Safeguards & illicit nuclear trafficking: Towards more effective control

In important respects, elements of effective safeguards can assist States in their efforts against illicit trafficking in nuclear materials.

by Svein Thorstensen

Over the past few years, reported cases of illicit trafficking in radioactive sources and nuclear materials have focused international attention on an emerging phenomenom of the 1990s. By far, most of the nearly 130 confirmed cases reported to the IAEA have involved individuals trying to illegally sell radioactive sources used in medicine or industry whose unauthorized use or movement poses a danger to public health. Some other cases have involved samples of weapons-grade material confiscated from individuals. The incidents have raised public and governmental concerns and have prompted stronger efforts to prevent illicit nuclear trafficking by State authorities, including their greater co-operation with supporting international organizations such as the IAEA.

In April 1996, the Nuclear Safety and Security Summit convened in Moscow underlined the importance of States working together to combat the trafficking problem. In reaffirming their concerns, State leaders recognized the need for countries to co-operate bilaterally, multilaterally and through the IAEA to ensure effective national systems for controlling nuclear materials.

Over recent years, States have requested the IAEA to assist relevant State, regional, and international authorities working to prevent cases of illicit trafficking. The Agency's work encompasses maintaining an authoritative database on trafficking incidents; assisting in the development of national systems of control; and providing technical support related to areas of physical protection. It involves establishing closer collaboration with organizations on the front line of efforts to combat illicit trafficking, especially law enforcement bodies and customs authorities principally responsible for detection and prevention.

This article looks at the issue of illicit nuclear trafficking from the perspective of nuclear safeguards. It examines some ways in which essential elements of an effective safeguards system can contribute to the efforts of States against illicit trafficking in nuclear materials that could be of use for weapons production. Particularly addressed are aspects related to the accounting and control of nuclear material and technical assistance that States can receive to establish or strengthen such control systems. The article does not address aspects related to radiation protection and safety involving radioactive sources that could pose a public health danger but that are of little or no concern from the standpoint of nuclear proliferation.*

For context, it is important to note that the main purpose of IAEA safeguards is not directed at illicit nuclear trafficking, which is a complex and multi-dimensional safety and security issue. All States — including those having no known nuclear material on their territories — are vulnerable to such trafficking. This fact underscores the need for co-ordinated actions — not only within a State but also among States — including consideration of relevant support that could be derived through elements of an effective system of nuclear safeguards.

Establishing effective countermeasures. Legitimate trade in nuclear material is conducted under the authority and within the limitations of State regulation. States have the direct responsibility to assure proper security for nuclear material, as well as its proper handling, control and accounting. Consequently, any State which is determined to combat illicit trafficking must create a solid regulatory

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*For a comprehensive report on illicit trafficking and IAEA activities, see the 1996 edition of the IAEA *Yearbook*, available for purchase from the IAEA Division of Publication.

infrastructure that includes *prevention*, *response*, and *training*.

Prevention. The most important precondition for preventing illicit trafficking is an effective national control system for nuclear materials. These control systems must be based on legislation and regulations that incorporate modern standards and meet the State's obligations and commitments arising from international treaties and conventions to which it is a party. They must also include mechanisms at the State level for preventing, detecting, and deterring unauthorized activities. Nuclear materials require systems and procedures for accountability and control, physical protection, and export/import control.

Accounting and control of nuclear material. A primary deterrent to the theft of nuclear material is a strong regulatory system that recognizes the complementary nature of material accounting and control and physical protection regulations and associated procedures. Material accounting and control is designed to ensure that the location of all nuclear material in a State is known and its continuing presence confirmed through the taking of periodic inventory.

Of relevance here is the fact that under comprehensive safeguards agreements concluded with the IAEA, a State must establish a State System of Accounting and Control (SSAC) of nuclear material on a national or regional basis. The SSAC co-operates closely with the IAEA in the implementation of safeguards, regularly providing information on matters related to the nuclear material accountancy system in force and the State's adherence to the reporting requirements. Both at the time a comprehensive safeguards agreement is concluded as well as upon specific request, the IAEA assists States in establishing effective procedures and routines for the SSAC, both at the State and facility levels.

Legislation and regulations. The foundation of a strong national control system is appropriate legislation and regulations. For most States, the basic international obligations for nuclear material are contained in the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and the mandated comprehensive safeguards agreements with the IAEA. In States where such a safeguards agreement is in force, the IAEA is obliged to verify the presence of nuclear material subject to safeguards, and the State is obliged, among other things, to report to the IAEA if the State believes there is or may have been a loss of nuclear material.

When requested by a State, the IAEA has supported national activities in the area of legislation and regulations. This is being done because the State wants to ensure that its legal and regulatory framework meets international standards, taking into account its commitments to international conventions and agreements.

Physical protection. Another component involved in prevention of illicit trafficking is a system of physical protection against the theft or unauthorized diversion of nuclear material and against sabotage of nuclear facilities. The responsibility for establishing and operating a comprehensive physical protection system for nuclear material and facilities within a State rests entirely with the Government of that State. In order to ensure that adequate physical protection is provided, State systems must establish conditions which minimize the possibilities of unauthorized removal of nuclear material or of sabotage; provide rapid and comprehensive measures to locate and recover missing nuclear material; and minimize the effects of sabotage. Physical protection regulations and associated procedures must thus be designed to thwart any attempted theft and to promptly detect an actual theft.

In this area, nuclear authorities from a number of States have asked the IAEA for technical support and advice. In April 1996, a new IAEA service known as the International Physical Protection Advisory Service was formed to assist interested IAEA Member States which request specific types of assistance. Under the service, an international team of experts reviews national regulatory programmes for the physical protection of nuclear material and/or for the implementation of physical protection systems at specific nuclear facilities. The IAEA also has provided extensive training courses in physical protection for responsible personnel in a number of States.

Export/import control. Prevention of illicit trafficking further requires an effective State control system on exports and imports which serves to prevent unauthorized movement of nuclear material across borders. States initiate and establish such measures by means of legislation and their national systems of controls on the handling and use of such materials.

Besides the systems and procedures specifically implemented in the area of nuclear activities, such measures must engage conventional components in a State's anti-trafficking infrastructure, for example, law enforcement authorities and customs officials. The extent to which such components are utilized, and the way in which they are organized and co-ordinated,

depends on the specific conditions in each country.

Some elements associated with nuclear safeguards are of relevance on the general matter of exports and imports. Under the proposed IAEA strengthened safeguards system, complementary legal authority is being sought that would obligate States having comprehensive safeguards agreements to report to the IAEA exports and imports of nuclear material and specified non-nuclear material and equipment. This would also enable assessment of whether import and export patterns are consistent with other information available about States' nuclear programmes. The IAEA's information database also is being improved by including available information derived from open source literature, obtained through the IAEA's verification activities, provided to the IAEA by governments, or obtained elsewhere. These activities are important components of a strengthened safeguards system which can also support States' co-operative efforts in combating illicit trafficking.

Response to illicit trafficking. Only State authorities can be responsible for detecting and responding to illicit trafficking activities on their territory. However, no clear minimum requirements exist on what measures are necessary to meet this responsibility.

In some countries, the anti-trafficking infrastructure — which encompasses responsible authorities including customs, police, nuclear, intelligence and defense agencies — are co-operating and co-ordinating their efforts against trafficking. Threat and response scenarios are identified. Personnel are also trained in nuclear-related matters (e.g. at schools for customs and police staff). Detection equipment for nuclear material is available. Regulations and procedures are established and the public is informed. These are good models from which other States may benefit.

Each State will need to determine the extent to which it must establish a strong infrastructure and related measures, based on the threat it perceives from illicit nuclear trafficking. For some States, this may involve making less formal arrangements; for others, however, the needs may be more extensive.

At the present time, some States, including those having an SSAC for controlling nuclear materials, may lack the regulatory knowledge and inter-agency co-ordination to effectively combat illicit trafficking. At the same time, many other countries without nuclear materials have neither a nuclear control system nor anti-trafficking measures, even though they may be in a high-risk trafficking area.

Training. If a State decides to take serious measures against illicit trafficking, then it will also need to train staff from all relevant authorities on various aspects, including the utilization of equipment and in forming co-operative programmes for effective inter-agency co-ordination. The extent of training requirements for establishing or improving anti-trafficking measures depends upon how many States decide to establish them, as well as the minimum objectives to be achieved.

Of relevance here from the standpoint of nuclear safeguards is that States can receive support that would contribute to their overall training needs. This training support would be directed at establishing or improving the nuclear control system, including the SSAC, in States having comprehensive safeguards agreements.

An evolving supporting role. In a number of respects, essential elements of effective nuclear safeguards can play an important supporting role in States' efforts to combat illicit trafficking in nuclear materials. Further implementation of safeguards strengthening measures will increase the assurance that *all* nuclear material in such countries is safeguarded and under effective SSAC control. As more States decide to institute national control systems, illicit trafficking involving the safeguarded nuclear inventory will become less of a threat. However, threats posed by *cross-border* illicit trafficking would not be affected as long as some States lack nuclear control systems and co-ordinated anti-trafficking measures.

As the Moscow Summit noted, co-operative anti-trafficking efforts must be initiated to prevent the unauthorized movement and sale of nuclear materials. It is in this spirit that the IAEA, as part of its overall supporting role, is responding to requests from States seeking to establish or improve their anti-trafficking capabilities, including inter-agency co-ordination. An important component in this connection is establishing and maintaining close collaboration with relevant organizations, in particular the World Customs Organization and Interpol, and with regional bodies such as Euratom and Europol, to ensure practical co-ordination among the different national agencies invariably involved in this complex issue.

In keeping with the desires of its Member States, the IAEA will support interested States as its expertise and resources allow to assist in the prevention of illicit nuclear trafficking. ❐