

**Technical Secretariat of the Committee on Cooperation
for the Non-Proliferation of Nuclear Weapons**

**Post-evaluation on the Technical Assistance Project
for Upgrading the State System of Nuclear Accountancy and
Control and the Physical Protection System
Implemented in Past Years in Kazakhstan, Ukraine and Belarus
as Part of Cooperation for the Elimination of Nuclear Weapons
Reduced in the Former Soviet Union
(Republic of Belarus)**

Evaluation and Survey Results

August, 2005

**Japan Atomic Industrial Forum, Inc.
Unico International Corporation**

1. Outline of the Project

- Country: Republic of Belarus
- Name of the Project: Technical Cooperation Project for Upgrading the Nuclear Material Accountancy and Control System and Physical Protection System
- Area: Safeguards
- Form of Cooperation: Equipment Provision
- Total Cost: 240 million Japanese Yen
- Project Duration: Sep. 1994 - Dec. 2000
- Targeted Organizations/Facilities :
 - Department for Supervision of Industrial and Nuclear Safety (PROMATOMNADZOR), Ministry of Emergency Situation
 - Academic Scientific-Technical Center “Sosny” (SSI)
- Other Related Assistance:
 - Equipment provision to the Vocational Retraining Center for Ex-Military Personnel

1-1. Background of the Cooperation

The Republic of Belarus, which became an independent state after the collapse of the Soviet Union in 1991, acceded to the Nuclear Nonproliferation Treaty (NPT) in July 1993. The safeguards agreement based on the NPT went into effect in August 1995. The Academic Scientific-Technical Center “Sosny” (SSI) was the only nuclear research and development institute in Belarus. For the purpose of establishing safeguards systems and improving the technical infrastructure in Belarus, Japan provided with measurement equipment, telecommunication system and the physical protection (PP) system to the SSI and the PROMATOMNADZOR, according to the IAEA Coordinated Technical Support Plan. Japan played a major role in support activities by the donor countries, i.e. Japan, Sweden, and the United States and the IAEA,

[Note] The IAEA Coordinated Technical Support Plan:

The support plan was drawn up by donor countries, recipient countries and the IAEA through consultation among them with the IAEA as coordinator, in order to establish the nuclear nonproliferation regimes of the Newly Independent States (NIS) as early as possible after the collapse of the Soviet Union. Specifically the objective of the plan was to assist the NIS in establishing or enhancing the nuclear material control and accounting system, the physical protection system and the export/import control at the state and facility levels. The plan was designed so that donor countries would share the support projects and implement them effectively and efficiently. Japanese assistance project was carried out based on the IAEA coordinated plan.

1-2. Contents of the Cooperation

(1) Objectives:

Belarus' acceptance and compliance of the IAEA safeguards

(2) Contents:

Contribution to the establishment of the State System of Accounting for and Control of nuclear material (SSAC) and the Physical Protection (PP) system

(3) Results:

Requirements under the IAEA safeguards were complied.

The PP system including access control and entry/exit control was enhanced.

Proper information system, which can process the state safeguards data efficiently using Personal Computers (PCs), was introduced.

Safeguards operation capacity of the PROMATOMNADZOR and the SSI was improved.

(4) Input

<Japanese Side>

Provision of PCs, Local Area Network (LAN) equipment and telecommunication system to the PROMATOMNADZOR and the SSI

Provision of measurement system, including NaI and Ge gamma-ray spectrometers to the SSI

Provision of information system, including PCs, to the SSI

Provision of the PP system, including access control system and entry/exit control system, to the SSI

Training of information system, measurement system and PP system in the SSI

<Belarusian Side>

Arrangement of necessary personnel and implementation of training of related staff and engineers

Provision of installation locations and storage places for the supplied equipment and systems

Cost burden for operation and maintenance of the supplied equipment and systems

2. Outline of the Evaluation and Survey Team

- Survey team: Japan Atomic Industrial Forum, Inc. and Unico International Corporation
- Survey period: Jan. 16, 2005 ~ Jan.25, 2005 (including visit to the IAEA)
- Type of survey: Post-evaluation

3. Outline of the Evaluation Result

3-1. Surveyed Organizations/Facilities

- (1) The PROMATOMNADZOR
- (2) The SSI

3-2. Evaluation Result

As a result of the survey, it was confirmed that all the equipment and facilities provided through the cooperation project, i.e. monitoring equipment and entry/exit control systems necessary for the system configuration of the SSAC system and the PP system had worked smoothly and that their operation and maintenance had been carried out properly by each recipient organization. Especially, the SSI's emphasis on the operation and maintenance is seen where they set the standards and detailed rules, conduct the management plan, and keep the confirmation records.

When interviewing the IAEA, it was confirmed that there were no problems with the result of the IAEA safeguards inspection in Belarus and that the IAEA coordinated technical support plan finished successfully with the aid of Japan and other donor countries.

This assistance can be said to have achieved almost satisfactory results in the light of the original goal. This point was highly appreciated not only by the surveyed organizations/facilities but also by the IAEA officials.

(1) Relevance

It can be evaluated for the following reasons that this project satisfied needs of all the stakeholders (Japan, Belarus, the IAEA, and other donor countries, i.e. the United States and Sweden) related with the project.

Equipment necessary for the IAEA safeguards have been set up at the best suitable places and used effectively for the inspection.

It was confirmed that supplied measurement equipment was used effectively for the inspection of the IAEA and the domestic inspection of the PROMATOMNADZOR, and for the personnel training. In particular, it can be said that the project

contributes greatly to establishment of the SSAC of Belarus, because Belarus has reached the level of developing software independently, by using the supplied equipment.

This project of equipment provision was consistent with the denuclearization policy of Belarus.

Belarus acceded to the NPT in July 1993 and the PP Convention went into force in Belarus in the same year. The safeguards agreement (INFCIRC/495) between Belarus and the IAEA went into force in 1995. Belarus ratified the Vienna Convention on Civil Liability for Nuclear Damage in 1998, the Convention on Nuclear Safety in 1999 and the Comprehensive Test Ban Treaty in 2000. Besides these, Belarus every year submits to the United Nations a draft resolution on the prohibition of development of mass-destruction weapons which is adopted, and proposes positively a Central Europe Nuclear Free Zone Concept. The project was conducted in response to these treaties and agreements.

This project brought about synergistic effect with cooperation of other donor countries.

Other donor countries aids followed with Japanese assistance as a start. There could not be establishment of the present PP system and the SSAC without any of these aids.

(2) Effectiveness

Regarding effectiveness, the objective envisioned in the planning stage was almost attained for the following reasons.

Nuclear material accountancy and control has been carried out at the level of IAEA requirements, using the provided equipment.

The accountancy and control report made out actually was checked with eyes of the survey team. It was confirmed through comment of the IAEA inspectors that the supplied equipment was used in accordance with the purpose.

The provided PP system has worked normally and contributed to discovery of unidentified objects and suspicious individuals.

The PP system of Belarus used to be a system dependent on arrangement of armed guard, but the level of the PP system of each organization and facility has been improved significantly through the cooperation of Japan and other donor countries.

Operation and maintenance of the provided equipment is implemented properly to respond to the current task.

All the major equipment provided is used for the purpose intended and is kept in

good condition. The surveyed organizations do their best efforts for operation and maintenance of the equipment and facilities, by preparing a maintenance management manual and giving maintenance and inspection pursuant to it.

The project has contributed to nuclear nonproliferation.

Measurement equipment that was supplied to the PROMATOMNADZOR and the SSI plays an important part of the SSAC in Belarus as a whole. The PP system including access control system accomplishes its purpose fully and contributes to improvement of the level of nuclear material control in Belarus.

Smooth communication within the facility has been provided.

Internal communication has become smooth through the establishment of LAN, but the number of LAN-capable PCs remains small.

(3) Efficiency

Efficiency has increased for the following reasons.

The project was completed almost in accordance with the denuclearization schedule of Belarus.

Design, installation and engineering works were compliant with the global standards and were completed as planned, without lagging behind schedule. However, in clearing through customs, it took much time for some equipment to be exempted from taxes, causing sometimes delay of their delivery.

The IAEA coordinated technical support plan was carried out by advanced nations including Japan.

The IAEA coordinated technical support plan for Belarus was completed as planned through assistance of Japan, the United States, Sweden and the United Kingdom. Especially Japanese assistance played a pioneering role in the IAEA coordinated plan.

The provided equipment was suitable for the actual use.

The equipment was delivered at appropriate prices. The equipment was selected in line with Belarus' request and actual use. Most equipment works now without failure. As the design certification system was taken over directly from the former Soviet Union, the SSI expresses a desire that Russian-made equipment would be included in the category of the supplied options, taking into consideration the procurement route of necessary parts.

(4) Impact

The following positive impact was acknowledged.

Overall improvement of the level of the staff and engineers.

According to officials of the SSI, large-scale study meetings related with the SSAC have been held several times in the SSI. Supplied measurement equipment has been used in all the meetings. Awareness about the PP of staff and engineers has also increased on the whole.

(5) Sustainability

It is difficult to evaluate the sustainability exactly because organizational information of the targeted organization/facilities is confidential matters, but the followings were acknowledged as long as the survey team interviewed on the sites.

Budgetary steps for operation and maintenance of the equipment have been taken.

Regarding operation and maintenance of the provided equipment, no problems were acknowledged in particular.

Human resources development system has been established and trained staff and engineers have not quit their job.

Each organization and facility has made active efforts holding periodically education, training and workshop, and dispatching personnel to the seminars held abroad. In the Belarus State University, technical education is conducted in the field of nuclear physics.

Operation and maintenance of the facilities and equipment has been kept with self-help efforts after completion of the cooperation project.

Regarding the supplied equipment and facilities, their operation and maintenance are given appropriately with self-reliant efforts by the PROMATOMNADZOR and the SSI.

Acceptance of the IAEA safeguards has been continued without problem.

Belarus' acceptance of the IAEA safeguards inspection has been continued up to the present time without problem.

Laws and institutions related with nuclear energy have been established.

Laws and institutions related with nuclear energy of Belarus have been developed fairly from quite a clean slate to the international standard level by the earnest efforts of the nuclear related ministries and agencies. According to the PROMATOMNADZOR, the present laws and institutions have not brought about obstacles to promoting safe development and utilization of nuclear energy and they

have been established. For example, “The Order on the Physical Protection of Nuclear Materials during their Use, Storage and Transport” was issued in 1994, and “The Organization of Nuclear Material Control and Supervision System in Belarus” was adopted in 1995.

3-3. Lessons and Recommendations

(1) Considerations on the occasion of equipment provision

It is necessary to consider the possibility of arrangement of replacement goods and parts in preparation for their failure and aging, and the software language and technical upgrading of IT devices including PCs. For example, it is indicated that procuring replacements and parts from abroad takes more cost and time than onshore procurement. Furthermore there is a problem of the design certification of equipment, so it is necessary to discuss sufficiently with the other party in selecting the provided equipment

Belarus recognizes the necessity of response to a newly emerging threat of terrorism. It is necessary to advance the consideration for rapid implementation of further sophistication of the PP system for counterterrorism.

(2) Consultation with the IAEA

The IAEA played a coordinating role among the donor countries in assisting nuclear nonproliferation in the Newly Independent States (NIS) after the collapse of the Soviet Union. Regarding introduction of the additional protocol in Belarus, the IAEA officials wish Japanese assistance to Belarus, such as transfer of Japanese experiences, human resources development, and provision of related equipment. Regarding future assistance, it is necessary to exchange information substantially and to consult with the IAEA, because the IAEA knows well the circumstances of Belarus through safeguards inspections and the International Physical Protection Advisory Service (IPPAS) missions.

(3) Cooperation and assistance with a Japanese flag

Japanese cooperation was conducted in a visible manner as the equipment was affixed with labels of a Japanese logo (to be precise, a logo of the Japan-Belarus Cooperation Committee on Elimination of Nuclear Weapons). When the cooperation project was completed, a memorial ceremony was held and received press and TV coverage. However, the PP system provided to the SSI, whose engineering works were conducted by Swedish contractors, was not affixed with the aforementioned labels, and as a result it was not well known as Japanese sponsored system. In the future, it is necessary to continue to make efforts and devise better ways so that Japanese cooperation could be effectively known by many people in Belarus.

(4) Importance of Japanese international contribution to nuclear nonproliferation

Belarus is eager to promote her nuclear non proliferation policies, to further improve the PP system, and to prepare for introducing the additional protocol. Japan played a leading and core role on assistance to Belarus based on the IAEA coordinated plan. Japan is expected to continue an effective and efficient support for improving and enhancing physical protection and safeguards in Belarus.