The Convention on the Physical Protection of Nuclear Material

by D.L. Siazon Jr.

On 3 March 1980, the Convention on the Physical Protection of Nuclear Material was opened for signature by all States.[a] Although the Convention will not enter into force until 21 States have ratified it,[b] the conclusion of the negotiations themselves marks a significant milestone in the evolution of international co-operation in the peaceful uses of nuclear energy.

In principle, States maintain sovereignty over activities within their jurisdiction; important steps in international co-operation were made, however, during the implementation of the International Atomic Energy Agency (IAEA) safeguards system. Under this system, IAEA personnel carry out onsite inspections at nuclear facilities in over 45 countries. Their function is to carry out verification activities based upon information provided by the State, regarding the peaceful use of nuclear material in order to detect diversion of that material to non-peaceful uses.

Until recently, it has been the sole responsibility of States to determine the levels of physical protection and to design and institute those measures which are intended physically to protect nuclear material and facilities and thereby to prevent theft of or interference with such materials or the misuse of such facilities.

Now however, because acts of nuclear terrorism may have serious international consequences, there is international consensus that nations must co-operate in developing measures for the adequate physical protection of nuclear material and facilities wherever they may be exposed to the threat of theft or sabotage.

Beginning in the early 1970s the IAEA established a series of advisory group meetings attended by experts from Member States. The IAEA published the recommendations made by these experts in "The Physical Protection of Nuclear Material" Ref [1]. These recommendations are updated from time to time, and have been used by many States as the basis of their national physical protection systems. They have also been adopted by reference in a number of bilateral agreements between States as the minimum standard of

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[a] As of March 18, 1980, Austria, the Dominican Republic, Greece, Guatemala, Panama and the United States of America had become signatories to the Treaty.

[b] Article 19 provides that the Convention "shall enter into force on the thirtieth day following the date of deposit of the twenty first instrument of ratification, acceptance or approval with the depositary".

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measures to be applied in the physical protection of nuclear material supplied under these agreements.[c]

Participants at the First Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons in 1975 recognized the increasing need for international co-operation in the development of new measures for physical protection and in their uniform application. It was foreseen that one way to meet this need would be through the negotiation of a multilateral agreement on physical protection.

The importance of this subject was duly recognized in the Resolution of the IAEA General Conference in September 1975 (GC/XIX/Res/328), which called upon Member States and the Director General to consider ways and means of facilitating international co-operation in dealing further with problems of physical protection of nuclear facilities and materials that are common to Member States.

In response, the Director General of the IAEA circulated a draft convention on the physical protection of nuclear material, facilities and transport prepared by the USA. In November 1977, governmental representatives from 36 States met under IAEA auspices for the first time to "consider the drafting" of a convention. Two years later in Octover 1979, following four lengthy negotiating sessions, the text was comleted. Fifty-eight countries and the European Atomic Energy Community had participated in the discussions.

THE SCOPE OF THE CONVENTION

The Convention contains 23 articles and two Annexes[d]. It focuses primarily on the protection of nuclear material during international nuclear transport, although several of the articles deal with the protection of nuclear material in domestic use, storage and transport. For the purpose of the Convention, "international nuclear transport" means "the carriage of a consignment of nuclear material by any means of transportation intended to go beyond the territory of the State where the shipment originates begining with the departure from a facility of the shipper in that State and ending with the arrival at a facility of the receiver within the State of ultimate destination".

The term "facility" appears in the Convention only in this definition. Moreover "facility" is not itself defined, and the interpretation is left to the parties to the Convention. This lack of definition was deliberate, and is a compromise arrived at after extensive deliberation connected with the question of the overall scope of the Convention.

Other compromises between differing views of representatives of governments on the desired scope of the Convention are reflected in the somewhat convoluted form of Article 2 and in the provisions for review of the Convention in Article 16. The latter provisions make it possible to extend the scope of the Convention through review

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[c] Examples of these are the Agreement Between the Government of the Republic of the Philippines and the Government of Australia Concerning Co-operation in the Peaceful Uses of Nuclear Energy and the Transfer of Nuclear Material, signed in Manila on 8 August 1978; and the Safeguards Agreement of 10 February 1977 Between the Agency, Canada and Spain, Document INFCIRC/247, dated 5 May 1977.

[d] Annexes I and II to the Convention are reproduced at the end of this article. Annex I sets forth levels of protection to be afforded to nuclear material as categorized in Annex II.

and amendment 5 years after its entry into force. These were proposed by supporters of a "wide-scope" Convention, that is of one that would apply comprehensively to nuclear material within a Party's domestic jurisdiction.

The question of possible application of the Convention to nuclear material used for military purposes was also an issue until late in the negotiations. In the end it was agreed to limit the scope of the Convention to nuclear material used for peaceful purposes, and to refer to nuclear material used for military purposes in the Preamble. The present Convention therefore reflects this compromise in Article 12, section 1 and in the final preambular paragraph which reads:

"RECOGNIZING the importance of effective physical protection of nuclear material used for military purposes, and understanding that such material is and will continue to be accorded stringent physical protection".

The participation in the Convention of international organizations and regional organizations having competence in respect of the negotiation, conclusion and application of international agreements in matters covered by the Convention was the subject of disagreement until the very last day of negotiations. Fortunately, however, the parties concerned were able to resolve their differences with the present Article 18.

UNDERTAKINGS BY THE STATE PARTIES

Under Article 3, each party must take steps to ensure that, during international transport, nuclear material is protected at the agreed level as long as the material is within its territory or on board a ship or aircraft under its jurisdiction.

Each party also agrees not to export or import nuclear material or allow its transit through its territory unless it has received assurances that the nuclear material will be protected at the agreed levels during international transport.[e] A party also must apply the agreed levels of protection to material which, during transit from one part of its territory to another, will pass through international waters or airspace.[f] The party responsible for receiving the assurances described above must provide advance notice of the transfer to the States through whose territory the nuclear material will pass.[g]

The parties agree, in the event of theft, robbery or any threat thereof, to co-operate and provide assistance to any requesting State in the protection and recovery of such material.[h] To this extent States not party to the Convention can invoke the benefit of its co-operation provisions. For this purpose, the parties agree to inform each other, directly or bhrough the IAEA, of their respective authorities responsible for the physical protection of nuclear material and for any response or recovery operations related to its unauthorized removal, use or alteration.

Parties also agree to consult and co-operate directly, or through international organizations, in order to improve the design or maintenance of physical protection systems for international transport.

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[e] Article 4, paras (1), (2), (3).

[f] Article 4, (4).

[g] Article 4, (5).

[h] Article 5.

An important component of the Convention is found in Article 7, where each party is obliged to make certain acts offences under its national law and to make such offences punishable by penalties which take into account their grave nature. These include robbery, embezzlement and extortion in relation to nuclear material, and acts without lawful authority involving nuclear material which cause or are likely to cause "death or serious injury to any person or substantial damage to property".[i] In Article 8, the Convention also sets out conditions under which a State must take measures to establish jurisdiction over these offences. Thus a State must establish jurisdiction (1) when a offence is committed within its territory or on board a ship or aircraft registered in that State; (2) when the alleged offender is a national of that State; or (3) where the alleged offender is present within that State's territory and is not extradited. In addition, a State may establish jurisdiction over these offences when involved in international nuclear transport as the exporting or importing State.

The Convention also provides for procedural due process of law with regard to any detention, extradition or prosecution of an alleged offender.[j]

The scheme of prosecution – or extradition – and related procedural provisions are designed to ensure that there will be no sanctuary in the territories of parties for offenders committing terrorist of other serious criminal acts involving nuclear material. They are based on the related provisions of the so-called "Hijacking Conventions" and the Convention for the Protection and Punishment of Crimes Against Internationally Protected Persons Including Diplomatic Agents.

THE ROLE OF THE AGENCY

As noted earlier the Agency is not a party to the Convention; it has, however, been designated as the Depositary.[k] Its duties include the custodianship of the original of the Convention, and the communication of information related to signature, ratification, amendment, reservation, denunciation, entry into force or withdrawal of all States. It will serve an important intermediary function by informing States of national laws and regulations which give effect to the Convention, of the outcome of the proceedings related to the prosecution of an alleged offender, of the relevant national authorities responsible for the physical protection of nuclear material and for the co-ordination of response and recovery operations. It will also facilitate co-operation among States in the development and improvement of systems for the physical protection of nuclear material in international transport.

THE SIGNIFICANCE OF THE CONVENTION

It is clear that improvement in physical protection systems, the uniform application of levels of physical protection to nuclear material, international co-operation in the case of its theft or misuse, and the establishment of a standardized range of criminal offences which will result from the Convention will contribute to the security of nuclear material used for peaceful purposes.

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[i] Article 7.

[j] Articles 9–12.

[k] Article 23.

The increased security of nuclear material used for peaceful purposes will diminish the probability of successful acts of terrorism or sabotage on nuclear material, thereby considerably reducing the risk of public exposure to nuclear radiation. Therefore, effective physical protection measures on nuclear material will contribute to public and governmental acceptance of nuclear power by allaying public concerns related to the risks of nuclear proliferation and the adverse effects of exposure to nuclear radiation.

In addition, the existence of an effective Convention on the Physical Protection of Nuclear Material may accelerate the conclusion of nuclear supply agreements among Parties to the Convention since there would no longer be a need to negotiate separately on provisions related to physical protection of nuclear material. Moreover, the inclusion in the Convention of the levels of physical protection recommended by the Agency would facilitate the acceptance of these recommendations by States Non-Party to the Convention, in bilateral or multilateral nuclear supply agreements.

The Convention will therefore contribute to the reduction of the possible sources of friction during negotiations related to nuclear supply. In this way, it may serve as part of the first steps towards the long process of re-establishing confidence in the viability of international nuclear supply agreements.

ANNEX I

LEVELS OF PHYSICAL PROTECTION TO BE APPLIED IN INTERNATIONAL TRANSPORT OF NUCLEAR MATERIAL AS CATEGORIZED IN ANNEX II

1. Levels of physical protection for nuclear material during storage incidental to international nuclear transport include:

(a) For Category III materials, storage within an area to which access is controlled;
(b) For Category II materials, sotrage within an area under constant surveillance by guards or electronic devices, surrounded by a physical barrier with a limited number of points of entry under appropriate control or any area with an equivalent level of physical protection;
(c) For Category I material, storage within a protected area as defined for Category II above, to which, in addition, access is restricted to persons whose trustworthiness has been determined, and which is under surveillance by guards who are in close communication with appropriate response forces. Specific measures taken in this context should have as their object the detection and prevention of any assault, unauthorized access or unauthorized removal of material.

2. Levels of physical protection for nuclear material during international transport include:

(a) For Category II and III materials, transportation shall take place under special precautions including prior arrangements among sender, receiver, and carrier, and prior agreement between natural or legal persons subject to the jurisdiction and regulation of exporting and importing States, specifying time, place and procedures for transferring transport responsibility;
(b) For Category I materials, transportation shall take place under special precautions identified above for transportation of Category II and III materials, and in addition, under constant surveillance by escorts and under conditions which assure close communication with appropriate response forces;

(c) For natural uranium other than in the form of ore or ore-residue, transportation protection for quantities exceeding 500 kilograms U shall include advance notification of shipment specifying mode of transport, expected time of arrival and confirmation of receipt of shipment.

ANNEX II

CATEGORIZATION OF NUCLEAR MATERIAL

Material	Form	Category I	Category II	Category III[c]
1. Plutonium[a]	Unirradiated[b]	2 kg or more	Less than 2 kg but more than 500 g	500 g or less but more than 15 g
2. Uranium-235	Unirradiated[b]			
	— uranium enriched to 20% ^{235}U or more	5 kg or more	Less than 5 kg but more than 1 kg	1 kg or less but more than 15 g
	— uranium enriched to 10% ^{235}U but less than 20%		10 kg or more	Less than 10 kg but more than 1 kg
	— uranium enriched above natural, but less than 10% ^{235}U			10 kg or more
3. Uranium-233	Unirradiated[b]	2 kg or more	Less than 2 kg but more than 500 g	500 g or less but more than 15 g
4. Irradiated fuel			Depleted or natural uranium, thorium or low-enriched fuel (less than 10% fissile content)[d,e]	

[a] All plutonium except that with isotopic concentration exceeding 80% in plutonium-238.

[b] Material not irradiated in a reactor or material irradiated in a reactor but with a radiation level equal to or less than 100 rads/hour at one metre unshielded.

[c] Quantities not falling in Category III and natural uranium should be protected in accordance with prudent management practice.

[d] Although this level of protection is recommended, it would be open to States, upon evaluation of the specific circumstances, to assign a different category of physical protection.

[e] Other fuel which by virtue of its original fissile material content is classified as Category I and II before irradiation may be reduced one category level while the radiation level from the fuel exceeds 100 rads/hour at one metre unshielded.

References

[1] The Physical Protection of Nuclear Material, INFCIRC/225/Rev.1, IAEA, Vienna (June 1977).