched uranium, LEU
1 Fast Breeder Reactor (BN 350)	HEU, LEU, PU
2 Critical Assemblies	HEU, LEU
1 LEU Fuel Fabrication Plant	LEU
1 Thorium Storage	Thorium
5 Spent Fuel Storage Facilities	LEU, PU

Protection Advisory Service (IPPAS) assessment missions have been conducted in the NIS (e.g., Belarus and the Ukraine). These missions have highlighted that, although progress has been made, additional efforts are required to strengthen physical protection of nuclear material and facilities and to increase

Photo: The Ignalina nuclear plant in Lithuania is among the facilities under safeguards in the NIS. (Credit: H. Friedrich-Meyer/IAEA)

awareness for the need and importance of physical protection.

WIDE RANGE OF WORK AHEAD

Overall, a considerable range of work still remains to be done. New activities include verification of nuclear material being transferred from operating and shut down reactors to intermediate storage facilities. A strong need still exists to bring the SSACs in the NIS to an international

standard and to meet the requirements of the Additional Protocol. The SSACs need to become self-reliant regulatory bodies that can fully meet national and international obligations. There is a need for well-trained SSAC staffs that are fully competent in accounting and measurement techniques.

To assist Member States in strengthening their SSACs, the Agency offers direct assistance by providing technical advice, training and other guidance at both the State and facility levels. The Agency will continue to provide assistance through the CTSP.

Based on the International Atomic Energy Agency's Programme for 2002-2003, new and updated documents and guidelines for the control of nuclear material will be made available to Member States. In addition, assistance will be provided to States in performing and evaluating an SSAC self-assessment. Direct assistance will be provided by the Agency to States through international, regional and national training courses.

This has been an exemplary undertaking by the IAEA and donor States to bring the NIS to the present situation in view of the starting point. The dedicated work and cooperation of the facility operators as well as State authorities have contributed significantly to this effort. The experience and achievements of the CTSP to the NIS could be considered as a model. Similar arrangements could easily be expanded to other geographical regions and to other technical areas, provided appropriate funds were made available. □