

**LEGALLY BINDING AND NON-BINDING INTERNATIONAL
INSTRUMENTS AND REGULATIONS CONCERNING THE SAFE
TRANSPORT OF RADIOACTIVE MATERIALS AND THEIR
IMPLEMENTATION**

**Prepared by the Secretariat
International Atomic Energy Agency**

Member States and UN organisations are invited to submit to the Secretariat changes to the information contained in this document as they are implemented / adopted

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This document will be revised accordingly.

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- (51) Convention on the Protection of the Marine Environment of the North East Atlantic, Oslo and Paris Convention (OSPARCOM), Paris 22 September 1992
- (52) Council Regulation (EURATOM) No 1493/93 on Shipments of Radioactive Substances between Member States – 8 June 1993
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- (55) Commission Decision 93/552/Euratom of 1 October 1993 establishing the standard document for the supervision and control of shipments of radioactive waste referred to in Council Directive 92/3/Euratom
- (56) Council Directive 95/50/EC of 6 October 1995 on uniform procedures for checks on the transport of dangerous goods by road.
- (57) European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) - Geneva, 26 May 2000
- (58) European Council Directive 2006/117/Euratom on the Supervision and control of Shipments of Radioactive Waste between EU Member States and into and out of the European Community, 20 November 2006
- (59) European Parliament and Council Directive 2008/68/EC of 24 September 2008 on the inland transport of dangerous goods.

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- (60) European Council Directive 2011/70/EURATOM Establishing a EU Community Framework for the Responsible and Safe Management of Spent Fuel and Radioactive Waste – 19 July 2011
- (61) Regulations of Dangerous Goods Transport (Annex 2 to Agreement on International Goods Transport by Rail (SMGS). July 2015
- (62) Regulations for DG Shipments on Railways of Society of Independent States (SIS). November 2015.

4.3.2 Africa – Binding

- (63) Convention on the Ban of the Import of Hazardous Wastes into Africa and on the Control of their Transboundary Movements within Africa - Bamako 30 January 1991
- (64) The African Nuclear-Weapon-Free Zone Treaty (the Treaty of Pelindaba) and Protocols - Cairo 11 April 1996

4.3.3 Latin America and the Caribbean – Binding

- (65) Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (the Treaty of Tlatelolco) Mexico, 14 February 1967.
- (66) Joint Declaration concerning Radioactive Waste Transportation, Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean. - Mexico City 5 February 1998.
- (67) The Inter-American Convention on Contracts for the International Carriage of Goods by Road - Montevideo 15 July 1985

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- (68) Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region and one Protocol - Cartagena de Indias 30 March 1986
- (69) Regional Agreement on the transboundary movement of hazardous wastes - Panama 11 December 1992
- (70) MERCOSUR/MERCOSUL Agreement of Partial Reach to Facilitate the Transport of Dangerous Goods - Signed by the Governments of Argentina, Brazil, Paraguay and Uruguay in Montevideo, 30 December 1994.
- (71) Joint Declaration by Argentina, Brazil, Chile and Uruguay on the Transport of Radioactive Waste - 17 January 1997

4.3.5 South Pacific

- (72) Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific and subsequent protocols - Lima 12 November 1981
- (73) Convention for the Protection of the Natural Resources and Environment of the South Pacific Region and one protocol - Noumea 24 November 1986
- (74) Convention to ban the importation into forum island countries of hazardous and radioactive wastes and to control the transboundary movement and management of hazardous wastes within the South Pacific Region (the Waigani Convention) - Port Moresby 16 September 1995
- (75) South Pacific Nuclear Free Zone Treaty (the Treaty of Rarotonga), Rarotonga 6 August 1985

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- (77) Treaty on the South-East Asia Nuclear Weapon-Free Zone and one Protocol - Bangkok 15 December 1995

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Glossary

ADN European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways

ADNR Regulations for the Carriage of Dangerous Substances on the Rhine

ADR European Agreement Concerning the International Carriage of Dangerous Goods by Road

CCC Sub-Committee on the Carriage of Cargoes and Containers of the Maritime Safety Committee of IMO

CCNR Central Commission for the Navigation of the Rhine

Class 7 the dangerous goods hazard class for radioactive material

COTIF Convention Concerning the International Carriage by Rail

ECOSOC United Nations Economic and Social Council

GESAMP Group of Experts on the Scientific Aspects of Marine Environment Protection

IAEA International Atomic Energy Agency

IATA International Air Transport Association

ICAO International Civil Aviation Organisation

IMDG Code the International Maritime Dangerous Goods Code of IMO

IMO International Maritime Organisation

INF Code International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on board Ships of IMO

ITC Inland Transport Committee of the UNECE

MARPOL International Convention for the Prevention of Pollution from Ships

MEPC Marine Environment Protection Committee of IMO

MSC Maritime Safety Committee of IMO

OTIF Organization for International Rail Transport

RID Regulations Concerning the International Carriage of Dangerous Goods by Rail

SSR-6 IAEA Safety Series No. 6 IAEA "Regulations for the Safe Transport of Radioactive, all editions from 1961 to 2012

SIS Society of Independent States (members are some of former USSR republics)

SMGS Agreement on International Goods Transport by Rail (participants are some of former USSR republics and other states)

SOLAS International Convention on the Safety of Life at Sea

UNECE United Nations Economic Commission for Europe

UNCLOS United Nations Convention on the Law of the Sea

UNEP United Nations Environment Program

UPU Universal Postal Union

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2. INTRODUCTION

On 5 September 1997, a Diplomatic Conference adopted the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management and a Resolution Relating to the Transboundary Movement of Spent Fuel and Radioactive Waste. The resolution recognized the International Atomic Energy Agency's (IAEA) role in establishing international safety standards for the safe transport of radioactive material and urged States parties to the Convention to take the standards into full consideration *"in the formulation and implementation of their national laws and regulations"*. The resolution also invited the IAEA, *"in consultation, and where appropriate in collaboration, with the competent organs of the United Nations ... to keep under review the existing rules and regulations with respect to the transboundary movement of spent fuel and radioactive waste"*.

On 3 October 1997 the IAEA General Conference in resolution GC(41)/RES/12, requested the IAEA's Secretariat:

"to prepare, for consideration at the June 1998 session of the Board of Governors, a report on legally binding and non-binding international instruments and regulations concerning the safe transport of radioactive materials and their implementation".

The Secretariat has prepared this report in response to the General Conference's request. The report provides information on legally binding and non-binding instruments concerning radioactive material transport safety which are either global or regional in application. In order to be considered "binding", an instrument must establish legal rights and obligations for the States which consent to be bound by that instrument. All other instruments are considered "non-binding".

Instruments may either have a direct or an indirect effect on radioactive material transport. Some instruments clearly have a direct effect - for example, a global convention covering the transport of all dangerous goods by a particular mode.

These instruments are described in Part 3 of this report with an emphasis on the implementation of the IAEA Regulations for the Safe Transport of Radioactive Material and on the changes which are either taking place or being considered in various international fora. Other instruments, such as those relating to environmental protection, dumping or liability, may or may not affect radioactive material transport safety, depending on how they are applied to a given situation.

Part 3 of the report although not exhaustive is a compendium of other instruments. Part 4 indicates the implementation status of instruments described in Parts 3 and 4 of this report.

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3. INTERNATIONAL REGULATION OF THE SAFE TRANSPORT OF RADIOACTIVE MATERIAL

3.1 Background

The transport of dangerous goods has been subject to regulation for many years. In fact, it is known to have been subject to detailed regulations in the United Kingdom as early as 1776. Early transport regulations related to specific substances, such as gunpowder, or imposed a blanket prohibition on the carriage of anything that "might endanger lives or the safety of the ship" or damage railway property.

Not long after the end of World War II, intermodal problems were increasingly being encountered at seaports, airports and rail yards where dangerous goods were trans-shipped and had to be re-consigned, re-designated, relabelled and, sometimes, repackaged for onward transport by another mode. It was recognized that, in the interests of safety and commercial economics, the regulations should be harmonized both intermodally and internationally.

3.2 The ECOSOC Committee of Experts and the United Nations recommendations

On 15 April 1953, a Committee of Experts was appointed by the United Nations Economic and Social Council (ECOSOC) to develop a universal system of recommendations on the transport of dangerous goods that would reduce both risks and costs in the expanding international trade and traffic in dangerous goods and could also be adopted for domestic purposes.

ECOSOC appointed the "Committee of Experts on the Transport of Dangerous Goods" with terms of reference to:

- (a) Recommend and define groupings or classifications of dangerous goods on the basis of the character of the risk involved,
- (b) List the principal dangerous goods being moved commercially and assign each to its proper grouping or classification,
- (c) Recommend marks or labels for each grouping or classification that would identify the risk graphically without regard to printed text, and
- (d) Recommend the simplest possible requirements for shipping papers.

These terms of reference were later extended to consider issues such as packaging, multimodal tanks, handling and storage, accident and fire prevention and training. The Committee's report was to take the form of "recommendations", and it would be up to the international bodies responsible for the carriage of dangerous goods to decide the extent to which these "United Nations recommendations" should be given the force of law.

The Committee first met in August 1954, and a comprehensive substance classification system resulted from its early work. The now familiar diamond-shaped labels bearing symbols indicating the nature of the different hazards also resulted from it. The Committee's first recommendations were published in October 1956 and

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brought to the attention of Governments, economic regional commissions and international organizations concerned by ECOSOC in April 1957.

In December 1994 the Committee decided that its recommendations were now complete enough to be recast as Model Regulations which are addressed to all Governments and International Organizations concerned with the development of national and international regulations concerning the transport of dangerous goods and are structured so that they may be used directly. In July 1995 (Resolution 1995/5), ECOSOC agreed with this approach and invited *“all interested Governments, regional commissions and specialised and international organisations concerned, when developing or updating appropriate codes and regulations, to take full account of the recommendations, including the structure and format of such codes and regulations”*.

3.3 Classifying dangerous goods

The basic feature of all systems of rules to control the transport of dangerous goods has been grouping based on the hazards presented by the goods during transport. The intended use of a dangerous substance or article is seldom important in this context. It is the inherent properties that give rise to hazards which must be suitably addressed to ensure safety during transport. As regulations were developed, it was recognized that some form of generic grouping by physical or chemical properties was needed for purposes of identification, packaging, labelling and documentation.

The Committee developed and recommended a nine-class substance identification and classification system based on hazardous properties:

Class 1 - explosives,

Class 2 - gases,

Class 3 - flammable liquids,

Class 4 - flammable solids, substances liable to spontaneous combustion and substances which in contact with water emit flammable gases,

Class 5 - oxidizing substances and organic peroxides,

Class 6 - toxic and infectious substances,

Class 7 - radioactive material,

Class 8 - corrosive substances, and

Class 9 - miscellaneous dangerous substances and articles.

Although there are differences in approach between Class 7 (radioactive material) and the other classes, notably about packaging approval, radioactive material should be regarded simply as one class of dangerous goods encountered in transport. The integration of all classes into a cohesive system of dangerous goods requirements helps ensure consistent approaches which promote safety during transport.

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3.4 The IAEA's role in dangerous goods transport safety

In March 1959, the ECOSOC Committee of Experts recognized the necessity of co-ordination with the IAEA in the drafting of any recommendations relating to the transport of radioactive material. In July 1959, ECOSOC requested the United Nations Secretary-General, in the light of recommendations made by the Committee of Experts, to inform the IAEA of ECOSOC's desire that the IAEA be entrusted with the drafting of recommendations on the transport of radioactive material, on the understanding that the recommendations would be consistent with the principles adopted by the Committee of Experts and would be formulated in consultation with the United Nations and the relevant specialized agencies. This has led to continuing co-operation between the Committee of Experts, the IAEA, the relevant specialized agencies (particularly the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO)) and various other United Nations bodies.

The IAEA's founding statute authorizes it to perform certain functions, including in Article III.A.6:

"to establish or adopt, in consultation and, where appropriate, in collaboration with the competent organs of the United Nations and with the specialized agencies concerned, standards of safety for protection of health and minimization of danger to life and property ... and to provide for the application of these standards to its own operations as well as to the operation making use of materials, services, equipment, facilities and information made available by the Agency or at its request or under its control or supervision".

The Article also charges the IAEA:

"to provide for the application of these standards, at the request of the parties, to operations under any bilateral or multilateral arrangement, or, at the request of a State, to any of that State's activities in the field of atomic energy".

Consequently, the ECOSOC request complemented the IAEA's statutory functions in the establishment of safety standards.

Following the ECOSOC decision, the IAEA established and first published its Regulations for the Safe Transport of Radioactive Materials (Safety Series No. 6) in 1961, for application to the national and international carriage of radioactive material by all modes of transport. Subsequent reviews - conducted by the IAEA's Secretariat in consultation with IAEA Member States, the relevant specialized agencies and various other United Nations bodies - have resulted in seven comprehensively revised versions (published in 1964, 1967, 1973, 1985, 1996, 2005 and 2012¹). A new revision is scheduled for publication in 2018.

¹ IAEA Regulations for the Safe Transport of Radioactive Material, Specific Safety Requirements No. SSR-6, 2012 Edition,

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All versions of the Regulations have struck a balance between the need to take account of technical advances, operational experience and the latest radiation protection principles while maintaining a stable framework of regulatory requirements.

In 1964, when approving the first revised version, the IAEA's Board of Governors authorized the Director General of the IAEA to apply the Regulations to IAEA operations and operations assisted by the IAEA and to recommend to IAEA Member States and "the organizations concerned" that the Regulations "*be taken as a basis for relevant national regulations and be applied to international transport*". The Regulations - despite the name - have a similar status as the United Nations recommendations. By 1969, however, they had been adopted by almost all international organizations concerned with transport and were being used by many States for their own regulatory purposes.

Through the worldwide adoption of the IAEA's Regulations for all modes of transport, a high standard of safety has been achieved.

The latest version of the Regulations was published by the IAEA in 2012 and adoption of these requirements by the UN Economic Commission for Europe (UNECE), IMO, and ICAO is complete and in several States the preparation of corresponding regulatory provisions based on SSR-6 remains ongoing. At the time of writing this report SSR-6 is under a revision process and SSR-6, 2018 Edition is scheduled for publication in 2018 with the adoption by UNECE, IMO and ICAO thereafter.

The IAEA Regulations address all categories of radioactive material ranging from very low activity, including such materials as ores and concentrates of ores, to very high activity such as spent fuel and high-level waste. The material to be transported must be categorized on the basis of its activity concentration, total activity, fissile characteristics (if any) and other relevant characteristics. Packaging and package requirements are then specified on the basis of the hazard of the contents and range from normal commercial packaging (for low hazard contents) to strict design and performance requirements (for higher hazard contents). Specific requirements are also established for marking, labelling, placarding of conveyances, documentation, external radiation limits, operational controls, quality assurance and notification and approval of certain shipments and package types.

The IAEA Regulations, SSR-6 and its predecessors Safety Series No. 6, ST-1 and TSR-1, provide a set of requirements that covers all facets of safe transport including the actions required by the consignor and carrier and approvals required to be issued by Competent Authorities.

The IAEA and the ECOSOC Committee of Experts have agreed that the Regulations should be fully integrated into the Committee's Model Regulations. Consequently, the Regulations are now both a stand-alone document, Safety Standards Series No. SSR-6, and part of the UN Model Regulations.

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3.5 Carriage of dangerous goods by sea

3.5.1 UNCLOS

Following the adoption of the United Nations Convention on the Law of the Sea (UNCLOS), in 1982, the Secretariat of IMO and the United Nations Division for Ocean Affairs and the Law of the Sea studied the implications of UNCLOS for IMO. This resulted in proposals to the United Nations General Assembly and the IMO Council regarding the manner in which IMO might fulfil its role under UNCLOS. An IMO report issued in October 1997 (LEG/MISC/2) includes a detailed analysis of the relationship between UNCLOS and various IMO instruments. Most of the general UNCLOS provisions can be implemented only through specific operative regulations in international agreements such as those of the IMO.

Among the articles and provisions of UNCLOS the following are of particular relevance in this context, Part II "Territorial Sea and Contiguous Zone", Article 17, establishes that *"subject to this Convention, ships of all States, whether coastal or landlocked, enjoy the right of innocent passage through the territorial sea"*. Article 19 elaborates on the meaning of "innocent passage" and states that *"passage is innocent so long as it is not prejudicial to the peace, good order or security of the coastal state. Such passage shall take place in conformity with this Convention and with other rules of international law"*.

Article 22 of UNCLOS entitles coastal States to establish and enforce sea lanes in respect of ships exercising the right of innocent passage and empowers them to confine to those sea lanes the passage of foreign nuclear-powered ships and ships carrying dangerous cargoes in their territorial seas.

These basic precautionary requirements are complemented by Article 23 which requires that *"foreign nuclear-powered ships and ships carrying nuclear or other inherently dangerous or noxious substances shall, when exercising the right of innocent passage through the territorial sea, carry documents and observe special precautionary measures established for such ships by international agreements."*

Part III, "Straits Used for International Navigation", establishes, subject to Article 35, rights and responsibilities related to both transit passage (Articles 37 to 44) and innocent passage (Article 45) in the context of passage through such straits. UNCLOS also contains provisions on the duty of all States to protect and preserve the marine environment (Article 192) and to prevent damage by pollution to other States and their environment (Article 194). Article 311 of UNCLOS contains provisions concerning the relationship between UNCLOS and other international agreements. That Article provides in particular that such agreements shall not affect the basic principles of the Convention or the rights and obligations of States parties to the Convention that are not party to those other agreements.

3.5.2 SOLAS

After the loss of the passenger liner *Titanic* on 15 April 1912, governments agreed that a conference should be convened to consider safety of life at sea (SOLAS). In the first SOLAS convention (the SOLAS Convention 1914), *"the carriage of goods which by reason of their nature, quantity and mode of storage"* were likely to endanger

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the safety of ships or the lives of passengers was in principle forbidden. However, decisions as to which goods were "dangerous" were left to contracting States, which were requested to advise on the precautions which should be taken in the packaging, stowage, segregation etc. of such goods.

Although the SOLAS Convention 1914 never entered into force, the principle of relying on national administrations and competent authorities to decide how "dangerous goods" should be defined and treated was established. This led to the development of diverse regulations and practices which still exist in some cases - for example, embedded in out-of-date port regulations.

The same approach was taken at the SOLAS Conference of 1929. Article 24 of the SOLAS Convention 1929 mentioned "dangerous goods" and the carriage of goods liable to endanger the safety of the ship was still forbidden, but it was still left to individual administrations to consider the dangers and take appropriate precautions.

By the SOLAS Conference of 1948 (the third such conference), considerably more cargoes which could be considered "dangerous" were being transported. Accordingly, a Chapter dealing with the "Carriage of Grain and Dangerous Goods" was included in the SOLAS Convention 1948. However, the Conference, recognizing that this was inadequate, stressed the importance of international uniformity when precautions were being taken to ensure the safe transport of dangerous cargoes by sea and noted that certain countries with an extensive export trade in chemicals had already adopted detailed safety regulations. Also, the Conference concluded that:

- goods should be considered dangerous on the basis of their properties and characteristics, and
- a labelling system should be developed using distinctive symbols indicating the kind of danger for each class of substances, materials or articles.

In 1960 a conference was held with the principal purpose of revising the SOLAS Convention 1948. Chapter VII of the resulting convention - the SOLAS Convention 1960, which entered into force on 26 May 1965 - dealt exclusively with the carriage of dangerous goods.

The SOLAS Convention 1960 was revised in 1974, the SOLAS Convention 1974 entering into force on 25 May 1980. The SOLAS Convention 1974 has not been revised, but amendments to it have been adopted by IMO (by means of protocols or resolutions adopted either by IMO's Maritime Safety Committee (MSC) in its expanded form or by Conferences of SOLAS Contracting Governments). The carriage of dangerous goods is prohibited except in accordance with the relevant provisions of chapter VII, which are amplified by the International Maritime Dangerous Goods (IMDG) Code. In addition, regulation II-2/19 of the SOLAS Convention specifies the special requirements for a ship intended to carry dangerous goods, the keel of which was laid or which was at a similar stage of construction on or after 1 July 2002.

The SOLAS Convention 1974, which has been ratified by 163 countries and applies to some 99% of the world merchant gross tonnage, deals with various aspects of maritime safety and contains in chapter VII the mandatory provisions governing the carriage of dangerous goods in packaged form or in solid form in bulk.

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Technical rules and standards contained in several IMO conventions (including the SOLAS Conventions and MARPOL 73/78) can be updated through a procedure of tacit acceptance of amendments. This procedure enables amendments to enter into force on a date selected by those adopting them unless, within a certain period after adoption, they are explicitly rejected by a specified number of contracting States representing a certain percentage of the gross tonnage of the world's merchant fleet. IMO conventions and amendments to them are normally adopted by consensus.

3.5.3 The IMDG Code

The IMDG Code, as defined by SOLAS regulation VII/1.1, means the International Maritime Dangerous Goods (IMDG) Code adopted by the Maritime Safety Committee of the Organization by resolution MSC.122(75), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the SOLAS Convention concerning the amendment procedures applicable to the annex other than chapter I.

The need for international regulation of the transport of dangerous goods by sea was recognized by the 1929 International Conference on Safety of Life at Sea (SOLAS), which recommended that rules on the subject have international effect. The classification of dangerous goods and certain general provisions concerning their transport in ships were adopted by the 1948 SOLAS Conference. This Conference also recommended further study with the object of developing international regulations.

As a further step towards meeting the need for international rules governing the transport of dangerous goods in ships, the 1960 SOLAS Conference, in addition to laying down a general framework of provisions in chapter VII of the SOLAS Convention, invited IMO (Recommendation 56) to undertake a study with a view to establishing a unified international code for the transport of dangerous goods by sea. This study would be pursued in cooperation with the UN Committee of Experts and should take account of existing maritime practices and procedures. The Conference further recommended that the unified code be prepared by IMO and that it be adopted by the Governments that were Parties to the 1960 Convention.

To implement Recommendation 56, IMO's Maritime Safety Committee (MSC) appointed a working group drawn from those countries having considerable experience in the transport of dangerous goods by sea. Preliminary drafts for each class of substances, materials and articles were subsequently brought under close scrutiny by the working group to take into account throughout the practices and procedures of a number of maritime countries in order to make the Code as widely acceptable as possible. This new International Maritime Dangerous Goods (IMDG) Code was approved by the MSC and recommended to Governments by the Assembly of IMO in 1965.

Meanwhile, the Economic and Social Council of the United Nations had appointed an ad hoc Committee of Experts on the Transport of Dangerous Goods (UN Committee of Experts), which had been actively considering the international aspect of the transport of dangerous goods by all modes of transport. The UN Committee of Experts has continued to meet until the present day and its published Recommendations on the Transport of Dangerous Goods are updated biennially. In 1996, the MSC agreed that the IMDG Code should be reformatted

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consistent with the format of the UN Recommendations on the Transport of Dangerous Goods. The consistency in format of the UN Recommendations, the IMDG Code and other dangerous goods transport regulations is intended to enhance user-friendliness, compliance with the regulations, and the safe transport of dangerous goods.

During another SOLAS Conference held in 1974, chapter VII of the Convention remained essentially unchanged. Since that date, several amendments to chapter VII adopted by the MSC have entered into force. Although invoked by a footnote reference in regulation 1 of chapter VII, the IMDG Code itself had only recommendatory status until 31 December 2003.

In 2002, the MSC adopted amendments to SOLAS chapter VII to make the IMDG Code mandatory, which came into force on 1 January 2004. Since then, further amendments were adopted to facilitate user-friendliness and promote uniform implementation of the Code. Observance of the Code harmonizes the practices and procedures followed in the carriage of dangerous goods by sea and ensures compliance with the mandatory provisions of the SOLAS Convention and of Annex III of MARPOL.

At its ninety-sixth session in May 2016, the MSC adopted amendment 38-16 to the mandatory IMDG Code, which is a complete consolidated and updated version of its text and which will enter into force on 1 January 2018 without any transitional period. However, in accordance with resolution MSC.406(96), Governments were encouraged to apply this amendment in whole or in part on a voluntary basis from 1 January 2017.

Transport of the radioactive material is covered by the IMDG Code, in particular chapter 1.5 on the general provisions concerning radioactive material and chapter 2.7 on Class 7 radioactive material. The provisions of the IMDG Code establish standards of safety which provide an acceptable level of control of the radiation, criticality and thermal hazards to persons, property and the environment that are associated with the transport of radioactive material. These provisions are based on the IAEA Regulations for the Safe Transport of Radioactive Material, 2012 Edition, IAEA Safety Standards Series No. SSR-6, IAEA, Vienna (2012). Explanatory material can be found in Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2012 Edition), IAEA Safety Standards Series No. SSG-26, IAEA, Vienna (2014).

Under the direct instructions of the Maritime Safety Committee and the Marine Environment Protection Committee, the Sub-Committee on Carriage of Cargoes and Containers (CCC) will consider technical and operational matters related to IMDG Code.

3.5.4 The INF Code

The INF Code, as defined by SOLAS regulation VII/14.1, means the International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships, adopted by the Maritime Safety Committee of the Organization by resolution MSC.88(71), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable

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to the annex other than chapter I. INF cargo means packaged irradiated nuclear fuel, plutonium and high-level radioactive wastes carried as cargo in accordance with class 7 of the IMDG Code.

The INF Code was adopted by resolution MSC.88(71) on 27 May 1999 after the Maritime Safety Committee had considered earlier resolutions A.748(18) (Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes in Flasks on board Ships (INF Code)), A.790(19) (Review of the INF Code), A.853(20) (Amendments to the INF Code), and A.854(20) (Guidelines for developing shipboard emergency plans for ships carrying materials subject to the INF Code).

The INF Code is mandatory under SOLAS 1974 and entered into force on 1 January 2001. In accordance with SOLAS regulation VII/15, the INF Code shall apply to all ships regardless of the date of construction and size, including cargo ships of less than 500 gross tonnage, engaged in the carriage of INF cargo, but do not apply to warships, naval auxiliary or other vessels owned or operated by a Contracting Government and used, for the time being, only on government non-commercial service; however, each Administration shall ensure, by the adoption of appropriate measures not impairing operations or operational capabilities of such ships owned or operated by it, that such ships carrying INF cargo act in a manner consistent, so far as reasonable and practicable, with SOLAS regulation VII (part D) and the INF Code.

The Code was amended by resolution MSC.118 (74) on 6 June 2001 to align it with Amendment 30 of the IMDG Code. The amendment was accepted, and came into force on 1 January 2003. The Code was also amended by resolution MSC.135 (76) on 12 December 2002 to align it with amendments to chapter VII of SOLAS. This amendment was accepted, and entered into force on 1 July 2004. The Code was further amended by resolution MSC.178(79). The amendment to the International Certificate of Fitness was accepted and came into force on 1 July 2006. Further amendments to the Code were adopted by resolution MSC.241(83) in October 2007 to align it with amendments to chapter II-1 of SOLAS. These amendments were accepted, and entered into force on 1 July 2009.

3.5.5 Marine Pollution under the IMDG Code

In accordance with provision 2.10.1 of the IMDG Code, marine pollutants mean substances which are subject to the provisions of Annex III of MARPOL, as amended. Marine pollutants shall be classified in accordance with chapter 2.9.3 of the IMDG Code. However, the classification criteria of 2.9.3 are not applicable to substances or materials of class 7. Known marine pollutants are noted in the Dangerous Goods List and are indicated in the Index of the IMDG Code.

At the International Conference on Marine Pollution, 1973, the need was recognized to preserve the marine environment. It was further recognized that negligent or accidental release of marine pollutants transported by sea in packaged form should be minimized. Consequently, provisions were established and adopted by the Conference, and are contained in Annex III of MARPOL. The Marine Environment Protection Committee (MEPC) decided in 1985 that Annex III should be implemented through the IMDG Code. This decision was also endorsed by the MSC in 1985. Since then, several amendments to Annex III to MARPOL have entered into force.

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3.6 Carriage of dangerous goods by air

The operation of commercial aircraft is governed by the Convention on International Civil Aviation (the Chicago Convention), which entered into force on 4 April 1947.

In Chapter VI of the Convention, dealing with "International Standards and Recommended Practices", Article 37 covers the undertaking by each contracting State to co-operate in "securing the highest practicable degree of uniformity in regulations, standards, procedures and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve air navigation." A task of ICAO in this connection is to *"adopt and amend from time to time, as may be necessary, international standards, measures, practices and procedures dealing with ... such other matters concerned with the safety, regularity and efficiency of air navigation as may from time to time appear appropriate."*

Article 44 lists the objectives of ICAO, a number of which make reference to safety considerations - notably, to *"promote safety of flight in international air navigation"*.

Article 54 lists the mandatory functions of the ICAO Council, one of which is to "adopt, in accordance with the provisions of Chapter VI of this Convention, international standards and recommended practices; for convenience, designate them as Annexes to this Convention; and notify all contracting States of the action taken".

Article 90 covers the procedure for the adoption and amendment by the Council of the Annexes referred to in Article 54(l). Adoption or amendment of an Annex requires a vote of 2/3 of the Council at a meeting called for that purpose. Adopted Annexes and amendments are submitted by the Council to each contracting State and become effective within three months of submission, or such longer period as the Council may prescribe, unless a majority of the contracting States register disapproval.

Annex 18 to the Convention establishes the international standards and recommended practices for the safe transport of dangerous goods by air. It was developed by the Air Navigation Commission of the ICAO Council in response to a need, expressed by contracting States, for an internationally agreed set of provisions. In order to achieve compatibility with the regulations covering the transport of dangerous goods by other modes of transport, the provisions of the Annex are based on the recommendations of the ECOSOC Committee of Experts and the IAEA's Regulations for the Safe Transport of Radioactive Material. Chapter 1 of Annex 18 contains definitions, including "dangerous goods". In Chapter 2, dealing with applicability, paragraph 2.2.1 stipulates that "each contracting State shall take the necessary measures to achieve compliance with the detailed provisions contained in the 'Technical Instructions for the Safe Transport of Dangerous Goods by Air' approved, issued and amended in accordance with the procedure established by the ICAO Council. Paragraph 2.5.1 requires contracting States to notify ICAO promptly of any variances in their domestic regulations vis-à-vis the provisions specified in the Technical Instructions.

The effect is that, pursuant to Chapter 2, the Technical Instructions are a "standard" for the purposes of Annex 18 and are mandatory. The Technical Instructions are updated every two years in accordance with the

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appropriate procedures of ICAO. Chapter 3, which requires the classification of an article or substance to be in accordance with the provisions of the Technical Instructions, notes that the hazards identified as being associated with the transport of dangerous goods by air are those referred to in the recommendations of the ECOSOC Committee of Experts.

The detailed requirements for the carriage of radioactive material by air are set out in Part 2 of the Technical Instructions. Chapter 7 reproduces the 1985 Edition (As Amended 1990) of the IAEA's Regulations for the Safe Transport of Radioactive Material (Safety Series No. 6). Some departures in the domestic regulations of individual States from the recommendations contained in Safety Series No. 6 are listed.

The Technical Instructions are kept up to date by an ICAO "Dangerous Goods Panel" of experts who periodically review comments received from States and interested international organizations and consider any changes in the recommendations of the ECOSOC Committee of Experts and the IAEA. Amendments proposed by the Panel are reviewed by the Air Navigation Commission and considered by the ICAO Council with a view to approval for publication. The established practice is for the Technical Instructions to be published every two years.

For many years before the development of the Technical Instructions by ICAO, the carriage of dangerous goods by air was generally subject to the Restricted Articles Regulations of the International Air Transport Association (IATA). Although the legal requirements for air transport are now those of ICAO, in practice airlines continue to require compliance with IATA's current Dangerous Goods Regulations (successors to the Restricted Articles Regulations). IATA states that in developing the Dangerous Goods Regulations it paid special attention to the format and wording of its presentation of the ICAO Technical Instructions to produce a readily understandable and easy-to-use manual. Certain differences vis-à-vis the Technical Instructions, stemming from operational considerations, result in a more restrictive regime; such differences are highlighted. The IATA Dangerous Goods Regulations are fully consistent with the requirements of Safety Series No. 6 since they are based on the ICAO Technical Instructions.

3.7 Carriage of dangerous goods in land transport

As international land transport is de facto limited to continental traffic, there is no global convention governing the carriage of dangerous goods by road or rail. However, regional agreements exist and the best-known are those developed in Europe, under the auspices of the United Nations Economic Commission for Europe (UN/ECE).

3.8 Carriage of Dangerous Goods, Europe

The European Commission is obliged to report on the implementation of European Union Council Directive 2006/117/Euratom to the European Council, the European Parliament and the European Economic and Social Committee, based on the European Union Member States' reports to the European Commission.

The first such report from the European Commission (EC) was published on 25 April 2013. In this report, the EC notes that the directive is now being fully implemented to guarantee an adequate protection of the population.

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The implementation of the directive has not given rise to any major problems. The report provides a first summary overview of authorisations given in the EC. The number of authorisations of shipments is relatively small and there is a clear picture on exports outside Euratom.

In addition, EC Recommendation 2009/527 has been developed for the improvement of the system of transmission of documents and information under EC Directive 2006/117. This Recommendation prompts the competent authorities of the EU Member States: to cooperate in order to ensure the smooth operation of the automatic consent procedure laid down in Article 9(2) of directive 2006/117; to take the necessary measures in order to ensure that all information regarding shipments covered by that directive is handled with due care and is protected against any misuse; and to apply general security measures to all information which is processed by them, when applying directive 2006/117.

The Inland Transport Committee (ITC), a subsidiary body of the UNECE, is concerned with inland transport (i.e. transport by road, rail and inland waterways) in the 56 countries covered by the UNECE (including Canada and the United States of America). The ITC has its own subsidiary bodies, amongst which, for the transport of dangerous goods, is the Working Party on the Transport of Dangerous Goods (WP.15), responsible for the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) and the European Provisions Concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN). For ensuring harmonization between ADR and RID (Regulations Concerning the International Carriage of Dangerous Goods by Rail), the UNECE and the Organization for International Rail Transport (OTIF) have formed the Joint Meeting of the Working Party on the Transport of Dangerous Goods and the RID Safety Committee (RID/ADR/ADN Joint Meeting).

3.8.1 Carriage of dangerous goods by road, Europe

The ADR requirements for the listing, classification, marking, labelling and packaging of dangerous goods for carriage by road are based on the ECOSOC Committee of Experts' recommendations. However, the ADR contains more detailed provisions as regards packaging types, consignment procedures, transport equipment, driver training, supervision, emergency procedures, loading and unloading, and vehicle placarding.

The ADR was signed in 1957, since when the technical annexes have been developed in WP.15. Its primary purpose is to increase the safety of international transport by road, but it is also an important trade facilitation instrument. Except for dangerous goods whose carriage is prohibited, and except when carriage is regulated or prohibited for reasons other than safety, the international carriage of dangerous goods by road is authorized under the ADR on the territories of contracting States provided the conditions laid down in the annexes are complied with.

There are at present 48 ADR contracting States, mainly from Europe, Russian Federation, Central Asia and North Africa.

The provisions of the ADR concerning radioactive material are aligned with the 2012 Edition of the IAEA Regulations for the Safe Transport of Radioactive Material (SSR-6).

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The requirements of the annexes to the ADR have been annexed to European Union Parliament and Council Directive 2008/68/EC on the approximation of the laws of Member States with regard to the transport of dangerous goods by road, so that since 1 January 1997 these requirements apply to the domestic transport of dangerous goods, including radioactive material (both within and between European Union member states).

It is possible that national regulations may include requirements that do not align with ADR provisions. For example, ADR as well as ADN Agreements are binding for shipments of radioactive material in Russia (Russian acronyms DOPOG and VOPOG). However, Federal norms and regulations for nuclear material, namely NP-053-04 (Regulation for safety at transportation of radioactive materials, which is a national analog of IAEA Regulations SSR-6), take priority when there are differences between NP provisions and ADR/AND provisions.

The United Nations General Assembly, in its resolution 70/260 of 15 April 2016 on improving global road safety, has encouraged all UN member States to accede to UN legal instruments dealing with road safety, including ADR.

3.8.2 Carriage of dangerous goods by rail, Europe

Throughout Western and Central Europe, also the Middle East and North Africa, the international carriage of dangerous goods by rail is subject to regulations, usually referred to as "the RID" (see section 3.8). The first convention on international goods traffic by rail in Europe, which entered into force in 1893, contained provisions regarding goods – including dangerous goods – which were to be accepted only under specified conditions. The modern RID originated in that convention, which established a small Central Office to administer its 15 provisions. The Central Office, financed by contributions from the States party to the convention calculated on the basis of track mileages, operates from Berne, Switzerland. Today, the RID are applicable to the international carriage of dangerous goods between the signatory States of the Convention Concerning International Carriage by Rail (COTIF) of 9 May 1980. The RID form is Annex C to COTIF which is a consolidation and updating of several earlier rail conventions covering both goods and passengers. There are currently 48 COTIF signatory States. In addition to most Western and Central Europe, COTIF's area of application extends into the Middle East and North Africa. The method of financing the Central Office has deterred some States with very large track mileages from becoming signatories.

The task of updating the RID was assigned to a Committee of Experts from signatory States. For many years, a safety sub-group of the Committee has been meeting jointly with the UNECE's Working Party on the Transport of Dangerous Goods for the purpose of considering amendments to the RID proposed primarily in the light of changes to the ECOSOC Committee of Experts' Recommendations. Over the past 45 years the basic characteristics and contents of these Recommendations have been incorporated into the RID, which are now in the process of being restructured in order to reflect the format of the ECOSOC Committee of Experts' Model Regulations (which constitute the latest edition of the Recommendations). The requirements of the RID have been annexed to European Union Parliament and Council Directive 2008/68/EC, so that the RID requirements apply to the domestic rail transport of dangerous goods, including radioactive material, within the European Union.

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For Eurasian rail transport, most countries which were previously republics of the former USSR, (Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russian Federation, Tajikistan, Turkmenistan, Uzbekistan and Ukraine), as well as China, Mongolia, Iran, the Democratic People's Republic of Korea, Vietnam and some other European countries (Albania, Bulgaria, Hungary, Poland) (25 countries in total) are parties to the Agreement on International Goods Transport by Rail (SMGS).

Transport of Dangerous Goods by rail is regulated by Regulations of Dangerous Goods annex 2 of SMGS, and this annex 2 was brought in line with RID in 2007. SMGS is administered by the Organization for Cooperation between Railways (OSJD) which cooperates closely with OTIF to maintain harmonization between RID and SMGS annex 2, based on the work of RID/ADR/ADN Joint Meeting. Also for Eurasian rail transport, some countries which were previously republics of the former USSR now as Member state of Society of Independent States (SIS) are in force as binding Regulations for DG Shipments on Railways approved by Council on Railway Transport of the SIS.

3.8.3 Carriage of dangerous goods by inland waterways, Europe

In Europe, the carriage of goods on the River Rhine was first regulated under the Treaty of Mannheim of 1868. The Central Commission for the Navigation of the Rhine (CCNR) began to develop a safety control regime that came to be known as the "Regulations for the Carriage of Dangerous Substances on the Rhine" (ADNR), which were directed mainly to bulk cargoes transported by barge but also to packaged dangerous goods.

In accordance with Resolution No. 223 adopted by the ECE's ITC in February 1976, the technical annexes comprising the European Provisions Concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) took the form of recommendations addressed to the governments of European States with inland waterway networks and to the international River Commissions. These recommendations were not systematically updated, as West European countries were content with ADNR. In response to pressure from the Danube Commission and the Commission of the European Union, however, they were revised and modernized, and a consolidated version of the technical annexes taking account of all amendments adopted up to June 1996 was published.

In January 1995, the ITC established an International Working Group for the future drafting (jointly with the other organizations - notably the CCNR) of a European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways (i.e. an instrument having the same status as the ADR). The technical provisions published in 1996 were annexed to this European Agreement which was finally adopted on 26 May 2000 and entered into force on 29 February 2008. It now counts 18 Contracting Parties (including 13 countries of the European Union, Republic of Moldova, Russian Federation, Serbia, Switzerland and Ukraine). As for ADR and RID, directive 2008/68/EC makes the Regulations annexed to ADN applicable to domestic traffic in the European Union countries concerned. The provisions of the ADN concerning the carriage of radioactive material are aligned with the IAEA Regulations for the Safe Transport of Radioactive Material (SSR-6) 2012 Edition.

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3.9 Carriage of dangerous goods by post, The Universal Postal Convention, Vienna 10 July 1964

Since 1 July 1948, the Universal Postal Union (UPU) - a specialized United Nations agency - regulates the international postal services of its (currently 189) member States – the largest physical distribution network in the world.

The Constitution of UPU - the fundamental Act setting forth UPU's aims and rules - must be ratified by the competent authorities of each Member State. Amendments to the Constitution can only be made at a UPU Congress and are subject to ratification. Provisions relating to the application of the Constitution and to the operation of UPU are contained in the General Regulations. The common rules applicable to the international postal service and the provisions concerning letter-post services are found in the Universal Postal Convention and its detailed Regulations. As with the Constitution and the General Regulations, these are binding on all member States. In 1994, in order to better meet the need for clear, simple and flexible regulations, the UPU Congress recast the Act. Article 28(1) of the Universal Postal Convention lists various prohibitions. The forwarding of the following goods, among other things, is prohibited:

- Articles which by the nature of their packing may expose officials to danger, and
- Explosive, flammable or other dangerous substances.

Nevertheless, perishable biological substances and radioactive substances mentioned in Article 16(4) and (5) do not come within the Conventions prohibition.

Article 16(4) requires that perishable biological substances packed and labelled in accordance with the conditions stipulated in the Detailed Regulations may be exchanged only between officially recognized qualified laboratories. Article 16(5) permits the carriage of radioactive material by post under the conditions laid down in the Detailed Regulations only by duly authorized consignors. Such items should be forwarded by the quickest route, normally by air.

The exchange of both perishable biological substances and radioactive material is restricted to those member States whose postal administrations have declared their willingness to admit such items, whether reciprocally or in one direction only.

Under Article 1(2), member States not participating in the exchange of perishable biological substances or radioactive material may not permit these items in transit through their territory. Detailed Regulations for Implementing the Universal Postal Convention were drawn up in 1967. Article 121 of the Regulations concerns the carriage by post of radioactive material "whose contents and make up comply with the regulations of the International Atomic Energy Agency providing special exemptions for certain categories of item". Such material is to be admitted for carriage by post subject to prior consent from the competent authorities of the State of origin. Article 121 further states that "Any item containing radioactive material should be provided by the sender with a special white label bearing the words "Radioactive materials", which label shall be officially obliterated should the packing be returned to the place of origin. These items should bear, in addition to the name and address of the consignor, a conspicuous request for the return of the items in the event of non-delivery. The

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sender should show his name and address and the contents of the item on the inner wrapping. Administrations may designate special post offices for the posting of items containing radioactive material."

The IAEA's 1996 Edition of the Regulations for the Safe Transport of Radioactive Material (ST-1) provide, within the requirements and controls for the transport of excepted packages, for additional requirements relating to transport by post where the activity of the radioactive contents does not exceed 1/10 of the activity limits prescribed for excepted packages. Such excepted packages may be accepted for domestic carriage by national postal authorities, subject to such additional requirements as those authorities may prescribe. Such excepted packages may be accepted for international carriage by post, subject to certain additional requirements as prescribed by UPU. These additional requirements, which are listed, reproduce the provisions of Article 121 of UPU's Detailed Regulation (see SSR-6, paragraphs 580 and 581).

3.10 Carriage of Dangerous Goods, Outside Europe

The only known equivalent regional instrument for regulating the road and rail transport of dangerous goods is the 30 December 1994 "MERCOSUR/MERCOSUL Agreement of Partial Reach to Facilitate the Transport of Dangerous Goods" between Brazil, Argentina, Paraguay and Uruguay. The text, published in Spanish and Portuguese, is derived from the seventh revised edition of the United Nations Recommendations of the ECOSOC Committee of Experts (December 1990) and was therefore consistent with IAEA Safety Series No. 6, 1985 Edition (As Amended 1990). The carriage of radioactive material in those four countries is subject to approval by the competent bodies for Class 7 listed in Appendix 1.1 to the Agreement.

Other countries in South America are considering their positions in relation to the Agreement. However, countries are also considering their positions in relation to an International Dangerous Goods Code which is being developed for transport between the countries of the North American Free Trade Area (NAFTA) - Canada, Mexico and the United States of America - and is likely to be fully aligned with the ECOSOC Committee of Experts' Model Regulations, including the regulations relating to Class 7.

Under the auspices of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), several countries of Southeast Asia are discussing the idea of a regional convention for inland transport that would be based directly on the ECOSOC Committee of Experts' Model Regulations, including the regulations relating to Class 7 which are consistent with the IAEA Regulations for the Safe Transport of Radioactive Material.

3.11 Transboundary movement

3.11.1 Global

The distinction between the terms "transport" and "movement" should be noted. Throughout the 1980s, early drafts of international instruments concerned with dangerous waste tended - at the levels of the European Community, the Organization for Economic Cooperation and Development (OECD) and UNEP - to use terms such as "transport" or "carriage", but in discussions with officials from transport administrations it became clear that the purpose of such instruments (driven by environmental concerns) was to establish a system of identification,

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notification and consent to the origination and disposal of hazardous wastes (the "cradle to grave" approach). Accordingly, the term "movement" came to be applied to the additional statutory administrative processes required if the product carried fell within the scope of international regulations concerned with hazardous waste.

Article 27 of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management addresses the transboundary movement of spent fuel and radioactive waste and establishes certain mandatory requirements pertaining to such movements.

Article 27(1)(ii), in relation to transboundary movement through States of transit, refers to other international obligations which are relevant to the particular modes of transport utilised. The Convention does not otherwise cover off-site transport of spent fuel and radioactive waste.

The Code of Practice on the International Transboundary Movement of Radioactive Waste is advisory and was adopted by consensus by the General Conference of the IAEA. It, inter alia, affirms the sovereignty of States to prohibit the movement of radioactive waste into, through and from its territory. It also urges States to ensure that transboundary movement of such wastes takes place only with the prior notification and consent of the sending, receiving and transit States. However, it contains a footnote which states that nothing in the Code prejudices or affects in any way the exercise by ships and aircraft of maritime and air navigation rights and freedoms.

The international requirements applicable to transport safety (i.e. the physical carriage) of non-radioactive hazardous wastes do not differ from those for the transport of commercial or other products, substances and articles. The dangerous properties have to be identified according to the normal hazard classification criteria, a United Nations substance identification number is assigned and the word "WASTE" is usually included in the "*proper shipping name*" for transport purposes. The normally required packaging and labelling appropriate to the United Nations substance identification number applies. In addition, however, most such wastes are subject to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989, as supplemented by decisions adopted by the Conference of the Parties in 1992, 1994 and 1995. The Basel Convention was drawn up under the auspices of the United Nations Environment Programme (UNEP). It aims at the protection of human health and the environment against the adverse effects which may result from the transboundary movement and management of hazardous and other wastes. Its goals are to reduce the generation of hazardous wastes and other wastes, promote the environmentally sound management of such wastes, control the transboundary movements of such wastes and prevent illegal trafficking in them.

The key feature of the Convention is the prior informed consent procedure which requires the State of export to notify, or require the generator or exporter to notify, in writing, and receive the consent of the States of import and transit of the proposed movement of hazardous wastes or other wastes. At the same time, the Convention provides that nothing in this Convention shall affect in any way the exercise by ships and aircraft of all States of navigational rights and freedoms as provided for in international law and as reflected in relevant international instruments. The Convention does not address radioactive waste for two reasons:

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- (1) Radioactive waste is neither referred to in Annex I, II or III to the Convention, and
- (2) Radioactive waste subject to another international control system is excluded from the scope of the convention.

The other control system need not necessarily be identical with that of the Basel Convention. Pursuant to Article 11 of the Basel Convention, several regional agreements, which are based on the prior informed consent procedure, have been concluded. Some of these instruments include radioactive waste in their respective scope of application.

Chapter 22 of Agenda 21 on the safe and environmentally sound management of radioactive wastes, adopted by the United Nations Conference on Environment and Development in 1992 *inter alia* calls upon States to strengthen their efforts to implement the Code of Practice on the Transboundary Movements of Radioactive Waste and keep the international regime on transboundary movements of radioactive waste under active review, including the desirability of concluding a legally binding instrument under the auspices of the IAEA. In the general context of environmental protection, Principle 15 on the precautionary approach, and Principle 19 on notification and consultation for activities having a potentially significant transboundary effect, both contained in the non-legally binding Rio Declaration on Environment and Development, were adopted by the same conference. The Programme for the Further Implementation of Agenda 21 adopted by the nineteenth Special Session of the United Nations General Assembly in June 1997 states that these principles should be further addressed within the appropriate forums.

3.11.2 Europe

European Council Regulation (EURATOM) 1493/93 Euratom on shipments of radioactive substances between Member States ensures that as from 1 January 1993 competent authorities in EU Member States receive the same level of information on shipments of radioactive substances as they did prior to the removal of intra-EU Community frontier controls (which was completed by 31 December 1992). It provides for a double declaration system (by the holder and the consignee) for intra-EU Community shipments.

The aim of the Regulation is to establish a system for controlling shipments of radioactive substances within Euratom. Specified procedures must be followed whenever radioactive substances, exceeding certain quantities, are shipped between Euratom Member States. These procedures include prior notification and the provision of specific information. Before proceeding with shipment, the holder must obtain a written declaration by the consignee of the radioactive substances confirming compliance with the relevant provisions. This declaration must be stamped by the authorities of the EU Member State of destination. EC Communication 2009/C41/02144 indicates the competent authorities of the EU Member States, as defined in Article 2 of the Regulation, as well as all necessary information for communicating with them rapidly.

PART 4 – Compendium of Legal Instruments

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4. COMPENDIUM OF LEGAL INSTRUMENTS

Note: Within each subsection instruments are listed in chronological order of their adoption.

4.1 Global Instruments, Binding

**(1) Convention on International Civil Aviation - Annex 18, The Safe Transport of Dangerous Goods by Air - Chicago
7 December 1945**

BINDING

See discussion in Part 3.6

(2) Convention on the High Seas - Geneva 29 April 1958

BINDING

This Convention codifies the rules of international law relating to the high seas.

The Convention does not directly address the transport of radioactive material.

Article 25 of the Convention, however, provides that *“every State shall take measures to prevent pollution of the seas from the dumping of radioactive waste, taking into account any standards and regulations which may be formulated by the competent international organizations”*, and that *“all States shall cooperate with the competent international organization in taking measures of pollution of the seas or air space above, resulting from any activities with radioactive wastes or other harmful agents”*.

(3) The Antarctic Treaty - Washington 01 December 1959

BINDING

This Convention aims at the use of Antarctica exclusively for peaceful purposes and at the promotion of international cooperation in scientific investigation in Antarctica.

Certain activities such as the establishment of military bases and fortifications, the carrying out of military manoeuvres, as well as the testing of any type of weapons are prohibited in this area.

The Convention does not directly address the transport of radioactive material. Article V of the Convention however prohibits the disposal there of ‘radioactive waste material’ in Antarctica.

(4) Convention for the Safety of Life at Sea (SOLAS) – London 17 June 1960

BINDING

See discussion in Part 3.5

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(5) Convention concerning the Protection of Workers against Ionizing Radiations (ILO No. 115) - Geneva 22 June 1960

BINDING

This convention applies to all activities involving exposure of workers to ionizing radiation in the course of their work.

The Convention does not directly address the transport of radioactive material. However, Article 2 of the Convention refers that “all activities” involving exposure of workers to ionizing radiation in the course of their work which may include transport of radioactive material.

(6) Convention on the Liability of Operators of Nuclear Ships - Brussels 25 May 1962

BINDING - NOT IN FORCE

This Convention contains uniform rules concerning the liability of operators of nuclear ships. This convention does not specifically address the transport of packaged radioactive material. However, it does provide for absolute liability of the operator of a nuclear ship for any nuclear damage upon proof that such damage has been caused by a nuclear incident involving nuclear fuel, radioactive products or waste produced in such ships.

(7) Convention on Civil Liability for Nuclear Damage - Vienna 21 May 1963

BINDING

This instrument establishes special rules that *inter alia* hold the operator of a nuclear installation strictly and exclusively liable for nuclear damage that results from nuclear incidents at the operator’s nuclear installation or during transport of nuclear material to and from the nuclear installation – “legal channelling”.

The instrument also establishes a minimum amount of liability of the operator, which must be covered by some form of financial security, e.g. insurance. Legal channelling is preserved in cases of transport between operators of nuclear installations. However, national legislation may permit the carrier of nuclear material or the person handling radioactive waste to voluntarily assume the operator’s liability with the consent of the latter (Article II).

(8) Universal Postal Convention - Vienna 10 July 1964

BINDING

See discussion in Part 3.9

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(9) Convention Relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material - Brussels 17 December 1971

BINDING

This instrument seeks to exonerate persons liable for nuclear damage by virtue of an international convention of national law applicable in the field of transport in those cases where the operator of a nuclear installation is liable for such damage under the Paris Convention the Vienna Convention or national law if it is in all respects as favourable to persons who may suffer damage as either the Paris or Vienna Conventions. As a result, in cases where liability is redirected pursuant to this Convention to an operator liable under either the Vienna Convention or Paris Convention, their respective provisions regarding liability during transport will come into play (Vienna Convention Article II and Paris Convention Article 4).

(10) Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters and amendments - London, Mexico City, Moscow, Washington 29 December 1972

BINDING

This Convention applies to the prevention of pollution of the marine environment due to dumping. The Convention does not specifically address the transport of radioactive material.

Article III states that “*waste or other matter*” means material and substance of any kind, form or description, which includes radioactive waste. The same article provides that “*dumping*” means “*any deliberate disposal at sea of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea*”, or “*any deliberate disposal at sea of vessels, aircraft, platforms or other man-made structures*”.

Article IV prohibits the dumping of wastes or other matter listed in Annex I and refers to Annexes II and III which make provision for dumping those wastes not listed in Annex I. Following a 1993 amendment of the Convention, Annex I includes all kinds of radioactive wastes and other matter. Article XII states that measures to protect the marine environment must be promoted, especially concerning radioactive pollutants, from all sources including vessels.

Article V contains provisions that Article IV shall not apply in certain cases of *force majeure* where dumping appears to be the only way of securing the safety of human life or of vessels, aircraft, etc.

Annex I of the 1996 Protocol (not yet in force) concerns wastes and other matter which may be considered for dumping. However, if the materials which may otherwise be considered for dumping contain levels of radioactivity greater than *de minimis* concentrations they shall not be considered eligible for dumping.

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- (11) **International Convention for the Prevention of Pollution from Ships (MARPOL), one Protocol and amendments - London 02 November 1973**

BINDING

See discussion in Part 3.5

- (12) **International Convention for the Safety of Life at Sea (SOLAS) and three protocols - London 01 November 1974**

BINDING

See discussion in Part 3.5

- (13) **Convention of the Carriage of Goods by Sea - Hamburg 31 March 1978**

BINDING

This Convention applies to contracts of carriage by sea between two different States, addresses liability of the carrier and the shipper of goods and provides for a special claims procedure.

The Convention does not specifically address the transport of dangerous goods. Article 1 of the Convention, however, states that the term “goods” includes any article of transport supplied by the shipper.

- (14) **Convention on the Physical Protection of Nuclear Material - Vienna 3 March 1980 and the Amendment thereof – Vienna 8 July 2005**

BINDING

This Convention obliges Contracting Parties to ensure the protection of nuclear material used for peaceful purposes at the levels specified in the Convention during international nuclear transport.

Contracting Parties shall, inter alia, make specific arrangements and meet defined levels of physical protection for international shipment of nuclear material and co-operate in the recovery and protection of unlawfully taken nuclear material. The Contracting Parties commit themselves not to undertake, or authorize undertaking of such international transport unless assurances are provided that nuclear material will be protected at the required levels.

The 2005 Amendment to the Convention on the Physical Protection of Nuclear Material, which entered into force on 8 May 2016 expands the scope of the Convention to also cover nuclear material used for peaceful purposes in domestic use, storage as well as transport and nuclear facilities. It requires, in particular, each State Party to establish and maintain an appropriate physical protection regime with the aim of, inter alia, protecting against theft, and other unlawful taking of nuclear material in transport. In implementing the relevant obligations under the Amendment, each State shall apply, insofar as is reasonable and practicable, a number of Fundamental Principles of Physical Protection of Nuclear Material and Nuclear Facilities. It also provides for expanded cooperation between and among States regarding rapid measures to locate and recover stolen or

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smuggled nuclear material, mitigate any radiological consequences of sabotage, and prevent and combat related offences.

(15) United Nations Convention on International Multimodal Transport of Goods - Geneva 24 May 1980

BINDING - NOT IN FORCE

This Convention applies to contracts for multimodal transport between places in two States. It addresses the documentation requirements for multimodal transport, liability of the operator and of the consignor and customs matters.

Article 23 of the Convention contains special rules on dangerous goods, including radioactive material.

(16) United Nations Convention on the Law of the Sea - Montego Bay 10 December 1982

BINDING

See discussion in Part 3.5

(17) Convention on Early Notification of a Nuclear Accident - Vienna 26 September 1986

BINDING

Pursuant to Article 1, the Convention applies to any accident involving facilities or activities of a State Party or of persons or legal entities under its jurisdiction or control, from which a release of radioactive material occurs or is likely to occur and which has resulted or may result in an international transboundary release that could be of or radiological safety significance for another State.

According to Article 1 paragraph 2, such facilities and activities include inter alia *"the transport and storage of nuclear fuels or radioactive wastes"* and *"the manufacture, use, storage, disposal and transport of radioisotopes for agricultural, industrial, medical and related scientific and research purposes"*.

In the event of a nuclear accident during transport, the State Party concerned has to immediately notify, directly or through the IAEA, those States which are or may be physically affected and the IAEA of the accident, its nature, the time of its occurrence and its exact location where appropriate. Furthermore, that State Party should promptly provide additional information, when available, relevant to minimizing the radiological consequences in those States that may be affected.

(18) Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency - Vienna 26 September 1986

BINDING

The Convention aims at establishing an international framework which will facilitate the prompt provision of assistance in the event of a nuclear accident or radiological emergency in order to mitigate its consequences. Pursuant to Article 1, States Parties are required to co-operate between themselves and with the IAEA to

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facilitate prompt assistance to minimize the consequences of a nuclear accident or radiological emergency and to protect life, property and the environment from the effects of radioactive releases.

While the text of the Convention does not regulate the transport of radioactive material, the Convention may apply in the case of an accident or radiological emergency which may occur while such material is being transported. In such a case the assisting mechanisms set out in the Convention may be initiated.

A State Party could request assistance from any other State Party, directly or through the IAEA, or from other international organizations whether or not such accident or emergency originates within its territory, jurisdiction or control. Each State Party receiving such a request shall promptly decide and notify the requesting State, directly or through the IAEA, of the scope and type of assistance that may be rendered.

(19) Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention - Vienna 21 September 1988

BINDING

The Joint Protocol establishes a link between the Vienna Convention and Paris Convention, enabling a mutual extension of the benefits of the special regime of civil liability for nuclear damage set forth under each Convention. The Joint Protocol provides for a choice of law rule to determine which of the two Conventions should apply to the exclusion of the other in respect to a nuclear incident occurring in a nuclear installation and in case of a nuclear incident outside a nuclear installation and involving nuclear material in the course of transport.

(20) Convention of the Control of Transboundary Movements of Hazardous Wastes and their Disposal - Basel 22 March 1989

BINDING

See Discussion in Part 3.11

(21) Convention on Civil Liability For Damage Caused During Carriage of Dangerous Goods by Road, Rail and Inland Navigation Vessels - UNECE/ITC New York 1990

BINDING – NOT IN FORCE

This Convention establishes uniform rules to ensure adequate and speedy compensation for damage caused during carriage of dangerous goods by road, rail and inland navigation vessels. It contains provisions on liability, limitation of liability, compulsory insurance, and claims and actions.

Article 1(9) of Convention provides that dangerous goods means any substance or article which is either listed in the classes, or covered by a collective heading of the classes of the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) or is subject to the provision of that agreement, which includes radioactive material.

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(22) Energy Charter Treaty and one Protocol-Lisbon 17 December 1994

BINDING

The Treaty establishes a legal framework in order to promote long-term cooperation in the energy field. It recognizes inter alia the need for measures to protect the environment, including the decommissioning of energy installations and waste disposal.

Article 19 of the Treaty covers the full energy cycle, which is defined as the entire energy chain, including activities related to prospecting for, exploration, production, conversion, storage, transport, distribution and consumption of the various forms of energy, and the treatment and disposal of wastes, as well as the decommissioning, cessation or closure of these activities, minimising harmful environmental impacts. The Treaty is complemented by a Protocol on Energy Efficiency and related Environmental Aspects having the same scope of application.

(23) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management - Vienna 5 September 1997

BINDING - NOT IN FORCE

See Discussion in Part 3.

(24) Convention on Supplementary Compensation for Nuclear Damage – Vienna 12 September 1997

BINDING

The Convention is a freestanding instrument, which may be adhered to by all States irrespective of their participation in the Vienna or Paris Conventions. Its objectives are to create a global regime for dealing with legal liability for nuclear damage and to establish an international fund that guarantees compensation for nuclear damage in addition to that available under national law.

In general, the Supplementary Compensation Convention prescribes the same liability rules as the Vienna and Paris Conventions, and reflects most of the enhanced provisions in the 1997 Protocol to amend the Vienna Convention, such as the enhanced definition of nuclear damage and the coastal States' exclusive jurisdiction in case of an incident within its exclusive economic zone (EEZ). In order to join the Supplementary Compensation Convention, States not party to either the Vienna or the Paris Convention must have in place legislation that is consistent with the provisions contained in the Annex to the Convention.

The Convention also establishes a system of supplementary compensation for nuclear damage based on public funds to be made available by the Contracting Parties in the event of a nuclear incident causing damage in excess of the national compensation amount to be made available by the Installation State.

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(25) Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage - Vienna 12 September 1997

BINDING

The Protocol provides, *inter alia* for:

- (a) the coverage of nuclear damage suffered in a Non-Contracting State; an exception is allowed if such a State has a nuclear installation and does not afford reciprocal benefits;
- (b) an enhanced definition of nuclear damage which covers costs of reinstatement of damaged environment;
- (c) costs of preventive measures;
- (d) a substantially higher minimum liability limit (at least 300 million SDR's which may be divided between the liable operator and the Installation State);
- (e) an extension of the period for submission of claims for loss of life and personal injury to 30 years.

At the same time, the fundamental principles of nuclear liability set forth in the Vienna Convention, such as no-fault liability and channelling of liability to the operator, are preserved.

The Protocol also contains a provision which lays down as a difference to the existing rule in the Vienna Convention, that in case of incidents within a State Party's EEZ or an area not exceeding its limits, jurisdiction over actions concerning nuclear damages shall lie with the courts of that State. The provisions in the 1963 Vienna Convention that deal with transport (Article II) remain unchanged.

(26) The International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on board Ships (INF Code) – London 27 May 1999

BINDING

See Discussion in Part 3.5

(27) International Maritime Dangerous Goods (IMDG) Code – London 24 May 2002

BINDING

See Discussion in Part 3.5

4.2 Global Instruments, Non-Binding

(28) ILO Recommendation Concerning the Protection of Workers Against Ionizing Radiation - Geneva June 1960

NON-BINDING

This Recommendation applies to all activities involving exposure of workers to ionizing radiation in the course of their work. The Recommendation contains provisions on maximum permissible levels, competent persons, methods of protection, monitoring, medical examination, inspection and notification, and co-operation of

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employers and workers. Transport of radioactive material though not specifically addressed appears to be a part of the activities covered by the Recommendation.

(29) Vienna Declaration - adopted by the Regional Conference on Transport and the Environment, Vienna 12-14 November 1997

NON-BINDING

This declaration aims at reducing the negative impact of transport on the environment and human health by promoting measures to reach volumes and patterns of transport that are compatible with sustainable development. Part VI of the Declaration addresses dangerous goods, hazardous and radioactive wastes. It calls on Parties to the Declaration to take due account of the United Nation Recommendations on the Transport of Dangerous Goods and of the IAEA Transport Regulations. Parties to the Declaration should also consider accession to the international agreements and conventions elaborated under the auspices of the UNECE, ICAO, IMO and other relevant organisations which regulate the transport of dangerous goods and hazardous and radioactive wastes by specific modes of transport to facilitate their safe movement. The Parties also adopted a Programme of Joint Action concerning the promotion of safe transport of dangerous goods. This Programme inter alia calls for seminars, and/or educational programmes for transport operators, training workshops, especially for countries in transition; enforcement of the provisions in force concerning the transport of dangerous goods; and the need to take the necessary steps to ensure appropriate training of all personnel involved in transport of dangerous goods.

(30) Code of Conduct on the Safety and Security of Radioactive Sources (revised – 2003) and supplementary Guidance on the Import and Export of Radioactive Sources

NON-BINDING

The text of the revised Code of Conduct on the Safety and Security of Radioactive Sources (the Code) was approved by the IAEA Board of Governors in September 2003 and endorsed by the IAEA General Conference in resolution GC(47)/RES/7.

The Code applies to all radioactive sources that may pose a significant risk to individuals, society and the environment, as referred to in Annex I of the Code. The main objectives of the Code are to achieve and maintain a high level of safety and security of radioactive sources; prevent unauthorized access or damage to, and loss, theft or unauthorized transfer of, radioactive sources, so as to reduce the likelihood of accidental harmful exposure to such sources or the malicious use of such sources to cause harm to individuals, society or the environment; and mitigate or minimize the radiological consequences of any accident or malicious act involving a radioactive source.

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This Code relies on existing international standards relating to nuclear, radiation, radioactive waste and transport safety and to the control of radioactive sources and is intended to complement existing international standards in these areas.

Concerning transport, the Code requires that every State which authorizes the import or export of a radioactive source should take appropriate steps to ensure that such import or export is conducted in a manner consistent with existing relevant international standards relating to the transport of radioactive materials. Moreover, the transport of radioactive sources through the territory of a transit or trans-shipment state should be conducted in a manner consistent with existing relevant international standards relating to the transport of radioactive materials, paying careful attention to maintaining continuity of control during international transport.

The Code is complemented by Guidance on the Import and Export of Radioactive Sources.

(31) Nuclear Security Recommendations on the Physical Protection of Nuclear Material and Nuclear Facilities. INFCIRC/225/Rev.5 – Vienna January 2011

NON-BINDING

This publication applies to the physical protection of nuclear material, including its physical protection during transport, against malicious acts. It provides guidance on how to develop, implement and maintain a physical protection regime covering, inter alia, nuclear material to reduce the risk of malicious acts involving that material. International transport is one element of a State's physical protection regime covered by the publication which provides that the responsibility of a State for ensuring that nuclear material is adequately protected extends to the international transport thereof, until that responsibility is properly transferred to another State, as appropriate.

Section 6 of the publication focuses on the requirements for measures against the unauthorised removal and sabotage of nuclear material during transport, following a graded approach.

(32) Regulations for the Safe Transport of Radioactive Material - 2012 Edition – Specific Safety Requirements - No. SSR-6 - International Atomic Energy Agency - Vienna

NON-BINDING

See discussion in Part 3.

(33) Recommendations on the Transport of Dangerous Goods – Model Regulations - Twentieth revised edition - United Nations - New York and Geneva, 2017

NON-BINDING

See discussion in Part 3.

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4.3 Regional Instruments and Regulations

4.3.1 Europe, Binding

(34) Convention concerning the Regime of Navigation on the Danube – Belgrade 18 August 1948

BINDING

This document covers the navigation regime on the river Danube notably providing for free navigation for vessels of commerce and goods of all States. The Convention also establishes a Danube Commission with various functions such as supervision of the implementation of the Convention, providing recommendations to the Danubian States and the exchange of information with "*the Special River Administrations*".

Article 26 provides for "*sanitary and police regulations on the Danube*". Such regulations may cover the transport of dangerous goods including the transport of radioactive material.

(35) Treaty establishing the European Atomic Energy Community (Euratom-Treaty) - Rome 25 March 1957

BINDING

The European Atomic Energy Community issued, under the authority of this treaty, some binding instruments, concerning the Member States, and covering the transport of radioactive material.

(36) Treaty establishing the European Economic Community - Rome - 25 March 1957

BINDING

The European Economic Community issued, under the authority of this treaty, some binding and non-binding instruments, covering the transport of dangerous goods, including the radioactive materials designated as Class 7.

(37) European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), Geneva 30 September 1957 and 1993 Protocol of amendment

BINDING

See discussion in Part 3.8

(38) Convention on Third Party Liability in the Field of Nuclear Energy as Amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1982 - Paris 29 July 1960

BINDING

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The Paris Convention is a regional instrument concluded under the auspices of the OECD. This instrument first established special private law rules that inter alia hold the operator of a nuclear installation strictly and exclusively liable for nuclear damage that results from nuclear incidents at the operator's nuclear installation or during transport to and from the nuclear installation - "*legal channelling*". The instrument also establishes a minimum amount of liability of the operator, which must be covered by some form of financial security, e.g. insurance. Terms such as "operator", "nuclear incident", "nuclear damage", "nuclear installation", "nuclear substances" etc. are defined.

Legal channelling is preserved in cases of transport between operators of nuclear installations, subject to the proviso that national legislation may permit the carrier to voluntarily assume the operator's liability (Article 4).

(39) Convention Supplementary to the Paris Convention of 29th July 1960 as amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1982 - Brussels 31 January 1963

BINDING

This instrument builds upon the Paris Convention and establishes additional funding beyond the amount available under the Paris Convention, consisting of contributions by the Installation State and Contracting Parties.

(40) Nordic Mutual Emergency Assistance Agreement in Connection with Radiation Accidents - Vienna 17 October 1963

BINDING

This Convention provides for mutual assistance of in the event of an incident involving damage from ionizing radiation, and for the establishment of terms upon which a Contracting Party may request assistance by another Contracting Party or by the IAEA. An incident involving damage from ionizing radiation, may include an accident during transport.

(41) Revised Convention on the Navigation of the Rhine and four Protocols and Regulations Concerning the International Carriage of Dangerous Goods by the Rhine ADNR - Mannheim 17 October 1969

BINDING INSTRUMENT

See discussion in Part 3.8

(42) Convention for the Protection of the Mediterranean Sea Against Pollution and three protocols - Barcelona 16 February 1976, amended 10 June 1995

BINDING

The objectives of the Convention, at least according to the old text, is to prevent, abate and combat pollution of the Mediterranean Sea area and to protect and enhance the marine environment in that area.

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This Convention does not apply directly to the transport of radioactive material but covers the pollution caused by dumping from ships and aircraft, by discharges from ships, resulting from exploration and exploitation of the continental shelf and the seabed and its subsoil, and due to land-based sources. However, Article 5 notes that *“in the case of release or loss overboard of harmful substances in packages, freight containers, portable tanks or road and rail tank wagons, the Parties shall cooperate as far as practicable in the salvage and recovery of such substances so as to reduce the danger of pollution of the marine environment”*.

The Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and Their Disposal, which was adopted in Izmir 1 October 1996, is more related to transport. It is similar to the Basel Convention, applied to the area of Mediterranean, but differs from the Basel Convention in that it covers radioactive wastes. The scope of the Protocol is to prevent, abate and eliminate pollution of the Protocol area which might be caused by transboundary movement and disposal of hazardous wastes. It prohibits the export and transit of hazardous wastes to developing countries and import and transit by states which are not Member States of the European Community. Transboundary movement through the territorial sea requires a defined procedure of notification. It should be also ensured that such a movement is consistent with international safety standards and financial guarantees.

(43) Convention on Long Range Transboundary Air Pollution and subsequent Protocols - Geneva 13 November 1979

BINDING

This Convention reinforces international cooperation for combating air pollution. It provides for exchange of information, consultations and the development of policies, scientific activities and technical measures within and among States Parties to combat the discharge of air pollutants.

Article 1 of the Convention defines air pollution as the introduction by man, directly or indirectly, of substance or energy into the air resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and material property and impair or interfere with amenities and other legitimate uses of the environment.

(44) Council Directive 84/467 Euratom of 3 September 1984 as amended by the Directive 96/29 Euratom of 13 May 1996 laying down basic safety standards for the health protection of the general public and workers against the danger of ionizing radiation.

BINDING

This Directive applies to all practices which involve a risk from ionizing radiation emanating from e.g. the production, processing, handling, use, holding, storage, transport, import and export from the Community and disposal of radioactive substances.

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- (45) Council Directive 89/618/Euratom of 27 November 1989 on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency.**

BINDING

This Directive is intended to define, at Community level, common objectives with regard to measures and procedures for informing the general public for the purpose of improving the operational health protection provided in the event of a radiological emergency. According to the Directive it applies to accidents and detection of abnormal levels of radioactivity which result from a significant release of radioactive material that is attributable to facilities or activities e.g. the transport and storage of nuclear fuels or radioactive waste. The manufacture, use, storage, disposal and transport of e.g. radioisotopes for agricultural, industrial and related scientific and research purposes are within the scope of the Directive.

- (46) Fourth ACP-EEC Convention - Lome 15 December 1989**

BINDING

This cooperation Convention between the European Economic Community and ACP States taking into account the first, second and third ACP-EEC conventions aims at promoting and expediting the economic, cultural and social development of the ACP States, and to consolidate and diversify their relation in a spirit of solidarity and mutual interest.

Article 39 of the Conventions determines that *“the Contracting Parties undertake, for their part, to make every effort to ensure that international movements of hazardous waste and radioactive waste are generally controlled, and they emphasise the importance of efficient international cooperation in this area”*. The Community therefore *“shall prohibit all direct or indirect export of such waste to the ACP States while at the same time the ACP States shall prohibit the direct or indirect import into their territory of such waste from the Community or from any other country”*.

These provisions however do not prevent a Member State to which an ACP State has chosen to export waste for processing from returning the processed waste to the ACP State of origin. As to the definition of radioactive waste, the applicable definitions and thresholds shall be those which will be laid down in the framework of the IAEA.

- (47) Convention on Environmental Impact Assessment in a Transboundary Context - Espoo 25 February 1991**

BINDING

According to this Convention Contracting Parties shall, either individually or jointly, take all appropriate and effective measures to prevent, reduce and control significant adverse transboundary environmental impact from proposed activities. The activities listed cover *“nuclear power stations”* and other *“nuclear reactors”*, except certain research installations, and *“installations solely designed for the production or enrichment of nuclear fuels,*

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for the reprocessing of irradiated nuclear fuels or for the storage, disposal and processing of radioactive waste”.

Off-site transport of radioactive material is not covered by this Convention.

(48) Council Directive 92/3/Euratom of 03 February 1992 on the supervision and control of shipments of radioactive wastes between Member States and into and out of the Community.

BINDING

This Directive applies to shipments of radioactive waste between Member States and into or out of the Community. Shipment is defined as transport operations from the place of origin to the place of destination including loading and unloading of radioactive waste. According to the Directive transport operations which are necessary for shipment of radioactive wastes shall comply with Community and national provisions and with international agreements on the transport of radioactive wastes. The Directive further provides for specific control procedures for any shipment of radioactive waste.

(49) Convention for the Protection of the Marine Environment of the Baltic Sea Area - Helsinki 09 April 1992

BINDING - NOT IN FORCE

Like the former Convention for the Protection of the Marine Environment of the Baltic Sea area adopted in Helsinki on 22 March 1974, this text covers the protection of the marine environment of the Baltic Sea area, which comprises the water body and the seabed including their living resources and other forms of marine life. The purpose of the convention is to prevent and eliminate pollution in order to promote ecological restoration of the Baltic Sea Area and the preservation of its ecological balance. Dumping of all material other than dredged material is prohibited under the Convention. A similar kind of *force majeure* clause as in London (Dumping) Convention 1972 is included in Helsinki Convention.

Annex I defines harmful substances, including radioactive substances and wastes.

Article 27 of the Convention safeguards certain freedoms and reads: *“Nothing in this convention shall be constructed as infringing upon the freedom of navigation, fishing, marine scientific research and other legitimate uses of high seas, as well as upon the right of innocent passage through the territorial sea.”*

(50) Convention on the Protection of the Black Sea against Pollution – Bucharest 21 April 1992

BINDING

This convention addresses the need for cooperation in the preservation of the marine environment of the Black Sea and the protection of its living resources against pollution. It covers cooperation with competent international organisations based on a concerted regional approach for the protection and enhancement of the marine environment of the Black Sea.

According to the Convention, Contracting Parties shall prevent pollution of the marine environment of the Black Sea by hazardous substances, from land based sources, vessels and from activities on the continental-shelf by

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dumping from or through the atmosphere and due to transboundary movement. Annex I to the Convention includes radioactive substances and wastes including spent fuel.

(51) Convention on the Protection of the Marine Environment of the North East Atlantic, Oslo and Paris Convention (OSPARCOM), Paris 22 September 1992

BINDING - NOT IN FORCE

The Oslo and Paris Convention merged and replaced two conventions regarding the same sea area (North East Atlantic): The Convention on Prevention of Marine Pollution by Dumping from Ships and Aircraft, Oslo Convention, 1972; and, the Convention on prevention of Marine Pollution from Land-Based Sources, Paris Convention, 1974.

The purpose of the Convention is to prevent and eliminate pollution and protect the marine environment against the adverse effects of human activities so as to safeguard human health and to conserve marine ecosystems and, when practicable, restore marine areas which have been adversely affected.

Annexes II and III of the Convention which deal with dumping from ships and offshore installations, respectively, specifically state that dumping of low and intermediate level radioactive substances, including wastes is prohibited a *force majeure* clause is included in these Annexes but also the obligation to the Contracting Parties to take appropriate measures to prevent and eliminate pollution resulting from the abandonment of vessels and aircraft in the maritime area caused by accidents. Radioactive materials and wastes are included in the list of harmful substances.

(52) Council Regulation (EURATOM) 1493/93 Euratom on shipments of radioactive substances between Member States - 8 June 1993

BINDING

See discussion in Part 3.11

(53) Convention on Civil Liability for Damage Resulting from Activities Dangerous for the Environment - Lugano 21 June 1993

BINDING - NOT IN FORCE

This Convention aims at ensuring adequate compensation for damage resulting from activities dangerous to the environment and provides for means of prevention and reinstatement. Dangerous activities include the production, handling, storage, use or discharge of one or more dangerous substances or any operation of a similar nature dealing with such substances, including radioactive material.

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- (54) **Council Directive 93/75/EEC of 13 September 1993 concerning minimum requirements for vessels bound for or leaving Community ports and carrying dangerous or polluting goods.**

BINDING

Member States take all necessary and appropriate measures to ensure that the masters or operators of vessels bound for or leaving a Community port and carrying dangerous or polluting goods in bulk or in packaged form, as well as shippers of such goods observe the requirements of notification.

- (55) **Commission Decision 93/552/Euratom of 1 October 1993 establishing the standard document for the supervision and control of shipments of radioactive waste referred to in Council Directive 92/3/Euratom**

The decision establishes a uniform document for the various cases covered by Council Directive 92/3/Euratom.

- (56) **Council Directive 95/50/EC of 6 October 1995 on uniform procedures for checks on the transport of dangerous goods by road.**

BINDING I

This Directive applies to checks carried out by Member States on transport of dangerous goods by road in vehicles traveling in their territory or entering it from a third country.

- (57) **European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) - Geneva, 26 May 2000**

BINDING INSTRUMENT

See discussion in Part 3.

- (58) **European Council Directive 2006/117/Euratom on the Supervision and control of Shipments of Radioactive Waste between EU Member States and into and out of the European Community, 20 November 2006**

BINDING

This Directive replaced previous legislation containing the rules applicable for authorising the movement of radioactive waste from one country to another and extended these rules to spent nuclear fuel, whether it is intended for disposal or for reprocessing, while making the rules easier to apply and more consistent with other EU and international provisions. It lays down a standardised system of controls and authorisations for the transboundary shipments of radioactive waste and spent fuel, from the point of origin to the destination, and prevents illegal trafficking in them.

It applies both to shipments between Member States and to imports into and exports out of the Community. It ensures that the Member States of destination and of transit are informed about movements of radioactive waste or spent fuel to or through their country and that they have an opportunity to object to, or impose conditions, in relation to a shipment of radioactive waste or spent fuel which requires their consent.

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As well, the mandatory acknowledgement of receipt of the application by the authorities of the countries of destination and transit, together with the extension of the period for granting consent, allow tacit approval to be assumed with a high degree of certainty.

As regards exports, the authorities of the third country of destination should not only be informed of the shipment, but should also give their consent to it. Export of radioactive waste to certain places is totally forbidden, e.g. to the Antarctic, to the parties to the Cotonou ACPEC

Agreement or to States which do not have the administrative and technical capacity and regulatory structure to manage the radioactive waste or spent fuel safely.

EC Directive 2006/117 is fully consistent with the existing legislation for the health protection of workers and the population against the dangers arising from ionising radiation. It also ensures consistency with international Conventions, in particular with the Joint Convention.

European Commission Decision 2008/312/Euratom of 5 March 2008

This Decision established the standard document for the supervision and control of shipments of radioactive waste and spent fuel, referred to in Article 17 of EC Directive 2006/117. This standard document is made available in electronic form and is used for any shipments of radioactive waste or spent fuel between EU Member States, or into, out of and through the EC, which come within the ambit of EC Directive 2006/117.

Moreover, on 4 December 2008, the Commission issued Recommendation 2008/956/Euratom on the criteria for the export of radioactive waste and spent fuel to third countries. The Recommendation clarifies the main requirements relating to the export of radioactive waste or spent fuel to third countries, referred to in Article 16(1)(c) of EC Directive 2006/117, as well as the criteria which EU Member States should take into consideration to evaluate whether the above requirements are met. In doing so, the Recommendation draws a distinction between "leading" criteria and "additional" criteria. The former include amongst others "*IAEA membership and resultant adherence to the relevant safety standards of the International Atomic Energy Agency*" and the "*signature and ratification of, and compliance with the Joint Convention on the Safety of Radioactive Waste Management and the Safety of Spent Fuel Management, the Convention on Nuclear Safety, the Vienna Convention on Civil Liability for Nuclear Damage, the Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage, the Convention for Supplementary Compensation for Nuclear Damage or the Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960, as amended by the Additional Protocol of 28 January 1964 and by the Protocol of 16 November 1982*". The latter encompass the "*signature and ratification of, and compliance with the Convention on Assistance in the Case of a Nuclear Accident and Radiological Emergency and the Convention on Early Notification in a Nuclear Accident, to demonstrate that appropriate information will be given to the affected population in the event of a radiological emergency and that adequate protective and corrective measures, including the preparation and testing of emergency plans, will apply in the event of a radiological emergency in order to control the release and mitigate its effects*".

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Finally, the Recommendation invites the competent authorities of the Member States to cooperate, with a view to exchanging information on its application.

(59) European Parliament and Council Directive 2008/68/EC of 24 September 2008 on the inland transport of dangerous goods.

BINDING

This Directive sets out the details for applying the requirements of ADR, RID and ADN to domestic traffic in Member States of the European Union. See discussion in Part 3.

(60) European Council Directive 2011/70/EURATOM Establishing a EU Community Framework for the Responsible and Safe Management of Spent Fuel and Radioactive Waste – 19 July 2011

BINDING

Council Directive 2011/70/Euratom requires that radioactive waste shall be disposed of in the EU Member State in which it was generated, unless at the time of shipment an agreement, taking into account the criteria established by the EC in accordance with Article 16(2) of EU Council Directive 2006/117/Euratom, has entered into force between the EU Member State concerned and another EU Member State or a third country to use a disposal facility in one of them. Prior to a shipment to a third country, the exporting EU Member State shall inform the EC of the content of any such agreement and take reasonable measures to be assured that:

- the country of destination has concluded an agreement with the EU covering spent fuel and radioactive waste management or is a party to the Joint Convention;
- the country of destination has radioactive waste management and disposal programmes with objectives representing a high level of safety equivalent to those established by this directive; - the disposal facility in the country of destination is authorised for the radioactive waste to be shipped, is operating prior to the shipment, and is managed in accordance with the requirements set down in the radioactive waste management and disposal programme of that country of destination.

The above provisions do not apply to shipment of spent fuel of research reactors to a country where research reactor fuels are supplied or manufactured, taking into account applicable international agreements.

The directive does not affect the right of a EU Member State or an undertaking in that EU Member State to return radioactive waste after processing to its country of origin where:

- the radioactive waste is to be shipped to that Member State or undertaking for processing; or - other material is to be shipped to that Member State or undertaking with the purpose of recovering the radioactive waste.

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Finally, the directive does not affect the right of a EU Member State or an undertaking in that EU Member State to which spent fuel is to be shipped for treatment or reprocessing to return to its country of origin radioactive waste recovered from the treatment or reprocessing operation, or an agreed equivalent.

(61) Regulations of Dangerous Goods Transport (Annex 2 to Agreement on International Goods Transport by Rail (SMGS). July 2015

Agreement on International Goods Transport by Rail (SMGS) is in force from November 1951). The Regulations are based on and correspond to appropriate Regulations Concerning the International Carriage of Dangerous Goods by Rail (RID) of Convention Concerning International Carriage by Rail (COTIF), Appendix C.

See discussion in Part 3.8.2.

(62) Regulations for DG Shipments on Railways of Society of Independent States (SIS). November 2015

Regulations for DG Shipments on Railways have been put in force at the 15th meeting of by Council on rail transport of SIS member state, protocol of 05.04.96. Now the Regulations are in force with the changes of November 2015.

Shipments of DG between the states where railway (in accordance internal legislative – carriers, owners of infrastructure of rail public) are participants of SMGS, but are not member of SIS, are regulated by annex 2 of SMGS (see (73) above), and shipments between the member state of SIS and member, where railway are not participants of SMGS, carried out on the base of special agreements .

See discussion in Part 3.8.2.

4.3.2 Africa - Binding

(63) Convention on the Ban of the Import of Hazardous Wastes into Africa and on the Control of their Transboundary Movements within Africa - Bamako 30 January 1991

BINDING

This Convention aims at establishing an effective control system to the import of hazardous waste into Africa, to ban on dumping of hazardous wastes at sea in internal waters and waterways and to minimise the transboundary movements of hazardous wastes on the continent.

Article 1 of the Convention provides that transboundary movement means *“any movement of hazardous wastes from an area under the national jurisdiction of any State to or through an area under the national jurisdiction of another State, or to or through an area not under the national jurisdiction of another State, provided at least two States are involved in the movement”*.

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Article 2 provides that “wastes which, as result of being radioactive, are subject to any international control systems, including international instruments, applying specifically to radioactive materials, are included in the scope of this Convention” (emphasis added).

(64) The African Nuclear-Weapon-Free Zone Treaty (the Treaty of Pelindaba) and Protocols - Cairo 11 April 1996

BINDING - NOT IN FORCE

This treaty aims at promoting regional cooperation for the development and practical application of nuclear energy for peaceful purposes in the interest of sustainable social and economic development of Africa, through the establishment of nuclear weapon free zone in this region. Nuclear material is defined as “any source material or special fissionable material as defined in article XX of the Statute of the International Atomic Energy Agency (IAEA) and as amended from time to time by the IAEA”. The Treaty does not specifically address transport of radioactive material.

Article 7 of the Convention specifically addresses the issue of dumping radioactive wastes and provides:

"Each Party undertakes:

(a) to effectively implement or to use as guidelines the measures contained in the Bamako Convention on the Ban of the Import into Africa and Control of Transboundary Movement and Management of Hazardous Wastes within Africa in so far as it is relevant to radioactive waste;

(b) not to take any action to assist or encourage the dumping of radioactive wastes and other radioactive matter anywhere within the African nuclear-weapon-free zone".

4.3.3 Latin America and the Caribbean - Binding

(65) Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (the Treaty of Tlatelolco) Mexico, 14 February 1967.

BINDING

The Contracting Parties to this Treaty undertake to use exclusively for peaceful purposes the nuclear material and facilities which are under their jurisdiction, and to prohibit and prevent in their respective territories: the testing, use, manufacture, production or acquisition by any means whatsoever of any nuclear weapons, by the Parties themselves, directly or indirectly, on behalf of anyone else or in any other way; and the receipt, storage, installation, deployment and any form of possession of any nuclear weapons, directly or indirectly, by the Parties themselves, by anyone on their behalf or in any other way.

The Contracting Parties also undertake to refrain from engaging in, encouraging or authorizing, directly or indirectly, or in any way participating in the testing, use, manufacture, production, possession or control of any nuclear weapon.

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The Treaty does not specifically address transport of nuclear material, although statements deposited upon ratification by certain nuclear weapon States preserved their respective rights related to freedom of the seas and transport of nuclear material within the zone of application of the Treaty.

(66) Joint Declaration concerning Radioactive Waste Transportation, Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean. - Mexico City 5 February 1998.

BINDING

The declaration reiterates the profound concern of State Parties of the treaty for the prohibition of nuclear weapons in Latin America and the Caribbean (Treaty of Tlatelolco) for the risks that high level nuclear waste transit represents for the health and life of the peoples as well as for the preservation of the marine and land environment of the region.

This text also appeals to the International Community to strengthen through the International Organizations the strict Regulation of transportation of radioactive material so as to include legal obligations in order to grant safety measures guarantees, pollution prevention dispositions, contingency plans in case of disasters and opportune interchange of information among the involved countries.

(67) The Inter-American Convention on Contracts for the International Carriage of Goods by Road,-Montevideo 15 July 1985

BINDING - NOT IN FORCE

The Convention applies to the international carriage of goods by road between States Parties. Article 5(I) of the Convention provides that a bill of lading shall include "when necessary, on express statement that the goods are dangerous, contaminating or harmful".

4.3.4 Latin America and the Caribbean - non-binding

(68) Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region and one Protocol - Cartagena de Indias 30 March 1986

BINDING

This Convention aims at the reduction and control of pollution in the wider Caribbean region and at ensuring the sound environmental management of resources in this region. This text does not apply directly to the transport of radioactive material. The Convention addresses the pollution from ships, caused by dumping, by land-based sources, resulting from sea-bed activities, and airborne pollution. Article 10 establishes and provides for the possibility to create specially protected areas in the region subject to the Protocol Concerning Specially Protected Areas and Wildlife to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, adopted in Kingston on 18 January 1990. The Convention contains no definition of the term "pollution".

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(69) Regional Agreement on the transboundary movement of hazardous wastes - Panama 11 December 1992

BINDING - NOT IN FORCE

The Agreement applies to the transboundary movement of hazardous wastes in the Region of Central America. Waste that due to its radioactivity is subject to other international agreements is excluded from the scope of this Agreement. Article 3 of the Agreement contains inter alia prohibitions relating to import and transit of hazardous waste to or through countries of Central America from countries that are not Parties to this Agreement; the prohibition to dispose hazardous waste into the sea and into internal waters of the State, the need to adopt and apply preventive measures relating to pollution; and, the prohibition to export such hazardous waste to sources that inter alia have prohibited its import according to its national laws. Annex I of the Agreement establishes 21 categories of hazardous waste. Category Y0 includes all waste which contains or is contaminated by radionuclides which concentration or properties may result from human activities.

(70) MERCOSUR/MERCOSUL Agreement of Partial Reach to Facilitate the Transport of Dangerous Goods – Signed by the Governments of Argentina, Brazil, Paraguay and Uruguay in Montevideo, 30 December 1994.

NON-BINDING

The South American Common Market, MERCOSUR/MERCOSUL (in Spanish MERCado Comun del SUR/in Portuguese MERCado Comum do SUL) was signed by Argentina, Brazil, Paraguay and Uruguay. It is a common market for regional integration with the objective of economic development of the States involved. That Common Market includes: (a) free trade of goods and services between the State Parties and adoption of a common commercial policy between them and with other States and regional agreements, (b) to eliminate customs duties and fees on commercial transactions between State Parties and to establish an external common tax, (c) to co-ordinate macro-economic and specific policies between State Parties, and (d) harmonizing legislation in pertinent areas. In the framework of this Common Market the “MERCOSUR/MERCOSUL Agreement of Partial Reach to Facilitate the Transport of Dangerous Goods” was signed in Montevideo (Uruguay) on 30 December 1994. This is a binding instrument, published in Portuguese and Spanish, which regulates the transport of dangerous goods by road, rail, air and sea between the MERCOSUR/MERCOSUL State Parties.

The Agreement was qualified as “of Partial Reach” because its application is limited to the four countries of the MERCOSUR/MERCOSUL group. The Agreement does not apply to the rest of Latin America countries which form part of the “Latin America Integration Association” (ALADI).

In relation to the transport of Classes 1 (explosives) and 7 (radioactive material) and hazardous wastes the requirements of the Agreement and the specific regulations established by the competent authorities of each State Party shall apply. The Agreement is derived from the Seventh Revised Edition of the UN Recommendations of the Committee of Experts on Transport of Dangerous Goods of December 1990. In relation to the transport of radioactive material, the requirements of the Agreement and the specific requirements of each

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MERCOSUR/MERCOSUL State Party are consistent with the 1985 Edition (as amended 1990) of the IAEA's Regulations for the Safe Transport of Radioactive Material, Safety Series No. 6.

These requirements are applied in each country through the correspondent Competent Authority for Class 7 listed in Appendix I.1 of the Agreement.

In addition, the Agreement establishes that shipments of dangerous goods transported by air and sea must comply with the requirements of the ICAO and IMO requirements, respectively, and that such shipments shall be accepted by the MERCOSUR/MERCOSUL countries.

(71) Joint Declaration by Argentina, Brazil, Chile and Uruguay on the Transport of Radioactive Waste - 17 January 1997

NON-BINDING

The declaration expresses concern at the possibility that shipments of radioactive waste from European parts to Japan may use the Cape Horn route and recall that the principles of international law and the relevant national legislation give coastal States jurisdiction with respect to the protection and preservation of the marine environment in their respective exclusive economic zones to prevent, reduce and control contamination in this environment.

The declaration also draws attention to *“the undesirability of such shipments taking place in future with a gradual increase in the quantity and/or hazardousness of the material transported each time”*. This text applies to the transport of radioactive material.

Parties to this document inter alia declare their grave concern at the inter associated with the transit through the region of ships transporting radioactive waste, the intention to adopt in waters under their jurisdiction measures recognized by international law to protect the health of their inhabitants and their marine ecosystems and need to strengthen, within the competent international organisations, the regulations governing the transport of radioactive waste and spent nuclear fuel.

4.3.5 South Pacific

(72) Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific and subsequent protocols - Lima 12 November 1981

BINDING

The Convention aims at the reduction and control of pollution of the marine environment and coastal area of the South-east Pacific region and of ensuring appropriate environmental management of natural resources.

Article 2 defines marine pollution, as *“the introduction by man, directly or indirectly, of substance or energy into the marine environment (including estuaries) which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including*

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fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities". The convention covers the pollution resulting from land-based sources, from or through the atmosphere, and by dumping. The Convention does not specifically address transport of radioactive material. The Protocol for the Protection of the South-east Pacific against Radioactive Pollution adopted in Paipa on 21 September 1989 prohibits all dumping and all burial of radioactive wastes in the sea or the sea bed within the area of the South-east Pacific region. The Protocol for the Conservation and Management of Protected Marine and Coastal Areas in the South-east Pacific adopted in Paipa on 21 September 1989. It establishes the possibility of creating protected areas in the same region. Contracting parties shall take measures to prevent, reduce and control pollution of protected areas and to this end they shall inter alia and to the extent possible prevent, reduce and control transport of "hazardous substances".

(73) Convention for the Protection of the Natural Resources and Environment of the South Pacific Region and one protocol - Noumea 24 November 1986

BINDING

This Convention aims at ensuring prompt and effective action in the event of a pollution emergency or threat thereof. This convention does not apply directly to the transport of radioactive material. A Protocol Concerning Cooperation in Combating Pollution Emergencies in the South Pacific Region, adopted in Noumea 25 November 1986, provides for regional cooperation, exchange of information, mutual assistance, operational measures, and sub-regional and institutional arrangements in the event of pollution incidents.

Article 1 of the Protocol defines "pollution incident" as "a discharge or significant threat of a discharge of oil or other hazardous substance, however caused, resulting in pollution or an imminent threat of pollution to the marine and coastal environment". This definition may include an incident during transport of nuclear material.

(74) Convention to ban the importation into forum island countries of hazardous and radioactive wastes and to control the transboundary movement and management of hazardous wastes within the South Pacific Region (the Waigani Convention) - Port Moresby 16 September 1995

BINDING - NOT IN FORCE

This Convention bans the import of all hazardous wastes and radioactive wastes into Pacific Island Developing Countries. Such imports are deemed to be illegal and criminal acts.

The Convention further contains provisions on a ban on dumping of hazardous and radioactive wastes at sea and calls on Contracting Parties to give active consideration to the implementation of the IAEA Code of Practice on the International Transboundary Movement of Radioactive Wastes and such other international and national standards which are at least as stringent.

Article 6 of the Convention imposes a prior notification and consent procedure with respect to transboundary movement of hazardous wastes (other than radioactive waste) through States of transit.

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(75) South Pacific Nuclear Free Zone Treaty (the Treaty of Rarotonga), Rarotonga 6 August 1985

BINDING

Parties to this Treaty renounce the use of nuclear explosive devices, subscribe to peaceful nuclear activities, strive to prevent the stationing or testing of nuclear explosive devices in their respective territories and inter alia undertake not to dump nor to take any action to assist or encourage the dumping by anyone of radioactive wastes and other radioactive matters at sea anywhere within the South Pacific Nuclear Free Zone.

Upon signature one nuclear-weapon State deposited a statement whereby they proceeded from the premise that transportation of nuclear explosive devices by Parties to the Treaty within the nuclear free zone was included in the prohibition to "exercise control over any nuclear explosive devices ..."

4.3.6 Other Regions - Binding

(76) Regional Convention for the Conservation of the Red Sea and of the Gulf of Aden Environment - Jeddah 14 February 1982

BINDING

This Convention addresses the need for a carefully planned research, monitoring and assessment program in view of the scarcity of scientific information on marine pollution in the region, and the responsibility of the States of the Red Sea and Gulf of Aden to protect the marine environment in the region.

It strengthens the regional cooperation, taking into account the objectives of the Charter of the League of Arab States, and the Charter and Constitution of the Arab League Educational Cultural and Scientific Organisation.

The Convention covers in particular pollution caused by intentional or accidental discharges from ships, by dumping from ships and aircraft, due to land based sources, resulting from exploration and exploitation of the bed of the territorial sea, the continental shelf and the subsoil thereof and by other human activities. Harmful substances are defined as *"any substance whose introduction or presence in the marine environment causes a danger threatening or impairing that environment"*.

(77) Treaty on the South-East Asia Nuclear Weapon-Free Zone and one Protocol - Bangkok 15 December 1995

BINDING

This treaty establishes a nuclear weapon free zone in South-East Asia and at the same time aims at the protection of the region from environmental pollution and the hazard posed by radioactive wastes and other radioactive material.

Article 1 of the Treaty defines that radioactive material as *"material that contains radionuclides above clearance or exemption levels recommended by the International Atomic Energy Agency (IAEA)"*. Radioactive wastes are

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defined as *“material that contains or is contaminated with radionuclides at concentration or activities greater than clearance levels recommended by the IAEA and for which no use is foreseen”*.

According to Article 3 States Parties inter alia undertake not to dump at sea or discharge into the atmosphere anywhere within the Zone radioactive material or wastes, not to allow within the territory of States Parties other States to do so, and unless covered by consent, not to dispose radioactive material or wastes on land in the territory of other States.

Article 7 of the Treaty provides that *“each State Party, on being notified, may decide for itself whether to allow visits by foreign ships and aircraft to its ports and airfields, transit of its airspace by foreign aircraft, and navigation by foreign ships through its territorial sea or archipelagic waters and overflight of foreign aircraft above those waters in a manner not governed by the rights of innocent passage, archipelagic sea lanes passage or transit passage”*.

PART 5 - Implementation

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5. IMPLEMENTATION

Some non-binding instruments have been widely adopted by Member States and International Organizations and made mandatory through conventions and/or domestic legislation and regulation. This can occur by way of direct reference to the instrument, verbatim incorporation or inclusion of the principles and requirements into such binding instruments.

Implementation of uniform international transport safety requirements for radioactive material begins with the establishment of these requirements, with extensive Member State participation, in the IAEA Transport Regulations. These regulations then serve as the basis for Class 7 (radioactive) requirements in the ECOSOC Committee of Experts' Model Regulations, the ICAO Technical Instructions and the IMO IMDG Code which deal with all classes of dangerous goods. At the same time, Member States undertake legislative and regulatory actions to keep their requirements consistent with all four of these sets of requirements to provide an appropriate level of safety as well as inter-modal compatibility.

All the nuclear power producing Member States responding to the survey indicate they have binding regulations governing both domestic and international shipments which are based on the IAEA Regulations.

Global transport regulations exist for air and sea modes of transport but not for land transports for which each Member State has the responsibility to develop and implement. The time required for Member States and International Organizations to adopt requirements based on the IAEA's Transport Regulations varies and as a result the land transport regulations may be based on different editions of the IAEA Transport Regulations. To minimise this possibility, the IAEA and the International Organizations typically agree on a target uniform date for entry into force of the latest edition. Currently the 2013 Edition is mandatory for all transports by air and sea modes.

There is no comprehensive information available on the extent of implementation of the Code of Practice on the International Transboundary Movement of Radioactive Waste.

A table indicating the status of the binding instruments contained in Part 3 will be issued as an addendum to this report.

However, there has also been no notification to the Agency of problems being encountered in the implementation of the Code of Practice. The IMDG Code and INF Code are mandatory under the SOLAS Convention. As of 11 May 2017, the SOLAS Convention 1974 has been ratified by 163 countries and applies to some 99% of the world merchant gross tonnage. For transport by aircraft, the International Standards of the Chicago Convention, Annex 18, Second Edition are applicable and Contracting States are required to notify ICAO of any differences that exist between the International Standards and their national regulations and practices. Eight contracting parties have filed differences or commentary on their implementation. In accordance with Annex 18, the detailed Technical Instructions are also applicable except where Contracting States notify ICAO. These variances are published in the Technical Instructions.