Legal Aspects of the International Transport of Radioactive Materials

by Ha Vinh Phuong

DEVELOPMENT OF INTERNATIONAL REGULATIONS

The development of recommendations on a broad international basis to assist national authorities in ensuring the safe transport of hazardous materials by different modes of transport was initiated by the United Nations. Under the authority of the Economic and Social Council (ECOSOC), the Committee of Experts on the Transport of Dangerous Goods supervises the work of a Group of Rapporteurs on the Packing of Dangerous Goods and of a Group of Experts on Explosives.

The Committee of Experts issues recommendations for regulating the safe transport of hazardous materials. These recommendations have been universally accepted as the basis for national and international regulations covering various modes of transport. Two of the main achievements of the Committee of Experts have been the establishment of a classification system for hazardous materials and the adoption of a corresponding set of labelling standards. For this purpose, hazardous materials are divided into nine classes: Class 1 – explosives; Class 2 – gases; Class 3 – flammable liquids; Class 4 – flammable solids; Class 5 – oxidizers; Class 6 – poisons; Class 7 – radioactive materials; Class 8 – corrosives; Class 9 – miscellaneous (hazardous materials which do not fit into any of the previous classes). This classification system has been adopted by all international organizations concerned with the transport of hazardous materials.

The ECOSOC Committee of Experts is investigating a number of possible further developments. The most important aspect now being given serious attention is the elaboration of a world-wide convention establishing uniform safety standards for the carriage of all hazardous materials by all modes of transport. In addition, the Committee is examining possible ways of improving the system as presently structured. For example, attention is being given to the establishment of a hazards information system designed to alert emergency workers at the scene of an accident to all hazards posed by the shipment of hazardous materials, including secondary hazards.

THE IAEA REGULATIONS

As early as 1959, ECOSOC adopted a resolution entrusting the IAEA with the task of establishing recommendations for the safe transport of radioactive materials. This responsibility falls within the purview of the Agency's statutory functions which, among other things, consist of ensuring the safety of peaceful nuclear activities carried out by Member States with the Agency's assistance (Article III.A.6 of the Statute).

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Work had actually been started by the Agency in 1958 and resulted in the publication of the first edition of the Regulations for the Safe Transport of Radioactive Materials in 1961. Revised editions were published in 1964 and 1967. These revised editions differed from the original version mainly in the increased attention given to package design and test requirements. In 1970 a comprehensive revision took account of approximately ten years of operational experience in the application of the regulations by Member States as well as at the international level. This culminated in the publication of the 1973 Revised Edition Ref.[1] and of a companion document providing supplementary information and advisory material on how best to achieve the necessary level of protection. Ref.[2].

The objective of the IAEA regulations is to protect the public, transport workers and property from radiation in the shipment of radioactive material. In approving these regulations as part of the Agency's Safety Standards Ref.[3] for application to the Agency's own operations and to activities carried out by Member States with the Agency's assistance, the Board of Governors also recommended them to national authorities and international organizations to serve as a basis for regulating the transport of radioactive materials.

The Board of Governors also approved a procedure under which the Director General may promulgate from time to time changes of detail necessary to keep the regulations technically up to date, provided that written notice is given to Member States ninety days in advance and that due account is taken of any comments submitted. Changes of detail were thus promulgated in 1975 and 1977, as a result of which an amended version of the regulations was issued in 1979. Ref.[4].

Although the IAEA regulations have the legal status of recommendations of world-wide applicability, they are written in the language of regulations, simplifying their incorporation into national legislation. A Standing Advisory Group on the Safe Transport of Radioactive Materials (SAGSTRAM) was established in 1978 to advise and assist the Agency in a continuing review of the interpretation, implementation, evaluation and revision of the IAEA regulations. The next comprehensive revision is scheduled to start in 1980 with a view to achieving a further revised edition in 1983, i.e. approximately ten years after publication of the current edition.

WORLD-WIDE APPLICATION OF THE IAEA REGULATIONS

The IAEA regulations have been adopted by the United Nations as its recommendations for the safe transport of radioactive materials. They have been incorporated into the national regulations of numerous countries where nuclear legislation was enacted in conjunction with the development of nuclear energy programmes for peaceful purposes.

All international organizations concerned with the transport of dangerous goods have also adopted the IAEA regulations for application to the transport of radioactive materials. The shipment of such materials by different modes of transport is currently subject to the following international regulations or recommendations of a quasi-regulatory nature because of their international acceptance and they are all based on the IAEA regulations:

* By sea: Intergovernmental Maritime Consultative Organization (IMCO), International Maritime Dangerous Goods Code, 1975;
* By air: International Air Transport Association (IATA) Restricted Articles Regulations, 1977;

* By rail: International Convention concerning the Carriage of Goods by Rail (CIM), Annex I – International Regulations concerning the Carriage of Dangerous Goods by Rail (RID), 1977;
* By road: European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), 1976;
* By post: Detailed Regulations for Implementing the Universal Postal Convention, 1964.

The IAEA regulations have also been incorporated into the regulations currently applied by States participating in the Council for Mutual Economic Assistance (COMECON) Ref.[5].

Moreover, the regulations are applied to the transport of nuclear materials for use in 24 research reactors and three nuclear power plants in 19 Member States by virtue of agreements concluded by them with the Agency for the Agency's assistance in connection with such projects Ref.[6]. The supply through the Agency of small quantities of nuclear material for research projects not involving reactor operations is also subject to the IAEA regulations as regards the transport of such material, pursuant to agreements concluded between the Agency and 12 countries Ref.[7].

LIABILITY FOR NUCLEAR DAMAGE DURING TRANSPORT

Both the Paris Convention of 1960 Ref.[8] and the Vienna Convention of 1963 Ref.[9] establish a special and uniform regime of third party liability for nuclear damage: the operator of a nuclear installation is absolutely and exclusively liable for nuclear damage caused by a nuclear incident occurring in his installation or involving nuclear material in the course of carriage to or from his installation. The purpose of both Conventions in making the operator liable, irrespective of "fault", is to simplify procedures for obtaining redress, to set a maximum for the amount of compensation which the operator is liable to pay, thus making it easier for him to obtain and maintain an insurance cover, and to provide for State intervention, should additional compensation be required for meeting claims resulting from a nuclear incident. As a general rule, the operator dispatching nuclear material is deemed to be liable until the material is taken in charge by the recipient operator, unless otherwise agreed between them by contract in writing.

In the event of a nuclear incident, the identity of the operator liable may thus be immediately determined by reference to a transport certificate handed over to the carrier. Such certificates are usually issued by insurers under the control of appropriate national authorities. With respect to each transit, the insurers provide the operator with a certificate for the carrier, giving the operator's name and address, the type and period of the insurance cover, the nuclear material transported, details of the transit and the limit of the insurers' liability. Although the operator is required to secure and maintain financial security for the full amount of his liability as established by national law, the insurers' commitment is for the whole of the consequences of nuclear incidents occurring during one and the same transit. In other words, there is a limit to the insurance cover per transit.

Shipment from or to a non-Contracting State may raise a special problem since it is not certain whether an operator in that State has adequate financial security to cover his liability for nuclear damage. To resolve this question, both the Paris and Vienna Conventions therefore provide that the operator in a Contracting State sending nuclear material

to a non-Contracting State must assume liability until such material is unloaded from the means of transport which has brought it to the territory of the non-Contracting State.

Conversely, a recipient operator in a Contracting State must assume liability for nuclear material sent to him from a non-Contracting State from the time such material is loaded on the means of transport by which it is to be carried from the non-Contracting State.

In accordance with the general principles laid down in both Conventions, the international transport of nuclear material is regulated in most countries broadly as follows:

- Prior authorization by a competent national authority is required.
- The application for such authorization must, in particular, include an insurance cover for nuclear damage; the conditions of insurance are subject to approval by the competent national authority.
- In general, the amount of the financial security required is the maximum amount of the operator's liability; however, a different amount may be applied to liability for transport.

Damage caused by a nuclear incident during international transport is usually covered by a special policy separate from the operator's third party liability policy. The insurance may be obtained from nuclear insurance pools or, in some countries, from the normal insurance market. Insurance cover for damage to the means of transport may also vary. Some States further require that third party liability on their territory should be covered by an insurer established within their jurisdiction.

The operator liable may thus have to take out several successive insurance policies for one single international transport operation. In order to simplify insurance arrangements in this regard, the Standing Committee on Atomic Risk of the European Insurance Committee has recently elaborated a draft model bilateral agreement between the insurers concerned and a draft model certificate of financial security to be issued by them. It is to be hoped that this work will make it easier to secure the insurance of international shipments of nuclear material. The liability aspects involved could thus be coped with in a practical way that would afford appropriate financial protection to the public in the event of a nuclear incident.

PHYSICAL PROTECTION OF NUCLEAR MATERIAL DURING INTERNATIONAL TRANSPORT

The transport of nuclear material is probably the operation most vulnerable to an attempt at unauthorized removal or sabotage. Therefore physical protection against theft or unauthorized diversion of nuclear material is a matter of growing concern among nations. The need for close international co-operation becomes evident in situations where the effectiveness of physical protection in one country depends on the adequacy of corresponding measures taken by other countries, in particular when nuclear material is transported across national boundaries.

In order to assist Member States in this respect, the IAEA first published in 1972 "Recommendations for the Physical Protection of Nuclear Material". These recommendations were revised in 1975 and 1977 Ref.[10]. They cover, in particular, requirements for physical protection of nuclear material in transit and provide a categorization of nuclear material for ensuring appropriate protection. The recommended measures are

to be considered in all cases as additional to, and not as a substitute for, other measures established for safety purposes. Achievement of the objectives of physical protection should be assisted by such measures as:

- Minimizing the total time during which the nuclear material remains in transit;
- Minimizing the number and duration of nuclear material transfers, i.e. transfer from one conveyance to another, transfer to and from temporary storage and temporary storage while awaiting the arrival of a vehicle, etc.;
- Avoiding the use of regular movement schedules; and
- Requiring predetermination of the trustworthiness of all individuals involved in transport of nuclear material.

Detailed requirements concerning each category of nuclear material in transit are further set forth in the IAEA recommendations on the physical protection of nuclear material. They have been incorporated in a number of agreements concluded by Member States with the Agency recently for the provision of the Agency's assistance for reactor projects Ref.[11].

With a view to achieving effective international co-operation in this field, the negotiation of a Convention on the Physical Protection of Nuclear Material was started in Vienna in October 1977, under the aegis of the Agency. The Meeting of Governmental Representatives to consider the drafting of such a Convention, in which 58 countries as well as the European Atomic Energy Community participated, completed its work on 26 October 1979. The text of the Convention was to be transmitted to governments for consideration and to the twenty-third General Conference of the Agency, held in New Delhi in December 1979, for information.

The Convention will be opened for signature on 3 March 1980 simultaneously at the IAEA Headquarters in Vienna and at the United Nations in New York. It requires 21 ratifications for its entry into force and the depositary functions are entrusted to the IAEA.

The Convention establishes standard measures of physical protection to apply to nuclear material during international transport. It requires the contracting parties to provide for punishment of a number of defined serious criminal offences involving nuclear material. Parties will also co-operate in preventive measures and information exchange with regard to acts such as theft, sabotage and extortion involving nuclear material.

The levels of physical protection to be applied in international transport and a categorization of nuclear material for such purposes are set out in the Annexes which constitute an integral part of the Convention. Amendments to the Convention require acceptance by two-thirds of the contracting parties to become effective. The Convention further provides that five years after its entry into force a conference of contracting parties will be convened by the IAEA to review the implementation of its provisions.

References

[1] Regulations for the Safe Transport of Radioactive Materials, 1973 Revised Edition, IAEA Safety Series No 6.

[2] Advisory Material for the Application of the IAEA Transport Regulations, 1973, IAEA Safety Series No. 37.

[3] The IAEA Safety Standards are defined in document INFCIRC/18/Rev.1, entitled "The Agency's Safety Standards and Measures", 1976.

[4] Regulations for the Safe Transport of Radioactive Materials, 1973 Revised Edition (as Amended), 1979.

[5] The Regulations for the Safe Transport of Spent Fuel from Nuclear Power Stations of CMEA Member States were approved by the Executive Committee of the Council for Mutual Economic Assistance (CMEA) in November 1977 They are applicable in Bulgaria, Cuba, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Romania and the USSR.

[6] Project Agreements have been concluded by the Agency with the following Member States: Argentina, Chile, Finland, Greece, Indonesia, Iran, Mexico, Norway, Pakistan, Peru, Philippines, Romania, Spain, Turkey, Uruguay, Venezuela, Viet Nam, Yugoslavia and Zaire.

[7] Master Agreements for the Supply of Materials have been concluded by the Agency with the following Member States. Brazil, Bulgaria, Chile, India, Greece, Iraq, Mexico, Pakistan, Poland, Romania, Turkey end Yugoslavia.

[8] The Paris Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960 entered into force on 1 April 1968. It is in force among the following States Belgium, Denmark, Finland, France, Federal Republic of Germany, Greece, Italy, Norway, Portugal, Spain, Sweden, Turkey and the United Kingdom.

[9] The Vienna Convention on Civil Liability for Nuclear Damage of 21 May 1963 entered into force on 12 November 1977. It is in force among the following States: Argentina, Bolivia, Cuba, Egypt, Niger, Philippines, Trinidad and Tobago, United Republic of Cameroon and Yugoslavia.

[10] The Physical Protection of Nuclear Material, INFCIRC/225/Rev.1, 1977.

[11] See, e.g. the text of the Agreement between Argentina, Peru, the United States and the Agency concerning the transfer of enriched uranium for a research reactor in Peru, reproduced in document INFCIRC/266, Section 15.