

BINDING AGREEMENTS FOR NUCLEAR SAFETY: THE GLOBAL LEGAL FRAMEWORK

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P rime responsibility for nuclear safety — including radiation and radioactive waste safety — rests with the holder of the license for the operation of a given nuclear, radiation or radioactive waste management facility. Nuclear practices are closely controlled by national regulatory bodies on the basis of national laws and regulations.

At the same time, the international dimension of nuclear safety and the benefits of wide co-operation and shared experience have long been recognized. Together with nuclear development, international collaborative efforts on nuclear safety have evolved and, over the years, have become more and more intense. The result is a strengthened global framework for safety characterized by three main components:

- worldwide exchange of technical information and expertise,
- internationally recognized non-binding safety standards, and
- binding agreements among States.

For over seven decades, the International Commission on Radiological Protection (ICRP) has been formulating fundamental radiation protection principles and criteria for worldwide application. Based on the results of ICRP's work, the

Agency, since its inception in 1957, has devoted significant effort to assist Member States in harmonizing national safety standards. The work has resulted in the IAEA's issuance of internationally recognized non-binding standards on nuclear, radiation, and radioactive waste safety. (*See articles on safety standards in this edition.*) Such standards, recommendatory in nature, have become a principal means of achieving harmonized safety approaches in the nuclear power field and in various applications of radiation and radioactive materials in medical, industrial, and other fields.

The international dimension of nuclear safety was spotlighted when the Chernobyl accident in 1986 made it clear that "a nuclear accident anywhere is an accident everywhere". In the following years, Member States showed increasing interest in putting into force a wide range of legally binding international instruments. Over the past 12 years, several such instruments, aimed at strengthening international co-operation in nuclear safety, were developed by the international community. (*See box, page 25.*) Most instruments are in the form of Conventions (i.e. binding agreements between sovereign States) and are being implemented with the support of the Agency. The instruments confer depositary functions on

the IAEA Director General and various other functions on the Agency. This article presents an overview of the scope of the major safety-related Conventions adopted over the past 12 years, and briefly reviews the experience gained and steps towards their implementation.

EMERGENCY RESPONSE

The Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency deal with aspects of emergency response and preparedness. Both of these Conventions — briefly referred to as the "Notification Convention" and the "Assistance Convention" — were adopted within a very short time span of only five months after the Chernobyl accident in 1986.

The Notification Convention applies in the event of any accident involving facilities or activities of a State Party, or those under its jurisdiction or control, from which a release of radioactive material occurs or is likely to occur, and which

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has resulted or may result in an international transboundary release that could be of radiological safety significance for another State. A State Party involved in an accident covered by the Convention is obliged to immediately notify, directly or through the IAEA, those States which are or may be physically affected.

The information to be provided is specified and comprises the nature of the nuclear accident and the time of its occurrence and location. Also specified is the prompt provision of information relevant to minimizing radiological consequences. The Agency serves as focal point for obtaining and disseminating information. States Parties to the Convention make known to the Agency their contact points for the purposes of the Convention.

The only exception to the notification obligation is an accident connected with nuclear weapons and nuclear weapon tests. However, under Article 3 of the Convention, States Parties may voluntarily notify nuclear accidents not falling within the Convention's mandatory notification obligation.

To perform its functions under this Convention, the Agency set up, at its headquarters in Vienna, an Emergency Response Center (ERC) for receiving, collating, and rapidly transmitting relevant information. Close co-operation with the World Meteorological Organization (WMO) resulted in the use of WMO's Global Telecommunication System (GTS) for rapid simultaneous transmission of voluminous

meteorological and radiological data to national contact points (in 1996, the total number of contact points was 245).

The Notification Convention has never needed to be formally invoked. Some Member States, however, have turned to the Agency to disseminate authoritative information when international attention focused on a particular event. During the planning, in 1988, for the possible re-entry of the satellite *Cosmos 1900*, the Government of the former USSR notified the Agency that it would invoke the Notification Convention if needed. In 1991, an incident at Unit 3 of the Sosnovyi Bor nuclear power plant near St. Petersburg prompted the use of the Agency's ERC to collect details about the incident, assess the available data, and provide this information and the assessments to the media, Member States and other international organizations.

The Assistance Convention provides for co-operation and prompt assistance between States Parties and the Agency, in the event of a nuclear accident or radiological emergency to minimize its consequences and to protect life, property and the environment from the effects of radioactive releases. Each State Party receiving a request for assistance must promptly notify the requesting State, directly or through the IAEA, of its decision with regard to the request and of the scope and terms of the assistance that might be rendered. The Agency's role under this Convention, acting within the framework of its Statute, is to

use its best endeavours to promote, facilitate, and support the co-operation between States Parties. Its functions include: collecting information on experts, equipment and materials which could be made available, and on methodologies, techniques and research results relating to response to nuclear accidents or radiological emergencies; extending, upon request, assistance to prepare emergency plans and appropriate legislation and to develop training and monitoring programmes; making available appropriate resources allocated for the purpose of conducting an initial assessment of the accident or emergency; and maintaining liaison on such matters with relevant international organizations. Upon request, the Agency coordinates at the international level the assistance provided.

Both the Notification Convention and the Assistance Convention require extensive exchange of information during emergencies. Accordingly, the Agency developed specific guidance for managing information and data exchanges during an accident or radiological emergency, to avoid confusion and promote the purposes of the Conventions. Several steps were taken by the Agency to enhance its emergency response capability. Manuals for use by Member States and for internal use by the Agency were prepared. The necessary technical installations of the Agency's ERC were set up and tested and the system was formally put into operation in 1989. An agreement was made

with the World Health Organization (WHO) concerning provision of medical assistance if required. Comprehensive exercises of the system, involving up to 50 staff members, several Member States and international organizations, were conducted. In addition, many small-scale tests, including alerts and internal/external communication exercises were held. The ERC further participated actively in several external exercises, and periodic drills and training of staff were arranged to steadily improve the overall effectiveness of the Agency's ERC in responding to a nuclear accident or radiological emergency.

The Assistance Convention was first invoked in 1987 in connection with the radiological accident at Goiania, Brazil. Within the framework of the Convention, assistance was provided by the Agency, by several countries through the Agency and by several countries directly.

In the following years assistance co-ordinated through the Agency's ERC was extended to several Member States to cope with radiological emergencies irrespective of whether those States were signatories to the Assistance Convention: El Salvador (1988), Belarus (1991), Russian Federation (1992), Estonia (1993), Viet Nam (1993), Georgia (1997), Bangladesh (1997), Venezuela (1997), and Chechnya (1998). In connection with the unplanned re-entry of the Russian *Mars 96* satellite, which was carrying about 270 grams of plutonium-238, the Agency's ERC was alerted and offers of help, if

required, were extended under the Assistance Convention to two States, but no specific assistance was requested.

NUCLEAR SAFETY

The **Convention on Nuclear Safety** was developed during the period 1992-94. (*See box, page 26.*) It applies to land-based civil nuclear power plants and is the first international legal instrument that directly addresses the issue of safety of such plants. The Convention contains obligations for States Parties to take national measures with respect to safety matters — such as the legislative and regulatory framework, assessment and verification of safety, emergency preparedness and operation of nuclear power plants — and to report on the measures taken to implement each of the obligations under the Convention.

The Convention is formulated as an incentive Convention, characterized by a large potential for reciprocal stimulation and encouragement. Explicit reference to detailed international nuclear safety standards is not made in the Convention, in order to avoid any "stagnation of nuclear safety" over the years to come. Implementation of the Convention is formally pursued through "peer review" of national reports at Review Meetings of the Contracting Parties. This method of reviewing countries' compliance with the Convention is the central element of the Convention. Review Meetings are to be held at intervals not exceeding three years. The Agency services the meetings of the Contracting Parties.

By May 1998, forty-six States had agreed to be bound by the Convention. Twenty-seven of the Contracting Parties have at least one operating nuclear power reactor (a "nuclear installation", as defined in the Convention). There still remain four States that have such nuclear installations and are not yet Contracting Parties.

In accordance with the Convention, a Preparatory Meeting of Contracting Parties, held in April 1997, adopted rules of procedure and financial rules, guidelines regarding national reports, and guidelines regarding the review process under the Convention. An Organizational Meeting preceding the first Review Meeting will be held at the end of September 1998. The first Review Meeting will convene in Vienna April 1999.

The practical impact of this Convention will have to be judged in the years to come. However, its features are attractive: the Convention is a flexible instrument that can be implemented by countries at different stages of industrial development and with widely differing approaches to nuclear power.*

JOINT CONVENTION

The **Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management** was adopted at a Diplomatic Conference in

**For a comprehensive account, see "The Convention on Nuclear Safety", by O. Jankowitsch and W. Tonhauser, Austrian Review of International and European Law 2: 319-340 (1997).*

Vienna in September 1997 but has not yet entered into force.

The Convention is focused predominantly on specific activities rather than on substances. It applies with certain restrictions to: (i) the safety of spent fuel management, defined as "all activities that are related to the handling or storage of spent fuel, excluding off-site transportation"; (ii) the safety of radioactive waste management, defined as "all activities, including decommissioning activities, that are related to the handling, pretreatment, treatment, conditioning, storage, or disposal of radioactive waste, excluding off-site transportation"; (iii) the safety of management of spent fuel or radioactive waste resulting from military or defense programmes if and when such materials are transferred permanently to and managed within exclusively civilian programmes, or when declared as spent fuel or radioactive waste for the purpose of the Convention by the Contracting Party; and (iv) discharges, defined as "planned and controlled releases into the environment, as a legitimate practice, within limits authorized by the regulatory body, of liquid or gaseous radioactive materials that originate from regulated nuclear facilities during normal operation".*

**For a more detailed account of the Joint Convention, see "The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management", by W. Tonhauser and O. Jankowitsch, Nuclear Law Bulletin (December 1997), Nuclear Energy Agency, OECD.*

The Joint Convention, like the Convention on Nuclear Safety, is an incentive Convention. It is based on a similar system of "peer review" of national reports on the implementation of each of the obligations undertaken.

By mid-June 1998, thirty-three States had signed the Joint Convention and three States had ratified it. After entry into force, implementation of the Convention will formally be pursued through peer review of national reports at Review Meetings of the Contracting Parties. The Agency will service the meetings of the Contracting Parties.

OTHER LEGAL INSTRUMENTS

There are several other legal instruments which are often referred to in the context of nuclear safety. These instruments relate to physical protection of nuclear material and to liability for nuclear damage.

Physical Protection. The international community has a legitimate interest in States fulfilling their physical protection responsibilities. In 1987, the **Convention on the Physical Protection of Nuclear Material** entered into force. This Convention prescribes the levels at which nuclear material used for peaceful purposes is to be protected while in international nuclear transport, and requires each party to the Convention not to permit the export or import of such material unless it is satisfied that the nuclear material will be protected at those levels. Other provisions of the Convention apply to such

nuclear material while in domestic use and storage and while in domestic or international transport. Still other provisions include the establishment of certain acts committed with respect to such material as criminal offenses, the establishment of jurisdiction over those offenses, and the prosecution or extradition of alleged offenders. The Agency acts as a focal point for exchange of information under the Convention.

Nuclear Liability. In 1997, governments took a significant step forward in improving the liability regime for nuclear damage. At a Diplomatic Conference in September 1997, delegates from 80 States adopted the **Protocol to Amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage** and also the **Convention on Supplementary Compensation for Nuclear Damage**. The Protocol sets the possible limit of the operator's liability at an amount roughly equivalent to US \$400 million and also contains, *inter alia*, an enhanced definition of nuclear damage which covers costs of reinstatement of any damaged environment and costs of preventive measures, extends the geographical scope of the Vienna Convention and extends the period during which claims may be made for loss of life and personal injury. The Convention is an instrument to which all States may adhere regardless of whether they are parties to any existing nuclear liability Conventions. It provides for supplementary compensation for nuclear

THE GLOBAL LEGAL FRAMEWORK FOR NUCLEAR, RADIATION, AND WASTE SAFETY

Listed here are the major international Conventions related to safety that have been negotiated and adopted under the auspices of the IAEA and for which the Director General is the Depository.

	Entry into force	Developments & status
Convention on the Physical Protection of Nuclear Material	8 February 1987	In 1997, two States (Cuba and Lebanon) acceded to the Convention. As of May 1998, the Convention had 60 Parties.
Convention on Early Notification of a Nuclear Accident	27 October 1986	In 1997, four States (Lebanon, Philippines, Myanmar, and Singapore) agreed to be bound by the Convention. As of May 1998, the Convention had 80 Parties.
Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency	26 February 1987	In 1997, three States (Lebanon, Philippines, and Singapore) agreed to be bound by the Convention. As of May 1998, the Convention had 75 Parties.
Convention on Nuclear Safety	24 October 1996	In 1997, ten States (Argentina, Austria, Belgium, Brazil, Germany, Greece, Luxembourg, Pakistan, Peru, and Singapore) and in 1998 four States (Italy, Republic of Moldova, Portugal, and Ukraine) agreed to be bound by the Convention. As of May 1998, the Convention had 46 Parties.
Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	not yet in force	A Diplomatic Conference, held in Vienna in September 1997, adopted the Joint Convention which was opened for signature on 29 September 1997. As of 4 June 1998, the Convention had been signed by 33 States and ratified by three States (Canada, Hungary, Norway).
Vienna Convention on Civil Liability for Nuclear Damage	12 November 1977	In 1997, one State (Lebanon) ratified the Convention, and two States (Belarus, Israel) signed it. As of May 1998, the Convention had 29 Parties.
Protocol to Amend the Vienna Convention and Convention on Supplementary Compensation for Nuclear Damage	not yet in force	Both of these legal instruments were adopted on 12 September 1997 and opened for signature on 29 September 1997. As of 18 June 1998, the Protocol had been signed by 13 States (Argentina, Czech Republic, Hungary, Indonesia, Italy, Lebanon, Lithuania, Morocco, Peru, Philippines, Poland, Romania, and Ukraine); and the Convention on Supplementary Compensation for Nuclear Damage had been signed by 13 States (Argentina, Australia, Czech Republic, Indonesia, Italy, Lebanon, Lithuania, Morocco, Peru, Philippines, Romania, Ukraine, and United States).

damage through contributions of States Parties (to be provided under national legislation) in addition to the compensation level of the Convention itself. Taken together, the two instruments should substantially enhance the global framework for compensation beyond that foreseen by existing Conventions. The Protocol and the Convention have not yet entered into force. By

mid-June 1998, each of the two legal instruments had been signed by thirteen States.

Suppression of Nuclear Terrorism. Currently, the Agency is supporting global efforts focusing on proposals for the elaboration of an international convention for the suppression of acts of nuclear terrorism, a matter directly related to provisions of the Physical Protection Convention noted earlier. The

work is centered in an Ad Hoc Committee established in 1996 by the United Nations General Assembly. The Committee met in New York in February 1998 and considered a number of proposals during a detailed review of a draft Convention on the topic submitted by the Russian Federation. As requested by the General Assembly, the IAEA assisted the Ad Hoc Committee in its deliberations.

CONVENTION ON NUCLEAR SAFETY: MILESTONES

SEPTEMBER 1991: International Conference on "The Safety of Nuclear Power: Strategy for the Future", Vienna, Austria. IAEA General Conference requests the Director General to prepare, for consideration by the Board, outline of possible elements.

DECEMBER 1991: Expert group prepares an outline of possible elements.

FEBRUARY 1992: IAEA Board of Governors authorizes the Director General to set up a working group of legal and technical experts with the task of carrying out the necessary preparations.

MAY 1992: 1st meeting of working group of experts.

SEPTEMBER 1992: IAEA General Conference urges expert group to continue its work.

OCTOBER 1992: 2nd meeting of working group of experts.

JANUARY 1993: 3rd meeting of working group of experts.

MAY 1993: 4th meeting of working group of experts.

SEPTEMBER 1993: IAEA General Conference stresses desirability of a diplomatic conference in 1994 on the basis of a comprehensive draft text worked out by the group of experts.

OCTOBER 1993: 5th meeting of working group of experts.

DECEMBER 1993: 6th meeting of working group of experts.

JANUARY/FEBRUARY 1994: 7th meeting of working group of experts.

MARCH 1994: Informal meeting of Member States on procedures for Diplomatic Conference.

JUNE 1994: Diplomatic Conference is convened.



SEPTEMBER 1994: Signing of the Convention at the occasion of the 38th regular session of the IAEA General Conference.

MARCH 1995: 1st informal meeting of signatory and other interested States.

NOVEMBER 1995: 2nd informal meeting of signatory and other interested States.

JUNE 1996: 3rd informal meeting of signatory and other interested States.

OCTOBER 1996: Entry into force of the Convention (24 October 1996).

APRIL 1997: Preparatory Meeting of Contracting Parties.

SEPTEMBER 1998: Organizational Meeting of Contracting Parties.

APRIL 1999: First Review Meeting of Contracting Parties.

Photo: In various ways, countries are being assisted to implement their obligations under international conventions in fields of nuclear safety.

In March 1998, IAEA Director General Mohamed ElBaradei reaffirmed the Agency's continuing assistance to the Ad Hoc Committee, whose next meeting is scheduled in September 1998. He noted that the IAEA's aim "is to support all efforts to thwart acts of terrorism and to achieve a high degree of security for nuclear material and other radioactive sources while avoiding duplication and

overlap with the Physical Protection Convention".

MAINTAINING MOMENTUM

Elaboration of the binding legal instruments developed over the past years is a manifestation of the will among States to achieve and maintain a high level of nuclear safety worldwide. The agreements represent a vital component of a global

framework for fostering intergovernmental collaborative efforts in areas of nuclear, radiation, and radioactive waste safety.

As recognition grows that the nuclear safety field requires an interdependent and integrated approach by members of the international community, this component of the global nuclear safety framework is expected to steadily gain momentum. □