NUCLEAR LAW
BULLETIN No. 58

Contents

December 1996
Nuclear Energy Agency
Organisation for Economic Co-operation and Development

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Pursuant to Article 1 of the Convention signed in Paris on 14th December 1960 and which came into force on 30th September 1961 the Organisation for Economic Co-operation and Development (OECD) shall promote policies designed

- to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy,
- to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development and
- to contribute to the expansion of world trade on a multilateral non-discriminatory basis in accordance with international obligations

The original Member countries of the OECD are Austria, Belgium, Canada, Denmark France Germany Greece, Iceland, Ireland, Italy Luxembourg, the Netherlands, Norway, Portugal Spain Sweden Switzerland Turkey, the United Kingdom and the United States The following countries became Members subsequently through accession at the dates indicated hereafter Japan (28th April 1964) Finland (28th January 1969) Australia (7th June 1971), New Zealand (29th May 1973), Mexico (18th May 1994), the Czech Republic (21st December 1995) and Hungary (7th May 1996) The Commission of the European Communities takes part in the work of the OECD (Article 13 of the OECD Convention)

NUCLEAR ENERGY AGENCY

The OECD Nuclear Energy Agency (NEA) was established on 1st February 1958 under the name of the OEEC European Nuclear Energy Agency It received its present designation on 20th April 1972 when Japan became its first non-European full Member NEA membership today consists of all European Member countries of OECD as well as Australia, Canada, Japan, Republic of Korea, Mexico and the United States The Commission of the European Communities takes part in the work of the Agency

The primary objective of NEA is to promote co-operation among the governments of its participating countries in furthering the development of nuclear power as a safe environmentally acceptable and economic energy source

This is achieved by

- *encouraging harmonization of national regulatory policies and practices with particular reference to the safety of nuclear installations, protection of man against ionising radiation and preservation of the environment, radioactive waste management, and nuclear third party liability and insurance*
- *assessing the contribution of nuclear power to the overall energy supply by keeping under review the technical and economic aspects of nuclear power growth and forecasting demand and supply for the different phases of the nuclear fuel cycle*
- *developing exchanges of scientific and technical information particularly through participation in common services,*
- *setting up international research and development programmes and joint undertakings*

In these and related tasks NEA works in close collaboration with the International Atomic Energy Agency in Vienna, with which it has concluded a Co-operation Agreement, as well as with other international organisations in the nuclear field.

Foreword

It has always been important to us that the contents of the *Bulletin* reflect, as much as possible, current topics in nuclear law That is why in this edition the reader will find several articles and notes devoted to the issues of non-proliferation and nuclear disarmament. the advisory opinion of the ICJ on the lawful use of nuclear arms, the "93 + 2" programme of the IAEA and the text of the CTBT Treaty, for example The development of nuclear legislation in Eastern Europe is illustrated by an analysis devoted to Russia and by the reproduction, in the Supplement, of the Bulgarian Law on the Peaceful Uses of Nuclear Energy

The reader will also find commentaries on the more traditional aspects of nuclear law, such as the articles on the decommissioning of nuclear installations, on the new European Community Directive on basic radiation safety standards or on the manner in which the United States courts are taking into account the ALARA principle

Enjoy your reading

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Nuclear-Weapon-Free Zones: Challenges and Prospects For Non-Proliferation

by Abdelwahab Biad*

INTRODUCTION

The idea of creating denuclearised zones was conceived at the outset as a means of preventing the proliferation of nuclear weapons Did not the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) provide (Article VII) that *"Nothing in this Treaty affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories"*? For 40 years, the United Nations has been examining the question of establishing nuclear-weapon-free zones (NWFZs) in different regions of the world. Strangely enough, the first endeavours to establish such zones concerned uninhabited areas The Treaties on the Antarctic (1959), Outer Space (1967) and the Sea-Bed (1971) prohibit introducing nuclear weapons or other weapons of mass destruction in these three environments The Antarctic was in fact the first NWFZ, established as early as 1959[1]

It proved more difficult to create denuclearised zones in inhabited areas, mostly because of strategic rivalry between the major powers and the nuclear ambitions of States in different regions While the first NWFZ proposals relating specifically to Europe did not bear fruit[2], the agreements finally adopted all concerned the southern hemisphere Five years of negotiations were necessary to finalise the Tlatelolco Treaty (1967), establishing the first NWFZ in an inhabited region, Latin America. This example was followed by the Member States of the South Pacific Forum who adopted in 1985 the Treaty of Rarotonga, though the nuclear tests at Mururoa constituted a barrier to the functioning of the Treaty for some ten years Twenty-one years were needed before the call by African countries for the denuclearisation of their continent was to result in the conclusion of the Treaty of Pelindaba in 1995 In the same year, the countries of South-East Asia also followed the nuclear non-proliferation path by adopting a treaty to this effect However, similar proposals for South Asia and for the Middle East have not yet borne fruit, despite constant pressure from the United Nations

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1 See the Antarctic Treaty UN Treaty Series Vol 402 No 5780 The 1959 Treaty (Article I) in fact prohibits military activities in general rather than just nuclear ones But, although the introduction of nuclear weapons is not expressly banned Article V does prohibit nuclear explosions and the disposal of radioactive waste

2 The Rapacki Plan (1956) and proposals for the Balkans and Central and Northern Europe

In spite of the adoption in 1975 by the Conference of the Committee on Disarmament of a study on the question of NWFZs[3], there continues to be a difference of opinion between countries about the definition of this concept, a controversy which has sometimes delayed or even compromised the implementation of the agreements establishing denuclearised zones

Lastly, it should be noted that when establishing a NWFZ, the countries of the region concerned undertake to use nuclear energy for exclusively peaceful purposes which, although legitimate from the viewpoint of international law, has the result of creating obligations for third countries too, in particular for the nuclear powers

I ESTABLISHING NUCLEAR-WEAPON-FREE ZONES

Establishing nuclear-weapon-free zones involves negotiations which are often long and strewn with obstacles, even if the States concerned support the project Paradoxically, the main obstacle is not nuclear powers wishing to spread their nuclear weapons throughout the world, but the nuclear ambitions and capabilities, more or less admitted when not real, of "threshold countries" The process of denuclearisation was relatively easy to implement in the case of Latin America and the South Pacific, but has barely started in Africa and South East Asia after years of endeavour, while it seems to be in difficulty in the Middle East, South Asia and the Korean Peninsula.

1 1. Treaties in Force

There are two Treaties establishing NWFZs in force today, the "Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean" (Treaty of Tlatelolco) and the "South Pacific Nuclear Free Zone Treaty" (Treaty of Rarotonga)

1 1 1 The Treaty of Tlatelolco

The Latin American NWFZ, a Mexican initiative, was set up by the Treaty of Tlatelolco which was opened for signature in February 1967 after five years of negotiations between the Latin American States[4] This NWFZ covers a vast area since it includes all of Latin America and the Caribbean (Article 25), including territories under the authority of extra-regional powers (Additional Protocol I) and neighbouring areas of ocean (both Atlantic and Pacific) (Article 4 paragraph 2)

The fundamental commitment undertaken by all States Parties is to use nuclear energy for peaceful purposes only, and thus not to take part in or encourage military nuclear activities, and not to possess nuclear weapons or to allow them to be deployed on their territory However the Treaty allows Parties to carry out peaceful nuclear explosions under the supervision of the Agency for the Prohibition of Nuclear Weapons in Latin America (OPANAL) This body is also responsible for checking and supervising implementation of the Treaty

Two Protocols have been annexed to the Treaty Protocol I applies to extra-regional States possessing territories within the zone, who are invited not to undertake anything which could

3 United Nations Special Report of the Conference of the Committee on Disarmament, Supplement No 27A (A/10027/Add 1) *Comprehensive Study of the question of nuclear-weapon-free zones in all its aspects* Annex 1

4 See Resolution 1911 (XVIII) of the General Assembly of the United Nations of 1962 adopted in 1962 on the basis of a Mexican proposal

prejudice the objectives of the Treaty[5] Protocol II invites the nuclear powers to respect the statute of the zone and not to use or threaten to use nuclear weapons against the Contracting Parties of the Treaty of Tlatelolco All the countries concerned have acceded to Protocols I and II, accompanying their accession with interpretative declarations restricting the scope of the Protocols Most of these declarations emphasize the incompatibility of extending the NWFZ to vast areas of ocean, with the rules of international law[6]

The Treaty of Tlatelolco has been amended on three occasions in 1990 and 1991 to allow the accession of new Members (Caribbean States and Belize), and in 1992, to improve the system of control[7] In 1994, implementation of the Treaty of Tlatelolco took a decisive step forward with the accession of Argentina, Brazil and Chile following the introduction of amendments[8] While there were doubts for a long time concerning the nuclear programmes of Argentina and Brazil, because of their rivalry and of the control exercised by the military over these programmes, significant progress was made in 1991 with the signature of the bilateral Agreement setting up the ABACC (Argentine/Brazilian Agency for Accounting and Control of Nuclear Materials) responsible, with the help of the IAEA, for undertaking the reciprocal inspection of nuclear installations[9] Today, the Treaty of Tlatelolco is in force in 30 States, and Cuba has announced its intention of acceding

1 1 2 The Treaty of Rarotonga

Ten years after the adoption by the General Assembly of the United Nations of a proposal to create a NWFZ in the South Pacific[10], the Member States of the Pacific Forum signed the Treaty of Rarotonga denuclearising their region This Treaty entered into force in December 1986 The claim for a NWFZ in the South Pacific was aimed in particular at France which had been testing nuclear weapons in the region at regular intervals for 30 years[11]

Each Party to the Treaty of Rarotonga undertakes not to possess nuclear weapons (Article 3) and to prevent the stationing of any such weapons on their territory (Article 5) The Treaty expressly bans nuclear explosive devices (Article 6 and Protocol 3, Article 1), as well as the dumping of radioactive waste in its territorial sea (Article 7)

Three Protocols are annexed to the Treaty, two of which are largely based on those adopted within the framework of the Treaty of Tlatelolco Protocol 1 is addressed to extra-regional States with territorial possessions in the region, who are invited to respect the statute of the zone[12] Protocol 2 concerns the guarantees which nuclear-weapon States are called upon to provide The novel feature of the Treaty of Rarotonga is that a third Protocol has been adopted calling on the nuclear powers not to make nuclear tests in the region China and Russia became Parties to Protocols 2 and 3 in 1988 On

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5 The countries concerned are France the United Kingdom the Netherlands and the United States

6 See in particular the declaration of the United States made when acceding to Protocol II in 1971

7 These amendments related to Articles 14 15 16 19 and 20 See United Nations Document A/47/467 Annex

8 Argentina has signed but not ratified the Treaty Brazil and Chile ratified the Treaty in 1968 and 1974 respectively They were not Parties to the instrument because they had not yet followed the waiver procedure provided for in Article 28

9 See the quadripartite Argentina-Brazil ABACC-IAEA Agreement to ensure the application of the IAEA full-scope safeguards (1995) *Nuclear Law Bulletin* No 56 December 1995 p 107

10 See United Nations Document A/RES/3477 (XXX) of 11 December 1985

11 In 1966 France changed its testing site from the Sahara to the Mururoa and Fangataufa atolls in French Polynesia After a final series of tests widely criticised in Australia and New Zealand President Chirac decided in March 1996 to dismantle the Pacific testing centre

12 The countries concerned are the United States France and the United Kingdom

25 March 1996, the United States, France and the United Kingdom signed Protocols 1, 2 and 3 of the Treaty of Rarotonga, thus enabling it to be implemented[13]

1.2 Treaties to be Implemented

1995 was a good year for regional denuclearisation since it was marked by the adoption of two Agreements, the first concerning the African Continent (Treaty of Pelindaba), and the second, South-East Asia (Treaty signed in Bangkok)

1 2 1 The Treaty of Pelindaba

Since the adoption in 1964 of the Declaration on the denuclearisation of Africa by the Summit of the Organization of African Unity (OAU) meeting in Cairo, the General Assembly of the United Nations has voted on a Resolution on this topic every year Originally, these Resolutions were directed against the French nuclear tests in the Algerian Sahara[14], but after 1978, they were aimed at South Africa, whose nuclear capability led to growing concern on the part of African States who succeeded in establishing that the United Nations should monitor this issue A United Nations expert study showed that there was no doubt that Pretoria had the means required to manufacture and launch nuclear weapons[15] With the collapse of apartheid, the existence of military nuclear capability was confirmed, and the South African authorities decided in 1991 to accede to the NPT, and to submit all their nuclear activities to monitoring by the IAEA[16] The final obstacle to the application of the 1964 Declaration was thus removed

In 1991, a group of experts was asked by the OAU and the UN to examine the elements needed for the future African denuclearisation treaty[17] After several months of negotiations on the basis of the experts' report, the Council of the OAU, on 22 June 1995, adopted the Treaty of Pelindaba (the name of the research centre in which the South Africans were developing the bomb), making the African Continent a NWFZ The Treaty was solemnly approved by the OAU Summit meeting in Cairo on 11 April 1996

The Parties to the Treaty undertake "not to conduct research on, develop, manufacture, stockpile or otherwise acquire, possess or have control over any nuclear explosive device", and not to seek receive, or provide assistance with respect to such activities (Article 3) The Parties also commit themselves to prohibit the stationing or testing on their territory of any nuclear explosive device (Articles 4 and 5)

The Treaty provides that the IAEA and the African Commission on Nuclear Energy (AFCONE), set up by Article 12, are responsible for monitoring the dismantling and destruction of all explosive devices manufactured before the entry into force of the Treaty This provision (Article 6) concerns

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13 See *Nuclear Law Bulletin* No 57/June 1996 p 98

14 See Resolution 1652 (XVI) of 24 November 1961 voted on the initiative of a group of African countries

15 United Nations Documents *South Africa s plans and capabilities in the nuclear field* A/35/402 and *South Africa s Nuclear Tipped Ballistic Missile Capability* A/45/571

16 See IAEA, Document INFICIRC/394

17 See the Report of the Meeting of Experts to examine the Modalities and Elements for the Preparation and Implementation of a Convention or Treaty on the Denuclearization of Africa, UN Document, A/C 1/469 of 17 October 1991

South Africa which, in March 1993, began to dismantle its nuclear devices This means that Africa is the first example of a NWFZ requiring the destruction of nuclear weapons[18]

The Treaty is completed by three Protocols similar to those adopted in relation to the Treaty of Rarotonga The first two are addressed to nuclear-weapon States which are invited not to use or threaten to use nuclear weapons against States Party to the Treaty (Protocol I) and not to carry out any nuclear tests in the region (Protocol II) The third Protocol concerns non-autonomous territories, and invites the powers responsible for them to apply the provisions on denuclearisation[19]

Lastly, it should be noted that the Treaty expressly prohibits the dumping of radioactive waste in Africa Thus, Article 7 provides for application of the provisions on radioactive waste management contained in the Bamako Convention of 1986 Article 10 provides that measures for the security and physical protection of nuclear materials and equipment will be taken, based on the Convention on the physical protection of nuclear material, the Convention on nuclear safety and IAEA Directives

1 2 2 The "Treaty of Bangkok"

In December 1987, the Manila meeting of the Association of South-East Asian Nations (ASEAN) proposed that a NWFZ be established in the region as soon as possible The Treaty on the South-East Asia Nuclear-Weapon-Free Zone was signed in Bangkok on 15 December 1995 by the seven members of ASEAN Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand and Viet Nam, joined also by Cambodia, Laos and Myanmar (Burma) The objectives of the "Treaty of Bangkok"[20] are not only non-proliferation but also the protection of the environment against the hazards resulting from the use of nuclear materials The Treaty includes the same obligations for States Parties as those laid down in other regional denuclearisation treaties not to acquire, manufacture, possess, transport, test or use nuclear weapons (Article 3) The treaty also emphasizes the duty of the Parties not to dump any radioactive materials or wastes in the sea or release them into the atmosphere, and not to allow other countries to carry out such activities A reference is also made to the 1986 Convention on Early Notification of a Nuclear Accident, to which the signatories of the Treaty undertake to accede (Article 6)

Lastly, something which has become customary in this sphere, a Protocol inviting extra-regional powers to respect the zone and not to use or threaten to use nuclear weapons against a State Party within the zone (Article 2) The novelty here is that the use of nuclear weapons is banned not only vis-à-vis State Parties, which is standard in this type of agreement, but more generally in the region This is not unconnected with the somewhat reserved reception given to the Treaty by the United States, the argument being that a State may benefit from the guarantee that nuclear weapons will not be used by the very fact of being located within the zone, without even being a Party to the Treaty[21]

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18 For further details see ALBRIGHT David South Africa and the Affordable Bomb The Bulletin of the Atomic Scientists Vol 50 No 4 July/August 1994 pp 37-47 and STUMPF Waldo South Africa's Nuclear Weapons Program From Deterrence to Dismantlement, Arms Control Today Vol 25 No 10 December 1995/January 1996, pp 3-8

19 This concerns Spain France and the United Kingdom

20 The term 'Treaty of Bangkok has been chosen by the author for reasons of convenience no particular name having been given to the South-East Asia denuclearisation agreement

21 See Arms Control Today December 1995, January 1996 p 23

1.3 Deadlocked Projects

Two projects aimed at creating NWFZs in the Middle East and in South Asia have been under consideration for some 20 years by the United Nations, but have so far not led to the adoption of a treaty because of the unfavourable regional context. A third, more recent, project concerns the Korean Peninsula, but like the two preceding ones, this has come up against political obstacles

1 3 1 The Middle East

Since 1974, the General Assembly of the United Nations has each year adopted a Resolution asking all the States of the Middle East to accede to the NPT and to renounce the development, manufacture, testing or acquisition of nuclear weapons and to refuse permission for them to be deployed on their territory[22] What makes the project for a Middle East NWFZ different from other proposals for regional denuclearisation, is the reference to the NPT It was no doubt felt that the NPT and a NWFZ were complementary, since they share the same objective, namely nuclear non-proliferation Certain States, such as Egypt, consider that accession to the NPT is a precondition for belonging to the zone This is addressed in particular to Israel -- known to possess a significant arsenal of nuclear weapons -- which refuses to accede to the NPT and to subject all its nuclear activities to the IAEA safeguards system[23]

A United Nations study on the question of a NWFZ in the Middle East emphasized the importance of prior confidence measures in the nuclear sphere such as a tacit regional agreement to renounce nuclear testing, the acceptance by Israel of the IAEA safeguards system as regards the Dimona reactor, and the accession to the NPT of all the States in the region[24]

In 1990, Egypt proposed widening the concept of NWFZ to that of a "zone free from weapons of mass destruction", to include chemical and bacteriological weapons and their vectors in the ban[25] The destruction of Iraq's nuclear, chemical and bacteriological installations during the Gulf War [6] showed the urgency of implementing the proposal to establish a zone free from weapons of mass destruction in the Middle East Thus, the NPT Prolongation Conference (1995) adopted a Resolution annexed to the final document, supporting the creation of a zone free from weapons of mass destruction in the Middle East and expressing its concern that there continued to exist in the region nuclear installations not subject to IAEA safeguards[27] Today, the only nuclear installations referred to in this Resolution are in Israel The major powers, and especially the United States, have a particular role to play not only in the Israeli-Arab peace process, but also as regards the denuclearisation of the region

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22 See Resolution 3263 (XXIX) of 9 December 1974 adopted on the basis of an Iranian draft by 128 votes in favour zero against and two abstentions (including Israel)

23 See in particular COHEN Avner *Most Favored Nation* The Bulletin of the Atomic Scientists Vol 51 No 1 January/February 1995 pp 44-53

24 United Nations Document *Effective and Verifiable Measures Which Would Facilitate the Establishment of a Nuclear-weapon-free Zone in the Middle East* A/45/435

25 Disarmament Conference document CD/989 of 20 April 1990

26 Resolution 687 (1991) of the Security Council set up a special United Nations Commission responsible for checking that Iraq no longer has the capacity to produce and develop weapons of mass destruction See in particular EKAEUS Rolf UNSCOM s Experience in the Field of Disarmament, in Disarmament in the Last Half Century and its Future Prospects Disarmament Topical Papers 21 United Nations (N Y) 1995 pp 120-124

27 1995 Conference of the Parties to the Treaty on the Non-proliferation of Nuclear Weapons with the task of examining the Treaty and the question of its prolongation Final document NPT/CONF 1995/32/RES/1

1 3 2 South Asia

Convinced that following the nuclear explosion it carried out in 1974, India became capable of manufacturing a nuclear weapon and consequently of threatening its neighbours, Pakistan has, every year since 1974, pushed for the adoption of a Resolution of the General Assembly of the United Nations recommending that a NWFZ be established in South Asia Pakistan's proposal is based on three essential ideas the obligation for the States of the region to use nuclear energy for peaceful purposes only and not to develop, test, manufacture, acquire, stockpile or use nuclear weapons or systems for launching such weapons, the establishment of an equitable and non-discriminatory system for verification and inspection, an undertaking by the nuclear powers not to use or threaten to use nuclear weapons against the States belonging to the zone

India has considered that the proposal to create a NWFZ in South Asia is unacceptable, since the region does not constitute a distinct geographic zone, but forms an integral part of the Asian continent New Delhi is of the opinion that the proximity of nuclear powers, including China with which it has a dispute, and the presence of nuclear forces in the Indian Ocean, complicate the situation in South Asia For India, the concept of a NWFZ has the major drawback of implicitly legitimising the possession and existence of nuclear weapons in other regions From the Indian viewpoint, nuclear disarmament is indivisible, it is the whole world which should be free from nuclear weapons[28] India thus finds itself in the somewhat uncomfortable position of being the only country in the world officially to reject the concept of a NWFZ What is worse, Pakistan has undeniably succeeded in embarrassing and isolating its Indian rival by obtaining the widespread support of the United Nations for its proposal, including that of the five declared nuclear powers and of practically all the States in the region concerned[29]

In spite of frequent declarations that its nuclear programme is exclusively for peaceful purposes, there is continuing uncertainty about India's real intentions in this sphere, an uncertainty which, it has to be said, is fuelled by a particularly rigid stance on disarmament as illustrated recently by India's opposition to the signature of a Treaty banning all nuclear tests India considers that this type of measure is effective only if included in a programme of nuclear disarmament[30] Frustrated by the failure to denuclearise South Asia, Pakistan has apparently preferred to develop its own nuclear capacity, and the Pakistani authorities announced in 1992 that they were able to manufacture the atomic bomb[31] Given the regional rivalry based on territorial disputes, the prospect of a fourth conflict between India and Pakistan, this time including a nuclear dimension, can unfortunately not be discounted Discussions on the nuclear issue, involving not only India and Pakistan, but also China, Russia and the United States, could be a way of breaking the current deadlock

1 3 3 The Korean Peninsula

The latent conflict between the Republic of Korea and the Democratic People's Republic of Korea (DPRK) gives causes for concern about the risk of nuclearisation of this conflict because of the

28 United Nations documents, 12th special session of the General Assembly A/S-12/PV9 11 June 1982 p 84

29 Since 1987, Bangladesh has been the co-author of the draft Resolution on the question See Resolution A/5, adopted on 12 December 1995 by 154 votes in favour three (including India) against and nine abstentions

30 For an analysis of India s position on disarmament questions, see in particular the article by the Director of the Institute for Defence Studies and Analysis of New Delhi SINGH Jaspit, *La non-prolifération nucléaire au XXIe siècle* Politique étrangere, 3/95, autumn 1995, pp 633-647

31 The Times 8 February 1992

presence of the United States forces in the South and the development by the Pyong-Yong regime of nuclear activities which are not subject to IAEA control[32]

Since the 1980s, the issue of the possible denuclearisation of the Korean Peninsula has been the subject of discussions between the countries concerned and the United States In 1991, the Americans announced their intention to withdraw all nuclear devices deployed in South Korea and the neighbouring sea On 31 December 1991, a joint Declaration on the denuclearisation of the Korean Peninsula was adopted by the two Koreas (and entered into force on 19 February 1992) This Declaration, which does not define in detail the NWFZ to be created, essentially comprises an undertaking by both parties not to test, develop, manufacture, acquire, stockpile, deploy or use nuclear weapons Unusually for regional denuclearisation agreements, both Parties undertake not to develop techniques for enriching or reprocessing uranium The South-North Joint Nuclear Control Commission was set up to ensure compliance with this undertaking

Implementation of the Declaration on the denuclearisation of the Korean Peninsula was delayed by the serious dispute in 1993 between the DPRK and the IAEA concerning the organisation of a special inspection pursuant to the Safeguards Agreement of 30 January 1992, with Pyong-Yong threatening to withdraw from the NPT while the IAEA appealed to the Security Council[33] The crisis was resolved by the Agreement of 21 October 1994 between the DPRK and the United States under which Pyong-Yong undertook to withdraw the threat to leave the NPT and promised to implement the 1991 Declaration[34] But no significant progress has yet been made towards the denuclearisation of the Peninsula which remains largely dependent on the state of relations between the two 'warring brothers", relations which are still marked by deep hostility

II. CONCEPT OF A NUCLEAR-WEAPON-FREE ZONE

On 11 December 1975, the General Assembly of the United Nations adopted by a very large majority Resolution 3472 (XXX) in which it defined a NWFZ as "any zone, recognised as such by the General Assembly of the United Nations, which any group of States, in the free exercise of their sovereignty, has established by virtue of a treaty or convention" Certain countries, such as Pakistan, have rejected the argument that the prior agreement of all the States of the region concerned is essential for the creation of a NWFZ, a condition which has only served to delay the establishment of a NWFZ in Africa, the Middle East and South Asia Such projects should be encouraged in spite of the reservations of one or two States in the regions

The General Assembly decided that the instrument setting up a NWFZ should provide for

- the statute of total absence of nuclear weapons to which the zone shall be subject, and,
- an international system of verification and control to guarantee compliance with the obligations deriving from that statute

In accordance with their conception of the General Assembly's central role in the process of disarmament, the non-aligned countries consider that it is capable of defending the legitimate interests

32 Although a Party to the NPT since 1985 (South Korea since 1975) North Korea has not submitted all its nuclear activities to the safeguards system of the Vienna Agency

33 United Nations document S/25405 and Resolution 825 (1993) of the Council requiring North Korea to comply with and apply the IAEA safeguards to all its nuclear activities

34 The text of the Agreement is set out in Arms Control Today Vol 24 No 10 December 1994 pp 18 19

of Third World States[35] By this means, the non-aligned countries hope to ensure that NWFZs will be created on the initiative of the countries of the region concerned and will not be imposed from the outside Naturally, the United States, France, the United Kingdom and the former USSR rejected this approach For Washington, the General Assembly must limit its role to one of advice and encouragement to adopt arrangements helping to establish such zones In fact, the nuclear powers would refuse to recognise NWFZs created without their consent and which did not take into account any conditions they laid down in this field[36]

It is interesting to compare the study of this issue made in 1975 with the practice adopted within the framework of the treaties on Latin America, the South Pacific, Africa and South-East Asia The most sensitive questions to be resolved include the area to be covered by the NWFZ and the conditions for the entry into force of, and withdrawal from, the treaties establishing these zones

2.1. Territorial scope of the zone

Resolution 3472 B (XXX) contains no precise requirements as to the territorial scope of NWFZs Such zones could as well cover a whole continent as the territory of a single country In fact, the scope of a zone depends as much on political and strategic as geographical considerations In general, a NWFZ is made up of the land, air and maritime territory of several neighbouring States which conclude an agreement to this end But there is nothing to prevent a single State turning part or the whole of its territory into a NWFZ Thus, several situations are possible

- A State belongs to a NWFZ but its overseas territories do not,
- A nuclear-weapon State has a military base on the territory of another State located within a NWFZ[37],
- A nuclear-weapon State has sovereignty over territories located within a NWFZ[38]

Can a NWFZ include areas of ocean outside any national jurisdiction? In accordance with their anti-nuclear military principles, many non-aligned countries, in particular, in Latin America, have replied to this question in the affirmative Thus, one of the main criticisms made of the Treaty of Tlatelolco is that it covers not only the continental territory of Latin America but also vast areas of the Atlantic and Pacific Oceans situated outside territorial waters[39] This provision, which bolsters the claim by the Latin American countries to the 200-mile limit for territorial waters, has been held unacceptable by the main powers as it is incompatible, in their view, with the rules of international law enshrining freedom of the seas[40]

The same criticism has been made by the United States with regard to the South-East Asia Treaty, which extends its territorial scope of application to the exclusive economic zone and to the

35 See *Comprehensive study of the question of nuclear-weapon-free zones in all its aspects* op cit Declaration by Mexico paragraph 81

36 See The United Nations Disarmament Yearbook, Vol 1, 1976 United Nations Publication (New York) p 88

37 This applies to the United States which possesses the Guantanamo base on Cuba. This American presence is moreover the argument used by Cuba for not acceding to the Treaty of Tlatelolco

38 It was to meet such a situation that the Protocols extending denuclearisation to non-autonomous territories were added to the Treaties of Tlatelolco, Rarotonga and Pelindaba

39 See Article 4 paragraph 2 which defines the outer limit of the zone

40 See the interpretative Declarations of the United States, France the United Kingdom and the USSR when acceding to Protocols I and II of the Treaty of Tlatelolco

continental shelf up to a limit going beyond 200 sea miles [Article 1(a)][41] In this specific case the situation is complicated further by the territorial dispute in the south China Sea between China and certain Member States of ASEAN, Peking having made it known that it did not recognise the borders of the South-East Asia NWFZ [42]

But unlike the two previous instruments, the denuclearisation introduced by the Treaty of Rarotonga applies only to the "territory" of the States Parties, i e "internal waters, territorial sea and archipelagic waters, the seabed and subsoil beneath, the landed territory and the airspace above them' [Article 1(b)] This is important if the scope of the South Pacific denuclearised zone is considered it extends from the western coast of Australia, eastwards as far as the western limit of the Latin American NWFZ, and from the Equator (with some incursions into the northern hemisphere to include the exclusive economic zones of Papua New Guinea, Kiribati and Nauru), down to the parallel of Latitude 60° South, the boundary of the Antarctic denuclearised zone[43]

The same approach was adopted by the African countries While Article 1 of the Treaty of Pelindaba defines the NWFZ as "the territory of the Continent of Africa, islands States members of OAU and all islands considered by the Organization of African Unity in its resolutions to be part of Africa"[44], it is based on the same principle as to the strict definition of "the territory" of the State Party to which it applies the statute of denuclearisation. It is to avoid any possible reservations from the major powers that the African Treaty also provides that "Nothing in this Treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regards to freedom of the seas" [Article 2(2)] Lastly, it may be noted that Article 1 is wide enough to include territories, the status of which, from the OAU standpoint, may or must change (the Chagos/Diego-Garcia Archipelago, the island of Réunion, Mayotte, and the Spanish territories of Ceuta and Melilla)

2.2. Entry into Force, Reservations, Withdrawal

All the regional denuclearisation treaties specify that they will remain in force for an unlimited period, but there are fairly considerable differences between them as regards the procedures governing entry into force and withdrawal by States Parties

2 2 1 Entry into Force

There is a complex procedure for the entry into force of the Treaty of Tlatelolco The agreement will enter into force only for those States Parties which have ratified it and waived the requirements set out in Article 28 (Article 29 of the Treaty as amended) These requirements, most of which have in fact been met, are accession to the Treaty of all the States in the region, signature and ratification of the Additional Protocols by the States concerned, the conclusion of agreements on the application of the Safeguards System of the IAEA Brazil and Chile, which ratified the Treaty in 1968 and 1974 respectively, only waived the conditions in Article 28 in 1994, thus bringing the Treaty into force

41 See MEDEIROS Evans S *Southeast Asian Countries Agree to Create Nuclear-Weapon Free Zone* Arms Control Today December 1995/January 1996 p 23

42 See RICHARDSON M *ASEAN Treaty Bars Nuclear Arms as Big Powers Demure* International Herald Tribune 16-17 December 1995 p 4

43 Treaty of Rarotonga, Annex 1 and map attached

44 See Article 1 (a) and the map in Annex I

with regard to them Argentina, on the other hand, ratified the Treaty in 1993, declaring that it would enter into force as far as it was concerned automatically, in accordance with paragraph 2 of Article 28

Like the Treaties concerning Africa and South-East Asia, the Treaty for the denuclearisation of the Pacific provided for a simplified procedure for its entry into force, namely following the deposit of instruments of ratification by a certain number of States Thus, the Treaty of Rarotonga entered into force on 11 December 1986, after the eighth instrument of ratification was deposited (Article 15, paragraph 1) In March 1996, 11 of the 16 States of the Pacific Forum were Parties to the Treaty[45] The Treaty of Pelindaba provides that it will enter into force only after the deposit of the 28th instrument of ratification (Article 18, paragraph 2) This is about one-half of African countries, i e a similar proportion to that adopted for the entry into force of the Treaty of Rarotonga The Treaty for the denuclearisation of South-East Asia provides that if it will enter into force following the deposit of the eighth instrument of ratification and/or accession (Article 16, paragraph 1)

Lastly, it should be noted that the job of being the depository for the instruments of ratification and accession is given either to a State Party (Mexico in the case of Latin America, and Thailand for South-East Asia) or to a regional organisation (Pacific Forum and the OAU)

2 2 2 Reservations and Denunciation

No reservations may be made with regard to any of the NWFZ treaties However, this has not prevented some member States from making declarations of interpretation which bear a close resemblance to actual reservations One striking example was the declaration of Brazil as regards its interpretation of Article 18 on nuclear explosions for peaceful purposes, when signing the Treaty of Tlatelolco in 1968

The regional denuclearisation treaties allow States Parties to denounce them or withdraw from them on giving prior notice To date, however, no State Party to these treaties has denounced them The Treaty of Tlatelolco allows a State Party to withdraw if "circumstances" have arisen which "affect its supreme interests or the peace and security of one or more Contracting Parties" (Article 30, paragraph 1) The decision to withdraw must be given three months in advance In the absence of a more detailed definition of the "circumstances" referred to in the text, it must be assumed that candidates for withdrawal have a fair amount of room for manoeuvre The Treaty of Pelindaba includes a similar provision, allowing any Party to withdraw "if it decides that extraordinary events, related to the subject-matter of this Treaty, have jeopardised its supreme interests" (Article 20) However, like the Treaties of the South Pacific and South-East Asia, it requires 12 month's notice of withdrawal

Article 13 of the Treaty of Rarotonga and Article 22 of the "Treaty of Bangkok" are more restrictive inasmuch as no Party is allowed to withdraw from the Treaty unless there has been a violation by a Contracting Party of a provision "essential" to the achievement of the objectives of the Treaty

45 Australia, Cook Islands Fiji Kiribati, Nauru New Zealand Niue Salomon Islands Western Samoa, Papua New Guinea, and Tuvalu

III EXTENT OF STATES' OBLIGATIONS

Like other instruments of international law, Treaties establishing NWFZs include a range of detailed undertakings which are legally binding on the Contracting Parties These commitments are undertaken by the States concerned in the free exercise of their sovereignty and are obviously brought to the notice of third countries These latter are invited, and this is one of the special features of regional denuclearisation treaties, to respect the totally nuclear-weapon-free statute adopted by the region concerned, undertaking certain obligations resulting from this statute Thus, a treaty establishing a NWFZ involves obligations not only for the States situated within the zone concerned, but also for extra-regional ones, in particular the nuclear powers

3 1 The Obligations of the States Parties

The States Parties to a NWFZ undertake to use nuclear energy for exclusively peaceful purposes and, in order to ensure compliance with this undertaking, set up a system for controlling their nuclear activities

3 1 1 Non-Acquisition of Nuclear Weapons

Treaties establishing NWFZs expressly prohibit States Parties from

- developing and manufacturing nuclear weapons,
- possessing such weapons in any way, including storage,
- acquiring nuclear weapons in any manner,
- nuclear tests in the zone,
- deploying nuclear weapons on the territory of States Parties or the adjoining maritime areas

These agreements may require Parties to undertake not to seek or receive the assistance of a third country in order to pursue prohibited activities[46] The Treaty for the denuclearisation of Africa has a special provision, in that it also prohibits "research" when its aim is to acquire a nuclear device [Article 3(a)] Although difficult to verify compliance, this provision was introduced to emphasize the strictly peaceful nature of the nuclear activities in the region, including research, and to block any loopholes It no doubt owes something to the programme of nuclear research undertaken by Iraq[47]

The Treaty of Tlatelolco defines a nuclear weapon as "any device which is capable of releasing nuclear energy in an uncontrolled manner and which has a group of characteristics that are appropriate for use for war-like purposes " An "instrument that may be used for the transport or propulsion of the device" is not included in the definition if it is separable from the device (Article 5)

The Treaties of Rarotonga [Article 1(c)] and Pelindaba [Article 1(c)] have opted for a definition of the term "nuclear explosive device" In both Treaties, this term is defined as "any nuclear weapon or other explosive device capable of releasing nuclear energy, irrespective of the purpose for which it

46 See the Treaties of Tlatelolco (Article 1 paragraph2) Rarotonga [Article 3(b) and (c)] and Pelindaba [Article 3(b)]
47 See note 26

could be used", and includes weapons or devices in unassembled and partly-assembled forms Thus, the definition adopted here is wider since it includes devices which could, for example, be used in connection with nuclear explosions for peaceful purposes, a controversial issue In this respect, Article 18 of the Treaty of Tlatelolco allows Contracting Parties to carry out explosions for peaceful purposes "including explosions which involve devices similar to those used in nuclear weapons" This provision gave rise to strong reservations on the part of the United States and the former USSR, which pointed out that given the impossibility of distinguishing between military and peaceful explosions, the Treaty enabled the Parties to manufacture nuclear weapons[48] It should, however, be noted that the organisation of peaceful nuclear explosions by the Parties to the Treaty is subject to strict controls These controls are said to be part of the reason why Argentina and Brazil refused to accede to the Treaty until recently These two countries, adopting a contrary interpretation to that generally accepted by the States Parties, had declared that they interpreted Article 18 as allowing the possession of nuclear explosive devices similar to those used to develop nuclear weapons Did Argentina and Brazil wish to be free to proceed with nuclear explosions, an indispensable step on the road to acquiring the bomb? In the context of their improving bilateral relations, the Argentineans and Brazilians recently proclaimed a moratorium on peaceful nuclear explosions[49]

The Treaty of Rarotonga, on the other hand, expressly prohibits nuclear explosions of any sort or the possession of nuclear explosive devices (Article 6, Protocol 3) This strong stance can be explained by the militancy shown for decades by the States of the region with regard to nuclear testing in the South Pacific This approach was also adopted in the Treaty of Pelindaba which not only requires Parties to renounce nuclear explosive devices (Article 3) but asks the nuclear-weapon States (NWSs) not to help the States in the region acquire such devices and to themselves abstain from testing them (Protocol II) As for the "Treaty of Bangkok", it includes amongst its fundamental prohibitions, the testing of nuclear weapons [Article 3, paragraph 1(c)]

In addition to the prohibitions listed above, the Treaties of Rarotonga (Article 7) and Pelindaba [Article 7(b)] ask the Parties not to authorise the dumping of radioactive waste in the zone The Treaty of Tlatelolco has no equivalent provision

3 1 2 Control of the Uses of Nuclear Energy

The purpose of controls is to ensure that nuclear energy is used for exclusively peaceful purposes The NWFZ treaties have introduced a system of control usually based on the following elements application of the IAEA safeguards, reports and exchanges of information between the Parties within the framework of a regional mechanism, a complaints procedure

3 1 2 1 Application of the IAEA Safeguards

The purpose of the IAEA safeguards system is to verify that fissile materials and nuclear equipment are not diverted for use in developing explosive devices Safeguards systems may concern specific nuclear materials, equipment or installations, or all of a country's nuclear activities[50] Thus, the Treaties of Rarotonga (Annex 2), Pelindaba (Annex II) and "Bangkok" (Article 5) require that Parties conclude agreements with the IAEA for application of the Agency's safeguards to the whole

48 See the declaration of the Soviet Union, made when signing and ratifying Protocol II to the Treaty of Tlatelolco in 1979

49 Disarmament Conference documents CD/1172

50 See the INFCIRC/153 type agreements applied within the framework of the NPT

fuel cycle ("full-scope safeguards")[51] The Treaty of Tlatelolco also refers to application of the IAEA Safeguards, without specifying whether these are "full-scope safeguards" This is because some countries in the region, such as Argentina and Brazil, were until recently opposed to the principle of safeguards over the whole fuel cycle, and in particular to the application of IAEA controls over nuclear activities developed locally

The Treaties of Tlatelolco (Article 16, paragraph 5), Rarotonga (Annex 2, paragraph 4) and Pelindaba (Annex II, paragraph 4) ask Parties to communicate to the regional body concerned and to the other Parties, a copy of any inspection report made by the IAEA

3 1 2 2 Reports and Exchanges of Information

The Treaties of Rarotonga (Article 9 and Annex 2), Pelindaba (Annex II) and Bangkok (Article 11) provide for an exchange of information between Parties on relevant questions and for the communication of reports on their activities to the regional body concerned, as set up by the Treaties namely, the Agency for the Prohibition of Nuclear Weapons in Latin America (OPANAL) the African Commission on Nuclear Energy (AFCONE) and the Executive Committee of the Commission for the South-East Asia Nuclear-weapon-free zone The regional body is responsible for promoting the exchange of information between the Parties, and regional co-operation on the peaceful uses of nuclear energy, and also for applying the control system provided for under the Treaty In the absence of an equivalent body in the Treaty of Rarotonga, this function is carried out by the Director of the South Pacific Bureau for Economic Co-operation (Article 9), a body answerable to the Pacific Forum Lastly, in the "Bangkok" Treaty, it is the Executive Committee (Article 9), a subsidiary body of the Commission[52] which carries out the operational function of implementing the Treaty, a task performed elsewhere by OPANAL and AFCONE

The Treaties of Tlatelolco and Pelindaba are stricter as regards controls since they require Parties to send in periodic reports to the regional body concerned (every ten and twelve months, respectively) The States Parties to the Rarotonga (Article 9) and "Bangkok" (Article 11) Treaties, on the other hand, are only required to send in such reports if some "significant event" takes places which affects the implementation of the Treaty

3 1 2 3 Complaints Procedure

Article 16 of the Treaty of Tlatelolco gives OPANAL, together with the IAEA, power to organise special inspections on the territory of a State Party suspected of engaging in unlawful activity, and this at the request of the Council or of another Party The ensuing report is communicated for information to all the other States Parties, to the competent bodies of the United Nations and to the Council of the Organization of American States (OAS) If the report confirms that one or more of the provisions of the Treaty had been infringed, Articles 16 and 20 lay down the measures to be taken A special session of the General Conference of OPANAL may be convened (Article16, paragraph 7) to examine the situation If non-compliance of a type which constitutes a violation of this Treaty which might endanger peace and security" is confirmed, the matter is referred

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51 Article III 5 of the IAEA Statut authorities the Agency to apply safeguards at the request of the parties to any bilateral or multilateral agreement, or at the request of a State to any of that State s activities in the field of atomic energy

52 The Commission for the South-East Asia Nuclear-weapon-free zone is a political body which meets at the level of Ministers of Foreign Affairs (Article 18)

to the General Assembly and the Security Council of the United Nations as well as the Council of the OAS (Article 20, paragraph 2)[53] This procedure was modified in 1992 in the amended Treaty since the IAEA is now the only body with the authority to organise a special inspection, the Vienna Agency then communicating the conclusions of the inspection report to the Secretary General of OPANAL

Annex 4 to the Treaty of Rarotonga sets out the complaints procedure to be followed the organisation of consultations under the auspices of the Consultative Committee provided for in Article 10, and, if doubt persists, a request for a special inspection by the Committee Should it appear that the Party has not complied with its obligations, all the Members of the South Pacific Forum are informed There is no mention here of a referral to the IAEA or the United Nations No doubt the Parties did not want to prejudge the decisions taken by the Pacific Forum

Article 12 and Annex IV of the Treaty of Pelindaba set out the "complaints procedure and settlement of disputes" If there is reason to believe that a State Party has infringed its obligations under the Treaty or its Protocol III, provision is made for a special procedure involving bilateral (consultations and "technical visits") and multilateral (regional body) mechanisms AFCONE can ask the IAEA to carry out an inspection on the territory of the Party concerned. The inspection report is communicated to AFCONE which decides on the measures to be taken If the complaint is upheld, a special meeting of the Conference of the Parties is convened to make recommendations to the OAU, which can, as a last resort, refer the matter to the Security Council The importance given here to the IAEA in the control system can be explained by the role which the Vienna Agency played, before the Treaty of Pelindaba was even adopted, in verifying the dismantling and destruction of South Africa's nuclear weapons[54] Another reason is the low level of nuclear expertise in the countries of the region and the absence of any regional mechanism designed for the purpose, although provision has been made for AFCONE to establish its own inspection mechanism (Annex IV, paragraph 5) What distinguishes the Treaty of Pelindaba from the other regional denuclearisation agreements is the possibility of carrying out special inspections in territories situated within the zone but subject to the authority of extra-regional States (Protocol III)

Much less strict with regard to control, the "Treaty of Bangkok" allows for requests for clarification and for fact-finding missions Article 12 authorises each State Party to request another State Party for clarification when it has doubts about the compliance of that State Party with its obligations The Executive Committee, which must be informed of this request and of the reply given by the Party in question, may also request clarification or undertake a fact-finding mission as provided for in the Annex if the reply to the initial request for clarification is not satisfactory Should non-compliance with the provisions of the instrument be established, the Executive Committee requests the regional Commission to take the appropriate measures, including referral to the IAEA and the Security Council and General Assembly of the United Nations (Article 14) It should be noted that, unlike the other regional denuclearisation agreements, the "Treaty of Bangkok" does not use the term "special inspection" but "fact-finding mission" It also provides that the Parties are entitled to take measures to protect sensitive installations and to prevent the dissemination of confidential information and data, thus placing a restraint on fact-finding missions

A State concerned by a special inspection cannot object to it or hinder in any way the task of the inspectors on its territory Most of the regional denuclearisation treaties have based their provisions in this sphere on those of the IAEA

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53 This procedure is similar to that laid down in the Statute of the IAEA in the event of a breach of the safeguards agreements a special session of the Board of Governors together with referral to the Security Council of the United Nations

54 See ALBRIGHT David op cit. and STUMPF Waldo op cit.

3.2. The Obligations of Nuclear-Weapon States

Article IX of the NPT defines "a nuclear-weapon State" as one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967[55] But in actual fact, the number of NWSs today includes Israel, India and Pakistan, often described as "threshold countries" It follows from this that all other States are described as "non-nuclear-weapon States (NNWSs)

The obligations of the NWSs as regards NWFZs are laid down in the Protocols annexed to the treaties establishing these zones This procedure was chosen by the authors of the Treaty of Tlatelolco (Additional Protocol II) since it seemed best suited to the political and legal context of the agreement The same approach was taken in the Treaties of Rarotonga (Protocol 1) Pelindaba (Protocols I and II) and "Bangkok" (Protocol) The Treaty on the denuclearisation of Africa has two Protocols which the nuclear powers are invited to sign, the first relating to the non-use of nuclear weapons and second banning the testing of nuclear explosive devices

Under the NWFZ treaties, the nuclear powers are required not to introduce nuclear weapons into the zones and not to use or threaten to use such weapons against the Contracting Parties

3 2 1 Non-Introduction of Nuclear Weapons into the Zone

In the Additional Protocol, the NWSs are invited to respect the status of an area totally free of nuclear weapons defined in the treaty creating the zone, and not to contribute in any way to acts which could constitute a violation of this status[56] The main activities likely to constitute a violation of the objectives of regional denuclearisation include the stationing of nuclear weapons on the territory of States Parties and in adjoining maritime zones, the transfer to States Parties of nuclear weapons or of technology and equipment for their development

It was rightly considered that the promise not to acquire nuclear weapons made by the States Parties to NWFZs would be insufficient unless reinforced by a similar undertaking from the nuclear powers not to introduce, in any form whatever, such weapons into these zones The NWSs do not object to these obligations on the grounds of non-proliferation, but rather because they would be obliged to impose restraints on their military activities in the regions concerned It is in this spirit that the reservations which have been made when acceding to these Protocols have to be understood reservations relating to the freedom of the seas, the protection of vital interests or the credibility of their doctrine of dissuasion Such reservations have been invoked in particular with regard to provisions limiting transit

There are no provisions in the Treaty of Tlatelolco dealing specifically with transit, but according to an interpretation handed down by the Preparatory Commission for the Denuclearisation of Latin America in 1967, it is for each State Party to a NWFZ to decide on the right of transit Argentina and Brazil remained outside the Treaty of Tlatelolco for a long time, considering that the objective of regional denuclearisation in Latin America was compromised by the geographical proliferation of nuclear weapons, i e the deployment of nuclear weapons by means of ships, submarines and devices

55 i e China (since 1964) France (since 1960) Russia (since 1949) United Kingdom (since 1952) and the United States (since 1945)

56 United Nations document, Resolution 3472B (XXX) of the General Assembly paragraph II

fitted with such weapons[57] During the Falklands War, the Argentineans accused the British of breaching the Treaty of Tlatelolco by introducing nuclear submarines into the region

Under the Treaty of Rarotonga, each State Party remains free to decide whether or not to allow the transit or visit, of whatever length, of ships carrying nuclear weapons (Article 5, paragraph 2) If the length of transit is not limited, how does this differ from the stationing of nuclear weapons, something which is expressly forbidden? A very similar provision relating to transit can be found in the Treaties on Africa (Article 4) and South-East Asia (Article 7)

In fact, the main obstacle to the effective prohibition on the transit of nuclear weapons through NWFZs lies in the unwavering policy of the nuclear powers never to confirm or deny the presence of such weapons on a given ship, and that, according to them, in order to preserve the credibility of their doctrine of dissuasion This being so, the right of States Parties to NWFZs to accept or refuse the transit of nuclear weapons, as laid down in the denuclearisation treaties, is purely theoretical In fact, regional denuclearisation agreements do not contain any control mechanism by which checks can be carried out on whether NWSs are fulfilling their commitments with regard to the denuclearised zones The OPANAL General Conference, which examined the question in 1983 at its meeting in Jamaica, concluded that it needed instruments to verify that the nuclear powers were complying with their obligations as regards NWFZs

But the main commitment which the nuclear powers are invited to undertake is not to use or threaten to use nuclear weapons against the States Parties to a NWFZ This aspect concerns the security guarantees which we shall examine below

3 2 2 Security Guarantees

The NNWSs are of the opinion that the security guarantees are fair compensation for the renunciation of the nuclear option by the States Parties to a NWFZ These guarantees must be automatic and legally binding A distinction is usually made between "negative guarantees" and "positive guarantees"

3 2 2 1 Negative Guarantees

It is considered altogether legitimate for the States Parties to agreements establishing NWFZs to obtain unequivocal guarantees that they will not be subject to attack, or the threat of attack by nuclear weapons These so-called "negative" guarantees should form an integral part of regional denuclearisation treaties, which explains why the Latin American States decided to supplement the Treaty of Tlatelolco with an Additional Protocol containing negative guarantees Additional Protocol II to this Treaty constituted a model for the other agreements establishing NWFZs Indeed, an almost identical provision is included in the Treaties of Rarotonga (Protocol 2), Pelindaba (Protocol I) and South-East Asia.

When signing or ratifying the Protocols to the Tlatelolco and Rarotonga Treaties, France, the United Kingdom, the United States and the former USSR made interpretative declarations under which they reserve the right to reconsider, in certain circumstances, their commitments not to use nuclear weapons against the States Parties to these zones The circumstances in question are if a

57 United Nations document, 37th Session of the General Assembly A/C1/37/PV 41 p 18 and p 43

NNWS party to a NWFZ launched an attack, with the help of a NWS, against the power concerned or its allies[58], or carried out activities which were in contradiction with the statute of denuclearisation[59]

The most satisfactory solution to the problem of security guarantees is the adoption of an international legal instrument which is binding and which lays down in clear and credible terms the principle of the non-use of the supreme weapon against a NNWS In 1978, Pakistan proposed concluding an international Convention to guarantee NNWSs against the use or threatened use of nuclear weapons[60] Discussions have been held since 1980 in the context of the Geneva Disarmament Conference with a view to defining effective international arrangements to secure NNWSs against the use or threat of such weapons, but have not so far been successful[61] This deadlock is tending to persuade non-aligned countries to support the position of the hard-liners who like India, feel that negative guarantees create an illusion only of security and risk distracting States from the prime objective of nuclear disarmament

3 2 2 2 Positive Guarantees

Under Resolution 255 (1968) of the Security Council, the United Kingdom, the United States and the USSR undertook to provide immediate assistance to any NNWS Party to the NPT who was the object of a nuclear weapon attack or threat of such These so-called "positive security guarantees, to distinguish them from the negative ones, were considered inadequate by the non-aligned countries[62] They are a declaration of intent which add nothing to the undertaking in Chapter VII of the Charter of the United Nations in the event of threats or aggression Moreover the right of veto of the permanent members of the Security Council renders them inapplicable Lastly no special procedure is provided for in the event of a nuclear attack Resolution 984 (1995) of the Security Council marks some small progress since it expresses the intention of the Council 'to recommend appropriate procedures ( ) regarding compensation under international law from the aggressor "[63] Apart from the fact that they are addressed exclusively to those NNWSs which are Parties to the NPT, the main criticism of Resolutions 255 and 984 is that they offer no assurance as regards preventing the threat or use of nuclear weapons against a NNWS

3.3 The Obligations of Extra-Regional States

Like the NWSs, extra-regional States must respect the status of denuclearised zones In this connection, two situations should be distinguished the obligations of States exercising sovereign rights in the zone, and, those of other States

58 See the declaration of the United States when acceding to Additional Protocol II of the Treaty of Tlatelolco in 1971

59 See the declaration of the USSR when signing Protocols 2 and 3 of the Treaty of Rarotonga in 1988

60 The Resolution on this issue voted each year by the General Assembly enjoys the support of many non aligned countries See Resolution 50/71E of 12 December 1995

61 Disarmament Conference document CD/1364, 26 September 1995 pp 142 143

62 See BIAD Abdelwahab,*Les pays non-alignes et la non-proliferation nucléaire* Annuaire Ares defense et Securite Grenoble 1984/1985 pp 93-110

63 Resolution 984 (1995) "*takes note with appreciation* of the statements by the NWSs relating to security assurances under the NPT See United Nations documents S/1995/261 S/1995/262 S/1995/263 S/1995/264 S/1995/265

3 3 1 Powers Exercising Rights Within the Zone

Regional non-proliferation agreements contain obligations for a particular category of States, namely, powers exercising "de jure" or "de facto" control over territories within the geographical limits of the denuclearised zones Such powers are invited to apply the statute of denuclearisation to these territories and not to contribute in any way to actions which could constitute a violation of the treaties establishing the NWFZs Thus, Additional Protocols were annexed to the Treaties of Tlatelolco (Protocol I)[64], Rarotonga (Protocol 2)[65] and Pelindaba (Protocol III)[66] addressed to more or less the same powers Given the different political context involved, the Treaty for the Denuclearisation of South-East Asia obviously does not include any Protocol to meet this situation

The lack of any control mechanisms to ensure compliance with the statute of NWFZs by extra-regional States with authority over territories within these zones, has often been noted This has been addressed by the Treaty of Pelindaba, which provides for a complaints procedure with regard to these territories, including special inspection (Protocol III)

3 3 2 Other States

The commitments undertaken with regard to NWFZs by extra-regional States other than NWSs and powers with sovereign rights, are more general in nature All other States must refrain from any activity which could compromise the effective functioning of the zone and, in particular, refrain from supplying States in the region concerned with any assistance which could help them develop or manufacture nuclear weapons[67] This is of particular concern to countries with a developed nuclear industry These commitments are undertaken outside the actual treaties establishing the denuclearised zones, within the framework of the NPT

Conclusion Towards a Nuclear-Weapon-Free World?

Today, a large part of the southern hemisphere is a denuclearised zone Outside the NWFZs of Latin America, the South Pacific and Africa, however, two nuclear pockets remain the south Atlantic and the Indian Ocean There are current proposals to make these areas "zones of peace" but, despite the endeavours of the neighbouring countries, these proposals have encountered opposition from the nuclear powers, anxious to retain room for manoeuvre in strategic maritime areas

If NWFZs are perceived by the NWSs solely as a means of preventing horizontal proliferation without affecting vertical proliferation or, in particular, the spread of nuclear weapons throughout the world, such zones will be no more than denuclearised enclaves, the status of which can be called into question at any time by regional powers which become aware that the goal of non-proliferation is illusory The credibility of NWFZs is thus dependent on the good faith with which the NWSs assume their obligations with regard to these zones, refraining from deploying nuclear weapons in them and accepting greater transparency with regard to their air and sea activities, including through agreements with States Parties to regional denuclearisation treaties

64 Concerns the United States France the Netherlands and the United Kingdom All these States have ratified this Protocol

65 Concerns the United States France and the United Kingdom which are all today Parties to this Protocol

66 Concerns France and Spain

67 See *Comprehensive study of the question of nuclear-weapon free zones in all its aspects* op cit paragraph 122

The usefulness of NWFZs as a means of preventing the horizontal proliferation of nuclear weapons is universally recognised today They are an effective tool by means of which States can, within the free exercise of their sovereignty, prevent the presence of nuclear weapons on their territory The best means of succeeding in preventing nuclear proliferation is to promote the establishment of such zones in a growing number of regions, with the ultimate objective of a world free from weapons of mass destruction in which nuclear energy would be used solely for the welfare and not the destruction, of mankind.

Legal Aspects of the Decommissioning of Nuclear Facilities: A Comparative View

by Nathalie Horbach and Erik Hanenburg*

I INTRODUCTION

There are various reasons why decommissioning is currently a focus of attention About 430 nuclear power plants are in operation around the world, many of which are approaching the end of their design life Some of these plants in Central and Eastern Europe are alleged to be lacking adequate safety guarantees, which might constitute sufficient justification for their early decommissioning The trend towards privatisation of energy facilities and supply also raises questions about decommissioning in the nuclear sector The United Kingdom is an example of this [1]

The decision to shut down a nuclear facility might be due to the end of its economic life, to safety considerations, or to the perception that nuclear energy has substantially not proved to be viable in relation to alternative energy resources Moreover, there are diverse political or technological reasons which might compel the shutdown of a nuclear reactor In practice, the number of plants which will reach the end of their lifetime (about 40 years) before 2005 is small, but it will rapidly increase after 2010 and come to a peak around 2015 This number, however, does not include the possible and unforeseeable number of unplanned or premature decommissioning activities It is therefore necessary to compare legal, technical and ecological experiences on decommissioning around the world in order to set up certain general guidelines or principles in the field of decommissioning The development of uniform legislation on decommissioning seems to be a priority since, notwithstanding the various efforts made by the IAEA and OECD/NEA, such legislation is still largely absent

Special mention should be made of decommissioning in the countries of Central and Eastern Europe (CEEC) which, due to the condition of many of their nuclear installations, are under extreme political pressure to start to decommission these facilities in the very near future The transitional character of their economies, combined with political uncertainties in some cases, make unpredictable the future operation of nuclear power plants in some of the countries in this region In addition to this political pressure, the critical situation of their economies and the generally less advanced state of their nuclear safety culture suggests that rapid decommissioning of a relatively large number of existing nuclear facilities is required At the same time, financial difficulties and a shortage of electricity may

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1 See "Nuclear UK under the Microscope", *Power Europe* (1 December 1995) "Study Says Cleanup Costs Imperil UK Nuclear Privatisation Plan *The Energy Daily* (12 January 1996), J Javetski "Globalization of Electricity Markets", 210(1) *Conference Report* 33 (1996) repr in *Electrical World* (January 1996) See also Chapter "National Legislative and Regulatory Activities" in this *Bulletin*

not allow them to shut down these plants and start decommissioning activities For that reason a uniform and comprehensive legal framework, for the most part still lacking, to guide the safe decommissioning of nuclear facilities, is especially imperative for these countries This article aims to ascertain the general parameters of such a legal framework by comparing those existing national regulations on decommissioning which have been most progressively and comprehensively developed At the outset, however, it is necessary to elaborate on the content, scope and aim of decommissioning in general

1 The Definition of Decommissioning

The purpose of decommissioning nuclear facilities is to withdraw the facility safely from service and to limit its residual radioactivity to a level that permits release of the property for unrestricted use and termination of the licence, with due regard to environmental impacts

There are many definitions of decommissioning, all of which contain different elements For a proper understanding of decommissioning, it is necessary first of all to establish a suitable definition According to the IAEA, decommissioning can be defined as ' *the actions taken at the end of an useful life of a facility in retiring it from service with adequate regard for the health and safety of workers and members of the public*"[2] The United States Nuclear Regulatory Commission (NRC) on the other hand, declares that decommissioning ' *means to remove (as a facility) safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of the license*"[3] In contrast to the IAEA definition, this definition does not include specific attention to the health and safety of the plant workers or the public, although this might be implicitly deduced from *reduce residual radioactivity unrestricted use*

In the United Kingdom too, explicit mention of the safety aspect with respect to the public and workers is lacking in the approach to decommissioning, which is generally defined as *the whole process which follows the reactor final shut-down and includes defuelling dismantling plant and buildings transport of waste material to authorised disposal sites and site clearance* [4]

Germany, on the other hand, does not recognise one notion of decommissioning but employs the three terms "*Stillegung*", "*sichere Einschluß*" and "*Beseitigung*" instead "*Stillegung* refers to the period between the operation and the safe enclosure of a plant or the de-construction of the installation itself [5] "*Sichere Einschluß*" refers to the condition of an installation once definitively shutdown and in which the installation's radioactive inventory will be sealed off for a longer period of time without posing any danger to third parties [6] Finally, "*Beseitigung*" means the removal of all components related

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2 Safety Series No 105, *The Regulatory Process for the Decommissioning of Nuclear Facilities* (IAEA Vienna 1990)

3 Section 50 2 of the Code of Federal Regulation, 10 Part 50 (10 *CFR* Part 50), *Nuclear Regulation Reporter* Part II at p 7403 Commerce Clearing House Chicago, 1993

4 R Macrory "Closing Responsibilities Decommissioning and the Law in M J Pasqualetti (ed) *Nuclear Decommissioning and Society* New York, 1990, p 115 This was concluded after the Sizewell B Public Inquiry held from 1st January 1984 until 7 March 1985 which were organised with regard to the license of construction of the Sizewell B, a PWR reactor at Suffolk

5 According to Junker and Kurz "Stillegung" encloses 'alle Maßnahmen, die in der Phase zwischen einer dauerhaften Betriebseinstellung und dem sicheren Einschluß beziehungsweise dem Abbau der Anlage vorgenommen werden W-H Junker *Stillegungs- Einschluß- und Abbaugenehmigung für Kernkraftwerken* in Studien zum Internationalen Wirtschaftsrecht und Atomenrecht, Band 82 Götz & alia (eds) (1990) at p 179 and see A Kurz *Stillegung und Beseitigung nuklearer Anlagen normative und genehmigungsrechtliche Bestandsaufnahme* Speyerer Forschungsberichte nr 107 Blümel & alia (eds) (1991) at p 31

6 See A Kurz, Stillegung und Beseitigung nuklearer Anlagen, Recht/Technik/Wirtschaft Bd 69 Lukes ed (1994) at p 86

to the installation which are located on-site According to the German Atomic Energy Act, this process must include all available safety measures that are necessary, based on the current state of expertise [7]

Therefore, contrary to the IAEA definition, these definitions do not include specific reference to the safety and health aspects relevant to plant employees or the public This can be explained by the fact that due to the general application of radiological protection rules issued elsewhere in national nuclear legislation, an explicit mention of safety and health in the legal definition of decommissioning would seem redundant Therefore, although in the process of decommissioning the risk of radiation exposure to the public and workers will indeed increase, the safety aspect is most appropriately dealt with in basic national nuclear legislation which negates the necessity of including this element in the definition of decommissioning Furthermore, no national nuclear legislation refers to the "end of a useful life", which is logical since decommissioning will not necessarily be planned at the end of a plant's lifetime (*e g* Chernobyl)

Therefore, a possible definition of decommissioning might be

> *The process which succeeds the final shutdown of the reactor and encompasses the decontamination and dismantling of the nuclear installation and the safe management of the resulting nuclear waste with the aim of terminating the operating licence and of making the site available for unrestricted use or re-use*

2 Various Aspects of Decommissioning

The various aspects of decommissioning are of a general, technical, financial and legal nature

General aspects

This includes, for example, the question of which nuclear facilities should be decommissioned and at which moment, under what circumstances and for what period of time decommissioning should take place An examination of precedents, their lessons and results should also be included Furthermore, safety aspects are of utmost importance The safety and health of the public and workers as a result of decommissioning, in addition to safe decommissioning as a source of public confidence, should be taken into consideration

Technical Aspects

Although recent experience has demonstrated that decommissioning projects can be performed in a safe and efficient manner, an important issue nevertheless involves the further development of technology in this field Technical procedures and knowledge should be adequate to conduct decommissioning activities in a safe and sound manner [8] Furthermore, the technical aspects of decommissioning involve decontamination and dismantling techniques and the management of radioactive substances and other dismantled materials

Decontamination consists of the procedure required to decontaminate the various components of a facility in order to reduce radioactivity levels to such a minimum that it is no longer dangerous to the public There are various techniques which can reduce radioactivity, such as

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7 Section 2 Nr 3 of the Atomic Act, as amended on 19 July 1994 *BGBl* I, 1994 28 July 1994

8 'Safe means without endangering the public and workers' health or the environment to the extent that this is possible on the basis of the existing technical means

- chemical decontamination this method was used at the decommissioning of the Gentilly-1 PHWR in Quebec, Canada from 1967 to 1982,
- electrochemical decontamination this method was considered to be too expensive during the BNFL project in Sellafield, UK,
- mechanical decontamination, and
- soil decontamination this method was used at the decommissioning of the US Rocky Flats Plant [9]

Dismantling involves those activities required to disassemble and remove radioactive or contaminated materials from the facility and site Since the dismantling of equipment and the demolition of structures are potential sources of air-borne contamination, they might account for a major part of the radiation exposure of decommissioning workers For that reason, the principal objective would be to ensure that the ALARA principle is met with regard to all these various dismantling techniques and taking into consideration the specific risks of the installation being decommissioned The effective means of minimising radiation exposure has been and will be further developed

Another technical aspect of decommissioning involves the safe and sound management, treatment and transport of radioactive material which results from dismantling and decontamination activities normally either low or intermediate level waste Whereas non-radioactive material can be disposed or recycled without major problems, radioactive matter must be treated as radioactive waste, requiring adequate disposal facilities In this respect, the general principles laid down in the IAEA Safety Series for the treatment of nuclear waste are applicable The techniques to be applied to a specific case of decommissioning will depend on these technical aspects, their status of development, factual circumstances such as material used in the construction of the reactor or the type of reactor and of course, safety aspects in general

Legal Aspects

Since decommissioning is a relatively new legal issue, most existing nuclear legislation or international agreements do not deal with it explicitly Additional legislation within this field is therefore necessary

Apart from specific legislation, decommissioning involves other fields of national law First national law may serve as the means to regulate and control via a licence and inspections In order to establish a system of effective control, a specific agency or division within an already existing agency will have to be created with the necessary authority to perform its functions The interrelation between this agency and the nuclear industry, the scope and content of the agency's authority, and the procedure and necessary elements of the decommissioning licence will all have to be regulated by national law Secondly, environmental law will play an important role in regulating safety aspects with regard to radiation dose and radioactivity released to the environment during decommissioning activities and in regulating the disposal of radioactive waste However, since decommissioning is an attempt to restore things to their original condition, this requires a much smaller commitment of resources than does building and operating a nuclear facility Environmental consequences of decommissioning will therefore be largely limited to the risks associated with radiation dose and waste disposal

9 For a thorough description of these techniques, see *Decommissioning of Nuclear Facilities Decontamination Disassembly and Waste Management*, Technical Report Series No 230, IAEA (1983) at pp 9-26

Thus, in order to develop decommissioning programmes, apart from the technical and financial aspects, the existence of a legal framework ensuring a controlled, safe and sound process of decommissioning will be fundamental This will be especially difficult in the countries of Central and Eastern Europe, where such legal frameworks are still being developed Although most of these countries recognise this gap and are currently cooperating with Western experts to develop new legislation in this area, no specific results have yet been achieved, with one exception The Slovak Republic recently adopted a new law relating to nuclear decommissioning activities [10] This Law, which entered into force on 1 January 1995, aims to set up a State fund for the dismantling and decontamination of nuclear power equipment and disposal of spent fuel and radioactive waste Contributions to the fund are to come from owners of nuclear power equipment, fines imposed by the Office of Nuclear Supervision of the Slovak Republic, with additional funding provided by the State The owners of nuclear power equipment or of waste depository can apply for financial support from this fund This Law might be a viable model on financial assistance for decommissioning projects by the State and nuclear industry in other CEEC/CIS or even in Western Europe

3 Efforts Made by International Organisations

Various international organisations have been working extensively on developing regulations and programmes in the field of decommissioning of nuclear facilities [11]

EURATOM

Despite the fact that the Euratom Treaty does not explicitly mention decommissioning, it must be assumed that the decommissioning process would fall within the scope of the Treaty [12] Furthermore, according to Article 37 of the Euratom Treaty, a Member State must inform the Commission about possible emissions of radioactivity into the air, the soil or the water of Member States during the decommissioning process

Seeking to reinforce the scientific and technical basis of future decommissioning activities while giving due regard to safety aspects, the European Community has established three successive research and development programmes (R&D) in the field of decommissioning since 1979 These five-year R&D programmes are financed up to 50% by the European Community The most recent research programme of 1989-1993 involved four pilot dismantling projects, the results of which will contribute to the optimisation of decommissioning strategies and to a relevant EC policy with a view to strengthening the

10 This is the *Law for Decommissioning Nuclear Power Plants and Handling Spent Nuclear Fuel and Radioactive Waste* adopted by the National Council of the Slovak Republic on 25 August 1994 (See *Nuclear Law Bulletin* No 55)

11 It must be noted that the experience summarised in the 1996 Report of the *NEA International Co-operation Programme for the Exchange of Scientific and Technical Information Concerning Nuclear Installation Decommissioning Projects*, which completed its tenth year of full operation in 1995, has been a valuable contribution to the studies on decommissioning of the various international organisations

12 See for instance the *Council Directive Laying Down the Basic Standards for the Protection of the Health of Workers and the General Public Against the Dangers Arising from Ionising Radiation* OJ L 011 at p 221 (20 2 1959), *Council Directive of 15 July 1980 Amending the Directives Laying Down the Basic Safety Standards for the Health Protection of the General Public Against the Dangers of Ionising Radiation*, OJ L 246 at p 1 (17 09 1980), as amended by Council Directive 84/467/Euratom, OJ L 265 at p 4 (05 10 1984), *Council Directive 92/3/Euratom of 3 February 1992 On the Supervision and Control of Shipments of Radioactive Waste Between Member States and Into and Out of the Community* OJ L 35 at p 24 (12 02 1992)

safety of work, the radiological protection of the public and the preservation of the environment [13] Many States are able to use and benefit from the information derived from these projects

A group of experts has been appointed under the supervision of the European Commission to identify and draft guiding principles, regulations, recommendations and policies in the field of decommissioning of nuclear installations in the European Community A preliminary draft document setting out such general principles and guidelines has been developed, covering topics such as radiation protection and safety of the public and workers, special requirements as regards the design and operation of nuclear plants, factors involved in the choice of a decommissioning strategy and technique research projects, long term safe maintenance of a nuclear plant, and, finally, guidance on exemption rules Most of these guiding principles, however, cover only the technical aspects of decommissioning

OECD/NEA

The NEA has been active in the field of decommissioning studies since 1973 when, in co-operation with the IAEA, it examined the possible incorporation of this issue into its existing programmes of work [14] In 1978, in co-operation with the IAEA, the NEA organised an international symposium on the Decommissioning of Nuclear Facilities [15] This symposium clearly revealed the need for an international co-operation programme on decommissioning, which resulted in the first NEA programme the Agesta Decontamination Project" This project was conducted in 1981 and 1982 [16] In addition the NEA organised a Specialist Meeting on Decommissioning in 1980 [17]

In 1985, the NEA organised the "International Co-operative Programme for the Exchange of Scientific and Technical Information Concerning Nuclear Installation Decommissioning Projects which proved to be a very important and comprehensive initiative in the field of decommissioning This programme, which started in 1985 with the signing of the "Agreement on a Co-operative Programme", aimed to co-ordinate among participants the exchange of information experiences, or if possible, personnel with regard to decommissioning projects [18] It involved 10 decommissioning projects in seven participating countries and lasted for five years In 1990 the participants decided to prolong the Agreement for another five years The Agreement which is performed under the supervision of the "NEA Radioactive Waste Management Committee now involves 19 projects in eight countries, provides for the exchange of technical and scientific information

13 These projects include 1) BR-3 reactor (PWR) in Mol, Belgium from 1962-87 operations phase (IAEA stage 3) AT-1 enrichment nuclear facility in La Hague, France from 1969-79 (IAEA stage 3) Windscale WAGR Sellafield UK, AGR from 1957-82 (IAEA "stage" 3) KBR-A, Grundremmingen Germany from 1966-77 operations phase (IAEA "stages 2 and 3) See also *infra* section 3 on the IAEA Three Basic Stages

14 See IAEA *Procedures and Data, Factors Relevant to the Decommissioning of Land Based Nuclear Reactor Plants* IAEA Safety Series No 52 (Vienna, 1980)

15 See *Decommissioning of Nuclear Facilities Proceedings of a Symposium* Vienna 13-17 November 1978 jointly organised by the IAEA and the OECD/NEA (Vienna, 1979)

16 The project was named after the Swedish Agesta reactor that was shut down in 1974 in order to test and demonstrate the decontamination methods of PWR systems Germany Italy Sweden, Switzerland, the UK and the USA were involved in this project See OECD/NEA *International Co-operation on Decommissioning Achievements of the NEA Co-operative Programme 1985-1990* Executive Summary and Introduction (Paris 1992) at pp 8 and 20

17 *Proceedings of the Specialist Meeting on Decommissioning Requirements in the Design of Nuclear Facilities* (Paris 1980) Further reports were *Decontamination Methods as Related to Decommissioning of Nuclear Facilities* Report by an NEA Group of Experts (Paris 1981) *Cutting Techniques as Related to Decommissioning of Nuclear Facilities* Report by an NEA Group of Experts (Paris 1981) *Decommissioning for Nuclear Facilities Feasibility Needs and Costs Report by an NEA Group of Experts* (Paris 1986)

18 Article 1(a) of the *Agreement on a Co-operative Programme* The idea of a sort of club was launched by the United States Department of Energy

on decommissioning and according to Article 7(a), the national legislation of the State in which the project is taking place will be applicable The Agreement also provides that the participants will endeavour to ensure the free movement of personnel and equipment necessary for conducting the relevant decommissioning projects

Other initiatives taken by the NEA include the Seminar on Decommissioning Policies for Nuclear Facilities, which was organised in 1991, and the Analysis of the Variability of Decommissioning Cost Estimates [19] The seminar on "Decommissioning Policies" includes a comparative study on experiences of various countries on various aspects of decommissioning, such as financial, technical and legal aspects [20] Finally, the NEA organised a Training Seminar for lawyers in Central and Eastern Europe on the Legal Aspects of the Safe Management of Radioactive Waste and Decommissioning in 1996 which focused primarily upon the regulatory aspects of decommissioning in some OECD countries [21]

IAEA

In 1973 the IAEA recognised the necessity of incorporating the various aspects of decommissioning into its regular programmes and of formulating and developing guidelines, recommendations and general principles within this field Based on the technical data and the experiences of several research projects assembled in the reports of the IAEA Technical Committee on Decommissioning of Nuclear Facilities in 1975 and 1977, the IAEA adopted in 1980 a Recommendation entitled "The Basic (or Three) Stages of Decommissioning" [22] This Recommendation has served as a basis for other technical and safety guidelines on decommissioning on an international as well as a national level It proposes that three basic stages of decommissioning can be distinguished with regard to decontamination, dismantling and waste management Although these stages refer to different phases in the decommissioning process, this does not necessarily imply that each stage must follow in sequence or that a specific stage has to be accomplished before another can begin Each of the three decommissioning stages can be defined by two characteristics the physical state of the plant and its equipment, and the surveillance necessitated by that state

Stage One, the so-called "storage with surveillance" phase, follows shortly after the shutdown of the reactor, during which preparations for decommissioning activities take place following those taken during the operations phase and in the transitory phase to decommissioning The first stage will consist of minimal decontamination, draining of liquid systems and the disconnecting of operating systems The reactor will be completely defuelled and all heat transport fluids will be removed, but the reactor vessel will be kept as it was during operation with all mechanical openings blocked and sealed During this period, physical and administrative controls will assure limited access, whereas continued surveillance

19 OECD/NEA, *Decommissioning of Nuclear Facilities An Analysis of the Variability of Decommissioning Cost Estimates* (Paris 1991), OECD/NEA *Seminar on Decommissioning Policies* (Paris 1992)

20 See also the 1991 international seminar *Decommissioning Policies for Nuclear Facilities Proceedings of an International Seminar*, 2-4 October 1991 (Paris, 1992)

21 OECD/NEA, *Seminar on the Legal Aspects of the Safe Management of Radioactive Waste and Decommissioning* Cernavoda, 26-30 August 1996 Regulatory Aspects of the Decommissioning of Nuclear Installations in some OECD Countries Belgium, Canada, France, Germany Italy, Japan, Spain, Sweden, United Kingdom, United States (July 1996)

22 See *Technical Committee Meeting on Decommissioning of Nuclear Facilities* Technical Documents IAEA-179 (1975) and IAEA-205 (1977) and see *Factors Relevant to the Decommissioning of Land-Based Nuclear Reactor Plants*, IAEA Safety Series No 52 (Vienna 1980)

and maintenance will allow careful removal of nuclear fuel and of non-radioactive and low-radioactive material [3]

Stage Two involves the so-called "restricted site use", during which all equipment and buildings which can be easily dismantled are removed or are decontaminated and made available for other uses In this way the main structure of the plant will be dismantled to the smallest possible size whereas parts that are still contaminated remain sealed and under surveillance, subject to regular controls in addition to periodic surveillance of the environment

Finally, Stage Three, the so-called 'unrestricted site release", will follow the second stage after a period of about 25 to 100 years and involves the complete dismantling of the remaining structure The remaining material, equipment and buildings will be further decontaminated, or removed if decontamination is not feasible in a specified short time limit, in order to release the newly green field site ' without access restrictions and to make it available for re-use

Apart from the classification of the "Basic Three Stages", the IAEA also developed a report on the Regulatory Process for the Decommissioning of Nuclear Facilities which has been published in Safety Series No 105 The general aim is to provide national legislators with a set of basic principles to guide the creation of rules on decommissioning within the existing national legal framework with special emphasis on the protection of the public and workers against radiation exposure [4]

In addition, the IAEA has published many reports on decommissioning[25], such as the technical reports of 1983 and 1985 on decontamination, the technical reports of 1986 and 1987 on technology and safety aspects of decommissioning, and finally in 1995 a technical report on Safe Enclosure which describes and assesses safe enclosure as a precursor to dismantling a nuclear installation [6] It is generally recognised that the recommendations of the IAEA in the field of decommissioning

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23 See *IAEA Safety Series No 52 supra* n 14 at pp 3-4

24 The *Safety Series No 105* guidelines are based on three presumptions
1) the existence of specific national nuclear legislation which regulates the site location concept construction initiation and operation of a nuclear installation
2) the special aspects of decommissioning which deserve special attention in the national legislation involve decommissioning planning (initial planning, ongoing planning and final planning) decommissioning facilitating decommissioning costs and financial planning and post-decommissioning considerations
3) the existence of a regulatory body to inspect control and regulate the activities of the licensee with regard to its decommissioning plan and to enforce the legislation The IAEA guidelines define quite explicitly the manner in which the legal relationship and the duty to cooperate between the licensee and the regulatory body should be carried out

25 Apart from the technical reports the IAEA also published *Decommissioning of Nuclear Facilities Proceedings of a Symposium* (IAEA Vienna 1978) IAEA Safety Series No 52 *Procedures and Data Factors Relevant to the Decommissioning of Land-Based Nuclear Reactor Plants* (IAEA, Vienna 1980) IAEA Safety Series No 74 *IAEA Safety Guides Safety in Decommissioning of Research Reactors* (IAEA, Vienna 1986) IAEA Safety Series No 105 *Safety Guides The Regulatory Process for the Decommissioning of Nuclear Facilities* (IAEA, Vienna 1990)

26 Technical Reports Series No 375 *Safe Enclosure of Shut Down Nuclear Installations* (IAEA Vienna 1995) See also *inter alia* Technical Reports Series No 230 *Decommissioning of Nuclear Facilities Decontamination Disassembly and Waste Management* (IAEA, Vienna 1983) Technical Report Series No 249 *Decontamination of Nuclear Facilities to Permit Operation Inspection Maintenance Modification or Plant Decommissioning* (IAEA Vienna 1985) Technical Reports Series No 267 *Methodology and Technology of Decommissioning Nuclear Facilities* (IAEA, Vienna. 1986), Technical Reports Series No 278 *Methods for Reducing Occupational Exposures During the Decommissioning of Nuclear Facilities* (IAEA, Vienna 1987) Technical Reports Series No 293 *Factors Relevant to the Recycling or Reuse of Components Arising from the Decommissioning and Refurbishment of Nuclear Facilities* (IAEA Vienna 1988) Technical Reports Series No 286 *Decontamination and Demolition of Concrete and Metal Structures During the Decommissioning of Nuclear Facilities* (IAEA, Vienna 1988)

comprehensively and thoroughly deal with all of the various aspects of decommissioning and for that reason can be used as a basic model for the development of national legislation on decommissioning

II. EXISTING INTERNATIONAL LAW ON DECOMMISSIONING

As yet, no international agreements exist which regulate the various aspects of decommissioning However, there are currently a few international conventions, either in the process of revision or advanced process of development, which touch upon the issue of decommissioning although it is as such not the main subject of these instruments Decommissioning is, for instance, briefly referred to in the 1994 Nuclear Safety Convention as an aspect of nuclear safety in general Secondly, the draft Convention on the Safety of Radioactive Waste Management discusses decommissioning from the point of view of radioactive waste generated by the shutdown and dismantling operations of nuclear facilities Finally, within the Paris Convention on Third Party Liability in the Field of Nuclear Energy, decommissioning has also been noted with regard to the inclusion of nuclear installations in the process of being decommissioned in its general liability regime

1 Nuclear Safety Convention

Although the Nuclear Safety Convention does not deal with decommissioning *expressis verbis*, it does contain a few articles which indirectly cover this subject The Nuclear Safety Convention was adopted at the Diplomatic Conference held at IAEA Headquarters in Vienna from 14 to 17 June 1994 [27] The Convention, which entered into force in October 1996, covers land-based civil nuclear power plants and aims to maximize safety at nuclear power plants [28] The main incentive for drafting the Convention was the general concern about the safety of nuclear reactors in the CEEC/CIS It is in this perspective that the Nuclear Safety Convention was considered an effective instrument not only to improve but also, if necessary, to shut down hazardous plants in order to comply with the nuclear safety standards of the Convention [29] The fact that decommissioning is included within the Convention can be inferred from Article 2(i) which defines a nuclear installation in a negative sense It provides that all civil nuclear power plants fall within the scope of the nuclear safety regime of the Convention, unless such plant "ceases to be a nuclear installation when all nuclear fuel elements have been removed permanently from the reactor core and have been stored safely in accordance with approved procedures, and a decommissioning programme has been agreed to by the regulatory body" [30] This implies that those nuclear facilities which are in the process of being decommissioned, at least those in Stage One of the IAEA Basic Three Stages, the so-called "storage with surveillance" phase, would fall under the nuclear safety regime of the Convention To what extent the second and third stages would be regulated by the provisions of the Convention is, however, unclear Considering the fact that these stages are difficult to separate, coverage of parts of Stage Two and Three might be possible and desirable

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27 See *International Nuclear Safety Convention Ready for Adoption in June*, Press Release IAEA/1265 of 4 May 1994 The final text of the International Nuclear Safety Convention was adopted during the meeting of delegations from 83 member States and four international organizations See *IAEA Convenes Conference to Adopt Nuclear Safety Convention* Press Release IAEA/1274 of 15 June 1994 See also OECD/NEA, *Preparatory Work on the Nuclear Safety Convention*, 53 *Nuclear Law Bulletin* No 102, June 1994

28 See *IAEA Bulletin* No 2 1994 pg 39

29 M L Ryan and A MacLachlan 'Debate Over Content and Scope of Safety Convention Continues Vol 33 (16) *Nucleonics Week of April 16* (1992) at p 6, see also O Jankowitsch, 'The Convention on Nuclear Safety' 54 *Nuclear Law Bulletin* 9 December 1994

30 Article 2(i) of the *Nuclear Safety Convention*

Article 6 of the Convention further provides that in case safety upgrades cannot be achieved, each Contracting Party is obliged to implement plans "to shut down the installation as soon as practically possible" [31] In this manner, the Convention introduces an obligation to promptly decommission irreparably unsafe nuclear installations which, until the reactor is completely and permanently defuelled and its nuclear fuel elements safely stored, will be governed by the provisions of the Nuclear Safety Convention This means that the first phase of decommissioning shall be governed by the treaty provisions on the priority of safety, assurance of adequate financial resources and qualified staff account of human capabilities and limitations, quality assurance, assessment and verification of safety radiation protection of workers and the public and the assurance of on-site and off-site emergency planning and response

2 Draft Radioactive Waste Convention

More emphasis on decommissioning was put in the "Travaux Preparatoires' of the draft Convention on the Safety of Radioactive Waste Management [and on the Safety of Spent Fuel Management], the negotiations for which started in July 1995 under the auspices of the IAEA The Radioactive Waste Convention, which complements the Nuclear Safety Convention, is intended to promote the safe and environmentally sound management of radioactive waste and will cover storage transport, treatment and disposal of radioactive waste [32] Because the decommissioning or shutdown of nuclear installations necessarily involves the generation of substantial amounts of radioactive waste which will have to be safely managed and stored, the Radioactive Waste Convention could not but touch upon the issue of decommissioning Since the waste volume as a result of decommissioning of a nuclear facility is of the same order of magnitude as the waste volume during operation produced throughout the normal lifetime of the facility, the availability of disposal sites for radioactive waste (low and intermediate level) is of the utmost priority in those countries which are choosing decommissioning strategies [33] It is therefore essential that the regulations for radioactive waste management should be associated with regulations for decommissioning in order to assure a comprehensive legal and regulatory system Decommissioning under the current version of the draft Radioactive Waste Convention is defined as "all steps leading to the release of a radioactive waste management facility from regulatory control", which "includes the processes of decontamination and dismantling" [34] This means that the Contracting Parties to this Convention will be obliged to ensure that the general safety requirements and regulatory and legislative obligations in this respect shall also be applicable to nuclear facilities being decommissioned [35] In addition, the principle that the prime responsibility for the safety of radioactive waste will lie with the licence holder will be extended to the period in which the facility is decontaminated and dismantled [36] Accordingly, the residual responsibility stipulated in the Convention

31 Article 6 of the *Nuclear Safety Convention* adds that. "The timing of the shut-down may take into account the whole energy context and possible alternatives as well as the social environmental and economic impact This basically offers States which are dependent upon nuclear energy to generate electricity such as Lithuania the possibility to delay decommissioning of unsafe nuclear installations if their socio-economic situation and the absence of alternatives on a short term so demands

32 See Preamble and Article 1 of the *Fourth Working Draft of a Convention on the Safety of Radioactive Waste Management [and on the Safety of Spent Fuel Management]* prepared by IAEA Group of Experts on a Convention on the Safety of Radioactive Waste Management, IAEA Doc RWSC 5 DRAFT 4 1996-07-29 See also International Newsbrief 38(2) *IAEA Bulletin* (Vienna. 1996) at p 42 IAEA Group of Experts on a Convention on the Safety of Radioactive Waste Management, *Report by the Chairman of the Group of Experts on a Convention on the Safety of Radioactive Waste Management* fourth meeting 24-28 June 1996 (3 July 1996) at paras 4-5

33 See Decommissioning Nuclear Power Plants, *NEA Issue Brief No 1* (February 1987)

34 Article 2(b) of the *Fourth Draft Radioactive Waste Convention supra* n 32 at p 3

35 Articles 4-7 of the *Fourth Draft Radioactive Waste Convention, supra* n 32 at pp 7-9

36 Article 8(1) of the *Fourth Draft Radioactive Waste Convention supra* n 32 at p 9 One delegation however proposed an amendment of the definition of decommissioning so that it would be explicit that it covers

upon the Contracting Party to ensure that each such licence holder meets its responsibility, in addition to the responsibility imposed upon the Contracting Party in case there is no licence holder or other responsible party, will also be applicable to the decommissioning phase [37]

The same is true with respect to the provisions of the Radioactive Waste Convention concerning financial resources The Convention explicitly requires a Contracting Party to ensure the provision of financial resources which would "enable the appropriate institutional controls and monitoring arrangements to be continued for the period deemed necessary following the closure of a disposal facility" [38] This would imply that funds must be available, financed either by the licensee or by the State itself or jointly, to ensure any costs of decommissioning, including liability claims resulting from potential nuclear damage

3 Paris Convention

Although decommissioning of nuclear facilities is not explicitly mentioned in the Paris Convention on Third Party Liability in the Field of Nuclear Energy, nor is it the subject thereof, it has been interpreted to cover those nuclear installations which have permanently ceased operations In 1987 the NEA Steering Committee for Nuclear Energy explicitly agreed that the "provisions of the Paris Convention should be interpreted as covering nuclear installations in the process of decommissioning" [39] This means that the third party liability regime established under the Paris Convention will be applicable to the operator of a nuclear installation that has been shut down During the process of decommissioning, liability will therefore rest upon the operator or licensee, which means that he will be obliged to carry appropriate liability insurance up to the stipulated liability limit This decision, however, did not reflect the fact that the reduced risk represented by the facility due to its shutdown could or should have a mitigating effect upon the extent of mandatory financial security and liability limit For that reason the Steering Committee decided in 1990, on the basis of Article 1(b) of the Paris Convention, that a Contracting Party may cease to apply the Paris Convention to a nuclear installation being decommissioned, provided that it must have permanently ceased operations, be completely defueled and remain under control of the competent national authority, which should ensure maintenance of appropriate provisions for confinement of radioactivity, and, finally, provided that the specified technical criteria are satisfied [40] This means that the decision to exclude facilities in the process of being decommissioned from the scope of the Paris Convention is left to the Contracting Parties, whereas the technical criteria for this option ensure that the risks presented by the relevant facility are minimised to the extent that continued application of the Convention is no longer warranted[41] Similar provisions on the possible exclusion of nuclear installations being decommissioned have been proposed in the draft Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage [42]

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decommissioning of all nuclear facilities and not just management facilities for radioactive waste or spent fuel In addition the definition should also cover the adequate regard for protecting workers the public and the environment from the harmful effects of radiation

37 Article 8(1) and (2) of the *Fourth Draft Radioactive Waste Convention, supra* n 32 at p 9

38 Article 9 of the *Fourth Draft Radioactive Waste Convention supra* n 32 at pp 9-10

39 See OECD/NEA, *Paris Convention - Decisions Recommendations Interpretations* (Paris 1990), Section 4 Definition of "Nuclear Installation", at p 6

40 See OECD/NEA, *Paris Convention - Decisions Recommendations Interpretations* (Paris 1990) Section 7 Possibility of Excluding Installations Being Decommissioned, at p 8, and see *ibidem* Annex III Contracting States Authorised to Exclude Installations Being Decommissioned, at p 22

41 NE(90)7 Paris (14 March 1990)

42 See Article 3(6) of the draft *Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage* which amends Article I(2) of the Vienna Convention, IAEA Doc protocol rev 1996-06-26, incorporating the amendments made at the 15th Session of the Standing Committee at p 3

If such an option is followed, it does not necessarily mean that the operator will be allowed to completely shed his liability or financial security obligations during the decommissioning process, but merely that he will be released from the stringent liability limits and mandatory insurance obligations under the Paris Convention

III. EXISTING NATIONAL LAW ON DECOMMISSIONING

Special national legislation in the field of decommissioning of nuclear facilities has been most explicitly developed in the USA In Germany the legislation is limited to the licensing procedure and the management of radioactive waste The UK, on the other hand, provides an example of how the problem of decommissioning has been solved within its existing legislation on the safety and licensing of nuclear installations

1 The United Kingdom

There are about 10 nuclear facilities in the UK that are permanently shut down, virtually all of which are in the process of being decommissioned In the UK, the construction, expansion or exploitation of a nuclear facility with a capacity over 50 MWe is regulated by Section 36 of the Electricity Act of 1989 and the Town and Country Planning Act of 1990, in addition to the required approval of the Secretary of State for Trade and Industry, who can, if he considers it necessary, require a public hearing Although specific legislation in the field of decommissioning is lacking, regulation of decommissioning activities has been implicitly based on the existing legislation applicable to nuclear installations, to the extent that it can be adapted to the decommissioning process For instance, the 1974 Health and Safety at Work Act, the 1965 Nuclear Installations Act and the 1971 Nuclear Installations Regulations, established on the basis of the 1965 Act, largely govern the safety and licensing of nuclear installations

According to the 1974 Act, the Health and Safety Executive is responsible for regulating and licensing all commercial nuclear installations These responsibilities have been largely transferred to its division, the so-called Nuclear Installations Inspectorate (NII) The NII has broad discretion with respect to licenses and site-inspection in the interest of nuclear safety in general The NII can attach conditions to the initial licence, as well as issue additional ones, not only during the lifetime of the installation, but also during the licensees' period of responsibility [43] This period is defined by Section 5(3) of the 1965 Nuclear Installations Act It starts with the grant of the initial licence and terminates the moment the Health and Safety Executive informs the licensee that there has ceased to be any radiological danger in relation to the site or any of its remaining structures During this period the licensee is responsible for all activities on its site and can be held liable for possible resulting damage Whilst decommissioning activities will take place within such period of responsibility the same conditions are applicable This means that the licensee will be responsible for decommissioning costs and will be liable for any resulting damage according to the 1965 Act's basic provisions on nuclear third party liability [44]

43 The UK has recently introduced a standard license for all major civil nuclear sites which contains 35 conditions providing the necessary safety related requirements in respect of design, construction, commissioning and operational stages of the installation Condition 35 requires that licensees make adequate arrangements for decommissioning

44 According to the 1965 Act, the operator is liable for a maximum amount of 140 million pounds also with respect to decommissioning, and the State has to support up to an amount of 300 million SDRs

Although there is no special legislation concerning radioactive waste from decommissioning, some general rules are applicable on the basis of the 1993 Radioactive Substances Act, which governs radioactive waste in the UK The 1993 Act authorises the Department of Environment and the Ministry of Agriculture, Fisheries and Food to control and inspect the management of radioactive material, acting as a parallel to the system set out in the 1974 and 1965 Acts [45]

2 Germany

In Germany, where about 15 nuclear installations have been shut down and await complete decommissioning, the existing nuclear legislation offers more concrete possibilities to govern the decommissioning aspect of nuclear installations The *Atomgesetz* has been made more suitable to deal with the various stages of decommissioning The new paragraph 3 of Article 7 of the *Atomgesetz* aims at preventive governmental control of decommissioning activities by requiring a specific licensing procedure for the "*Stillegung*", "*sichere Einschluß*" and "*Abbau*" [46] To this extent, the specific requirements of the operating licence will be, by analogy, applied to the decommissioning process, leading in practice to various interpretation problems due to differences in the condition of the installation during the operating and decommissioning phases The "*Beseitigung*", on the other hand, takes place during the whole decommissioning process In fact, it refers to the management of waste produced, *inter alia*, by the "*Abbau*" phase and aims to release the site for unrestricted use taking the health and safety of the public into consideration According to Article 9a(1) of the *Atomgesetz*, all radioactive waste produced during the decommissioning process must be processed or stored (final storage) "*schadlos*", i e without any damage The licensing procedure further requires decommissioning planning according to the *Atomrechtliche Verfahrungsverordnung* which, although its scope is limited to the general operating licence procedure for nuclear facilities, has been used, by analogy, for decommissioning activities However, there does not exist a specific required form and content of such decommissioning plans, which, therefore, might vary considerably in the different "*Bundeslander*" of Germany Also, the planning and availability of funds to cover the costs and financing of decommissioning is not regulated by the *Atomgesetz* [47] With regard to liability for damage resulting from decommissioning activities, a specific provision is lacking, and the liability will therefore have to be regulated by the general provision of strict and unlimited liability of the licensee[48] Nevertheless, the German *Atomrechtliche Deckungsvorsorge Verordnung* requires operators of installations to insure themselves up to a certain limit with respect to accidents that might occur during the decommissioning process Article 12 of this Ordinance allows the operator to reduce his limit of liability insurance during the decommissioning of the installation to a certain amount dependent upon the residual risk of the installation

45 Further regulation is found in conditions 32 and 33 of the standard license, that requires the licensee to minimise of radioactive waste and dispose of such waste that has been accumulated or stored on the site See *supra* n 44

46 This refers to initial shutdown of the reactor initial decontamination and dismantling with safe sealing of the main structure and final dismantling and removal of equipment and buildings for restricted site use

47 The obligation to assure early financing of projects such as the decommissioning of nuclear installations, is not regulated by the *Atomgesetz* but is based on national trade law, *i e* Article 249(1) of the *Handelsgesetzbuch* ' (Trade Rules)

48 The maximum amount of financial security of 500 million DM is covered by a first layer in which each operator is obliged to cover a limit of 200 million DM by third party liability insurance and a second layer in which the amount between 200 and 500 million DM is provided by a contract jointly subscribed to by all nuclear power plant operators in Germany For claims of damages up to 1000 million DM for which financial security is unavailable, the operator will be indemnified for 75 per cent by the federal authorities and 25 per cent by the Land in which the installation is situated

3. The United States of America

In the United States of America a total of 18 nuclear installations have so far been shut down and await complete decommissioning According to the 1954 Atomic Energy Act, the supplemental 1974 Energy Reorganisation Act and the 1969 National Environmental Policy Act, the regulatory body responsible for the control, regulation and licensing of civil nuclear facilities is the Nuclear Regulatory Commission (NRC) [49] As an independent agency, the NRC is authorised to develop and enforce regulations, set up guidelines and standards, licensing, control and investigate civil nuclear installations in the USA The licensee will have to submit an application to the NRC for a construction permit and an operating licence If the NRC considers the application in compliance with the specific requirements of the Atomic Energy Act and its own requirements, the operating licence will be granted for a maximum period of 40 years [50] After this period, the licensee will either have to apply for a renewal of his licence or submit an application for termination of the licence [51] Before granting a licence, the NRC will conduct a public inquiry The NRC will terminate a licence when the facility is decommissioned in accordance with the approved decommissioning plan and the order authorising decommissioning and when the site and facility are suitable for unrestricted use [52]

This legislation proved to be inadequate and for that reason the NRC developed a special regulation which amended several existing provisions of the Code of Federal Regulations and which entered into force on 27 July 1990 [53] Under the US regulatory system, decommissioning is treated as a condition for the termination of the operating licence, which puts an end to the licensees responsibility with regard to both the site and the facility or its remaining structures As a consequence of the special structure of the Code of Federal Regulation, the subject of decommissioning is not regulated in one single body of rules but in a very rudimentary way The Regulation of 1988 consists of provisions covering the planning, financing, time limits and environmental aspects of decommissioning activities Characteristic of this regulation is the specific requirement for submission of a Preliminary Decommissioning Plan' (PDP) five years before the planned decommissioning of the nuclear installation This PDP should specifically set out

a) the decommissioning alternative to be used,

b) the major technical actions necessary for safe decommissioning,

c) the current situation for disposal of high-level and low-level waste,

d) the residual radioactivity criteria, and

e) the other site-specific factors affecting planning and costs [54]

Two years after the termination of operational activities and at least one year before planned decommissioning of the nuclear facility, the licensee will have to submit an application for the

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49 *1954 Atomic Energy Act* as amended (68 Stat. 919, 42 *USC* 2011) *1974 Energy Reorganisation Act* as amended (88 Stat 1242 42 *USC* 580) *1969 National Environmental Policy Act* (83 Stat 852) as amended

50 10 *CFR* Part 50 Section 50 51

51 10 *CFR* Part 54 and 10 *CFR* Part 50, Section 50 82

52 10 *CFR* Part 50 Section 50 82(f)

53 On 27 June 1988 the NRC amended some provisions of the Code of Federal Regulations (CFR Parts 30 40 50 51 70 and 72) which established more specific requirements for decommissioning the so-called *General Requirements for Decommissioning of Nuclear Facilities* which entered into force in July 1988

54 10 *CFR* Part 50 Section 50 75(f)

termination of his operating licence accompanied by a "Proposed Decommissioning Plan" (DP) In this respect, the three decommissioning alternatives (DECON, SAFSTOR, ENTOMB), which are developed and defined by the NRC but not implemented in the 1988 Regulation, are of importance to the DP licensing procedures This DP should define

a) the decommissioning alternative to be used and a description of activities involved,

b) a description of controls and limits on procedures and equipment to protect public health and safety,

c) a description of the planned final radiation survey,

d) an updated cost estimate for decommissioning, comparison of the estimate with present funds set aside, and plan for assuring the availability of adequate funds for the completion of decommissioning, and

e) a description of technical specifications, quality assurance, and physical security plan provisions in place during decommissioning [55]

The NRC will determine whether the PDP or DP is in compliance with the requirements of the 1988 Regulation and can attach certain conditions to the licence The licensee is furthermore required to assemble updated technical and safety data in an identified location until the operating licence is terminated by the NRC [56] In addition, the costs and financing of decommissioning activities have been explicitly regulated taking the type and size of the reactor into consideration [57]

In 1996, the NRC amended its regulations (61 Fed Reg 3927), effective as of August 28, 1996 The new Rule is intended to provide the licensees of nuclear power reactors with a simple and flexible procedure in implementing the decommissioning process, especially with regard to premature closure Since several licensees had permanently ceased operations earlier than expected without the submission of a decommissioning plan, and these licensees often requested exemptions from safety requirements due to the reduced risk of accident because there was no longer fuel in the reactor, the NRC believed that amendments were necessary to bring increased efficiency and uniformity to the decommissioning process These amendments aim to clarify ambiguities in the current regulations, to codify procedures and terminology used in adjudicatory decisions of the NRC, and to increase public information and participation about decommissioning [58]

In effect, the new Rule eliminates the need for a licensee to submit a decommissioning plan for approval prior to undertaking any decommissioning activity Under the new Rule, the NRC instead requires the licensee to submit two separate certifications, one of which certifies that the licensee intends to permanently cease operation and the other, that all fuel is permanently removed from the reactor vessel This would entitle the licensee to a fee reduction and eliminate the obligation to follow certain

55 10 *CFR* Part 50, Section 50 82(a) and (b)

56 10 *CFR* Part 50, Section 50 75(g)

57 10 *CFR* Part 50, Section 50 75

58 The NRC proposed amending the regulations in 10 *CFR* Parts 2, 50 and 51 The proposed rule was published in the *Federal Register* on 20 July 1995 (60 *FR* 37374), see J R. Tourtellotte, *New Decommissioning Regulations in the United States* (August 1996), Rulemaking Issue at pp 2-4 See also Chapter "National Legislative and Regulatory Activities" in this *Bulletin*

requirements needed only during reactor operation [59] Once both certifications have been submitted, the licensee would be required to submit, within 2 years after certification of permanent cessation of operation, a post shutdown decommissioning activity report (PSDAR) that specifies decommissioning activity schedules, estimated decommissioning costs and an assessment of environmental considerations [60] The NRC would then publish the PSDAR and make it available for public comment during a meeting arranged by the NRC in the vicinity of the plant to discuss the licensee s plans [61] Ninety days after the NRC receives the PSDAR and 30 days after the public meeting the licensee could begin to perform major decommissioning activities without specific approval by the NRC However such "not prior approved" activities are subjected to certain constraints which generally ensure that such licensee's decommissioning activities are in compliance with the 1969 National Environmental Policy Act (NEPA) These constraints prohibit licensees from performing major decommissioning activities that preclude release of the site for possible unrestricted use, cause significant environmental impacts not previously reviewed, or result in a lack of reasonable assurance that adequate funds would be available for decommissioning [62] If complied with, the new Regulations would enable licensees to draw on their decommissioning trust funds, which are required by the NRC, without prior approval

With respect to those reactors that are permanently shut down and have no fuel in the reactor vessel, the operating reactor requirements were eliminated or revised The revised Regulations require that before completing decommissioning and within a storage period up to 60 years, the licensee must submit an application to the NRC to terminate the licence, along with a detailed licence termination plan Similar to the PSDAR procedure, this plan will be published, available for public comment and discussed in a public meeting After completion of a hearing and the NRC's satisfaction of proper implementation of the approved plan, the NRC would terminate the licence [63]

The 1982 Nuclear Waste Policy Act regulates radioactive waste management from decommissioning activities and channels the primary responsibility for interim storage and its costs to the generators and owners of high level waste and spent fuel until they are accepted by the Department of Energy, responsible for permanent disposal With respect to low level waste, the responsibility will be shifted to each State in which such waste is generated by decommissioning activities [64]

Special provisions concerning liability for damage arising out of decommissioning activities are lacking and will be governed by either the Price-Anderson Act or by tort law providing for strict liability imposed upon the licensee for nuclear damage arising from a nuclear installation [65]

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59 10 *CFR* 50 82(a)(1)

60 10 *CFR* 50 82(a)(4) This PSDAR requirement is similar to the current requirement for a storage decommissioning mode followed by a more detailed requirement of a license termination plan

61 See Tourtellotte *New Decommissioning Regulations supra* n 60 Attachment 4 NRC Revision to General Requirements for Decommissioning Nuclear Power Plants at pp 2-3

62 See *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities NUREG-0586* US Nuclear Regulatory Commission, Office of Nuclear Regulatory Research (Washington D C August 1988) See also Tourtellotte *New Decommissioning Regulations supra* n 60 Attachment 2 Final Regulatory Analysis at pp 7-9

63 See Tourtellotte *New Decommissioning Regulations supra* n 60 Attachment 4 NRC Revision to General Requirements for Decommissioning Nuclear Power Plants, at pp 4-5

64 See the *1982 Nuclear Waste Policy Act* (Public Law 97-425) as amended by the *1987 Nuclear Waste Policy Amendments Act* (Public Law 100-203) in respect of high level waste as implemented in the NRC s Regulation 10 *CFR* Part 60 *Disposal of High Level Radioactive Wastes in Geologic Repositories*, and see the *1985 Low Level Radioactive Waste Policy Act* which regulates the management of low level radioactive waste

65 Under the *Price Anderson Act* the licensee must maintain primary financial protection of $200 million (private insurance) for third party liability claims, supplemented by secondary financial protection up to an amount of

The US is also developing new regulations concerning "Radiological Criteria for Decommissioning" and "Clarification of Decommissioning Funding Requirements" [66]

The 1988 Regulation is especially interesting due to the provisions defining the permitted methods of decommissioning, the so-called decommissioning alternatives, which constitute a suitable and comprehensive model for the development of national legislation in the field of decommissioning of nuclear installations For that reason, these alternatives will be discussed in more detail, together with the NEA review on the factors of decommissioning strategies

4 Conclusion and Comparison with IAEA Guidelines

From the above, it can be concluded that Germany and the UK, as with other OECD countries, have opted to introduce less detailed provisions on decommissioning in the context of the general licensing procedure and control of nuclear installations, unlike the United States, where the decommissioning process is regulated by more specific provisions All three countries, Germany, the UK and the US, recognise a certain division of decommissioning into three stages Whereas the UK relies on the IAEA Basic Stages which determine different situations after decommissioning activities have taken place, the stages of decommissioning adopted by the US and Germany refer to alternative methods of decommissioning With regard to the planning of decommissioning projects, only the US has developed specific legislation which is largely in compliance with the guidelines set up by the IAEA Both Germany and the UK have no specific legislation in this field, although the "planning" conditions attached by the national regulating body to the licensing procedures of decommissioning in the UK are largely based on the IAEA guidelines Only the US has developed specific legislation with regard to the costs and financing of decommissioning activities and the time limits for decommissioning in accordance with the IAEA guidelines The obligations and responsibilities of the licensee and the regulatory body and their relationship to each other are basically similar in all of the examined countries and are in line with the IAEA guidelines

IV RESPONSIBILITY AND INSURANCE FOR DECOMMISSIONING

The responsibility for decommissioning a commercial nuclear facility rests, in principle, with its licensee The regulatory body (such as the NRC) will be responsible for regulatory and policy guidance according to the relevant legislation It is the licensee who will have to bear the costs of the various aspects of decommissioning and he will be strictly liable for any nuclear damage resulting from decommissioning in the same manner as under the regular nuclear liability laws based on either the Paris or the Vienna Convention, although both Conventions refrain from explicitly mentioning decommissioning

In addition, the costs of decommissioning must be covered in advance and are the responsibility of the operator There exist several methods of financing these costs, depending upon the circumstances of each nuclear facility and its national regulatory regime Most countries have provided for a fund to

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$75 5 million per nuclear installation, to a maximum of just under $9 billion. 10 *CFR* 140 11(a)(4) According to the NRC's Regulations each nuclear facility licensee must maintain $1 06 billion in property damage insurance to cover decontamination in case of an accident 10 *CFR* 50 54(w)

66 Because no provision requires liability coverage during decommissioning the NRC has published a petition that it would waive mandatory insurance for nuclear facilities which are shut down, defuelled and awaiting decommissioning See *Docket No PRM-50-57* of 2 October 1991

assure the availability of financing, which the operator is obliged to set up either at the start of the plant s operation or during the planning of the decommissioning [67]

A mechanism is required for assuring the funding of decommissioning expenses, including those for premature closure of the facility, or alternatively, funds to cover costs of premature decommissioning in the event that other mechanisms provided by the insurers were insufficient Insurance coverage will largely depend upon the estimated costs of decommissioning, with variations arising from different countries and regions, various methods of decommissioning, availability and costs of waste disposal and the various types of nuclear facilities to be decommissioned These costs will in general, include the costs of the post-operational phase, decontamination, dismantling, transport and management of radioactive waste Insurance coverage will also depend on the actual risk of the installation This risk can vary due to the changing conditions of the installation after various decommissionings activities have taken place

To the extent that the Paris Convention covers decommissioning, its third party liability regime including channelling of liability to the operator, liability limits and mandatory financial security would also be applicable to operators or licensees of nuclear facilities being shut down or dismantled However, if such facility has been removed from the coverage of the Paris Convention, the operator or licensee might be faced with relatively high liability and insurance obligations considering his inability to rely upon the three tiered funding regime of the Brussels Supplementary Convention

There have been some suggestions that it would be preferable to transfer responsibility for decommissioning operations to respective Governments, especially in respect of the long-term management of radioactive waste [68] Such suggestions have, however, never found significant support since many States do not wish to assume such responsibility, preferring to impose it upon the nuclear industry

V CONCLUSIONS

Having determined a proper definition of nuclear decommissioning, its general, technical and legal aspects, this article sets out general parameters for an appropriate legal framework for decommissioning which should be developed within national legal systems to ensure a safe and appropriately supervised decommissioning procedure While such a legal framework will have to be adapted to the specific structure and characteristics of existing national nuclear law, its basic elements should include provisions which conform to the technical and regulatory guidelines developed by the various international bodies, such as the NEA, Euratom and the IAEA From the comparative study on existing regulations in the field of decommissioning in the UK, Germany and the United States it can be concluded that, apart from categorising the decommissioning process in basic stages each of which should be regulated by a specific set of safety and regulatory provisions, the development of specific legislation with regard to the planning, financing and duration of decommissioning projects in compliance with the IAEA guidelines seems most desirable

67 See H E Thexton (NEA) The Cost and Financing of the Decommissioning of Nuclear Power Plants Scientific Afternoon, *IAEA General Conference* September 1986

68 This suggestion was put forward in the Polvani Report of the Expert Group established by the NEA See OECD/NEA *Objectives Concepts and Strategies for the Management of Radioactive Waste Arising from Nuclear Power Programmes* (1977) at p 64 This has been adopted by for instance Belgium and Spain with ONDRAF and ENRESA respectively

With respect to the specific obligations and responsibilities of the licensee and its relation to the regulatory body, each of the three national legal systems discussed exhibits a legal structure with similar essential elements which could constitute a suitable model for developing a new legal framework in this area Furthermore, the decommissioning alternatives and strategies, as determined by the Unites States NRC, should be considered as providing a viable basis for the development of a legal framework on decommissioning Finally, a clear and comprehensive regime of liability for decommissioning should be established which takes into account the varying stages of decommissioning and which obliges and enables licensees to obtain adequate financial protection against these varying risks of liability This means that such a regime should impose strict liability upon the licensee covered by compulsory insurance, corresponding to each specific stage of decommissioning

The New 96/29/EURATOM Directive on Basic Safety Standards for the Protection of Workers and the General Public Against Ionising Radiation

By Jean-Michel Courades*

INTRODUCTION

The Council of the European Union adopted on 13 May 1996 Directive 96/29/EURATOM on the protection of the health of workers and the general public against the dangers arising from ionising radiation[1]

Radiation protection aims principally to protect the public as well as workers and patients against the harmful effects of ionising radiation The International Commission of Radiological Protection (I C R P), founded in 1928, defines its primary rules and principles The recommendations of the I C R P are revised periodically to take account of scientific evolution in this field The last general recommendations were established in 1990 (I C R P 60) On the basis of these recommendations, the European Commission initiated the process of revising the Basic Safety Standards Directive of the European Union, and this led to the new Directive which was formally adopted on 13 May 1996 by the Council of the European Union This Directive is to be transposed within four years into regulatory texts in each Member State of the European Union The previous version of the "basic safety standards," which dates from 1980, was partially modified in 1984[2]

1 European Community Jurisdiction and the Adoption of National Measures

The Treaty establishing the European Atomic Energy Community, commonly referred to as the EURATOM Treaty, in Article 2 (b) provides for the establishment of uniform safety standards against the dangers resulting from ionising radiation Article 30 of the Treaty defines the basic safety standards The procedure by which the Community adopts these standards is set out in Article 31

The European Community has the general and exclusive jurisdiction to adopt basic safety standards in the field of radiation protection Member States have an executive power to adopt and implement the necessary measures in this field within the framework of the standards laid down at community level

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1 *Official Journal of the European Communities Legislation* No 159 of 29 June 1996 p 1

2 *Official Journal of the European Communities Legislation*, No 246 of 17 September 1980 p 1 and *Official Journal of the European Communities Legislation*, No 265 of 5 October 1984 p 4

The "basic safety standards" were set up for the first time in 1959 by a Council Directive[3] and were modified several times thereafter to take account of the evolution of scientific knowledge Member States do not exercise an absolute discretion in this field. Rather, their actions are governed by the general principles of the Community Directive This means that the adopted national measures must not undermine the rules of the EURATOM Directive

Until 1986, the date of the Chernobyl accident, the only legal instruments enacted in the field of radiation protection under Article 31 of the EURATOM Treaty were these basic safety measures as well as a Directive in 1984 drawing up standards for the radiological protection of persons undergoing medical examination or treatment Since then, several other supplementary measures have been taken in order to strengthen and complement the existing community provisions

2 *Objectives of the New Directive*

The "basic safety standards" of the European Union have always taken the I C R P Recommendations into account, as have the recommendations of other international organizations acting in this field. The Commission, following the recommendations of the I C R P published in early 1991 (Publication 60), re-examined the provisions of Directive 80/836/EURATOM of 15 July 1980 while taking into account the experience gained in its application The European Commission subsequently forwarded a proposal for a new Directive to the Council of the European Union

While keeping the fundamental structure of the 1980 Directive, the new Directive adopted by the Council on 13 May 1996 pursues the following objectives

- to ensure that workers and the population benefit from the most scientifically-advanced protection,

- to give radiation protection a technically and scientifically sound basis and a uniform approach, while ensuring technical coherence with the recommendations of other international organisations (IAEA, OECD/NEA, WHO and ILO),

- to increase harmonisation between the Member States in order to take account of the existence, since 1993, of a single Market without internal borders

3. Important Modifications Introduced

In view of all these elements, the most important modifications introduced into the new Directive are as follows

- use of definitions, quantities, units, as well as weighting factors of radiation tissues and organs which appear in the latest I C R P recommendations,

- fixing of stricter dose limits, as found in the latest I C R P recommendations which take into account the more recent estimates of carcinogenic risk of exposure to ionising radiation as well as the complex concept of health detriment,

3 *Official Journal of the European Communities Legislation*, 20 February 1959

- distinction between "practice" and "intervention" in the implementation of the radiation protection system and a supplementary distinction between "radiological emergency" and "lasting exposure" as far as "intervention" is concerned,

- increased rigour in the implementation of radiation protection principles in the case of "practice" by a better definition of the justification principle and by a reinforcement of the optimisation principle through the introduction of the concept of "dose constraint" related to a specific source,

- introduction of radiation protection provisions in certain cases of occupational exposure to natural sources of radiation,

- prohibition of certain unjustified uses of radioactivity, (addition of radioactive substances in the production of food, toys, ornaments and cosmetic products),

- extension of the protection provisions to be taken in the event of a radiological accident,

- modification of radioactivity levels connected with the conditions of authorisation, of notification and of exemption provided for by the Directive

- introduction of the concept of potential exposure

4. Scope and Objectives

One will find, hereafter, comments on the various titles of the new Directive They clarify its scope and objectives

a) The scope of the new Directive (Title II) is widened with respect to that of the 1980 Directive In addition to "practices" and "interventions", it includes work activities which involve a significant increase in the exposure of workers or members of the public to natural radiation sources The conditions under which the radiation protection system applies are specific to each of these three categories of activity

b) The notification and prior authorisation regime of the practices (Title III) was modified in addition to the new values of exemption, the cases in which prior administrative authorisation is required, have been re-examined. Moreover, the conditions in which derogations can be granted to the authorisation system (clearance levels) were also introduced for the disposal, recycling or reuse of radioactive substances covered by such a system

c) Title IV states three fundamental principles of radiation protection (justification, optimisation (ALARA) and limitation of the doses resulting from the practices) while specifying that the dose limits do not apply to the medical exposure of patients or of persons who, on a private basis, support them, to the exposure of volunteers taking part in medical and biomedical research programmes, to interventions in cases of radiological emergency as well as to the emergency occupational exposures Neither do they apply to the specially authorised exposures, nor in general, to exposure to natural sources of radiation

With regard to the dose limits, the following measures were adopted

- for workers, the new limit on effective dose is 100 mSv over five consecutive years subject to a maximum effective dose of 50 mSv in any single year Member States may decide on annual doses

- for members of the public, the new limit for effective dose is 1 mSv in a year However, in special circumstances, a higher value can be permitted in a single year, provided that the average over five consecutive years does not exceed 1 mSv in a year

With regard to protection during pregnancy, provisions were amended so as to protect the foetus as if it were a member of the public Lactating mothers do not have to accept work assignments involving a significant risk of bodily radioactive contamination

d) Title V for the estimation of effective dose and equivalent dose refers to the values and relationships contained in Annexes II and III, and permits the Member States to use equivalent methods

e) As in the 1980 Directive, the fundamental principles for the operational protection of exposed workers are fixed in Title VI of the new Directive They also are applicable to apprentices and students, since these two categories of persons can pursue activities involving exposure to ionising radiation With respect to the 1980 Directive, the classification of the workplaces (controlled and supervised areas) according to their degree of risk was preserved, but the criteria of application of this classification were simplified and new responsibilities were entrusted to the undertaking concerned.

Regarding the classification of the exposed workers in categories A and B, although no longer appearing in the latest I C R P recommendations, the distinction was maintained, having proved its worth for the good organization of radiation protection

f) In the new Directive, exposure to natural sources in workplaces which involve a significant increase in the exposure of workers or of members of the public are the subject, for the first time, of special provisions set out under Title VII This Title obliges the Member States to make surveys and to identify the work activities where workers undergo a significant exposure to gamma radiation or to thoron or radon daughters in workplaces (spas, caves mines, etc) Title VII also covers work activities involving the use or storage of materials not usually considered as radioactive, or which lead to the production of residues not usually considered as radioactive, as well as the activities of companies which operate aircraft Each declared activity, by the Member State, having to be the subject of close attention, will have to be fully or partially subject to the measures described in the new Directive

g) In Title VIII the fundamental principles for operational protection of the public in normal circumstances are stated. *Inter alia*, this Title envisages the establishment in Member States of certain procedural aspects for the authorisation of practices, for an inspection system to strictly check radiological protection of the public, and to ensure the observance of national regulations adopted pursuant to the new Directive In this respect, a number of obligations are imposed on the undertaking responsible for a practice involving a risk due of ionising radiation In addition, Member States are required to estimate the doses received by the public

h) Following the lessons learned from the Chernobyl accident, Title IX "Intervention" was developed from a previous version and extended to cover emergency occupational exposure The Title takes account of the conceptual difference between practice and intervention It also introduces the concept of potential exposure, defined as an exposure that is not expected with certainty, and whose probability of occurrence can be estimated in advance Member States have to take into consideration the occurrence of all the possible radiological emergencies on their territory before, during and after the event

An intervention is to be undertaken only if the reduction in health detriment from a radiological origin is sufficient to justify the harm and the costs connected with the intervention The dose limits fixed for workers and members of the public for "practices", do not apply However, in cases of lasting exposure dose limits fixed by the Directive for workers are applicable

i) An important degree of flexibility was left to Member States for certain essential provisions Articles 3 and 4 (exemption, notification and authorisation) and the dose limits, for the latter, the explicit possibility in the Directive of adopting stricter values (pursuant to the Judgement of the Court of Justice of the European Communities of 25 November 1992, "The Commission against the Kingdom of Belgium"[4]) will no longer make it possible, as in the past, to apply a uniform dose limit within the European Union

4 *See Nuclear Law Bulletin*, No 53

International Court of Justice

The International Court of Justice and Nuclear Weapons Preliminary Observations on the Advisory Opinions[*]

On 8 July 1996 the International Court handed down its long-awaited decisions in the requests from the World Health Organization[1] (WHO) and the General Assembly[2] of the United Nations for Advisory Opinions on the legality of the use of nuclear weapons Although the request from the WHO Assembly was refused, as had been widely predicted, the Court gave an Opinion in the request from the General Assembly, ruling by the narrowest of majorities that the threat or use of nuclear weapons "would generally be contrary to the rules of international law applicable in armed conflict"[3] This article summarises the two Opinions, including the individual views expressed by each of the fourteen judges, and provides brief observations on the Opinions and their implications for international law, particularly in the nuclear field These address the Court's decision on the merits, the implications for the Treaty on Nuclear Non-Proliferation and international environmental law, the hierarchy between different norms of international law, and judicial review of acts of international organisations

The Advisory Opinions will provide plentiful material for analysis and critique for years to come on a range of major international law issues Beyond the central question put to the Court, a myriad of more general issues was touched upon the role of the International Court and international judicial bodies, the Court's advisory function, the competence of international organisations, the interaction of various branches of international law, the normative value and effect of the rules established under those branches, and the various sources of international legal obligation and their interaction An exhaustive analysis lies beyond the scope of this Note, which must necessarily be treated as preliminary

1 Background

On 3 September 1993 the Registry of the International Court of Justice received a request from the Director-General of the World Health Organisation requesting an Advisory Opinion from the

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1 *Legality of the Use by a State of Nuclear Weapons in Armed Conflict* Advisory Opinion, 8 July 1996 1996 ICJ Reports p 3 (Request for Advisory Opinion Submitted by the World Health Organization)

2. *Legality of the Use of the Threat or Use of Nuclear Weapons* Advisory Opinion, 8 July 1996 1996 ICJ Reports p 4 (Request for Advisory Opinion Submitted by the General Assembly of the United Nations)

3 *Supra* note 2 para 105 2E (for full text, see pp 59-60 of this article)

Court The request was made pursuant to a Resolution adopted by the World Health Assembly on 14 May 1993 (Resolution WHA46 0), which asked the Court to address the following question

> *In view of the health and environmental effects would the use of nuclear weapons by a State in war or other armed conflict be a breach of its obligations under international law including the WHO Constitution?*

The Resolution was adopted in the face of stiff opposition from most industrialized nations, many of which indicated that they considered the request to be *ultra vires* as it addressed an issue which lay beyond the WHO's competence This view was shared by the then WHO Legal Adviser, and apparently contributed to the three-month delay in transmitting the request to the Court The Court duly fixed 10 June 1994 as the time limit within which written statements were to be submitted to it by the WHO and those of its members entitled to appear before it Thirty-four States submitted written statements by the Court's extended filing date to 20 September 1994, but the WHO itself made no filing

On 15 December 1994 the UN General Assembly adopted Resolution 49/75K which asked the Court

> *'urgently to render its advisory opinion on the following question Is the threat or use of nuclear weapons in any circumstances permitted under international law?'*

The Resolution, submitted to the Court on 19 December 1994, was adopted by 78 States voting in favour, 43 against, 38 abstaining and 25 not voting The General Assembly had flirted with the possibility of asking a similar question in the autumn of 1993, at the instigation of the Non-Aligned Movement (NAM), which ultimately did not that year push its request It seems that the NAM was more willing the following year, in the face of written statements from a number of nuclear-weapons States (and others) in the WHO request indicating their view that the WHO lacked competence in the matter The Court subsequently fixed 20 June 1995 as the filing date for written statements in the General Assembly request, and further written statements in the WHO request By that date 28 States had filed written statements in the former, and nine filed further written statements in the latter By 20 September 1995 three States had filed further written observations in the General Assembly request Altogether more than forty States participated in the written phase of the pleadings the largest number ever to participate in proceedings at the Court Of the five declared nuclear-weapon States only China did not participate Of the three "threshold" nuclear-weapon States only India did participate

Oral hearings were held from 30 October to 15 November 1995 Twenty-two States participated[4], as did the WHO The Secretariat of the UN did not appear, but filed with the Court a dossier indicating the history of Resolution 49/75K. Each State was allocated one and a half hours to make its statement States generally appeared in alphabetical order on the basis of the English language This would have allowed the United Kingdom and the United States to close the proceedings, save that at a late stage Zimbabwe indicated an intention to participate and in accordance with the alphabetical approach, was allowed to do so at the end of proceedings

4 Australia, Egypt, France Germany Indonesia, Mexico Iran, Italy Japan, Malaysia, New Zealand, Philippines Qatar Russian Federation, San Marino Samoa, Marshall Islands Solomon Islands Costa Rica, United Kingdom United States Zimbabwe

2 The Decisions

A Jurisdiction[5]

World Health Organization

The Court declined to answer the question posed by the WHO but accepted to answer the one posed by the General Assembly In so doing it has indicated conditions under which it will be prepared to review the legality of acts of international organisations

On the WHO request the Court ruled by a majority of 11 to 3 that "the question raised in the request does not arise within the scope of [the] activities of that Organization as defined by its Constitution"[6] The Court found that whilst the WHO had competence over the effects on health of the use of nuclear weapons, it did not have competence to deal with the legality of such use in view of health and environmental effects "the legality or illegality of the use of nuclear weapons in no way determines the specific measures regarding health or otherwise , which would be necessary in order to seek to prevent or cure some of their effects"[7]

Moreover, competence in relation to the legality of the use of nuclear weapons "could not be deemed a necessary implication of the Constitution of the Organization in the light of the purposes assigned to it by its Member States"[8] The majority considered that this conclusion was confirmed by the practise of the WHO the fact that the General Assembly had welcomed the WHO request reflected political support to the WHO but was not "passing upon [its] competence"[9]

The majority nevertheless rejected the views of the nuclear-weapon States on other issues on which they sought to persuade the Court to reject jurisdiction The Court ruled that the question posed by the WHO was a legal question, and that its political characteristics and the fact that it might have been supported by political motives were of no relevance[10] The Court also rejected the arguments put forward by France and the United Kingdom concerning the politicization of the question as evidenced by the role of non-governmental organizations (NGOs) in promoting the issue

Three judges dissented from the majority Judge Weeramantry considered that the question asked was directly within WHO's legitimate and mandated areas of concern Judge Shahabuddeen, taking a different approach, expressed the view that the Court had failed to distinguish between preliminary issues (competence of WHO, etc) and the merits by declining to answer the question posed by the WHO the Court was, in effect, saying that Member States "do not have an obligation under the Constitution of the WHO not to use nuclear weapons"[11] In his view this prejudged the merits since the WHO had the competence to ask the question of whether the use of nuclear weapons would be a breach of obligation relating to health and the environment, including the WHO Constitution, without prejudice to whether the answer to the question should be addressed positively

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5 On review of acts of international organisations see generally H Schermers *International Institutional Law* (3rd rev ed 1995) Section 599 *et seq* On the advisory function of the ICJ see K. Keith, *The Extent of the Advisory Function of the International Court of Justice* (1971) T Furukawa, Le double role de la Cour internationale de Justice à legard des organisations internationales in Melanges Reuter 293-314 (1981) R Ago 'Binding" Advisory Opinions of the International Court of Justice 85 AJIL 439-51 (1991)

6 *Supra.* note 2, para. 26

7 *Id.* paras 21 and 22

8 *Id.* para. 25

9 *Id* paras 27 and 30

10 *Id* paras 16 and 17

11 *Id* Dissenting Opinion of Judge Shahabudeen, p 3

or negatively Judge Koroma concluded that the "finding of lack of jurisdiction is not only unprecedented for this Court but is also at considerable variance with its *jurisprudence constante*"

Several other Judges penned individual Declarations Judge Ranjeva thought that whilst the decision conformed to the law, the Court should have been more explicit on its judicial competence in advisory matters Judge Ferrari Bravo appended a Declaration indicating, *inter alia*, that the WHO decision was correct since the Court was the principal judicial organ of the UN (but not of other international organisations) and the right to request an advisory opinion needed to be carefully limited to maintain a correct division of competence Judge Oda's Separate Opinion expressed general agreement with the Court's decision, indicating that his opposition to the request was principally motivated by a fear that in addressing too many advisory opinion requests, the Court would come to be seen as a legislature or an organ giving legal advice, rather than functioning as a judicial institution to provide solutions to inter-State disputes

General Assembly

The Court decided by 13 votes to 1 to accede to the General Assembly's request Only Judge Oda voted against The Court ruled that "the General Assembly has competence in any event to seise the Court" and that the question "has a relevance to many aspects of the activities and concerns" of the General Assembly[12] None of the arguments raised by those States opposing the request (the four declared nuclear weapons States participating and some, but by no means all, OECD Member States participating) showed "compelling reasons" why the Court should not answer the request

The Court determined that the question was a "legal" one and that its political characteristics and the fact that it might have been supported by political motives were of no relevance in the establishment of its jurisdiction[13] The Court also rejected the arguments of several States that the question should not be answered because it was "vague and abstract"[14], that it was not for the Court to decide on the usefulness of an Opinion once the organization has so decided[15], that it would not have regard to the origins or the political history of the request (i e in relation to NGO or other involvement)[16], that since there were "no evident criteria" to determine the effects of an Opinion on disarmament negotiations this was not a compelling reason to decline jurisdiction[17], and that in giving an Opinion the Court would be stating the law and not legislating, as some States had suggested[18]

The only Judge to vote against the Court's decision to answer the General Assembly s request was Judge Oda He considered the question to be inadequate (the Assembly "wished to obtain nothing more than the Court's endorsement" of the conclusion that any use of nuclear weapons would be unlawful)[19], since it was unclear and drafted without any adequate statement of reasoning in support of any real need to ask the question, and did not reflect "a meaningful consensus of the Member States of the United Nations or even of its non-Aligned Members"[20]

12 *Supra*. note 3 paras 11 and 12
13 *Id* para. 13
14 *Id* paras 14 and 15
15 *Id* para. 16
16 *Id*
17 *Id* para. 17
18 *Id* para. 18
19 *Id* Dissenting Opinion of Judge Oda, para. 3
20 *Id* para. 14

B The Merits[21]

In its *dispositif* in the General Assembly opinion, the Court addressed the merits by reference to six points It decided unanimously on four points, and on two by majority On the central issue facing the Court, the legality of use, the majority was achieved only on the casting vote of the President

The Court ruled unanimously that

- *"there is in neither customary nor conventional international law any specific authorization of the threat or use of nuclear weapons"*[22],

- *'a threat or use of force by means of nuclear weapons that is contrary to Article 2, paragraph 4 of the United Nations Charter and that fails to meet all the requirements of Article 51, is unlawful"*[23]

- *"a threat or use of nuclear weapons should also be compatible with the requirements of the international law applicable in armed conflict, particularly those of the principles and rules of international humanitarian law, as well as with specific obligations under treaties and other undertakings which expressly deal with nuclear weapons"*[24],

- *"there exists an obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international control"*[25]

By a majority of 11 votes to 3 the Court ruled

- *"there is in neither customary nor conventional international law any comprehensive and universal prohibition of the threat or use of nuclear weapons as such"*[26]

On the crucial paragraph 2E of the *dispositif*, by seven votes to seven, on the casting vote of the President, the Court ruled

- *"it follows from the above-mentioned requirements that the threat or use of nuclear weapons would generally be contrary to the rules of international law applicable in armed conflict, and in particular the principles and rules of humanitarian law However, in view of the current state of international law, and of the elements of fact at its disposal, the Court cannot conclude definitively whether the threat or use of nuclear weapons would be lawful or*

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21 The issue has previously attracted considerable academic interest. see e g G Schwarzenberger *The Legality of Nuclear Weapons* (1958) N Singh, *Nuclear Weapons and International Law* (1959) Brownlie 'Some Legal Aspects of the Use of Nuclear weapons 14 *ICLQ* 445 (1965) R. Falk *et al.* "Nuclear Weapons and International Law', 20 *Indian Journal of International Law* 563 (1980), N Singh and E. Mchwhinney, *Nuclear Weapons and Contemporary International Law* (1989) B S Chimni, "Nuclear Weapons and International Law- Some Reflections in *International Law in Transition. Essays in Memory of Nagendra Singh* 1992, p 142 cite The issue has apparently only been addressed on one previous occasion by a Court. see Shimoda v Japanese State, (1963) *Japanese Annual of International Law* pp 212-52

22 *Supra.* note 3 para. 105 (2A)

23 *Id* para. 104 (2C)

24 *Id* para. 105 (2D)

25 *Id* para. 105 (2F)

26 *Id* para. 105 (2B)

unlawful in an extreme circumstance of self defence, in which the very survival of a State would be at stake "[27]

Before proceeding to a brief assessment of these findings, and that concerning the Court s jurisdiction, it is appropriate to review the legal basis upon which the Court reached these conclusions

Relevant Applicable Law

The Court addressed the applicable law issue in the face of competing arguments as to the relevance of norms drawn from various fields All States participating recognised that the question fell to be addressed primarily by reference to international humanitarian law (*jus in bello*) A majority of the States participating also considered that human rights norms and certain international environmental laws also applied, but a small and powerful minority considered that these rules either did not materially add to the *jus in bello* or were not applicable at all, and urged the Court to adopt a narrow approach The majority of the Court endorsed the broader approach Holding that 'the most directly relevant applicable law governing the question is that relating to the use of force enshrined in the [UN] Charter and the law applicable in armed conflict which regulates the conduct of hostilities, together with any specific treaties on nuclear weapons that the Court might determine to be relevant"[28], the Court declined to find that human rights and environmental laws were not relevant or applicable, rejecting the argument of the nuclear weapons States that only the *jus in bello* was relevant This is reflected in paragraphs 2D and 2E of the *dispositif* (see above), which refer to "international law applicable in armed conflict, and in particular the principles and rules of humanitarian law" This makes it clear that the legality of the use of nuclear weapons falls to be decided not only by reference to humanitarian law, but also the *jus ad bellum* and rules on neutrality as well as subsidiarily human rights and environmental law As if to underscore this point the Court also pointed out that its reply to the request rested "on the totality of the legal grounds set forth' in the Opinion, each of which had to be read in the light of the others, and all of which retain all their importance"[29]

Human Rights

The majority ruled that "the right not arbitrarily to be deprived of one's life applies also in hostilities"[30] Whether an arbitrary deprivation has occurred falls to be determined by "the applicable *lex specialis*, namely, the law applicable in armed conflict which is designed to regulate the conduct of hostilities"[31] The Court confirmed that a violation of international humanitarian law leading to loss of life would also violate human rights, thereby allowing remedies available under applicable international human rights instruments to be invoked

27 *Id* para. 105 (2E)
28 *Id* para. 34
29 *Id* para. 104
30 *Id* para. 25
31 *Id*

Genocide

The majority of the Court ruled that "the prohibition of genocide would be pertinent [to the issue of legality of use] if the recourse to nuclear weapons did indeed entail the element of intent" reflected in Article II of the Genocide Convention"[32] This does no more than state the obvious, reflecting the Court's unwillingness to accept the views of some States that any use of nuclear weapons would necessarily constitute genocide According to the Court, each case would need to be decided on its own facts[33]

Environmental Protection

The majority of the Court adopted an expansive approach on this issue, declaring for the first time that the "existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment"[34], and that this obligation "applies to the actual use of nuclear weapons in armed conflict"[35] The Court ruled that "States must take environmental considerations into account when assessing what is necessary and proportionate in the pursuit of legitimate military objectives"[36], concluding that

> *'while the existing international law relating to the protection and safeguarding of the environment does not specifically prohibit the use of nuclear weapons it indicates important environmental factors that are properly to be taken into account in the context of the implementation of the principles and rules of the law applicable in armed conflict"*[37]

This generally accepts the arguments of the majority of participating States, and rejects those of the nuclear weapon States which contended that because they were not party to the 1977 Geneva Protocol I or the ENMOD Convention they were not subject to environmental obligations in armed conflict The Court did not indicate whether the environmental provisions of those instruments had crystallized into customary law, but noted that they imposed "powerful constraints for all the States having subscribed to these provisions"[38]

Self-Defence (Articles 2(4) and 51 of the UN Charter)

In considering the applicability of self-defence rules (*jus ad bellum*) to the use of nuclear weapons, the Court found that exercise of the right to self-defence, reflected in customary law and Article 51, was subject to the conditions of proportionality and necessity which applied to all weapons[39] Although the proportionality principle did not in itself exclude the use of nuclear weapons in all circumstances, it was applicable to their use the "very nature and profound risks associated

32 *Id*, para. 26
33 *Id*
34 *Id.* para. 29
35 *Id*, para. 32
36 *Id* para. 30
37 *Id*, para. 33
38 *Id*, para. 31 The two conventions are Protocol I (Additional to the 1949 Geneva Convention) Relating to the Protection of Victims of International Armed Conflicts 16 *ILM* 1391 (1977) Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 1108 *UNTS* 151
39 *Id*, paras 38-41

therewith" were further considerations to be borne in mind in considering the legality of their use[40] The Court noted the provisions of Security Council Resolution 984 (noting the security assurances against the use of nuclear weapons to non-nuclear weapon States which are parties to the NPT and welcoming the intention of certain States to provide or support immediate assistance to any non-nuclear weapon State party to the NPT which is a victim of an act of, or object of a threat of aggression in which nuclear weapons are used)[41] The Court side-stepped the question of belligerent reprisals by observing "that any right of recourse to such reprisals would be governed *inter alia* by the principle of proportionality"[42], it made only general observations concerning the circumstances in which a threat of use would be unlawful[43], it did not determine either way whether mere possession of nuclear weapons would constitute a threat[44], and considered it unnecessary to consider the legality of "internal use" of nuclear weapons[45] On each of these matters the Court stated somewhat elusively but perhaps with justification, that the legal situation would depend on the particular facts

The Court did not in express terms consider the relationship between the *jus ad bellum* and the *jus in bello* Some observers have read the second paragraph of 2E of the dispositif as allowing the *jus ad bellum* to override the *jus in bello* in extreme cases where survival of a State is at stake (an approach more firmly reflected in Judge Fleischauer's Separate Opinion, below) In my view this conclusion would require considerable justification, since it leads inevitably to the result that in very survival" cases all manner of otherwise prohibited acts (including for example torture) would become permissible Moreover, as considered further below, it needs to be borne in mind that in paragraph 2E the majority was not saying that there definitively were any circumstances in which the use of nuclear weapons could be lawful

No Per Se *Prohibition on Nuclear Weapons*

The Court then went on to consider whether the use of nuclear weapons as such was prohibited It noted that there were no prescriptions of treaty or customary law authorizing the use of nuclear weapons[46], and there was no conventional prescription prohibiting the use of nuclear weapons *per se*[47] The Court rejected the argument of many non-nuclear weapon States to the contrary, ruling that nuclear weapons were not treated in state practise as poisonous or poisoned weapons and they were not therefore specifically prohibited as such by the relevant treaties[48] Moreover, none of the treaties expressly prohibiting the use of certain weapons of mass destruction referred to nuclear weapons[49] Whilst recognising that a number of global and regional treaties limited the acquisition, manufacture possession, deployment, testing or use of nuclear weapons[50], the Court found that these only pointed "to an increasing concern in the international community with these weapons" and foreshadowed a future general prohibition of the use of such weapons" they did "not constitute such a prohibition by themselves"[51] The nuclear-free-zone Treaties of Tlatelolco and Rarotonga applied only to certain

40 *Id* para. 43
41 *Id* para. 45
42 *Id* para. 46
43 *Id* para 47
44 *Id* para. 48
45 *Id* para. 50
46 *Id* para. 52
47 *Id* para. 63
48 *Id* paras 54-56
49 *Id* para. 57
50 *Id* paras 58 and 59
51 *Id* para. 62

zones and were subject to reservations (which had not been objected to) on the right to use nuclear weapons in certain circumstances[52]

The Court similarly found that customary international law did not prohibit the use of nuclear weapons *per se*[53] It considered that "the emergence of a customary rule specifically prohibiting the use of nuclear weapons as such is hampered by the continuing tensions between the nascent *opinio juris* on the one hand, and the still strong adherence to the practice of deterrence on the other"[54] In view of the profound divisions on the matter of whether non-recourse to the use of nuclear weapons constituted the expression of *opinio juris*, the Court was unable to find that such *opinio juris* existed[55] As to the General Assembly resolutions on the subject, although these were "a clear sign of deep concern" they fell short of establishing the existence of an *opinio juris* on the illegality of use, since several had been adopted with a substantial number of negative votes and abstentions[56] Moreover, these resolutions did not refer to a specific rule of customary law which prohibited the use of nuclear weapons[57]

Humanitarian Law Applicable in Armed Conflict

The Court was in no doubt that humanitarian law applied to nuclear weapons[58] It affirmed the cardinal principles of humanitarian law The first was the distinction between combatants and non-combatants and the obligation never to make civilians the object of attack and "never use weapons that are incapable of distinguishing between civilian and military targets"[59] The second cardinal principle was the prohibition against causing unnecessary suffering to combatants[60] These principles were reflected in the Hague and Geneva Conventions, and constituted "intransgressible principles of international customary law"[61] Having reached this conclusion the Court nevertheless found it did not need to pronounce on whether these principles and rules had the status of *jus cogens* since the General Assembly's request did not raise the question of the character of the applicable humanitarian law (this leaves open the question of the difference in status or effect, if any, between norms which are "intransgressible" and those which are *jus cogens*)[62] The Court also felt no need to pronounce on the applicability of Additional Protocol I of 1977 to nuclear weapons, since "all States are bound by those rules in Additional Protocol I which, when adopted, were merely the expression of the pre-existing customary law"[63] This is an unsatisfactory approach which leaves unanswered various issues of contention concerning the status and effect of those rules which may not have been customary norms in 1977 (for example the obligation to protect the environment) Finally, the Court emphasised the "continuing existence and applicability" of the Martens Clause, which affirmed that the principles of humanitarian law applied to nuclear weapons[64]

52 *Id*
53 *Id* paras 64-73
54 *Id* para. 73
55 *Id* para. 67
56 *Id* para. 71
57 *Id* para. 72
58 *Id* paras 85-6
59 *Id* para. 78
60 *Id* para. 78
61 *Id* para. 79
62 *Id* para. 83
63 *Id* para. 84
64 *Id* para. 87

Neutrality

The Court ruled that the principle of neutrality applied to all international armed conflict, including the use of nuclear weapons[65] It did not, however, indicate the content or effect of the rule of neutrality, failing to address a major point of contention between various States The Court did refer to the statement of one State to the effect that "the principle of neutrality applies to the transborder damage caused to a neutral State by the use of a weapon in a belligerent State", stating that the "principle so circumscribed is presented as an established part of the customary international law"[66] It did not express a view as to the correctness of the approach

The Applicability of Humanitarian Law and Neutrality to Nuclear Weapons

The Court concluded that "in view of the present state of international law viewed as a whole and of the elements of facts at its disposal, the Court is led to observe that it cannot reach a definitive conclusion as to the legality or illegality of the use of nuclear weapons by a State in an extreme circumstance of self-defence, in which its very survival would be at stake"[67] The Court found it did not have a sufficient basis for determining the validity of the view (put by nuclear weapon States) that the use of nuclear weapons could be lawful, since States advocating that view had not indicated the precise circumstances justifying such use or whether such use would not tend to escalate into an all out use of high yield nuclear weapons[68] On the other view (expressed by all developing countries and some OECD Member States) the Court found that "[i]n view of the unique characteristics of nuclear weapons the use of such weapons in fact seems scarcely reconcilable with respect for [the] requirements [of the principles and rules of international law applicable in armed conflict]"[69] However, it did "not have sufficient elements to enable it to conclude with certainty that the use of nuclear weapons would necessarily be at variance with the principles and rules of law applicable in armed conflict in any circumstance"[70] In this regard the Court referred to "the fundamental right of every State to survival" and the practice of the policy of deterrence, to which an appreciable section of the international community had adhered for many years[71]

Development of International Law

Going beyond the strict parameters of the question posed to it by the General Assembly, the Court signalled its determination to contribute to the development of international law in this domain It stated its appreciation of the full recognition of Article VI of the NPT, which it described as an obligation not merely of conduct but "to achieve a precise result - nuclear disarmament in all its aspects - by adopting a particular course of conduct, namely the pursuit of negotiations on the matter in good faith"[72] This objective was described by the Court as being "of vital importance to the whole of the international community today"[73]

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65 *Id* para. 89
66 *Id* para. 88
67 *Id* para. 97
68 *Id* para. 94
69 *Id* para. 95
70 *Id*
71 *Id* para. 96
72 *Id* para. 99
73 *Id* para. 103

3. Declarations, Separate Opinions and Dissenting Opinions to the General Assembly Opinion

For the first time in the history of the ICJ, all fourteen judges appended individual views, in the form of declarations, separate opinions or dissenting opinions A full understanding of the nuances of the General Assembly Opinion can only be gained by a careful reading of these separate views The summary which follows is merely intended to assist those who are unable to carry out such a reading to gain a sense of the thrust of each individual view It is no substitute for such a reading and is not intended to be a thorough precis The review makes it abundantly clear that the majority was able to support paragraph 2E for very different reasons, and subject to different understandings as to its meaning

The Majority

Seven judges voted with the majority on paragraph 2E President Bedjaoui, in his Declaration, sought to explain his support for paragraph 2E of the dispositif He did not see the paragraph as necessarily authorising the use of nuclear weapons in any circumstances Principle elements of his six page declaration include distinguishing the 1927 judgement of the Permanent Court of International Justice in the Lotus case, by finding that which is not expressly prohibited is not necessarily authorised[74], expressing the view that most principles and rules of international humanitarian law are *jus cogens*[75], and concluding that the obligation to negotiate good faith disarmament is a general obligation, opposable *erga omnes*, of conduct and result[76]

In supporting the majority Judge Herczegh indicated his view that the current state of international law permitted a more precise response which was less affected by uncertainty and hesitation the fundamental principles of international humanitarian law categorically and unequivocally prohibited the use of weapons of mass destruction, including nuclear weapons There were no exceptions to these principles

In his one page Declaration Judge Shi expressed general agreement with the conclusions and reasoning The principle thrust of his Declaration was to explain that the practice of nuclear deterrence had no legal significance and should not have been taken into account by the Court

In his two page Declaration Judge Vereschetin stated that the "construction of the solid edifice for the total prohibition on the use of nuclear weapons is not yet complete", and that there is accordingly a "grey area" He hoped the Opinion might provide a guide to action for States This suggests that in his view the second part of paragraph 2E might allow the use of nuclear weapons in certain circumstances, a conclusion which apparently enabled him to vote with the majority

In his eight page Separate Opinion Judge Ranjeva explained why he had voted for all the Court's conclusions, in particular the first part of paragraph 2E The use of the word "generally" affirmed the extent of the obligation, not its limits The second part of paragraph 2E raised problems of interpretation which threatened the clarity of the rule of law and possibly limited the extent of the first part. If the second part had been the subject of a separate paragraph he would have abstained on it if abstention were possible

74 *Id.*, Individual Declaration of President Bedjaoui, para. 15, 'Lotus', Judgment No 9 1927 P.C.I.J Series A, No 11
75 *Id*, para. 21
76 *Id*, para. 23

In his four page Separate Opinion Judge Fleischauer explained his vote in favour of paragraph 2E In his view the word "generally" limited the extent of the paragraph Although the use of nuclear weapons was "scarcely reconcilable with humanitarian law applicable in armed conflict as well as the principle of neutrality", recourse could be justified in extreme cases Such use would have to be compatible with rules on the exercise of self-defence, in particular proportionality Judge Fleischauer does not say that such use must comply with the *jus in bello*, thereby suggesting that the *jus ad bellum* can in extreme cases override the *jus in bello* This conclusion has already been subject to extensive criticism

In his opaque four page Declaration Judge Ferrari Bravo criticizes the Court's timorous, complicated and inefficient reasoning and conclusions He considers that the Court should have given weight to a series of General Assembly resolutions which reflected a commitment to eliminate from military arsenals nuclear weapons judged illegal, which resolutions (and rule) meant that any production of nuclear weapons had to be justified as against this pre-existing rule In his view the practise of deterrence was without any legal value, and he wished that the Court had addressed it in greater detail Implicit in Judge Ferrari Bravo's view is that any use of nuclear weapons would be unlawful, and that although a specific rule to that effect does not exist, this is only due to the Cold War which served to prevent the putting into effect (by negotiation) of a general prohibitive rule

The Dissents

The Opinion of the majority managed to bring together in dissent Judges holding views from opposite ends of a wide spectrum Seven judges voted against the majority on paragraph 2E three felt paragraph 2E went too far in outlawing the use of nuclear weapons (Schwebel, Guillaume Higgins), three (Shahabudeen, Weeramantry, Koroma) that it didn't go far enough in expressing an absolute and unequivocal prohibition in all circumstances, and one (Oda) that the Court should not have given the Opinion at all and that in paragraph 2E it had "equivocated" (although in what sense he would rather the Court had gone is unclear)

Judge Schwebel's Dissenting Opinion expressed "profound disagreement" with the conclusion of paragraph 2E, reflecting a chasm between practice and principle He found that in state practice deployment amounted to threat, and that the international community by treaty and through the Security Council had "recognized in effect or in terms that in certain circumstances nuclear weapons may be used or their use threatened" In his view nothing in the NPT authorized or prohibited the threat or use of nuclear weapons, although in allowing certain States to possess such weapons it allowed deterrence and thereby did not absolutely debar the threat or use of nuclear weapons The negative and positive security assurances given in the context of the Security Council expressly contemplate the use of nuclear weapons in certain circumstances' Other nuclear treaties and General Assembly resolutions confirmed that the use or threatened use of nuclear weapons was not (yet) prohibited in international law The first paragraph of 2E was "imprecise" but 'not unreasonable – the use of nuclear weapons was "exceptionally difficult to reconcile with the rules of international law applicable in armed conflict", but this did not mean that it necessarily conflicted in all circumstances In his view the second paragraph of 2E was an "astounding conclusion" which amounted to saying that there was no international law, amounting to a *non liquet* By reference to newspaper reports Judge Schwebel then explained how contemporary events (Desert Storm) demonstrated the legality of threat or use He considered that paragraph 2F should be treated as *dictum*, since it was not asked by the General Assembly

In his thirty-seven page Dissenting Opinion Judge Oda explained why the Court should not have answered the question at all He voted against the "equivocations" of paragraph 2E, the provisions of which proved why the Court should have declined to give an Opinion He does not indicate which way he would go on the merits, although reading between the lines one senses he would not come down in favour of general illegality of use or threat

In his five page Separate Opinion (rather than dissent) Judge Guillaume indicated his support for the Court's conclusions except in relation to paragraph 2E Overall he considered the Opinion to be subject to numerous imperfections, including incomplete and unbalanced sections on the environment, reprisals, humanitarian law, and neutrality, inadequate consideration of state practise and *opinio juris*, and excessive weight being given to General Assembly resolutions Whilst noting the role of NGOs in bringing the request, he considered their pressure to have had no influence on the deliberations of the Court As to the merits, whilst nuclear weapons were not "blind" and therefore did not inevitably cause damage to civilians, their use could only be considered in extreme circumstances The Court had failed to follow its own logic and recognize the lawfulness of deterrence for the vital interests of States Accordingly, he could not vote in favour of paragraph 2E Taking a different approach from President Bedjaoui, he interpreted the silence of the Court on paragraph 2E as allowing States freedom to act, restating the classical Lotus principle Nevertheless, he considered that paragraph 2E was consistent with deterrence, whereas paragraph 2F went beyond what the Court had been asked

In her eight page Dissenting Opinion Judge Higgins explained why she could support most of what the Court had to say but not paragraph 2E In her view the Court had failed to show the steps by which it had reached the conclusion in that paragraph 2E (the essential step of "legal reasoning has been omitted") Moreover, the second part of paragraph 2E was a *non liquet*, and answered a question that had never been put to the Court Judge Higgins indicated the direction of her views on the merits when she stated that "to the extent that a specific nuclear weapon would be incapable of [distinguishing between military and civilian targets] its use would be unlawful"[77] She came down in favour of concern that through the formula of non-pronouncement "the Court necessarily leaves open the possibility that a use of nuclear weapons contrary to humanitarian law might nevertheless be lawful", a conclusion going beyond anything that was claimed by the nuclear weapon States

Judge Shahabudeen's thirty-five page Dissenting Opinion expressed the view that the Court had not, in paragraph 2E, answered the General Assembly's question, and that it should have done so one way or the other He agreed with the first part of paragraph 2E (subject to a reservation about the use of the word "generally"), but could not support the second part, or those parts of 2B which might be interpreted to mean that the use of nuclear weapons would not be unlawful In his view international law allowed for a definitive conclusion, even in extreme cases, that the use of nuclear weapons would be unlawful in all circumstances Judge Shahabudeen considered that there was no *non liquet*, there was no authorization in international law for the use of such weapons, use would violate the principle against causing unnecessary suffering and the Martens Clause, no *opinio juris* had developed to support the creation of a new rule rescinding the old prohibitory rule, and the denuclearization treaties and the NPT had not established the *opinio juris* necessary to reverse the existing prohibitory rule In his view there were no exceptions to accommodate the circumstances envisaged by the Court in the second part of paragraph 2E, and there was no self-defence exception

Judge Weeramantry's comprehensive eighty-eight page Dissenting Opinion includes an index which usefully summarises his views and outlines the legal basis for his views that the Court did not go far enough in paragraph 2E and should have expressed absolute illegality

77 Dissenting Opinion of Judge Higgins para. 24

In his nineteen page Dissenting Opinion Judge Koroma explained why the second part of paragraph 2E was unsustainable In particular he challenged the suggestion that extreme cases of self-defence might provide an exception to the application of the *jus in bello* He found that 'the unlawfulness of nuclear weapons is not predicated on the circumstances in which the use takes place but rather on the unique and established characteristics of those weapons which under any circumstances would violate international law by their use"

4. Preliminary Observations

The two requests for Advisory Opinions put the Court in a difficult position If it failed to answer either request it risked incurring the wrath of those countries (mostly developing and in the NAM) which supported the requests If it answered the requests, and did so by ruling any use of nuclear weapons to be unlawful, it risked an erosion of credibility with the four declared nuclear weapon States that participated. If it answered and did so by ruling some uses lawful it threatened its credibility with the public The Opinions must therefore be understood as reflecting a degree of compromise amongst the majority, treading a delicate path around competing perspectives on the role of the Court and its relationship to the political organs of the United Nations and the specialized agencies The circumstances in which the Court found itself were unusual, and care needs to be exercised before drawing firm conclusions from the Opinions or the manner in which they were reached. The majority was bound to leave some important questions unanswered (for example the extent of the obligations imposed by the rules of neutrality, and the applicability of the 1977 *jus in bello* conventions to nuclear weapons), and bound also to deliver an Opinion on the merits in the General Assembly request which lacks a certain coherence and reads as though some of the parts were drafted without the sum necessarily in mind.

In fact the Court came remarkably close to declaring any use of nuclear weapons unlawful whilst leaving open the smallest possibility that certain uses in certain circumstances might not necessarily be unlawful In view of the reaction of the interested parties the majority of the Court judged matters just about right in achieving a balance (or fudge, as some have suggested)[78] The declared nuclear-weapon States seem able to live with the general conclusions, the non-nuclear weapon States consider they have come out marginally ahead, and most of the NGO's who followed the process appear reasonably content, if not vindicated in their desire for an unambiguous declaration of illegality The Court has avoided a second South-West Africa case[79] Irrespective of one's views on its approach or the juridical quality of the texts, as a political matter the Court has probably enhanced its reputation amongst a significant majority of United Nations members

How then to assess the Opinions? A comprehensive assessment is premature, and beyond the scope of this Note A selective assessment focusing on issues which might be pertinent for readers of the Nuclear Law Bulletin is appropriate

78 The complexities of the Opinions are reflected in the varied headlines of leading English newspapers the day after the Opinions were handed down. "Hague Court declines to give nuclear ruling (The Times) Nuclear arms are illegal court rules (Daily Telegraph) "Use or threat of nuclear arms 'unlawful" (Financial Times) International Court fudges nuclear arms ruling (The Guardian)

79 South West Africa, Second Phase Judgment, *I C.J Reports* 1966, p 6 (where the Court ruled that Ethiopia and Liberia had not established any legal right or interest in relation to its claims concerning violations by South Africa of the Mandate for South West Africa)

Paragraph 2E - What did the Court Decide?

The central issue concerns the Court's decision on the merits, as set out in paragraph 2E of the "dispositif" The interpretation to be given to the two parts of paragraph 2E is clearly a matter for each Judge, and for each reader I hesitate to put forward my own view, in part because I would not want to suggest that a conclusive view can be reached, either at this stage or at all What follows is tendered with some trepidation, and is intended to assist readers to reach their own views

Three issues arise The first is the meaning to be given to the word "generally" in the first part of paragraph 2E I read it to reflect the sense given to it by Judges Ranjeva and Shahabudeen the word establishes the extent of the rule by reference to its completeness, rather than any limitations Accordingly, and as a second point, I read the second part of paragraph 2E as establishing (no doubt less clearly than might have been the case) the only possible exception or limitation to the "general" rule indicated in the first part of paragraph 2E What is apparent is that the majority was unwilling to express the view that there were definitively any circumstances in which the use of a nuclear weapon could or would be lawful What is meant by the "very survival of a State" is unclear[80], and even in that circumstance the majority is not saying that use would be lawful

Did the Court find a *non liquet*, as some of the dissenting Judges stated? I am not sure that it did I take the second part of paragraph 2E to reflect the limited factual matter available to the Court in the context of an Advisory Opinion Faced with the real facts of a particular case nothing indicates that the Court could not or would not apply the rules it had relied upon in its Opinion to reach a firm view as to legality or, more probably, illegality of use Paragraph 2E reflects a "creative" ambiguity that was necessary to obtain a majority Since many thought the Court (if it gave an Opinion on the merits at all) would at most indicate the applicable rules, conclusion paragraph 2E goes beyond expectation It does so in a manner which leans towards the general view of illegality argued by the majority of participating States

Nuclear Deterrence

The Court did not provide an express view on the legality or otherwise of the policy of nuclear deterrence practised by a number of States today Its implied view, reflected for example in paragraph 96 indicating it could not ignore the practise of deterrence, makes it clear that nuclear deterrence was not considered unlawful *per se* and that it was of some effect in determining the applicable rules Nevertheless different quarters were critical of the approach, with some Judges (for example Judge Guillaume) taking the view that the Court had failed to recognise the lawfulness of deterrence, and others (for example Judges Shi and Ferrari Bravo) considering that the practise of nuclear deterrence was without legal significance

80 Note at para.s 96 and 97 of the General Assembly Opinion the Court's restrictive reference to "*its* very survival making it clear that only the survival of the State using the nuclear weapon might justify legality

The Treaty on Nuclear Non-Proliferation

On a strict approach paragraph 2F of the "dispositif" goes beyond that which the Court was asked, as a number of Judges indicated. As *obiter dictum* the language indicates the Court's desire to give greater weight to Article VI of the NPT[81], interpreting it as an obligation rather than one merely of conduct This adds judicial weight to the commitment adopted in May 1995 on the indefinite extension of the NPT, and provides significant support for treaty developments beyond the Comprehensive Test Ban Treaty recently adopted by the UN General Assembly

International Environmental Law

The Court has contributed significantly to the development of international environmental law by recognising the customary status of the basic norm generally reflected in Principle 21 of the Stockholm Declaration and Principle 2 of the Rio Declaration[82] In so doing it has introduced textual changes the "responsibility" to ensure that activities "do not cause damage to the environment' becomes a "general obligation to respect the environment" These changes will no doubt provide a basis for academic debate as to their consequence Such debate should not mask the more general significance of the Court's approach, elevating international environmental obligations to customary status This could have practical consequences in many domains, particularly in the field of nuclear law Discussion can move on from whether an obligation exists to address the extent of that obligation

Interrelationship of Norms of International Law

The Court was faced with competing views about the relationship between various norms of international law for example the *jus in bello* and the *jus ad bellum* human rights law and humanitarian law, general international environmental law and the *jus in bello* Generally the Court skirted around these issues except in relation to the review of the WHO request In so doing it has missed a useful opportunity to indicate more generally how a system of international law which is increasingly fragmented and disaggregated is to function in the face of tensions between competing norms (and values)

Judicial Review of Acts of International Organisations

Both Opinions are significant for the law and practice of international institutions generally The Court has, for the first time since the Permanent Court did so in the Eastern Carelia case in 1923[83] refused to accede to a request for an Advisory Opinion In so doing it has reinforced the principle of the "speciality" of international organisations, indicating the circumstances in which it might be willing to override the views of a majority and "judicially review" the acts of international organisations Subject to the comments above on the particular circumstances of the requests, the opinions provide some assistance to international organisations in the assessment of the limits of their jurisdictional competence

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81 Article VI provides Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective control" (729 *UNTS* 169)

82 See generally P Sands *Principles of International Environmental Law* (1995) pp 186-94

83 Status of Eastern Carelia, Advisory Opinion, 1923 *P C I J Series B* No 5

Germany

The Highest Administrative Court of Lower-Saxony Rejects an Appeal Against the Licensing of the Storage of Nuclear Waste and of Irradiated Fuel Elements*

On 2 September 1996 the Administrative Court of Appeal of Luneburg, in Lower-Saxony, rendered a judgement which had certain repercussions for both the German public and the media as it concerned the storage facility for spent nuclear fuel elements and radioactive waste at Gorleben (approximately 100 kilometres south of Hamburg) Since the permanent storage of high-level waste was planned for the same site, this storage had symbolic value for German opponents of nuclear power It gave rise to a number of confrontations between demonstrators and the police, and was used as a pretext to destroy certain railway installations

The appeal, brought before the Court by residents living close to the site, was aimed at a storage licence for 420 structures – essentially of the CASTOR type – containing irradiated fuel elements originating from German nuclear power plants and high activity vitrified waste (encased in glass) coming from the reprocessing of this fuel in the COGEMA factory in The Hague The residents claimed that the licence had been issued contrary to procedural rules, that it lacked a regulatory basis and that it did not sufficiently take into account the latest scientific information on the biological effects of ionising radiation, the seismic risk at the storage site and the safety defects of the storage structures They argued in particular that the German authorities had only been able to carry out a partial verification of the quality of the glass casings made in France, and of the applicable specifications for the substances

The Court rejected the appeal, giving as its reason that the licence did not suffer from any defect of form or substance by which the rights of the appellants had been breached To better understand the reasons for the decision, it is appropriate to remember that, in accordance with the jurisprudence of German administrative courts on nuclear matters, defects of procedure generally are not sufficient for an appeal to succeed unless they have been prejudicial to the position of the appellant in a fundamental sense and if the basis of the decision of the administrative authority can only be partially reviewed The courts must confine themselves to verifying that the administrative authority took into account all the risk factors to be considered, given the level of science and technology at the time of its examination, and the assessment of risks associated with operating a nuclear installation, and to verifying that the authority has evaluated them correctly, after having taken into account the differences of opinion, on the basis of all available scientific data The courts cannot substitute their own appraisal for that of the administrative authority, nor begin an inquiry of facts that the authority failed to conduct On the other hand, they must verify, if necessary with the help of experts, that the decision taken by the administrative authority is sufficiently justified and whether any factor which escaped the authority's attention ought to have been taken into account

In basing its opinion on this jurisprudence, the higher administrative court decided that the administrative authority which issued the licence had properly examined the risks associated with the use of the site for storage and had properly assessed those risks Thus, the assessment made by the authority, according to which preventive measures reflecting the current state of science and technology had been taken, was not open to question In particular, the court considered that the storage of radioactive waste, of which each stage of treatment and packaging could not be verified by

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* This note has been kindly prepared by **Judge Czajka** Presiding Judge of the Administrative Court of Appeal of Luneburg This Court, which is the highest administrative tribunal in Lower-Saxony rendered the decision in the Gorleben case

the German authorities, did not contravene German nuclear law and that these authorities had made their decision after satisfying themselves as to the certificate attesting to compliance with the regulations in effect in France, that the resistance of the storage structure to seismic risks had been demonstrated to comply with current regulations and that as for the rest, the collapse of the facility and the burial of the storage structures would have no harmful effect on the environment, that radiation coming from the inside of the structures would remain within regulatory limits that admissible radiation doses would not have reached the homes of the appellants even if one looked at the most pessimistic calculations proffered by the scientific community, and, finally, that the authority's hypothesis, according to which the structures were both resistant to all foreseeable intrusions during the storage term and that secure containment of the substances was assured, was justifiably based

The higher administrative court refused the request for a review of the judgement by the Federal Administrative Court However, counsel for the appelants has already announced that he intends to appeal this decision

United States

*ALARA Two Court Decisions with Dramatically Different Implications**

Issues crucial to the nuclear industry are now being decided by courts One of these is whether the phrase "as low as reasonably achievable (ALARA)," defined in 10CFR20, is a standard of care for a jury to apply or whether it is limited to federal regulatory application

The "standard of care" is the duty a defendant has not to cause an unreasonable risk of harm to others For example, a homeowner has a legal duty to keep his property free of dangerous conditions If he allows the front steps to deteriorate and a visitor breaks his leg when the steps collapse, the homeowner is liable to that injured party because he has breached the standard of care In radiation litigation, a hotly contested issue has been What duty does the utility owe to a nuclear worker concerning how much radiation exposure the worker is allowed to receive?

In the past seven years, numerous federal courts have held that the sole duty owed to a nuclear worker is compliance with the federal permissible dose limits [1] These courts have held that if the dose received by a worker is below the federal limits, the case must be dismissed because the utility has not breached any legal duty to the worker For example, the *O'Conner* Court reasoned

> *In a highly technical field such as this although a plaintiff should be provided a very high level of protection from excessive exposure from radiation a defendant public utility should also be provided with some clear statement regarding how it may limit a worker s dose without exposing the worker to injury or itself to liability This Court agrees with the*

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* This article previously published in Nuclear News (Vol. 39 No 7 of June 1996) and reproduced here with the kind permission of its editors was written by **David Wiedis and Donald E. Jose** who practice law at Jose & Wiedis in West Chester Pennsylvania.

1 See e g *O Conner v Commonwealth Edison Co* 748 F Supp 672 678 (C D Ill 1992) aff'd 13 F 3d 1090 (7th Cir) cert denied 114 S Ct 2711 (1994) *Coley v Commonwealth Edison* 768 F Supp 625 29 (N D Ill 1991) *Hennessy v Commonwealth Edison* 764 F Supp 495 500-501 (N D Ill 1991) *Whiting v Boston Edison Co* No 88-2125 slip op at 1 (D Mass Sept 5 1991)

defendants [that the federal permissible dose limits] constitute the standard of care owed to a radiation worker

Thus, according to the rationale of courts following the *O'Conner* decision, a nuclear worker cannot sue a utility as long as his radiation exposure was kept below the federal permissible dose limits So, when a utility permits a nuclear worker to receive an exposure within the federal limits, it has not breached any standard of care to that worker and cannot be held liable, even if that exposure did cause some harmful effect to that worker

Plaintiffs, however, have historically argued that the applicable standard of care is ALARA and that a jury should be allowed to impose liability on utilities if the jury believes that the basis of the plaintiff's dose was not ALARA

Recently, two separate federal courts, one sitting in Philadelphia and one a continent away in San Diego, addressed this precise issue and came to opposite conclusions In *In re TMI*, No 94-7599 (3rd Cir October 17, 1995) the United States Court of Appeals for the Third Circuit held that ALARA was *not* a standard of care In *James v Southern California Edison Co*, No 94-1085-J (S D Calif February 8, 1995), a federal district court held that ALARA *was* the standard of care for the jury to apply The *In re TMI* decision is significant because it is the first time that the *O'Conner* rationale has been adopted by an appellate court The *James* decision is significant because it is the first time the *O'Conner* rationale has been rejected and ALARA used as a standard of care at trial This article discusses the dramatically different implications of each decision

The James Decision

In the *James* case, an electrician who worked at the San Onofre Nuclear Generating Station from 1982 until 1986 sued the utility and the manufacturer of the fuel rods in use at the plant, alleging that he developed chronic myelogenous leukemia (CML) as a result of exposure to microscopic pieces of fuel (fuel fleas) The plaintiff alleged that thousands of fuel fleas had escaped from the primary coolant system and that he had inhaled or ingested them as he worked at the plant. James's total occupational radiation dose at San Onofre, as measured by TLDs, was 31 millirem (mrem) His 10 whole body counts were all negative, and he was credited with less than 2 mpc (maximum permissible concentration in the air) hours Although James monitored himself each time he exited the Radiation Controlled Area (RCA), he never set off any friskers or portal monitors Nevertheless, at trial, an expert witness for James contended that James had inhaled or ingested sufficient quantities of fuel fleas to create a 35-rem dose to his bone marrow Other experts testified that such a dose was the cause of his CML James alleged that all of the radiation monitoring equipment failed to detect the fuel fleas in or on his person, allowing him to receive this unrecorded dose

Relying on *O'Conner*, and other decisions following it, the defendants asked the court to dismiss the case without a trial on the basis that the plaintiff's 31 mrem whole body dose was well within the federal permissible dose limits The court, however, denied that motion, and held that ALARA was the standard of care The court stated

The court must resolve whether, as defendants urge the duty of care is confined solely to the numerical dose limits and does not extend to the ALARA language and other provisions set forth in the regulations " ***The court holds that it is the entire federal regulatory scheme***

that must determine the duty of care. This includes the ALARA language as well as all other applicable regulations. " [2]

The ALARA standard is not merely contentless prefatory language Nor can the ALARA standard be dismissed because it is technologically rather than health based, as defendants assert Rather, a reading of the regulations *demonstrates that it is a substantive standard* which is accompanied by its own definition of how it is to be measured, and which is relevant to defendant s duty of care The application of the standard depends on a balancing of several factors such as "economics of improvements in relation to the benefits to the public health and safety 10 C F R § 20 1 (c) This sort of standard, which requires value judgments and an estimation of what is "the utilisation of atomic energy in the public interest," id , *is appropriate for jury application*

The court concluded that "defendants will have met their duty of care if it is found that they met *the ALARA standards* " The court then set out the burden of proof that plaintiffs had to meet in order to show that the defendants had breached their duty to the plaintiff

Plaintiffs have at least two methods of prevailing on the duty of care First if plaintiffs can show that they were exposed to doses above the numerical dose limits then they will also have proven that the duty of care was breached ***Second, plaintiffs may also establish a breach of the duty of care by providing that defendants failed to comply with the AL4RA standards or other applicable regulatory provisions."***

While a defendant has a chance to demonstrate that the plaintiff's exposure was kept below the numerical federal permissible dose limits prior to trial, a defendant has no chance to demonstrate that the plaintiff's exposure was kept below whatever the jury determines to be ALARA, since the jury s ALARA judgment cannot be known in advance of the jury's hearing all the evidence and determining what ALARA means to them Shortly after this ALARA ruling, the *James* case was tried by a federal district court jury The plaintiffs were allowed to introduce expert testimony about ALARA "violations " For example, Dr Michael Thorne testified that ALARA was the standard of care and even if the federal dose limits were not exceeded, a jury could still find liability if ALARA was violated

Q Now, with respect to exceeding [the federal limits] and the way this works between ALARA and the [federal limits] suppose you have an exposure here that exceeds one of the specific requirements like the internal [limits] that you have talked about

A Yes

Q Now, do you need ALARA to determine that you have exceeded [the federal limits?]

A No, you do not You have already demonstrated that you have exceeded the code

Q Is it permissible [to be below the federal limits] if ALARA is not maintained?

A No There is a requirement to be ALARA even if you are in compliance with the specific recommendations of the code

2 In this article where quoted material appears in bold, it indicates emphasis added by the authors

Q So, for example, if you were under the specific recommendations of the code but not consistent with ALARA that would still be inconsistent with the standards in the code of federal regulations?

A That's as I understand it, sir

Q So, the two work together?

A Correct First you demonstrate that you have reduced doses as low as reasonably achievable within the constraints imposed by the dose limits, so, you start by insuring that you are within the dose limits, and then you consider how much further it is proper for you to reduce the doses

Q So, you must always be as low as reasonably achievable even if you are below the specifications?

A That's correct.

Q But in no event above the specifications?

A That's exactly right

With such testimony, a jury could find that a dose of 31 mrem still violated the duty a utility owed to a specific worker if it believed that the dose could reasonably have been lower The jury could then impose liability on the utility for allowing the worker to receive a 31-mrem dose Moreover, another expert, Dr Edward Radford, combined the ALARA concept with the linear no-threshold hypothesis and testified as follows

Q And with regard to the testimony you have given for the jury that there is no safe level of exposure to radiation, is that an important part of the ALARA principle That there is no safe threshold?

A Yes The exposure limits that were in force in, say, 1985, were, I believe, fairly lax But to take account of the fact that the linear no-threshold dose response curve was considered to apply to radiation, the regulators say, you have to keep below this numerical limit. You should get it as low as reasonably achievable, ALARA **And so this was built into the regulations as an important part of the regulations that the companies had to do better than these numerical limits**

Q And in addition to your testimony that the numerical limits were exceeded, do you believe under the conditions at San Onofre that ALARA was exceeded as well?

A Well, ALARA was certainly not adhered to

Q Was the level of activity of the fuel particles and practices at San Onofre consistent with the ALARA principle in your opinion?

A Certainly not with regard to the fuel fleas that were floating around the reactor

The court's ruling imposing ALARA as a standard of care, and allowing this expert testimony served as the basis for introducing evidence that went far beyond the issues in the case Virtually any incident that demonstrated alleged "sloppy health physics practice," or that elicited NRC criticism was paraded before the jury as an example of ALARA violations that warranted imposition of liability and punitive damages For example, overexposures to other workers and contamination incidents occurring long after the plaintiff left the plant were considered relevant as to whether or not the health physics practices at the plant were ALARA, even though they had nothing to do with the plaintiff's dose The jury was allowed to hold the utility liable for waiting for the next scheduled refueling outage to replace some failed fuel rods rather than immediately shutting down the reactor in order to replace those fuel rods *despite the fact that the NRC had independently concurred with the management s decision to deal with the few failed fuel rods at the next regular refueling outage*

Fortunately, the jury returned a verdict in favor of the defendants, and the court s ALARA ruling had no lasting effect However, as discussed below, if other courts follow this court s decision that the applicable standard of care is ALARA the impact on utilities and the implications for future radiation litigation cases could be considerable

The *In re* TMI Decision

The 1979 Three Mile Island accident, which resulted in the release of radioactive material to the surrounding area, has resulted in lengthy and complex litigation More than 2,000 plaintiffs allege that they have developed diseases from the radiation exposure

Last year, the defendants filed a motion for summary judgment asking the court to dismiss the case based on the fact that no individual plaintiff received a dose in excess of the 10CFR20 federal dose limits for members of the general public The federal district trial court denied the defendants motion After examining prior legal precedent, including the *O'Conner* decision, and agreeing that "federal regulations provide the applicable standard of care," the court noted that the regulations also stated that licensees must maintain ALARA (*In re TMI Litigation*, No I CV-88-1452 [M D Pa Feb 18, 1994]) It said, "In addition to complying with the requirements set forth in this part [a licensee must] make every reasonable effort to maintain radiation exposures, and releases of radioactive materials in effluents to unrestricted areas, as low as is reasonably achievable The court also noted that for emissions, "Appendix I to Part 50 establishes levels which 'shall be deemed a conclusive showing of compliance with' the ALARA requirement." Thus, the court concluded that ALARA had to be considered in evaluating the defendants' conduct, and developed a tri-level analysis First, because Appendix I sets out emission levels that conclusively demonstrate that a nuclear operator is maintaining emissions at the ALARA level, defendants cannot be liable if the releases were below that level Second, if the releases were above the levels specified in 10CFR20 106, the defendants had breached the "negligence standard" Third, if the release was below the section 20 106 limits but above the Appendix I levels, defendants would have to demonstrate that they used their "best efforts" to keep the levels ALARA The court concluded

> *If Defendants can prove that emissions levels were kept below those prescribed by the ALARA limits they have met the applicable standard of care and therefore will be immune from liability for actions premised on the release of emissions Moreover if Plaintiffs can prove that Defendants emissions exceeded those levels set out in §20 106 Defendants will have violated the relevant standard of care and will be held liable provided Plaintiffs are also able to satisfy the causation and harm elements of their claims If the evidence indicates that emissions levels fall between the two standards Defendants may be held liable if Plaintiff can*

prove (along with the causation and harm prongs) that Defendants did not use their best efforts to reduce radioactive emissions '

The trial court's decision was appealed to the United States Court of Appeals for the Third Circuit On appeal, the defendants argued that the lower court's decision effectively eviscerated the federal dose limits by placing in the hands of a lay jury the complex scientific judgments that had already been made by the federal regulators That is, if a jury is allowed to decide whether a utility used its "best efforts" in keeping radiation releases ALARA, the jury could substitute its own judgment of how a nuclear plant should be run in place of the federal regulator's judgment

In direct contradiction to *James* and the *TMI* trial court, the Third Circuit rejected ALARA as a standard of care In reviewing the development of the radiation protection standards and the ALARA concept, the court said that the Atomic Energy Commission (AEC) enacted regulations "to establish standards for the protection of [nuclear plant] licensees, their employees and the general public against radiation hazards " The dose limits for persons in unrestricted areas (i e , the general public) of 10 percent of the dose permitted to workers was "in accordance with present knowledge, [and provided] a very substantial margin of safety for exposed individuals " Even when the dose limits were lowered, upon recommendations from the Federal Radiation Council and the National Council on Radiation Protection and Measurements in 1960, the court noted that this reduction was not based on health concerns

Recommended limits on exposure, based upon extensive scientific and technical investigation and upon years of experience with the practical problems of radiation protection represent a consensus as to the measures generally desirable to provide appropriate degrees of safety in the situations to which these measures apply While the numerical values for exposure limits established in this regulation provide a conservative standard of safety the nature of the problem is such that lower exposure limits would be used if considered practical At the same time if there were sufficient reason the use of considerably higher exposure limits in this regulation would not have been considered to result in excessive hazards "

With respect to the ALARA concept, the court noted that early on, a general purpose of the AEC's regulatory policy was to ensure that "radiation exposures to the public should be kept as low as practicable " While the 1975 addition of Appendix I defined the "as low as practicable" admonition, the court stated that the criteria "were not to be considered 'radiation protection standards '"

After reviewing the history of the regulations, the court held that 10CFR20 105 and 10CFR20 106 constituted the federal standard of care, and rejected ALARA as a standard of care The court reasoned that the language establishing ALARA compelled the conclusion that ALARA is a guide that was not to be construed as a radiation protection standard Also, the specific numerical dose limits, and not ALARA, are sufficient to protect public health "[A]ny biological effects that might occur at the low levels of these standards have such low probability of occurrence that they would escape detection by present-day methods of observation and measurement " Most important, the court realized that it was inappropriate for lay jurors to perform the cost/benefit analysis that must be considered in making ALARA decisions The court stated

"Adopting ALARA as part of the standard of care would put juries in charge of deciding the permissible levels of radiation exposure and, more generally, the adequacy of safety

*procedures at nuclear plants — **issues that have explicitly been reserved to the federal government in general and the NRC specifically.***

Adoption of a standard as vague as ALARA would give no real guidance to operators and would allow juries to fix the standard case by case and plant by plant An operator acting in the utmost good faith and diligence could still find itself liable for failing to meet such an elusive and undeterminable standard Our holding protects the public and provides owners and operators of nuclear power plants with a definitive standard by which their conduct will be measured"

The Implications

The *James* and *In re TMI* decisions highlight the fundamentally different approaches a court can take on the ALARA issue ALARA can become a millstone around the neck of utilities by acting as a basis for imposing liability for exposures that are otherwise deemed permissible, or ALARA can function as a professional philosophy of excellence by serving to encourage utilities to find ways to operate a plant with lower exposures to workers

The implications for the *James* decision are far-reaching, and if applied on a national basis could be devastating to the nuclear industry If the vague ALARA requirement becomes the legal standard of care for a utility, every exposure, no matter how small, can be analyzed and criticized with the benefit of hindsight. In virtually every instance, it would have been "possible' to have reduced that exposure to that one worker even more, especially when one doesn't consider the effect on all the other workers Unfortunately, a lawsuit always places the attention on the plaintiff as if he or she were the only worker at the plant and the health physics department can devote all of its resources to reducing that one worker's dose as low as is reasonably achievable More can always be done for one person, but more cannot always be done for all workers An "expert" witness can always testify that the plaintiff's dose could have been lowered if the worker's stay time had been reduced, if more shielding had been used, if long-handled tools had been provided, or if more people had been given a larger collective dose in order to reduce the individual's dose An expert can always apply a cost-benefit analysis focused on just one worker and testify that such steps would cost only a few dollars while greatly reducing his dose Plaintiffs can then argue that because the utility chose to violate ALARA by "trading dollars for lives," liability ought to be imposed on the utility These arguments are applicable whether the dose in issue is 1000 mrem or 100 mrem Thus, with ALARA as a standard of care, actual plant efforts to reduce doses to all workers do not effectively reduce the likelihood of litigation ALARA as a standard of care acts to undermine ALARA efforts in the nuclear industry

Imposing ALARA as a standard can force almost any case to a jury trial because the court would not be permitted to summarily dismiss the case, even where the plaintiffs dose was *de minimis* This can lead to absurd results For example, the plaintiff in *James* had a cumulative whole body dose of 31 mrem while working at San Onofre for about three years His dose from natural background radiation for the same time period was between 900 and 1,080 mrem Thus, if his leukemia were caused by radiation – a proposition that is questionable at best – it is more likely that it was caused by the much greater amount of radiation received from natural background radiation than by the radiation received at San Onofre

Further, applying ALARA as the standard of care would undercut the very stability that the regulations were designed to provide, because utilities could be held liable for allowing a dose that the regulations specifically labeled as a permissible dose Such a result would also allow different

standards to be imposed throughout the country, depending on a jury's own personal balancing of the ALARA cost/benefit analysis A jury in California could determine that 300 mrem was too much, a jury in New Jersey could determine 30 mrem was too much, and a jury in Florida could determine that 3 mrem was too much

In re TMI stands in great contrast to the *James* decision In that case, the court correctly reasoned that adopting ALARA as a standard of care "would put juries in charge of deciding the permissible levels of radiation exposure and, more generally, the adequacy of safety procedures at nuclear plants " While jurors are normally well suited to deciding issues that are within their knowledge and experience, in cases dealing with complex scientific issues and where the federal government has already set the permissible dose limits based on the best available scientific evidence, a jury should not be permitted to interfere with the government's decision This is especially true where, because of widespread misunderstanding of the scientific principles regarding the relative risks of radiation, and the prejudices held by the general public, allowing lay jurors to set the safety limits would unfairly prejudice the case of utility defendants

Moreover, for those utilities that are operating nuclear power plants within the jurisdiction of the Third Circuit and the Seventh Circuit,[3] there will be some degree of predictability regarding legal liability for radiation exposures to the work force, or to the general population For these utilities, the rationale of the *O'Conner* Court – quoted at the beginning of this article – is applicable Thus, as the Third Circuit stated, "Our holding protects the public and provides owners and operators of nuclear power plants with a definitive standard by which their conduct will be measured" No longer should an "operator acting in the utmost good faith and diligence still find itself liable for failing to meet such an elusive and undeterminable [ALARA] standard "

The *In re TMI* decision comports with what most professional health physicists have known for years ALARA is not, and was never intended to be, a tort standard of care It is a professional philosophy of excellence and a programmatic requirement As a professional philosophy, all health physicists should strive to achieve ALARA in their work. This means that just like good students strive to obtain and maintain an "A" average, all health physicists must have an ALARA program that strives for an A average on individual and collective doses If a student receives a B, C, or even a D on a particular test, that does not mean he has failed the course or even that his A average has been destroyed Thus, when a worker receives 200 millirem, but could have received 100 millirem in some specific instance, this does not mean the utility fails ALARA or is negligent It only means that excellence was not achieved in that instance

Utilities are required to have a program to pursue the ALARA philosophy The NRC has regulatory authority to impose sanctions and fines for failure to maintain an ALARA program That is as it should be Highly technical decisions about excellence in nuclear safety should remain in the hands of the federal regulators who have that particular expertise Conversely, because juries lack technical knowledge and may be easily swayed by passion, they are particularly bad at policy-making analysis Thus, it would be improper for a jury to decide policy, such as ALARA

The role of ALARA in radiation litigation is one of the most important issues in this developing field of law The erroneous *James* decision illustrates the harm that can be done by a wrong application of ALARA The *O'Conner* and *In re TMI* decisions illustrate the benefits to be realized

3 The Third Circuit s jurisdiction covers New Jersey Pennsylvania, Delaware and the Virgin Islands the Seventh Circuit s jurisdiction covers Illinois Wisconsin and Indiana

by a proper understanding – and application – of ALARA As more cases are litigated in this new field of law, it is hoped that courts will follow *O'Conner* and *In re TMI* while rejecting *James*

U S Court of Appeal (District of Columbia Circuit) Decision on U S DOE Obligations Under the Nuclear Waste Policy Act (1996)[*]

In May 1995, various utilities, States and State public utility commissions filed a petition challenging the United States Department of Energy's interpretation that it was not unconditionally obligated, under the Nuclear Waste Policy Act, to accept spent nuclear fuel and high-level radioactive waste by 31 January 1998, in the absence of a repository constructed and licensed under the Act (*Indiana Michigan Power Company et al , v Department of Energy and United States of America*)

On 23 July 1996, the United States Court of Appeals concluded that the Department s interpretation was not valid, and ruled that, under the Act, the Department is obliged to commence disposing of, or accept under the "Standard Contract", the utilities' spent nuclear fuel no later than January 1998 The Court noted that the Department has not yet defaulted on its statutory or contractual obligations with the utilities and found it premature to determine an appropriate remedy or how the disposal obligation might be met in the absence of a repository

The Department of Energy had 90 days from the date of the ruling to appeal (by way of a petition for *certiorari*) to the United States Supreme Court. It has decided not to pursue such an appeal If the Department has a legal obligation to accept waste prior to construction of a repository, this could be resolved potentially through the refund or rebate of moneys paid by the utilities into the Nuclear Waste Fund The issue of a remedy is, however, not ripe before the 1998 deadline, as indicated by the Court of Appeals

European Commission

Court of Justice and Court of First Instance of the European Communities – The KLE and ENU Cases[**]

On 18 September and 8 October, respectively, oral arguments were heard in two opposing cases against the Commission, one brought by a Community user, Kernkraftwerke Lippe-Ems (KLE) before the Court of First Instance of the European Communities, and the other by a Community producer, Empresa Nacional de Uranio (ENU), before the Court of Justice Reference has already been made in the *Bulletin* to these two cases and, in particular, to the fact that the Euratom Supply Agency's practices with regard to nuclear fuel supplies were being challenged from diametrically opposed viewpoints (See *Nuclear Law Bulletin* No 54 for the KLE case and *Nuclear Law Bulletin* Nos 55 and 56 for the ENU case)

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* This note has been kindly prepared by **Sophia Angelini** of the United States Department of Energy

** This note has been kindly prepared by **A. Bouquet**, Euratom Supply Agency

1. KLE Case

The Facts

As has already been reported at different times, this first case concerns a Community user who has questioned the Agency's powers to impose a policy of diversifying sources of uranium supplies, and in particular to require that natural uranium to be delivered should not come from the Commonwealth of Independent States (CIS)

In its decisions, which were being challenged, the Commission had confirmed the Agency's position In the first decision – of 4 February 1994 – the Commission had, with regard to procedure, ruled that the Agency was entitled to request further information and that the period of ten working days for the conclusion of contracts did not start to run until the date on which it had received such information In the second decision, of 21 February, the Commission had, with regard to the main issue, confirmed that the Agency could make it a requirement for the conclusion of a contract that the materials not come directly or indirectly from the CIS, a position which is justified on common supply policy grounds, such as the need to diversify sources in order to ensure security of supply

Arguments Concerning the Time Factor

In its appeal against the decision of 4 February 1994, KLE criticised the Commission's calculation of the time which could be taken by the Agency to reach a decision and maintained that the request for information could not affect the ten-day time limit laid down by Article 5bis(f) of the Agency Regulation KLE claimed that the absence of a positive decision within the ten days amounted to an implicit refusal The Commission rejected this argument, pointing out that Article 55 of the Treaty enabled any necessary information to be requested It maintained that the ten-day period was not an actual time limit but simply an administrative period

Arguments on the Main Issue

As a preliminary step in its argument on the substance of the decision of 21 February 1996, the Commission set the dispute in a wider context and explained that the supply policy, which was aimed at diversifying supply sources and preventing any excessive dependence on supplies from the CIS, was the only sound policy possible at a time when prices were depressed and production did not meet demand With regard to the market situation in general, KLE maintained that production capacity was quite sufficient and denied that there was any question of a crisis

KLE then argued that the decision should be set aside for five reasons

- infringement of Article 5bis of the Agency Regulation and of certain provisions in the Euratom Treaty (including Article 61, paragraph 1, Article 60, Article 65, paragraph 1, Article 52, paragraph 2, Article 64 and Article 2(b) and (c),

- breach of the general principles of Community law,

- breach of the rules on the allocation of powers,

- breach of substantive rules, i e the requirement to provide justification, and

- abuse of power

As regards the first reason, KLE first argued that the simplified procedure ruled out interventionist control by the Agency, which should simply act as a sort of "notary" Diversification policy was, according to KLE, contrary to the Treaty, which allowed the free play of market forces and the requirement for "market-related prices" could not be a legal obstacle under the terms of Article 61, since such an exception to the requirement to meet all orders had to be interpreted restrictively It then criticised the lack of transparency on the grounds that supply policy criteria had been clarified only in the course of the proceedings, which contravened the general principle of legality under Community law As for powers, it considered that only the Council and the Commission were entitled to define policy, while the Agency had to limit itself to the commercial aspect of supply It was alleged that the requirement to provide justification had not been respected in that the Commission had not taken into account KLE's argument in the administrative procedure KLE did not enlarge on the alleged abuse of power

The Commission rejected all these arguments and defended its decision by stressing first, that Article 5bis remained subject to primary law and thus, a refusal to conclude a contract was perfectly in order, as was a partial refusal The Commission considered that an external agreement, such as the Agreement on Commercial and Economic Co-operation with the Soviet Union in 1989 (and in particular its Articles 6 and 14 on "market-related prices"), which had been concluded by the Commission pursuant to Article 101 (as well as an external agreement concluded by the Agency pursuant to Article 64), could be a legal obstacle to the conclusion of a contract by the Agency under the terms of Article 61 The policy of diversifying supply sources had been the subject of a number of resolutions and opinions, in particular by the Agency's Consultative Committee A breach of supply policy principles in KLE's favour would, by enabling KLE to acquire unlimited quantities of material from the CIS, give it a privileged position over other users, which was prohibited by Article 52 paragraph 2 (a) As for the lack of transparency, the Commission pointed out that KLE had precise information on the reasons for the diversification policy As regards the allocation of powers the Commission stated that the Agency had been set up by the Treaty itself, with responsibilities not only for purely commercial issues but also for certain supply "policy" decisions These decisions were backed by the Commission With regard to justification, the Commission pointed out that the grounds given were sufficient to enable KLE to appreciate why the decision had been taken

Arguments on the Claim for Compensation

The Commission questioned the admissibility of a claim filed against it but concerning action taken by the Agency KLE rejected this argument and stressed that the Commission's decision had confirmed the act by the Agency The Commission took the view that, since no illegal act had been proved (see proceedings for annulment), there could be no question of compensation even in the event of annulment, the Commission could not be held liable unless it had manifestly and unduly exceeded its discretionary powers

Next Stage

The cases have been adjourned for further consultation, and a judgement is expected in the coming months

2 The ENU Case

On 8 October the Court heard arguments in the appeal by Empresa Nacional de Uranio (ENU) against the judgement of 15 September 1995 In this judgement, the Court of First Instance had

dismissed an action for annulment and damages brought by ENU against the Commission's decision of 19 July 1993

In presenting his case, ENU's counsel mainly repeated the arguments he had given in his written statement, namely that the Court had misunderstood the request by ENU which was not asking for a market guarantee but simply for the full implementation of Chapter VI of the EAEC Treaty (which would automatically result in such a guarantee), that the simplified procedure (providing for direct negotiation and co-signature) was contrary to the Treaty, that under the terms of Article 66, a preference existed for Community production available at fair prices and that, pending the implementation of Chapter VI, the "special provision" required the Agency to sell ENU's production

After setting Chapter VI in its wider policy and economic context, the Commission rejected these arguments and claimed that ENU was in fact asking for a market guarantee, that the legality of the simplified procedure Regulation had been accepted implicitly by the Court of Justice and explicitly by Attorney-General Römer, and that the Court of First Instance had established as a fact that the "special provision" was simply a policy proposal, one, moreover, that had been fully respected by the Agency which had succeeded in selling ENU's current production The Attorney-General is to give his conclusions on 5 December, and the judgement should be handed down at a subsequent date

NATIONAL LEGISLATIVE AND REGULATORY ACTIVITIES

Brazil

Radiation Protection

Resolution of the National Nuclear Energy Commission (CNEN) (1996)

By a Resolution dated 26 March 1996, the CNEN approved certain radiation protection and safety standards to be followed in the provision of nuclear medicine services It was published in the *Diario Oficial* on 23 April 1996

The standards apply to activities involving the use of pharmaceutical products for therapeutic and diagnostic purposes in the field of nuclear medicine

Nuclear medicine services are to consist of a medical specialist (doctor), a radiation level supervisor approved by CNEN and several technicians Each service must formulate a radiation protection plan, conforming to the criteria set out in Standard CNEN-NE 3 01 which describes the basic requirements for radiation protection Radioactive waste generated by these activities must be collected and placed in containers that are properly identified and dated The containers are to be stored in special areas until their ultimate disposal

The CNEN has the authority to modify radiation protection and safety standards if they judge them to be inadequate, as well as the right to inspect the operations of nuclear medicine services to ensure that current standards are being met

Regulation of Nuclear Trade (Including Non-Proliferation)

Decree Concerning the Export of Sensitive Goods and Consequential Services (1996)

Decree No 1861 of 12 April 1996, made pursuant to Law No 9 112 of 1995 on the export of sensitive goods, aims to regulate the transfer of equipment, materials and nuclear technology as well as dual-purpose products

The Decree sets out the guiding principles for the control of exports of nuclear materials and consequential services so as to guard against the risks of proliferation of nuclear arms

Export permits are issued by the Office of Strategic Affairs of the President of the Republic (*Secretaria de Assuntos Estratégicos*) Permit conditions are set out in Chapter V of the Decree Export controls are exercised over all transfers to other States, even where the country of destination plans to re-export the goods to a third country The transfer will only be authorised if the destination State provides a Governmental guarantee attesting to the fact that the goods exported do not contain any nuclear explosive device Moreover, the transfer may only take place if the destination State has

concluded an Agreement with the IAEA ensuring that its nuclear activities are limited to peaceful purposes

The Decree was published in the *Diario Oficial* on 15 April 1996 and entered into force on the same date

People's Republic of China

Regime of Nuclear Installations

Collection of Regulations on Nuclear Safety (1995)

These notes are based on the publication "A Collection of Regulations on Nuclear Safety of the People's Republic of China" (published in December 1995) The Collection contains legislation regulations and orders concerning nuclear safety as laid down by the State Council and the National Nuclear Safety Administration (NNSA) (For more information on the NNSA, see *Nuclear Law Bulletin* No 40)

Regulations

The current rules on nuclear safety are contained in administrative regulations These are as follows

1 Regulation on the safety, supervision and control of civilian nuclear installations in China of 29 October 1986, HAF0500 This Regulation lays down a regime of licensing and control of civilian nuclear installations and sets up the NNSA The NNSA is responsible, in particular, for centralised supervision of the safety of such installations throughout the country (See *Nuclear Law Bulletin* No 39)

2 Regulation on the control of nuclear materials in China of 15 June 1987, HAF0600 This Regulation lays down a regime of control to ensure the safe and lawful use of nuclear materials and to provide for the physical protection of such materials

3 Regulation on the control of nuclear emergencies involving nuclear power plants of 4 August 1993, HAF0700 This Regulation lays down the procedures for emergency programmes in the event of a nuclear incident and for minimising the damage from such an incident The Regulation sets forth the responsible organisations, the preparations necessary in the event of an incident, emergency preventive measures, recovery measures and financial support for such measures

4 Regulation on radiation protection from radioisotopes and radiation equipment of 24 October 1989 This Regulation lays down the provisions for the licensing of work units using radioisotopes and radiation equipment. It also sets out the responsibilities of public health environmental and public security departments at various levels with respect to the supervision of radioisotopes and radiation equipment (see *Nuclear Law Bulletin* No 51)

Safety Codes

The above mentioned Regulations are supplemented by safety codes issued by the NNSA These are as follows

1 Safety Code on the siting of nuclear power plants of 27 July 1991, HAF0100(91) This Code sets out a system for selecting sites for nuclear power plants in keeping with nuclear safety It includes provisions for analysing and assessing the safety of recommended sites, as well as the obligations of applicants seeking permission and those of the relevant authorities concerning nuclear safety

2 Safety Code on the design of nuclear power plants of 27 July 1991, HAF0200(91) This Code contains certain essential conditions with regard to the design of a nuclear power plant, to ensure the safety of the plant, including the design of the building as well as the system and its components It covers safety principles and design standards for key components such as the reactor core, cooling system, emergency power supply system, fuel loading and storage system, and for radiation protection

3 Safety Code on the operation of nuclear power plants of 27 July 1991, HAF0300(91), and its Appendix of 2 March 1994, HAF0300(91)-1 This Code sets out the basic requirements for the safe operation of nuclear power plants and contains the rules governing the responsibility of the organisation operating the plant It covers operating rules, repairs and maintenance, experimentation, inspection, radiation protection, management of radioactive waste, preparations for emergencies, quality assurance, physical protection, record and reporting systems and decommissioning The Appendix to the Code concerns, specifically, the management of refuelling, repairs and shut-downs by accident

4 Safety Code on quality assurance for nuclear power plants of 27 July 1991, HAF0400(91) This Code applies the principle of quality assurance to all activities relating to nuclear power plants, from site selection to decommissioning

5 Safety Code on the management of radioactive waste from nuclear power plants of 29 August 1991, HAF0800 This Code sets out the safety principles for waste management and, in doing so, covers the responsibilities of the operating organisation and the relevant authority, a management system, the transport and disposal of radioactive waste and the management of radioactive waste generated from decommissioning and nuclear incidents

6 Safety Code on the supervision and control of civilian nuclear pressure retaining components of 4 March 1992, HAF0900 This Code sets out the safety requirements for pressure retaining components (including pressure vessel, heat exchanger, etc) used for civilian nuclear power plants Certain rules and directives have been made pursuant to this Code These rules and directives provide for the implementation of the above mentioned Safety Code by setting forth a licensing system for the design, manufacture and installation of pressure retaining components and an organisation to regulate and supervise the various safety activities in this area. In addition, they provide for the training and certifying of personnel undertaking non-destructive examination of civilian nuclear pressure retaining components and for the supervision and control by competent departments of the above-mentioned personnel

7 Safety Code on civilian nuclear fuel installations of 17 June 1993, HAF1100 This Code specifies the safety requirements for site selection, construction, operation and decommissioning of

installations, for the fabrication, enrichment, processing, reprocessing, storage and disposal of nuclear fuel

8 Safety Codes on research reactor design and operation of 6 June 1995, HAF1000-1 and HAF1000-2 These two Codes set out the requirements for siting and quality assurance in relation to the design of research reactors, and safety requirements for the operation and decommissioning of research reactors

Finland

General Legislation

Modification of the Nuclear Energy Decree of 1988 Following Membership in the European Union (1996)

When Finland became a Member State of the European Union in 1995 it also joined the European Atomic Energy Community (Euratom) As a consequence, compliance with the Euratom Treaty and with EC Council Regulations and Directives based thereon, necessitated a number of amendments to the Nuclear Energy Act, 1987 (see *Nuclear Law Bulletin* No 55)*, Changes to the Finnish Nuclear Energy Decree of 1988 were also required and these are reflected in Decree 473/96 of 26 June 1996 which came into force on 1 July 1996 (see *Nuclear Law Bulletin* No 43)

The changes were primarily required because of the Euratom Treaty itself and because of EU Council Directive 92/3/Euratom, on the supervision and control of shipments of radioactive waste between Member States and into and out of the Community (for the text of the Directive, see *Nuclear Law Bulletin* No 49, see also *Nuclear Law Bulletin* No 53)

In addition, changes were necessitated by the following EU Council Regulations Nos 9 (1960) 3227/76 and 1493/93 (see *Nuclear Law Bulletin* No 52) The above mentioned EU texts contain details of licensing and notification, as well as definitions, concerning shipments of radioactive substances which are now incorporated into the new Finnish Nuclear Energy Decree

Finland also benefits from the extent to which transfers of nuclear industry goods used for ordinary peaceful purposes have been made easier within the European Union An operator who has obtained a construction or operating licence for a nuclear facility, or who has some other operating license mentioned in the Finnish Nuclear Energy Decree, will now receive a Community Trade Licence for the import and export of nuclear goods pertaining to his business to and from other Member States When such a Community Trade Licence has been obtained, the operator needs no other import or export licence from the Finnish authorities regarding shipments within the European Union The Community Trade Licence does not, however, apply to imports or exports of nuclear waste

The new Finnish Nuclear Energy Decree also contains the necessary provisions concerning dual-use goods needed by the non-military nuclear industry, which are listed in EU Council Regulation No

* These amendments primarily concerned EC Membership obligations and they came into force on 1 January 1995 pursuant to Decree 1589/94 issued on 31 December 1994

3381/94 setting up a European Union regime for the control of exports of dual-use goods, and in EU Council Decision 94/942/CFSP concerning the control of exports of dual-use goods

France

Organisation and Structure

Decree Determining the Responsibilities of Nuclear Armed Forces (1996)

Under the terms of Decree No 96-520 of 12 June 1996, the mission, composition and terms of deployment of armed forces using nuclear weapons are to be determined by the Defence Council and the Prime Minister is to take those general measures necessary to implement these decisions The Minister responsible for the armed forces has jurisdiction over the organisation, management and deployment of armed forces using nuclear weapons and over their necessary infrastructure The Chief of Staff of the armed forces is charged with the following responsibilities in respect of the use of nuclear weapons

- to prepare deployment plans and operational directives,
- to ensure the operational capacity of the armed forces using nuclear weapons and their corresponding movement, and
- to keep the Minister responsible for the armed forces informed and to report to the Defence Council on the state of such matters

The Chief of Staff of the armed forces is responsible for carrying out the necessary operations to deploy armed forces using nuclear weapons

The Commanders of the armed forces are charged with putting these measures into operation and with following up on the execution of their missions

Decree No 64-46 of 14 January 1964, relative to the strategic aerial forces is also repealed

Regime of Nuclear Installations

Decree Modifying the Categories of Installations for the Protection of the Environment (1996)

Decree No 96-197 of 11 March 1996 modifies the contents of heading 385bis to six, concerning radioactive substances, so as to take into account, on the one hand, the evolution of standards for sealed sources, and on the other hand, modifications to the general principles of radiation protection (Decree No 88-521 of 18 April 1988, which modified Decree No 66-450 of 20 June 1966) (See *Nuclear Law Bulletin* Nos 41 and 42)

This revision does not alter the boundary between basic nuclear installations (INB) and installations classified for the protection of the environment (ICPE) under the heading 385bis to six (radioactive substances), but rather, makes the headings of the ICPE categories more consistent with those of the radiation protection regulations It provides, notably, that the classification of radionuclides by reference to their radiotoxicity will now result in there being four groups, rather than three as envisaged previously

The new Decree also provides

- for the repeal of Articles 3 and 4 of the Decree of 23 April 1985 (See *Nuclear Law Bulletin* No 36) following the publication of Decree No 95-540 of 4 May 1995 on the release of effluents from INB, which itself repeals the Decree of 6 November 1974 which these two Articles modified,

- that with regard to the definition of sealed and non-sealed, reference is now made to standards rather than to an order or decree,

- for taking into account the opinion of the Council of State of 11 December 1991 concerning the methods of calculating the activity level of radioactive substances,

- the explicit recognition of installations where more than one nuclear activity is carried out

Decree Modifying Decree No 85-449 Concerning the Application of the Law of 1983 on Protection of the Environment to Basic Nuclear Installations (1996)

Article 1 of the Law of 12 July 1983 on the Democratisation of Public Inquiries and the Protection of the Environment provides that the list of activities which must be preceded by a public inquiry is to be determined by a decree of the Council of State (See *Nuclear Law Bulletin* No 32)

In applying this provision, Decree No 85-449 of 23 April 1985 includes, by way of an annex the categories of basic nuclear installations (INB) However, due to the revision of categories of installations classified for the protection of the environment (ICPE) which are subject to the above mentioned Decree No 96-197, it was judged necessary to modify, at the same time, the categories of INB This modification was accomplished by a new Decree No 96-198 of 11 March 1996

Repeal of Two Orders Concerning the Limits Beyond Which Installations Were Considered as Basic Nuclear Installations (INB) (1996)

The Order of 11 March 1996 modifies the limits beyond which factories for the preparation fabrication or processing of radioactive substances, as well as installations for the storage stockpiling or use of radioactive substances including waste, are to be considered as basic nuclear installations

Until the entry into force of this new Order, the limits beyond which the above-noted installations were considered as INB's were set forth in the Orders of 6 December 1966 and 25 January 1967, as modified, which had been made pursuant to Article 2 of the Decree of 11 December 1963 relative to nuclear installations These two Orders are thus repealed

The Order of 11 March 1996 replaces the two Orders of 1966 and 1967 in order to take into account the reforms introduced by Decree No 66-450 of 1988 with regard to the general principles of radiation protection

Repeal of the 1977 Order Setting Out the Characteristics of Radioactive Materials in Special Form (1966)

Sealed sources in special form, subject to the less stringent requirements for the regulation of installations classified for the protection of the environment (ICPE), were defined by the Order of 24 November 1977 This Order did not take into account current standards and was incomprehensible

to users who could be refused approval in spite of their having obtained certificates of standards compliance from the test laboratories

The modification of categories has eliminated the concept of "sealed sources in special form" From now on, French standards, themselves conforming to international standards, will allow for the application of classification limits, formerly reserved for sealed sources in special form, to sealed sources conforming to these standards

Consequently, the Order of 24 November 1977 has been repealed and replaced by the Order of 11 March 1996

Ireland

Transport of Radioactive Materials

Harbours Act, Restricting Access of Nuclear Powered Ships or Ships Carrying Nuclear Weapons or Nuclear Materials (1996)

The Harbours Act, 1996, was enacted on 20 May 1996, but has yet to come into force It is expected to do so before the end of the year Under Part III of the Act, Section 52 grants to the harbour master the discretion to prohibit entry into a harbour of ships, vehicles or other conveyances which might pose a danger to persons or property It specifically addresses nuclear powered ships, ships carrying nuclear weapons and ships carrying nuclear material or substances destined for the production of nuclear materials

Subsection 52(2) requires the harbour master to only permit the entry into the harbour of radioactive material (as defined by the International Maritime Dangerous Goods Code of the International Maritime Organisation) with the consent of the Radiological Protection Institute of Ireland

Subsection 52(3), as a general rule, prohibits the entry into the harbour of a nuclear powered ship, or a ship that is carrying nuclear weapons or nuclear material or substances destined for the production of nuclear materials

The prohibitions are, however, subject to certain exemptions Thus, the prohibition under subsection (3) regarding ships carrying nuclear materials is subject to an exemption from the Minister for the Marine, granted with the consent of the Minister for Transport, Energy and Communications and on the advice of the Radiological Protection Institute of Ireland In addition, the prohibitions under both subsections apply only to a ship of the naval service of another State with the prior consent of the Irish Government A violation of subsection (3) may result in prosecutions of both the owner and master of the ship

Mexico

Radioactive Waste Management

Regulations Concerning the Determination of Radioactivity Levels for Waste Permanently Stored at Surface and for its Incineration (1996)

In August 1996, the Ministry of Energy adopted three Regulations in the field of radioactive waste management These Regulations, published in the *Diario Oficial* on 12, 14 and 15 August 1996 respectively, entered into force on the days following their publication

The first of the Regulations, No 018-Nucl-1995 defines the methods to be used to determine the concentration of radioactivity in radioactive waste containers so as to ensure proper treatment packaging and permanent storage of the waste These methods are grouped into four categories

- assessment of the substances in question,
- classification according to the source of the substance,
- measurement of overall activity,
- measurement of specific radionuclides

In the case where containers of radioactive waste are transferred to another installation for treatment and packaging, the producer of the waste must complete a shipping form for each This form is to be kept by the producer for a minimum period of ten years and a copy is to be kept by the recipient for a period to be established by the National Commission for Nuclear Safety and Assurance

The second Regulation, No 019-Nucl-1995, deals with the requirements for operating a permanent ground surface storage facility (up to 30 metres) for containers of low level radioactive waste in gaseous, liquid or solid form

This Regulation provides that at the design stage of a surface storage facility, three factors must be taken into consideration

- the drums or other packing material which contain the waste,
- natural and man-made barriers as well as other engineering structures designed to avoid the dispersion of radioactivity into the environment, and
- the characteristics of the site, so as to ensure the isolation of the waste from locations accessible to man

The packing itself must have the characteristics required to ensure the containment of radionuclides, thermal resistance and stability

The third Regulation, No 020-Nucl-1995, relates to the requirements for radioactive waste incineration facilities

Each stage in the life cycle of an incineration facility (construction, operation, closure, dismantling) requires prior licensing by the National Commission for Nuclear Safety and Assurance, in accordance the procedure prescribed by the General Regulation on Radiological Safety of 1988 (See *Nuclear Law Bulletin* No 43)

With respect to the criteria for design and operation of such a facility, the Regulation provides, amongst other things, that it must be constructed and operated so as not to exceed a dose to the public in excess of 0 10 mSv per year

Furthermore, amongst the safety requirements, the operator of the facility must carry out analyses to evaluate the probability of an accident occurring and of its radiological consequences The causes of possible accidents must also be identified as well as measures to be taken to minimise the risk thereof

Finally, each phase of the installation must be preceded by the preparation of a quality assurance programmeme which is to be based upon a verification of documents, an inspection, a verification as to non-conformance, corrective measures and checking of records

This Regulation applies throughout the country and the Ministry of Energy, through the National Commission, is responsible for ensuring its enforcement

Netherlands

Radiation Protection

Revision of the 1986 Radiation Protection Decree (1996)

On 13 February 1996 a revision of the 1986 Radiation Protection Decree (as amended in 1988, 1991, 1993 and 1994) was adopted (See *Nuclear Law Bulletin* Nos 41 and 45) This Decree elaborates the general principles contained in the Nuclear Energy Act of 1963, as amended, with regard to protection against the hazards of ionising radiation Major changes made by the revision of the Decree deal with the dose limits for radiation exposure Thus

- the total individual dose limit for members of the public is fixed at 1 mSv per year (a source limit of 0 1 mSv and a generic dose constraint for optimisation of protection of 0 4 mSv should be applied to each source category) The dose limit for workers remains unchanged at 50 mSv for whole body exposure

- all radioactive sources within one facility will be considered as one source of radiation The combined effects of all sources to the environment are to be assessed and submitted to the competent authority as background material for the application of a single license for the whole facility

- a limit of 5 mSv has been set for radiation doses to persons while voluntarily helping (in a non-occupational capacity) in the care, support and comfort of patients undergoing medical diagnosis or treatment with radionuclides, or visitors of such patients

Portugal

Radiation Protection

Decree-Law Relating to the Use of Sealed Radioactive Sources (1996)

This Decree-Law No 153/96 of 10 August 1996 regulates activities involving the use of radioactive sealed sources which could pose a risk of ionising radiation exposure or of radioactive contamination, so as to ensure the protection of the public and of the environment It follows from Decree-Law No 348/89 and from Regulatory Decree No 9/90 concerning activities which may cause radioactive contamination (See *Nuclear Law Bulletin* No 46) The provisions of this Decree-Law are neither directed towards workers subjected to radiation exposure in the course of their employment nor to patients exposed to radiation in the course of medical treatment

Article 1 defines a radioactive sealed source as any substance having a concentration in excess of the limits set forth in Annex II to the Regulatory Decree No 9/90 and properly embedded in a solid package or in a hermetically sealed capsule

The person responsible for the possession, retention, use, transport, and import of sealed sources must submit a request for a prior licence to the General Directorate for the Environment in accordance with the prescribed conditions of this Decree and the criteria set forth jointly by the Ministers of Health, Environment and Science and Technology, or, in respect of equipment utilised for medical purposes, the General Directorate for the Environment on the advice of the General Directorate for Health) The General Directorate for the Environment must grant or refuse the licence within 45 days A public register of all such licences is to be kept by the General Directorate for the Environment

The Decree also contains provisions concerning civil liability Pursuant to Article 3, licence holders are strictly liable for damage caused to persons, to property and to the environment by a radioactive sealed source, even if they have complied with applicable legal requirements In the case where the radioactivity level of the licensed source, for each activity, exceeds the limit of 1 GBq, the licence holder will be subject to fines, as follows

- 20,000 escudos, if the cumulative activity level is less than 10 GBq,
- 50,000 escudos, if the cumulative activity level is equal to or greater than 10 GBq but less than 1 TBq,
- 100 000 escudos, if the cumulative activity level is equal to or greater than 1 TBq

These amounts will be revised every three years by the above mentioned Ministries

In addition, the Decree-Law sets forth the procedure to be followed in the event of a sale, transfer or other disposition of sealed sources, as well as in the event of their permanent storage

The General Directorate for the Environment is authorised to suspend, at any time, a licensed activity where the licence holder fails to comply with applicable legislative requirements In the case of repeated offences, the above noted General Directorate may revoke the licence and requisition the sources in question

The Decree-Law was published in the *Diario da Republica* on 30 August 1996

Radioactive Waste Management

Decree-Law on the Transboundary Movement of Radioactive Waste (1996)

Decree-Law No 138/96 of 25 July 1996 aims to incorporate into Portuguese domestic law, the Council Directive No 92/3/Euratom on the monitoring and control of shipments of radioactive waste between Member States, as well as their entry into and exit from the European Community (the text of this Directive is reproduced in *Nuclear Law Bulletin* No 49) The publication of this Decree-Law in the *Diario da Republica* took place on 14 August 1996

It covers all radioactive waste which exceeds, in quantity or in concentrations, the levels set out in Annex II to Regulatory Decree No 9/90 of 19 April 1990

The Decree, after defining the technical terms utilised in the text, describes in detail the procedure to be followed to obtain a licence for each import, export or shipment of radioactive waste, whether within the Community, between the Community and a third country, or between two third countries where part of the shipment crosses the territory of a Member State of the Community Generally speaking, the General Directorate for the Environment is the agency with jurisdiction to grant licences and to define the transfer procedures

Furthermore, permission may be given to send back to the country of origin waste that results from the reprocessing of irradiated fuel as long as the material originates with that country or it was agreed in advance by the Parties that such waste would be returned

Moreover, if certain conditions are fulfilled, a single licence will suffice for several shipments These conditions are as follows

- all waste must display the same physical, chemical and radioactive characteristics,
- all shipments must be made by the same owner or the same recipient and involve the same competent agencies,
- in the case of shipments to third countries, the entry into or exit out of the European Community must take place through the same border point

Lastly, it is provided that the shipment licence is without prejudice to the liability of those various persons who participate in the shipment

The licence may only be granted upon presentation by the owner of the waste, of civil liability insurance covering damage to persons and to the environment

Romania

General Legislation

Law Relating to the Regulation, Licensing and Control of Nuclear Activities (1996)

On 10 October 1996 the President of the Republic of Romania promulgated the Law Relating to the Regulation, Licensing and Control of Nuclear Activities (1996) Its publication in the

Official Journal is expected to take place before the end of the year and its entry into force will occur sixty days following publication The aim of this new Law is to modernise the existing 1974 legislation, taking into account

- the political and economic changes which have taken place in Romania resulting from the transition to a free market economy, the establishment of a democracy and the separation of powers,

- the regulatory experience acquired by Romania since the adoption of its previous legislation

- nuclear legislation that has been adopted in other countries

The new Law applies to the design, construction, operation and decommissioning of nuclear installations, to the extraction and treatment of uranium and thorium, to the production supply and storage of nuclear fuel, and to radioactive substances and waste All of these activities will require a licence issued by the National Commission for the Control of Nuclear Activities, which licence will include conditions relating to nuclear safety, radiation protection, quality assurance non-proliferation and physical protection

Licences may be suspended or revoked by the competent body when

- the licence holder is in violation of the provisions of the new Law,

  new technologies or circumstances arise which affect the conditions under which the licence was issued,

- the licence holder loses its legal status

All activities contributing to the proliferation of nuclear arms or other explosive devices representing a threat to national security are prohibited This prohibition includes the manufacture import, export and transportation of nuclear arms or other explosive devices on Romanian territory Moreover, the import of radioactive waste is also prohibited, except for the re-importation of Romanian spent fuel, reprocessed abroad, which is considered a permissible activity under the new Law

Other regulations are currently being considered as well, notably those relating to civil liability for nuclear damage and the revision of standards for the transportation of radioactive materials and for radiation protection The text of this Law will be reproduced in the Supplement to the next issue of the *Nuclear Law Bulletin*

Russian Federation

General Legislation

The Regulation of Nuclear Energy in the Russian Federation (1996)[*]

Introduction

The regulation of nuclear activities is particularly important with regard to the interests of the country as a whole and all its citizens

Russia is now carrying out a large-scale modernisation of its nuclear power industry, first and foremost in order to improve industry safety It must also substantially adjust its military policies as regards nuclear arms potential, and its scientific-technical policies regarding the development, production and use of nuclear weapons, including measures to ensure their safety In addition, it must implement a set of measures to reduce and recycle nuclear armaments and to dispose of radioactive wastes Under current conditions, large scale nuclear programmes can only be effectively regulated pursuant to comprehensive nuclear legislation Such legislation would include provisions which

- set forth the basic rights and obligations of competent government authorities, legal entities and private individuals with respect to the use of nuclear power, and the consequences of failure to comply with legislative requirements,

- establish competent rule-making and decision-making bodies within the executive authority (edicts by the President of the Russian Federation and decrees of the Government of the Russian Federation) to ensure that the criteria for carrying out large nuclear programmes are in place and that proper safety rules and standards are adopted,

- ensure compliance at various local and regional levels with specific health, safety and environmental protection requirements, and

- implement international recommendations and principles pertaining to the use of nuclear energy and international agreements regulating the relationship between States in the nuclear field,

The aim of this legislation is to regulate the use of nuclear power so as to ensure the safety of man and the environment and ensuring the economically feasible use of nuclear technologies

1. THE LAW ON THE USE OF NUCLEAR ENERGY – THE FOUNDATION OF RUSSIAN NUCLEAR LEGISLATION

1 1 Law on the Use of Nuclear Energy

The regulation of nuclear activities in Russia has finally been given a legislative framework. The Federal Law on the Use of Nuclear Energy, which sets forth the basic principles governing the use of

[*] This note has been kindly prepared in Russian by **Professor Abram Yoyrish** of the Russian Academy of Sciences Institute of State and Law This is an unofficial translation made by the NEA

nuclear energy, came into force upon official promulgation by the President on 21 November 1995 The Law applies to all nuclear activities, both for peaceful and for defence purposes, with one significant exception activities relating to the development, manufacture, testing operation, and recycling of nuclear weapons and defence-related nuclear power plants is regulated by other federal laws (the drafting of one of which has already been approved by the Government of the Russian Federation)

The main objectives of the Law are to create a legal framework in which the State can control and regulate nuclear safety and specify the rights and obligations of citizens, government officials enterprises, and other organisations as well as of the federal executive authority with regard to the use of nuclear energy

The Law establishes a legal procedure for siting and constructing nuclear power plants, facilities for other sources of radiation and for radioactive material storage sites It establishes the legal status of organisations engaged in nuclear activities, including operating organisations (or 'operators of nuclear power plants, according to IAEA terminology) and determines special conditions for the construction and operation of nuclear-powered ships, space vehicles and nuclear-powered aircraft In addition, the Law also regulates the management of nuclear materials, radioactive substances and radioactive waste, the physical protection of various nuclear facilities, and civil liability for nuclear damage

The Law on the Use of Nuclear Energy is undoubtedly the cornerstone of the Russian Federation's legal framework for improving the safety of nuclear activities

1 2 Legislation Resulting from the Law on the Use of Nuclear Energy

Further to this new Law, a whole range of legislative instruments has been enacted with respect to the regulation of nuclear activities in the Russian Federation The most important of them include

- Government Order No 291, issued on 16 March 1996, "On Approval of the Statute on the Procedure for the Export and Import of Radioactive Substances and Products Manufactured with such Substances" This Statute establishes the procedure for the licensing and control of the export and import of radioactive substances and of products which are manufactured with the use of such substances

- Presidential Decree No 1012, signed on 2 July 1996, 'On Guarantees for the Safe and Sustainable Operation of the Nuclear Power Industry in the Russian Federation" This Decree specifies the safe and sustainable operation of nuclear power plants as a priority for the development of the Russian economy It requires the Government to draw up the procedure for establishing a special fund to finance scientific research and development work to improve the safety of these facilities under Article 34 of the Law on the Use of Nuclear Energy Under the Decree, the Government is also obliged to provide State guarantees to help attract foreign investment, which in turn will help to ensure the safety of nuclear power plants such as those under the jurisdiction of the operating organisation "Rosenergoatom '

1 3 Proposed Legislation in the field of Nuclear Energy

A major part of the effort to improve nuclear legislation, to bring existing laws and other legislative instruments into line with the Law on the Use of Nuclear Energy, and to enact new regulations, still lies ahead Government Order No 367, passed on 12 March 1996, approved the plan

for drafting legislation This plan includes the draft laws, "On Compensation For Nuclear Damage and Nuclear Insurance", "On the Mandatory Insurance of Citizens of the Russian Federation Against the Risk of Radiation Effects", "On Social Protection Measures for Citizens Residing or Employed in Areas Where Nuclear Power Facilities Are Located", "On Administrative Responsibility of Organisations Carrying Out Activities Involving the Use of Atomic Energy", together with proposed amendments to the Criminal Code of the Russian Federation and to the Code of Administrative Offences These draft laws are at various stages of preparation, with some having already been submitted to the State Duma of the Russian Federation Furthermore, a process is also underway to prepare more than twenty supplementary legislative instruments to be included under Government Order No 367 as part of the Drafting Plan for 1996

2. OTHER LEGISLATIVE INSTRUMENTS REGULATING NUCLEAR ACTIVITIES

2 1 Law on Public Radiation Safety

Apart from the Law on the Use of Nuclear Energy, amongst the most important laws aimed at regulating nuclear activities is the Federal Law on the Radiation Safety of the Public, which was enacted on 9 January 1996 This Law is part of a package of legislative instruments that complement the Law on the Use of Nuclear Energy Until now, legislative instruments designed to protect people from the hazardous effects of radiation took the form of radiation safety requirements or health rules regulating only the health and environmental aspects of radiation safety They have stopped short of guaranteeing full legal protection to people involved in the use of nuclear energy, which allowed certain agencies, in a number of cases, to neglect proper safety measures and to turn a blind eye to the interests of the public

The Law on the Radiation Safety of the Public sets forth the fundamental principles of ensuring the radiation safety of the public throughout the entire territory of the Russian Federation, defines the rights and obligations of State agencies, legal entities and private individuals, and provides for the regulation of nuclear activities by the State and by government authorities to ensure the radiation safety of the public It defines the procedure for supervising and controlling radiation safety, thus strengthening the international regime for the safe use of nuclear energy The law is purposefully oriented at protecting people from the effects of radiation as a result of using nuclear energy in various areas of human activity

The legislation proclaims the priority of human health and environmental protection in the utilisation of nuclear energy, radioactive substances and other sources of ionising radiation It sets forth the following three principles of radiation safety and establishes a mechanism for their implementation

- The principle of setting permissible dose limits for the public and for personnel working at nuclear installations

- The principle of justification, that is, prohibiting all types of activity using sources of ionising radiation for which the risk of radiation hazard does not exceed the benefit to man and society

- The principle of optimisation, that is, maintaining individual radiation doses and the numbers of people exposed to radiation at the lowest possible and accessible level, taking into account social and economic factors, when using a source of ionising radiation

The regulation of permissible dose limits will encourage greater responsibility for compliance with existing standards and stimulate the improvement of nuclear technologies The permissible dose limits are fully in line with the latest recommendations of the International Commission on Radiological Protection (ICRP), but they will not go into force until 1 January of the year 2000 due to the considerable practical work required for their implementation

2 2 Draft Law on Radioactive Waste Management

The Law "On Radioactive Waste Management", passed by the State Duma of the Russian Federation, has not yet been signed by the Russian President In the meantime, radioactive waste management are regulated, apart from the Law on the Use of Nuclear Energy, by supplementary legislative instruments as well as by related legislation in the area of environmental protection and human health These include, first, the Law "On the Protection of the Environment of 3 March 1992 Article 50 of this Law prohibits the import of radioactive waste or materials from other States for the purpose of storage and disposal as well as their disposal on the ocean floor or into outer space The new Water Code of the Russian Federation of 1995 also prohibits radioactive materials being disposed of, or discharged into, water basins (Article 104)

Standing out among supplementary legislative instruments are, for instance, Government Order No 824, passed on 14 August 1993, "On Priority Work With Regard to the Management of Radioactive Waste and Spent Nuclear Materials", and Government Order No 805 of 6 July 1994 On Priority Work With Regard to the Management of Radioactive Waste and Spent Nuclear Materials in 1994" The latter Decree calls for the drafting of a single procedure for managing radioactive wastes It also calls for the creation of a system of comprehensive environmental monitoring methods of managing various types of radioactive waste and the creation of regional storage facilities to store spent nuclear fuel, and waste disposal areas In addition, the Order specifies those agencies responsible for the implementation of planned measures

Problems relating to the import of spent nuclear fuel as well as to the reprocessing and disposal of radioactive waste generated therefrom are also regulated by the following

- Presidential Decree No 472, "On Compliance with Inter-Governmental Agreements on Co-operation in the Construction of Nuclear Power Plants Abroad", which was signed on 24 April 1993 This reaffirmed the Russian Federation's commitment to comply with inter-governmental agreements signed by the USSR for the construction of nuclear power plants abroad, which call for nuclear fuel deliveries from Russia and the return of the spent fuel to Russia for reprocessing Resulting solidified radioactive wastes is to be returned to the country that supplied the spent fuel

- Presidential Decree No 72, "On State Support for the Restructuring and Conversion of the Nuclear Industry", in the Town of Zheleznogorsk of the Krasnoyarsk Region, was signed by the Russian President on 25 January 1995

- Presidential Decree No 389, "On Measures To Improve Control Over Compliance with Environmental Protection Requirements In the Reprocessing of Spent Nuclear Fuel" signed

on 20 April 1995, ensures protection of public health and the environment from the harmful effects of ionising radiation It amends two previous Presidential Orders Nos 472 and 72

- Presidential Decree No 302, signed on 1 March 1996, On Making Amendments to Certain Decrees of the President of the Russian Federation in Connection with the Adoption of the Federal Law On Environmental Assessments Apart from making certain editorial changes to the aforementioned Decrees, this Decree requires the Ministry of Environmental Protection and Natural Resources to conduct a state environmental assessment of pre-project and project documents for the construction and equipping of facilities used for the reprocessing of radioactive materials and waste

- Government Order No 773 of 29 July 1995 establishes the procedure for accepting spent nuclear fuel from foreign nuclear power plants for reprocessing at Russian facilities, and for returning resulting radioactive waste This Order came into force on 1 September 1995 The procedure defines a mechanism for transporting spent nuclear fuel, accepting it for reprocessing and returning radioactive products and waste resulting therefrom Under the established procedure, which is binding on all Inter-Governmental Agreements for the acceptance of spent nuclear fuel for reprocessing by Russian enterprises, the fuel may only be accepted if the resulting radioactive products and waste that are not meant for further use in the Russian Federation are returned to the country of origin

2 3 Accounting For and Supervising Nuclear Materials

Just as important is the matter of accounting for and supervising nuclear materials, which is governed by the following legislative instruments

- Presidential Decree No 1923 of 15 September 1994 "On Priority Measures To Improve the System of Accounting For, and Safe Keeping Of Nuclear Materials" This Decree sets forth measures to improve the system of accounting for and ensuring the physical safety of nuclear materials and State supervision over their management It also aims to ensure the prompt receipt of reliable information on the manufacturing, storage, use, and transportation of nuclear materials and the strengthening of border and customs control In addition, it addresses compliance with international obligations in the area of non-proliferation of nuclear weapons The Decree places responsibility for the State system of accounting for and supervising nuclear materials upon the Federal Nuclear and Radiation Supervisory Committee of the Russian Federation (Gosatomnadzor)

- In furtherance of Presidential Decree No 1923, the Government passed its Decree No 34 on 13 January 1995 on priorities for putting into place a State system of accounting for and supervising nuclear materials Amongst other objectives, the Government singled out the improvement of the legal framework for accounting for and supervising nuclear materials In particular, it set as an objective the drawing up of the federal laws "On State Regulation of Nuclear and Radiation Safety" and "On Compensation for Nuclear Damage and Nuclear Insurance" Furthermore, it called for the establishment of a State system of accounting for and supervising nuclear materials, including a special federal plan The final stage of this work is the drafting of departmental technical documents determining the accounting and supervisory procedure for nuclear materials Most of the work envisioned by this Decree is

entrusted to Gosatomnadzor, together with other agencies However, much of what was envisioned has not been carried out for a number of reasons

2 4 Social Protection of Persons Affected by Radiation

The protection of persons affected by radiation is regulated in fairly great detail Amongst the various laws enacted in this area, the following stand out

- The Law of the Russian Federation of 18 June 1992, as amended, On the Social Protection of Citizens Affected by Radiation Following the Accident at the Chernobyl Nuclear Power Plant,

- The Law of the Russian Federation of 20 May 1993 On the Social Protection of Citizens Affected by Radiation Following the 1957 Accident at the Mayak Production Facility and the Discharges of Radioactive Waste into the River Techa,

- The Law of the Russian Federation of 19 May 1995 On the Social Protection of Citizens Following Nuclear Testing at the Semipalatinsk Test Range

Apart from these, a number of supplementary legislative instruments, mostly Government Orders, have been adopted in the field of social protection They include Government Order No 253 of 30 March 1993 On the Procedure for Granting Compensation and Benefits to Persons Affected by Exposure to Radiation and Government Order No 851 of 5 November 1992 On the Mandatory Free State Insurance Against the Risk of Radiation Damage Following the Accident at the Chernobyl Nuclear Power Plant, Government Order No 1008 of 25 December 1992 On the Regime Applicable to Territories Contaminated by Radiation Following the Accident at the Chernobyl Nuclear Power Plant Also belonging to this group are instruments regulating the protection of persons "at risk" that is, persons who may be exposed to hazardous ionising radiation due to their place of residence or performance of work duties Government Order No 763 of 15 October 1992 "On Measures for the Social Protection of the Population Residing in Territories Adjacent to Nuclear Power Industry Facilities" sets forth measures such as the creation of social sector facilities, housing construction and preferential electricity rates that apply to the population living in territories adjacent to nuclear power plants located at the Siberian Chemical Combine in the town of Tomsk-7 and the Mining Chemical Combine in Krasnoyarsk-26

2 5 Control of Exports and Imports

In accordance with the Law on the Use of Nuclear Energy, the statutory framework for Russian nuclear exports and imports was revised in 1996 The following basic instruments were adopted

- Government Order No 124 of 8 February 1996 On Accepting and Submitting to the President of the Russian Federation for Consent and Approval the Draft List of Nuclear Materials Equipment, Special Non-Nuclear Materials, and Related Technologies Subject To Export Control

- Presidential Decree No 202 of 14 February 1996, which approves this Draft List for the purpose of international obligations with regard to the non-proliferation of nuclear weapons The Decree went into force three months after its publication

- The procedure for the export and import of nuclear materials, equipment, special non-nuclear materials, and related technologies, mentioned in the Draft List, which was approved by Presidential Decree No 202, is laid down in a Regulation of the same title which was approved by Government Order No 574 of 8 May 1996 and which came into effect on 19 May 1996 This Regulation contains definitions for such terms as nuclear export and import, defines the procedure for carrying out nuclear exports and imports and specifies a licensing procedure for the control of such exports and imports

- By Order No 142, passed on 12 February 1996, the Government approved and submitted to the President, for consent and approval, the Draft List of dual-purpose equipment and materials and related technologies that can be used for nuclear purposes and whose export is subject to control

- Presidential Decree No 228 of the President of the Russian Federation of 21 February 1996 "On Dual-Purpose Equipment and Materials and Related Technologies That Can Be Used for Nuclear Purposes and Whose Export Is Subject to Control approved the Draft List submitted by the Government under Order No 142, as well as the procedure for exercising control over those exports

- Finally, Presidential Decree No 312 of 27 March 1992 On Control Over the Export of Nuclear Materials, Equipment, and Technologies from the Russian Federation provides that Russian exports to foreign countries can only be carried out on condition that the nuclear activity of the recipient State is placed under IAEA Safeguards

2 6 Safe Management of Nuclear Power Generation

A significant amount of legislation has been passed in an effort to ensure the safe use of nuclear power and to manage nuclear power generation Among such legislation is the Law of the Russian Federation of 14 July 1992 On Restricted Access Administrative and Territorial Entities A considerable number of facilities involved in the development, manufacturing, storage, and recycling of nuclear weapons and the reprocessing of radioactive substances and nuclear materials are located in the territory of restricted access administrative and territorial entities, where a special regime applies to ensure operational safety and the protection of State secrets, including special residence regulations The procedure for creating and abolishing such entities and the procedure for enforcing their special security status is provided for under the aforementioned Law

The question of funding production facilities posing radiation and nuclear hazards is regulated by three legislative instruments These are Presidential Decree No 2209, Government Order No 238 and the Law of the Russian Federation of 3 April 1996, On Financing Production Sites and Facilities Posing Particular Radiation and Nuclear Hazards The latter Law defines production sites and facilities posing particular radiation and nuclear hazards as those which are engaged in the development, manufacturing, operation, storage, transportation, and recycling of nuclear weapons, their components, and other radiation-hazardous material and products It stipulates that these facilities and sites must be funded under federal budget provisions that cannot be subject to change Supplementary instruments approve the list of enterprises and organisations which include the aforementioned facilities and sites

Guarantees of the safe development of the Russian nuclear power industry, including financial guarantees, are set forth in paragraph 1 2 of Presidential Decree No 1012 of 2 July 1996, On

Guarantees of the Safe and Sustainable Functioning of the Nuclear Power Industry in the Russian Federation

A number of other instruments have been adopted over the past few years on the economic aspects of developing the nuclear power industry Among these are Presidential Decree No 446 of 15 April 1993 On Special Features of Privatising Enterprises Under Jurisdiction of the Atomic Energy Ministry This Decree defines the special features of privatisation that were necessitated by compliance with safety requirements and with Russia's international obligations related to nuclear weapons, the nuclear power industry and nuclear technologies Accordingly, under this Decree, many parts of the nuclear power generation sector involved in the manufacturing of fissionable and radioactive materials are not subject to privatisation This is because the Decree takes account of the special role of nuclear power generating enterprises in ensuring the country's national interests, the need to meet environmental protection, radiation protection, and technical safety requirements, and the need to comply with guarantees regarding the non-proliferation of nuclear weapons The list of enterprises and organisations involved in manufacturing and destroying nuclear weapons and in conducting scientific research and development in this field which are not subject to privatisation, was approved by an instrument supplementary to the Decree

Certain adjustments to the State policy on privatisation in the nuclear industry were made by Presidential Decree No 166 of 8 February 1996, On Improving the Management of Nuclear Fuel Cycle Enterprises Under this Decree, a joint-stock company called "Tvel" was set up, the authorised capital of which is the combined shares of nuclear fuel cycle joint-stock companies For the purpose of enabling the State to regulate the operation of the nuclear fuel cycle enterprises in an effective fashion, and to ensure their manageability, the shares of "Tvel" joint-stock company are held under federal ownership

2 7 International Co-operation

A special group of documents is made up of legislative instruments aimed at regulating international co-operation in the use of nuclear energy and ensuring compliance with Russia s international obligations in this field. Among these, one finds Government Order No 923 of 1 July 1995 On Compliance with Obligations Stemming from its Membership in the IAEA and the Financing of the National Program of Scientific Technical Support for IAEA Safeguards, Government Order No 377 of 3 April 1996, On Adopting the Nuclear Safety Convention, and Government Order No 415 of 12 April 1996, On Signing the Vienna Convention on Civil Liability for Nuclear Damage

2 8 Long Term Programmes

Special federal programmes approved by Government Orders constitute another means of managing nuclear activities As a rule, these are long term programmes (five-ten years) with defined goals, objectives and areas of action The agencies responsible for implementing the programme are set out as are the programme's sources of financing Among the programmes that have been adopted over the past two years, those set out below are the most significant

For the purpose of resolving the problems of radioactive waste and the management of spent fuel, the Government drew up and approved, by Order No 1030 of 23 October 1995, a special federal programme called The Management of Radioactive Waste and Spent Nuclear Substances, Their Recycling and Disposal from 1996 to 2005 The programme calls for the creation of a legal framework with regard to the treatment of radioactive waste It also covers measures to ensure safety in the mining and processing of radioactive ores, in manufacturing nuclear fuel, in producing nuclear

weapons-grade materials in the operation of nuclear power plants, in the operation of nuclear-powered ships and in using radionuclides in medicine, science, technology and elsewhere

A number of special federal programmes are aimed at regulating protection of the public and rehabilitation of sites and territories affected by exposure to radiation On 2 November 1995, the Government approved the Special Federal Programme for the Creation of an Automated System of Controlling the Radiation Situation in the Russian Federation In addition, there are other special federal programmes aimed at neutralising the consequences of the Chernobyl accident, such as the Special Federal Program To Provide Medical and Social Assistance to the Population and To Regulate the Health Situation in the Republic of Altai Subjected To Radiation Exposure Following Nuclear Testing at the Semipalatinsk Test Range, passed on 31 December 1995 (Order No 1307), and the Social and Radiation Rehabilitation of the Population and Territories of the Urals Region Negatively Affected by the Operation of the Mayak Production Association for the Period up to the Year 2000", approved by Government Order No 577 on 13 May 1996 The goals and objectives of these programmes are to resolve the problems of ensuring safe living conditions in the area of potentially hazardous nuclear facilities

2 9 Federal Safety Standards

Federal safety standards and rules are extremely important from the point of view of the safe use of nuclear energy Under Article 6 of the Law on the Use of Nuclear Energy, compliance with safety requirements established by standards and rules is mandatory for all types of activity relating to the use of nuclear energy The federal standards and rules are drafted and approved by authorised bodies, ministries and agencies, are binding on all persons engaged in nuclear related activities, regardless of their departmental jurisdiction, and are in force throughout the entire territory of the Russian Federation Efforts are under way to produce a plan for preparing rules and standards in the area of nuclear power generation aimed at co-ordinating the regulatory activities of all agencies involved

The most significant safety requirements and conditions are found in the Radiation Safety Standards (NRB-76/87) and the Nuclear Safety Rules (NSR-RU-89) General Guidelines for Ensuring the Safety of Nuclear Power Plants in the Process of Designing, Building, and Operating Them" (OPB-88) is among the most crucial of the regulatory requirements Mention should also be made of the Basic Health Rules for Work with Radioactive Substances and Other Sources of Ionising Radiation (OSP-72-87), the Health Rules for Radioactive Waste Management (SPORO-85), and the Nuclear Safety Rules for Storage and Transportation of Hazardous Nuclear Fissionable Materials (PBY-06-09-90) There are also a number of others

Considerable work still lies ahead to improve the current legislative framework In addition, the departmental regulations relating to the use of nuclear energy within individual sectors (medicine, agriculture, geology, various sectors of science and technology, etc) should be brought fully into line with federal standards and rules

3. THE LEGAL STATUS OF ENTITIES HAVING JURISDICTION OVER THE USE OF NUCLEAR ENERGY

The Law on the Use of Nuclear Energy distinguishes between the federal bodies of the executive authority, which exercise control over the use of nuclear energy, and the system of State regulation of

safety The basic legal status of these bodies is set forth in the aforementioned Law, with the more detailed regulation being contained in various other legislative instruments passed by the Government

3 1 Principal Entities Regulating the Use of Nuclear Energy

The principal entity responsible for regulating the use of nuclear energy is the Ministry of Atomic Energy (Minatom) Its terms of reference are as follows

- to carry out scientific, technical, investment, and organisational policies regarding the use of nuclear energy,
- to devise and implement measures to ensure the safe utilisation of nuclear energy,
- to develop standards and rules for the use of nuclear energy,
- to account for and control nuclear materials and radioactive substances,
- to plan and implement radioactive waste management programmes,
- to perform various other functions in accordance with the statute establishing Minatom approved by Order No 51 of 24 January 1993 (as supplemented by Order No 1288 on 13 December 1993)

The Disciplinary Regulation for persons employed within Minatom was approved by Decree of the Council of Ministers of 2 April 1987, supplemented and amended by Decree No 558 of 1 August 1991 This Regulation sets forth the duties of personnel employed in the nuclear power industry and the duties and responsibilities of chief executive officers It also includes criminal and administrative penalties imposed on nuclear power industry workers as well as procedures for employment termination

An operating organisation was set up to exercise centralised control over nuclear power plants and to ensure their safety in accordance with IAEA recommendations and Presidential Decree No 1055 of 7 September 1992, On the Operator of Nuclear Power Plants in the Russian Federation The operating organisation is called The Russian State Agency for the Generation of Electric and Thermal Power At Nuclear Power Plants ("Rosenergoatom") The Decree provides for the operating organisation's dual status first, as a nuclear power plant supervisory agency, and, secondly as a State agency governing activities related to all stages of a nuclear power plant's life cycle The charters of the operating organisation and of nuclear power plants are to be approved by the State Committee for the Management of State Property of the Russian Federation (State Property Committee)

The operating organisation is an agency which undertakes to site, design, build operate, and decommission nuclear power plants and other radiation sources, as well as to handle nuclear materials, radioactive substances, and waste set forth in the Law on the Use of Nuclear Energy That Law also stipulates that in order to carry out the aforementioned activities, the operating organisation must have the required licences issued by the relevant regulatory bodies The operating organisation bears full responsibility for the safety of nuclear facilities as well as civil responsibility for nuclear damage (Articles 35 and 53 of the Law)

Other bodies which regulate the use of nuclear power include the Environmental Protection and Natural Resources Ministry, the Health Ministry, the Internal Affairs Ministry, the Ministry of Civil

Defence, Emergency Situations, and the Elimination of Consequences of Natural Disasters, the Marine Ministry, and the Russian Federal Service of Hydrometeorology and Environmental Monitoring In addition, there are some other federal bodies with executive authority pursuant to the Law on the Use of Nuclear Energy and pursuant to their empowering statutes

Federal executive bodies which exercise control over the use of nuclear energy have, amongst others, the right to make or issue universally binding regulations, and other instruments One such example is the Order of the Environmental Protection and Natural Resources Ministry, of 21 July 1995, On Measures To Create a System of Regularly Briefing the Public Via the Mass Media On the Environmental and Radiation Situation in Various Regions of the Russian Federation" It is impossible, in this review, to recite all of the instruments that are in force

3 2 Other Agencies Regulating Nuclear Safety

Under the Law on the Use of Nuclear Energy (Article 24), regulation of nuclear safety is the responsibility of federal bodies These include, first of all, the Federal Nuclear and Radiation Safety Supervisory Committee (Gosatomnadzor), the State Committee for Health and Epidemiological Supervision, the Federal Mining and Industrial Supervisory Committee, the State Fire Fighting Service of the Internal Affairs Ministry, and a number of other bodies In general terms, the powers of these bodies are set forth under Article 25 of the Law on the Use of Nuclear Energy The specific types of activities that are covered, the rights and obligations of the responsibility of corresponding agencies, as well as the authority of their executive officers are defined in the statutes of these bodies As a rule, these statutes are subject to approval by the President of the Russian Federation (See, for example, the Statute of the State Committee for Health and Epidemiological Supervision, which was approved by Presidential Decree No 1965 of 19 November 1993, and the Statute of the Federal Mining and Industrial Supervisory Committee, approved by Presidential Decree No 234 of 18 February 1993)

Although all of the aforementioned bodies exercise nuclear safety functions to comply with international legal instruments, such as the Nuclear Safety Convention, the Federal Nuclear and Radiation Safety Supervisory Committee (Gosatomnadzor) is recognised as the chief regulatory body for nuclear safety, just as Minatom is recognised as the chief regulatory body on the use of nuclear energy

The statute of the Federal Nuclear and Radiation Safety Supervisory Committee (Gosatomnadzor) was approved by Presidential Directive No 283 of 5 June 1992 Some changes were made to the statute by Presidential Directive No 636 of 16 September 1993 and the above noted Presidential Decree No 1923 of 15 September 1994, On Priority Measures To Improve the System of Accounting For, and Safe Keeping Of Nuclear Materials An edited version of the statute's main provision is contained in Presidential Directive No 350 of 26 July 1995 The same Directive reallocated regulatory functions between various bodies of the executive authority The Gosatomnadzor handed over to the Defence Ministry of the Russian Federation state supervision of nuclear and radiation safety in the design, manufacture, use, storage and recycling of nuclear weapons and military nuclear powered units Co-ordination of the activities of the various agencies in this area is carried out by the Government Commission for a Comprehensive Solution to the Nuclear Arms Problem

The new statute changed the status of the Gosatomnadzor Formerly, it was presided over by the Russian President, and it was even called the State Committee for Supervision over Nuclear and Radiation Safety of the President of the Russian Federation According to the latest (1995)

amendments to the statute, the Federal Nuclear and Radiation Supervisory Committee is now under dual subordination as a federal agency of the executive authority it is under the jurisdiction of the Government, but insofar as it deals with matters of security, in accordance with the Russian Constitution, it falls under the jurisdiction of the Russian President The main objectives of the Gosatomnadzor are as follows

- to establish nuclear and radiation safety criteria, standards and rules,
- to ensure compliance with the requirements of Russian legislation regarding nuclear and radiation safety in the manufacture, management, and use of nuclear energy nuclear materials, and radioactive substances, and the safety of nuclear power units of ships designated for recycling,
- to regulate the accounting and storage of nuclear materials and radioactive substances including the management of radioactive waste and spent nuclear material, their recycling and disposal,
- to ensure that physical protection of nuclear materials and technologies together with their non-proliferation, as well as to control, jointly with the Foreign Ministry, compliance with relevant international agreements,
- to conduct inspections of hazardous nuclear and radiation facilities and production sites
- to issue licences to carry out activities involving the use of nuclear power,
- to register facilities falling under its jurisdiction with the relevant authorities,
- to impose penalties in the event that safety regulations are violated, including the revocation of licences, if warranted.

The Gosatomnadzor is also authorised to draft, approve and implement binding legislative instruments on nuclear and radiation safety, including instructions, rules and standards One of Gosatomnadzor's main functions is licensing The list of activities that require a licence is compiled by the Russian Government, and is found in the "List of the Activities That May be Carried Out by Businesses Only on the Basis of Special Licences Issued By Gosatomnadzor Branches , which was approved as a supplement to the Statute of the Gosatomnadzor, and which will remain in force until a new list is made

Under Article 26 of the Law on the Use of Nuclear Energy, the procedure for issuing or cancelling a licence is also defined by the Russian Government A draft Government Order on this matter is being pursued, but until it has been put into effect, the Statutes on the Procedure for Issuing Temporary Permits for certain Activities Involving the Use of Nuclear Power, which were approved by Gosatomnadzor, remain in force These include the Statute on the Procedure for Issuing Temporary Permits for Activities Involving the Manufacturing Treatment, and Use of Nuclear Substances and Artifacts Manufactured Therefrom (Order No 53 of 25 May 1993), the Statute on the Procedure for Issuing Temporary Permits for the Construction of Civilian Nuclear Power Plant Units (Order of 9 March 1994), Statute on the Procedure for Issuing Temporary Permits for Activities Relating to the Export or Import of Nuclear Materials, Technologies, Equipment, Power Units, Special Non-Nuclear

Materials, Radioactive Wastes, and Spent Nuclear Materials (Order No 128 of 14 November 1994), and Statute on the Procedure for Checking the Personnel of Nuclear Power Plants and Organisations Concerning their Knowledge of Nuclear Power Safety Rules, Standards, and Instructions (Order of 1 December 1994)

4. GENERAL LEGISLATION REGULATING THE USE OF NUCLEAR POWER

4 1 Laws Regulating the Environment, Health, Safety and Emergencies

The regulation of the use of nuclear energy is most closely related to regulation of environmental and public health protection and ensuring both public health and environmental safety in emergencies, including both natural and man-made disasters Among the key legislative instruments regulating these matters is the Law on Environmental Protection of 3 March 1992, an amended version of which has been prepared and is to be considered by the State Duma This Law establishes environmental requirements for siting, designing, constructing, reconstructing, commissioning, and operating industrial facilities, including nuclear power facilities Of particular relevance is Article 48 of the Law, which sets forth environmental requirements for such plants Paragraph 3 of the Article stipulates that "in the process of siting, designing, constructing, commissioning and operating nuclear power plants, measures must be taken to ensure full radiation protection for the environment and the population in accordance with international rules and requirements established by this Law Also of great importance is Article 50, which regulates environmental requirements in the use of radioactive substances, sources of ionising radiation and nuclear materials In addition, the Law contains Articles assigning responsibility for breaches of environmental legislation and for compensation for damage caused by such breaches

Other provisions aimed at protecting public health from the harmful effects of ionising radiation are found in the Law on Health and Epidemiological Welfare of the Public of 19 April 1991 (as amended on 2 June 1993) Article 21 of this Law, for example, defines requirements for working with sources of ionising radiation Articles 32 and 38 define the procedure for exercising health and epidemiological supervision, the relevant authorities and the powers of their officers

With regard to emergencies, the Federal Law on the Protection of the Public and Territories from Natural and Man-made Emergencies of 21 December 1994 should be mentioned This Law defines emergencies as situations that arise as a result of accidents or disasters, including those at nuclear facilities It is, therefore, important legislation regulating the prevention and elimination of the consequences of emergencies caused by accidents at nuclear power plants and other nuclear facilities Among other important instruments can be found Government Order No 1113 of 15 November 1995, On the Unified State system for the Prevention and Elimination of Emergencies, which approved a statute of the same name, and Presidential Decree No 440 of 1 April 1996, On the Concept of the Russian Federations Transfer to Sustainable Development, which reaffirmed the principle of environmentally conscious economic activity

4 2 Economic Laws

Among the most significant "economic" laws, one should note Russia's new economic "constitution", that is, the Civil Code of the Russian Federation, which was adopted in 1994 Closely related to the subject of nuclear energy is Article 1079, which regulates civil liability for damage

caused by activities creating excessive danger for those in surrounding areas In addition, the Civil Code's general provisions on liability, limitation periods, licensing, and insurance are applicable to the nuclear sector (particularly in case of disputes)

4 3 Law Enforcement Provisions

Finally, mention should be made of law enforcement provisions contained in Russian legislation The Law on the Use of Nuclear Energy provides, in Article 61, for the responsibility for violations of legislation on the use of nuclear power This Article recites violations which are punishable by disciplinary, administrative, or criminal actions in accordance with Russian legislation On the basis of this Article, consequential amendments are to be made to a number of other legislative instruments At this stage, however, administrative responsibility for violations of safety rules, standards, or instructions at facilities under the jurisdiction of the Federal Nuclear and Radiation Supervisory Committee of the Russian Federation is contained in the Code of Administrative Offences (Article 88) Criminal responsibility for crimes relating to the use of nuclear power is provided for in the following Articles of the existing Criminal Code of the Russian Federation

- Article 223 (2) – illicit procurement, storage, use, transfer, or destruction of nuclear materials
- Article 223 (3) – theft of radioactive materials,
- Article 223 (4) – threat of theft or use of radioactive materials,
- Article 223 (5) – violation of the rules for storage, use, control and transportation of radioactive materials, or other rules related to the management thereof

The new Criminal Code will enter into force in 1997 It contains somewhat different articles establishing responsibility for violations in this area. Article 215, for example, deals with the violation of safety rules at nuclear power installlations Article 220 deals with the illicit handling of radioactive materials Article 221 deals with theft or extortion of radioactive materials In addition other Articles of the new Criminal Code can be applied to the use of nuclear power, in particular, those establishing responsibility for crimes against public security, public health, and violations of environmental legislation

Spain

General Legislation

Royal Decree in Respect of the Indemnification of Nuclear Power Plant Investors Affected by the National Moratorium on Construction of Nuclear Power Plants (1996)

Law No 40 of 30 December 1994 relative to the reorganisation of the country's electricity industry confirmed, on the one hand, the suspension of nuclear power plant construction projects at Lemoniz, Valdecaballeros and of unit 2 at Trillo, while on the other hand recognised the right of the owners of these projects to receive compensation for the losses which they sustained

Decree No 2202 of 28 December 1995 reflects the principles contained in this Law and establishes a mechanism for authorising the indemnification of project investors affected by the moratorium The right is limited to project owners and if there is more than one, then the proportions are to be determined directly by those who hold interests in the project, after approval by the Energy Directorate of the Ministry of Industry and Energy

The procedures for transferring to another individual or entity, all or a portion of the right to indemnification are also set out in the Decree The owner of the right must apply, to the Minister of Industry and Trade, for the approval of the Government to make such a transfer and that approval, which may be given conditionally, must be either granted or denied within thirty days of the request for same

This Decree, which was made jointly by the Ministers of Economy and of Industry and Energy, was published in the *Boletin Oficial del Estado* on 29 December 1995 and entered into force on 1 January 1996

Royal Decree Concerning the Powers of ENRESA, the National Waste Management Organisation (1996)

Decree No 404 of 1 March 1996 was made pursuant to Law No 40 of 30 December 1994 on the reorganisation of the national electricity industry, and in particular those provisions concerning the financing of radioactive waste management operations It also modifies Royal Decree No 1522 of 4 July 1984 which had authorised the creation of the National Waste Management Organisation, ENRESA (See *Nuclear Law Bulletin* No 34)

More particularly, the Decree establishes a Committee (*Comitato de Seguimiento y Control*) to take charge of the fund allocated to the management of such waste In parallel, the Government Delegation which had been set up within ENRESA to manage the technical, economic and financial aspects of this fund has been disbanded These functions are now, in effect, carried out for the most part by the new Committee, or alternatively, by the Ministry of Industry and Energy

The Committee, which reports to the Ministry of Industry and Energy, is composed of the Commissioner of Accounts for State Administration, the Director-General of the Treasury and Financial Policy and the Director-General of Energy

The management fund, which is constituted under the terms of the Law of 1994, will be utilised in the manner set forth in the General Plan on radioactive waste which must first receive the prior approval of the Government

This Decree entered into force on 22 March 1996, the date of its publication in the *Boletin Oficial del Estado*

Radiation Protection

Royal Decree Setting Quality Control Criteria for Radiodiagnostic Equipment (1995)

Decree No 2071/1995 of 22 December 1995 establishes procedures to apply to two previous and related Decrees, the first having been made in 1990 and relating to the protection of patients exposed to radiation in the course of medical treatment, and the second having been made in 1991 and relating to the protection of both workers and the public from the effects of using X-ray equipment in the course of medical diagnoses These two Decrees were adopted in conformity with Euratom

Directives Nos 80/836, 84/466 and 84/467 The new Decree is designed to establish quality control criteria within the medical sector so as to avoid excessive exposures to both patients and workers

Radiodiagnostic equipment is subject to both quality control and to annual radiation level inspections to ensure that radiation doses absorbed by patients, workers and the public in general are at the lowest attainable level The verification of doses administered to patients is to be carried out according to the technical criteria set forth in Annex I of the Decree while the levels of radiation at places of work and in other places accessible to the public must comply with standards set out in Annex II

After completing their examination of a machine or other equipment, service personnel, or those forming part of a radiation protection technical unit, are to prepare a status report thereon, listing any deficiencies discovered and measures to be taken to rectify same The person responsible for the machine and other equipment in question must take note of the report, and, if necessary, correct any deficiencies detected within a maximum period of sixty days In default thereof, the person responsible shall be prohibited from using the defective machine until the necessary repairs have been made

The Decree entered into force on the day of its publication in the *Boletin Oficial del Estado* 23 January 1996

Switzerland

Radiation Protection

Amendment of the Ordinance on Radiation Protection (1996)

On 3 June 1996, the Federal Council amended the Ordinance of 22 June 1994 on radiation protection (ORaP, R S 814 501) (See *Nuclear Law Bulletin* No 55, the text of the Ordinance is reproduced in the Supplement to *Nuclear Law Bulletin* No 57) Amongst other things the amendment modifies Chapter 6 concerning radioactive waste, and in particular, its delivery Article 87 of the Ordinance has been modified by the addition of two new Articles 87a and 87b The amendment came into effect on 1 August 1996

The amendment provides that radioactive waste not coming from the use of nuclear energy must be delivered to the Paul Scherrer Institute (PSI) at Wurenlingen (Canton of Argovie) after having been treated, if necessary The PSI is authorised to take delivery of the waste on condition that licences are granted by the monitoring authority It then stores the waste treats it and continues to store it until it has been disposed of A Co-ordinating Committee has been established, composed of representatives of the federal Public Health Office, the main Division for security of nuclear installations and the PSI to advise the monitoring and licensing authorities on the recommended procedure to be followed when it is necessary to issue new or additional licences or permits

The remaining amendments concern Articles 125 and 141 of the Ordinance With regard to the first, the licensing regime no longer covers the sale, use, storage, transportation, disposal, import or export of ready-made watches containing radioactive substances if they satisfy the requirements of ISO 3157 and 4168 just as with watch components containing luminescent radioactive paint With regard to the modification of Article 141, it is provided that medical screening examinations can be

carried out by means of duly licensed radiodiagnostic equipment, without image intensifier, by 30 September 1999 at the latest

Radioactive Waste Management

Ordinance on the Transport of Radioactive Waste (1996)

Pursuant to Article 87, subsection (3) of the 1994 Ordinance on radiation protection, the Federal Ministry of the Interior is to regulate the technical means for treating radioactive waste that is to be transported Under this authority, the Department has adopted the Ordinance of 8 July 1996 on the transport of radioactive waste (RS 814 557) This Ordinance, which is basically technical, regulates the method of treating radioactive waste both before and during its transport and for the purposes of its declaration to the Paul Scherrer Institute (PSI) It co-ordinates the collection activity organised by the Federal Public Health Office together with PSI The Ordinance entered into force on 1 August 1996 Annexes 1–4 specify the types and classes of radioactive waste, the type of packaging to which each is to be subject (including technical details) and the proper accompanying documentation for each delivery

Tunisia

Radioactive Waste Management

Draft Law Relating to the Control, Management and Disposal of Waste (1996)

This draft law concerns dangerous wastes, including radioactive waste generated by the peaceful uses of nuclear energy Its aim is to harmonise Tunisian legislation with existing international standards in the field of radioactive waste management, focusing in particular on three international instruments that Tunisia has already ratified or recognised. These are

- the Bamako Convention of 29 January 1991, which prohibits the import of dangerous wastes into Africa and controls their transboundary movement, and which was ratified by Tunisia on 3 February 1992,

- the Basel Convention of 22 March 1989 "On the Control of the Transboundary Movement of Dangerous Wastes and of their Disposal", which was ratified by Tunisia on 10 July 1996, and

- Agenda 21, adopted by the United Nations Conference on the Environment and Development (June 1992, Rio de Janeiro) particularly its Article 20 relating to the rational management of dangerous waste and to international trading in such substances

This draft law establishes a series of rules and procedures to be followed by both the producer of such waste and by the person responsible for its import or export It is based upon the following principles

- waste producers are responsible for rationally managing their waste, and eventually for its retrieval, without endangering human health or the environment. This responsibility extends to importers and distributors of certain products which constitute dangerous wastes after use,

- the import of dangerous waste into Tunisia is, generally, prohibited even though exports are subject to prior licensing,

- the storage of waste outside of an approved waste storage centre is prohibited

The law was approved by the Tunisian Parliament in May 1996 and will likely be adopted before the end of this year

Ukraine

Radioactive Waste Management

Law on Radioactive Waste Management (1995)

There are a number of legislative instruments governing radioactive waste management in Ukraine Apart from Chapters VI, VII and IX of the more general Law on the Uses of Nuclear Energy and Radiation Safety (See Supplement to *Nuclear Law Bulletin* No 56), the most significant is the Law of Ukraine on Radioactive Waste Management of 30 June 1995 (See *Nuclear Law Bulletin* No 55)

The purpose of this Law is to protect man and the environment against the hazards of radioactive waste both now and in the future It sets forth the basic principles underlying Ukraine's national policy on the management of such waste, calls for the establishment of a special State waste management fund to be made up of contributions from waste producers, describes the powers of Ukraine's various executive and legislative bodies both at the national and regional levels in the management of radioactive waste and sets forth the rights and obligations of radioactive waste producers and members of the public It also provides for State registration of waste inventories for methods of physically protecting and transporting waste and for the procedure to be followed in the siting, construction and operation of waste storage facilities

Under this Law, storage operations are subject to prior licensing and are to be financed from the special State fund Persons licensed to handle radioactive waste must possess sufficient financial resources to compensate for damage caused by radiation accidents Specific liability attaches to a consignor of waste in the event of a radiation accident occurring during the carriage of the waste Similarly, specific provision is made for compensation of residents near a radioactive waste depository who suffer damage as a result of the operation of the facilities

United Kingdom

Organisation and Structure

Privatisation of Nuclear Power Stations (1996)

In May 1995, the Government published the conclusions of its review of the prospects for nuclear power in the United Kingdom The review concluded that the early privatisation of the United Kingdom's advanced gas cooled reactor (AGR) stations and pressurised water reactor (PWR)

stations was feasible and the Government announced its intention to privatise these stations in the course of 1996

As a result of the restructuring of the United Kingdom electricity industry in 1990, Nuclear Electric plc (NE plc) and Scottish Nuclear Limited became the owners and operators of the principal nuclear power stations in England, Wales and Scotland, respectively A reorganisation took place with effect from 31 March 1996, whereby NE plc transferred the business of its five AGR stations and its PWR station to Nuclear Electric Limited, a newly incorporated company, while retaining its Magnox stations At the same time, Scottish Nuclear Limited, while retaining its two AGR stations, transferred its Magnox station to NE plc British Energy plc, also a newly incorporated company, became the parent company of Nuclear Electric Limited and Scottish Nuclear Limited NE plc was renamed Magnox Electric plc and remains in public ownership

On 26 June 1996, a Prospectus was published offering the shares of British Energy plc for sale by way of public flotation The sale took place on 15 July 1996 when the shares were listed on the London Stock Exchange

In its review of the nuclear power industry, the Government concluded that segregated funds were the best way of ensuring public confidence that Nuclear Electric Limited and Scottish Nuclear Limited, once privatised, would meet their decommissioning obligations and that these liabilities would not fall to taxpayers by default A Segregated Fund company was thus established on 31 March 1996 The company is owned by an independent trust (keeping the contents of the Fund intact from British Energy plc and from its general creditors), and it will receive contributions from Nuclear Electric Limited and Scottish Nuclear Limited, invest them and make payments to meet certain long term decommissioning costs of those companies All of the Fund's trustees must meet detailed appointment criteria as to independence, qualifications and other related matters

United States

General Legislation

Inflationary Adjustment to Civil Penalties Imposed by the NRC (1996)

The Federal Civil Penalties Inflation Adjustment Act Amendments, Public Law 104-134 (April 26, 1996), requires Federal agencies, through rulemaking, to raise periodically statutorily established monetary civil penalties to account for inflation As a result, the Nuclear Regulatory Commission's maximum civil penalty will be raised later this year to $110,000 per day per violation

Regime of Nuclear Installations

Amendment by the United States Nuclear Regulatory Commission (NRC) of its Regulations on Decommissioning Procedures (1996)

On 28 August 1996 amendments to the NRC regulations came into effect regarding the decommissioning procedures that lead to the termination of an operating license for nuclear power reactors (61 Fed Reg 39278, 29 July 1996)

The amendments clarify ambiguities in the rule which was originally issued in 1988 (See *Nuclear Law Bulletin* No 43), codify procedures that reduce the regulatory burden and allow for greater public participation in the decommissioning process

In brief, the new rule eliminates the requirement for a licensee to submit a decommissioning plan for approval prior to undertaking any decommissioning activity, given that conditions are met It thus provides, under 10 CFR 50 59, a procedure that covers activities from the time of operation through to and including decommissioning

The rule specifically addresses the timing of termination of the authority to operate The operator must submit to the NRC two separate certifications, one attesting to the fact that the reactor has been shut down permanently, and the other to the fact that all fuel has been permanently removed Once both certifications have been submitted the reactor can no longer be operated and the operator becomes eligible for reductions in fees and other responsibilities

The operator must also submit a Post Shutdown Decommissioning Activities Report (PSDAR) with a schedule of activities, an estimate of costs, and a discussion that supports a conclusion that the decommissioning activities are within the parameters of environmental impacts previously considered in the grant of their operating license, as well as those considered in the generic environmental statement for the 1988 decommissioning rule

After submission of the PSDAR, a public meeting is to be held in the vicinity of the site However, after 90 days, in the absence of any NRC objection, the licensee may proceed with intended activities NRC surveillance of the ongoing activities will be facilitated by a new requirement to update the Safety Analysis Report every two years

At the conclusion of the decommissioning activities and prior to the termination of the licence the NRC must approve by license amendment, and in accordance with any legal process that such an amendment entails, the residual radioactivity level that the licensee makes a commitment to meet and the survey procedure that will demonstrate that the approved level has been met for release of the reactor site for unrestricted use The new rule also anticipates that termination for restricted release may become possible under new regulations yet to be developed

The new rule has also made significant adjustments to the terms of the financial assurance mechanism The changes permit new flexibility in the use of decommissioning funds while retaining adequate provisions to ensure the availability of funds for health and safety protection (See *Nuclear Law Bulletin* Nos 50, 51 and 53)

INTERNATIONAL REGULATORY ACTIVITIES

OECD Nuclear Energy Agency

The Czech Republic and Hungary Join the Nuclear Energy Agency (1996)

On 27 June 1996, the OECD Council approved the membership of the Czech Republic and of Hungary in the OECD Nuclear Energy Agency (NEA) The Czech Republic and Hungary had become Members of the OECD on 21 December 1995, and 7 May 1996, respectively

Their participation has particular significance since they are the first countries from Eastern Europe to join the Agency, and the first NEA Members whose nuclear power programmes involve only Soviet-designed reactors Their membership will further enhance international co-operation in the areas of nuclear safety and regulation, as well as in the development of nuclear power, and is a testament to the extent to which these countries have adapted their safety standards and legal frameworks in recent years

With the participation of the Czech Republic and Hungary, the Agency now has 27 Member countries

Seminar on the Legal Aspects of Radioactive Waste Management and Decommissioning (1996)

The fourth training Seminar in Nuclear Law for Central and Eastern European lawyers (including the New Independent States) was held in Romania at the Cernavoda nuclear power plant from 26 to 30 August 1996 The Romanian National Commission for the Control of Nuclear Activities and the Romanian Electric Authority (RENEL) contributed significantly to the success of the Seminar

This year, the theme of the Seminar was the legal aspects of radioactive waste management and the decommissioning of nuclear installations More than fifty specialists in the field of radioactive waste management from fifteen different countries participated in the Seminar

As in previous years, the Seminar was co-sponsored by the International Atomic Energy Agency, the European Union and the Nuclear Energy Agency In addition to their representation, a number of lecturers from Western Europe and the United States shared their knowledge and experience with the participants Among the topics discussed were procedures for consultation with the public, environmental impact studies during site selection for the construction of a depository, financing of decommissioning activities and waste disposal Existing European Commission regulations in the nuclear field were also discussed, as was international nuclear law

International Atomic Energy Agency

*"Programme 93 + 2" – Strengthening the Effectiveness and Improving the Efficiency of the Safeguards System (1996)**

Background

Since its inception over 30 years ago, the safeguards system of the International Atomic Energy Agency (IAEA) has evolved by the regular introduction of new methods and techniques, improving its effectiveness and efficiency in detecting the diversion of nuclear material placed under safeguards However, it was the discovery, in 1991, of Iraq's clandestine nuclear weapons programme which dramatically underscored the importance of providing assurance, with regard to the absence of undeclared nuclear activities and installations, in States with comprehensive safeguards agreements It also demonstrated that to do so, it was imperative to update the safeguards system by integrating into it measures that would give the Agency an improved capability of detecting clandestine nuclear activities

Beginning in 1992, a number of decisions by the IAEA Board of Governors reaffirmed the requirement that Agency safeguards provide assurance regarding both the correctness and completeness of nuclear material declarations by States with comprehensive safeguards, endorsed individual measures for increasing the Agency's capabilities in respect of verifying the completeness of States' declarations and requested the Director General to submit to it concrete proposals for the assessment, development and testing of measures for strengthening safeguards and improving its cost effectiveness

In response to that request, the Secretariat of the IAEA presented in December 1993 a programme, "Programme 93 + 2, which aimed, within two years, to evaluate the technical financial and legal aspects of a comprehensive set of measures, and to present, early in 1995, proposals for a strengthened and more efficient safeguards system In March 1995, the Board was presented with an overview of measures, each discussed in terms of its cost, effort, assurance, legal aspects and interrelation with other measures In June 1995, the Secretariat submitted to the Board a revised document which contained a comprehensive set of strengthening and efficiency measures divided into two parts Part 1, consisting of measures which could, in the Secretariat's view, be implemented under existing legal authority and which the Secretariat would proceed to implement and Part 2 consisting of measures which were believed to require complementary authority

Between June 1995 and June 1996, the Secretariat of the IAEA, in close consultation with Member States of the Agency, was able to develop for the Board's consideration a formal document describing and explaining the need for the new measures for which complementary legal authority would be required (Part 2 measures) This paper also included a draft model protocol for such complementary authority[2]

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* This note has been kindly prepared by **Laura Rockwood** Senior Legal Officer International Atomic Energy Agency

1 'Comprehensive safeguards agreements are those concluded along the lines of IAEA document INFCIRC/153(Corr) which require States parties to place under safeguards all nuclear material in all peaceful nuclear activities of the State and nor to divert such material to nuclear weapons or other nuclear explosive devices

2 See IAEA Document GC(40)/17 dated 23 August 1996 (English version) which contains *inter alia* GOV/2863 of 6 May 1996 (Annex III of which is the draft model protocol)

At its meeting in June 1996, the Board decided to establish an open-ended committee of the Board of Governors to refine the draft model protocol The committee, referred to as the Committee on Strengthening the Effectiveness and Improving the Efficiency of the Safeguards System, or "Committee 24", held its first series of meetings from 2 to 4 July 1996 Representatives of sixty-one States, Euratom and ABACC (the Brazil–Argentina Agency for Accounting and Control of Nuclear Materials) attended the meeting, and the Committee undertook a first reading of the draft protocol The Committee held its second session from 1 to 11 October 1996 As a result, the Chairman of the Committee circulated a rolling text of the draft protocol to the participants, which will be considered at the Committee's next session scheduled for 20 to 31 January 1997

Should the Committee be able to finalise the text, it would be possible for it to forward that text to the meeting of the Board of Governors in March 1997 for the Board's approval Once the Board has approved the draft model protocol, the Secretariat will proceed to conclude such a protocol with each State party to a comprehensive safeguards agreement.

Provisions of the Draft Model Protocol

The draft model Protocol tabled in May 1996 (GOV/2863, Annex III), contains a preamble and sixteen operative paragraphs Articles 1 and 2 address the new categories of information which would be required to be provided to the IAEA These include, *inter alia*, provisions with respect to information on nuclear fuel cycle-related research and development activities, information on sites of nuclear facilities (supplementing the already-required information on the facilities themselves), information on certain nuclear material which is not currently required to be provided, and information on the export and import of specified equipment and non-nuclear material

Articles 3 through 7 set out the provisions relevant to complementary access under the protocol The protocol currently provides for access to locations declared by the State under Article I of the protocol, including expanded access to locations within nuclear facilities and on sites of such facilities to which the IAEA was not previously entitled on a routine basis It also contains provisions for managed access to sites of particular commercial sensitivity The protocol details the scope of complementary access activities which may be conducted by the IAEA, and sets forth provisions related to the notice and timing of complementary access Article 8 sets out a simplified process for the designation of IAEA inspectors, and Article 9 addresses the conclusion of subsidiary arrangements to facilitate the implementation of the Protocol

Article 10 would oblige a State party to facilitate the establishment of direct communications between Agency Headquarters and inspectors in the field, and contemplates the introduction of such new measures as remote monitoring of facility activities

Article 11 emphasises the obligation of the IAEA to maintain a stringent regime governing the handling of commercial and industrial secrets and other confidential information coming to its knowledge in the implementation of the Protocol Articles 12 through 15 concern amendment of the protocol, entry into force and duration, and the relationship between the provisions of the safeguards agreement and the protocol Article 16 contains newly defined terms used in the draft protocol

Revision of the Regulations for the Safe Transport of Radioactive Material (1996) *

Since 1961 the International Atomic Energy Agency (IAEA) has, at the request of the United Nations Economic and Social Council, issued recommended "Regulations for the Safe Transport of Radioactive Material", Safety Series No 6 These Regulations have come to be recognised throughout the world as the uniform basis for both national and international transport safety requirements in this area. Fifty-nine countries, the International Civil Aviation Organisation, the International Maritime Organisation, and regional transport organisations are known to have adopted requirements based on these IAEA Regulations

Recognising the need to keep the Regulations up to date with the latest radiation protection principles and evolving transport technologies, the IAEA has regularly issued revisions to the transport Regulations More recently, the revisions have taken place at approximately ten-year intervals and the latest revision began in 1986 (See *Nuclear Law Bulletin* Nos 5, 9 10 and 34) The revision process involves a comprehensive series of technical committee and consultants meetings which are mainly comprised of representatives of Member State and international safety regulatory agencies The output from these meetings are the revisions to the Regulations which are reflected in drafts that are circulated for comment and further consideration In September 1996, the IAEA Board of Governors approved the 1996 draft for publication and application to the Agency s operations, and recommended it to Member States and international organisations for adoption

There are numerous minor changes embodied in the 1996 edition as well as several major ones which are set out below

A Air Transport of Radioactive Material

(i) Type C Packages

The new Regulations require a more robustly designed package type, called a Type C package for high-activity packages transported by aircraft Many of the design and performance requirements for Type C packages recommended in IAEA-TECDOC-702 were adopted Type C package requirements apply to all radionuclides The new performance requirements include

- those applicable to Type B(U) packages and, if appropriate, packages for fissile materials
- a puncture/tearing test,
- an enhanced thermal test, with the same technical specifications as the Type B package thermal test but with a duration of 60 minutes,
- a 200 m water immersion test, and
- an impact speed of 90 m/s for the "drop" test

* This note has been kindly prepared by **Richard Rawl**, Head Transport Safety Unit, Division of Radiation and Waste Safety International Atomic Energy Agency

(u) Low Dispersible Radioactive Material

Since the primary hazards being addressed in Type C requirements are dispersion and radiation levels, provisions have been made for materials which exhibit limited dispersibility, solubility, and radiation levels These provisions are contained in a material category known as "low dispersible radioactive material" (LDM) It was accepted that material (without any packaging) that has limited radiation levels and which, when subjected to the Type C impact and thermal test would only produce limited gaseous, fine particulate, or dissolved aqueous activity, should be excepted from the Type C packaging requirements Test specifications for LDM material are included in the Regulations and Type B packages are authorised for their transport by air with the limit on total activity being that specified in the approval certificate for the Type B package Multilateral Competent Authority approval of the Type B package design and the design of the LDM is required

B Provisions for the Safe Transport of Uranium Hexafluoride

The technical committees which developed the revised Regulations dealt with a number of difficult issues concerning uranium hexafluoride (UF6) Uranium hexafluoride is a unique material since its chemical toxicity is generally of more concern than its radiotoxicity, and it is routinely shipped in large volumes No specific provisions for UF6 existed in the 1985 edition of the transport safety Regulations In the revised Regulations, provisions were adopted which require UF6 packages

- to withstand an internal test pressure of at least 1 4 MPa, but cylinders with a test pressure less than 2 8 MPa require multilateral approval,

- designed to contain 0 1 kg or more but less than 9,000 kg of UF_6 to meet the "Type B" thermal test of 800°C for 30 minutes,

- designed to contain 9,000 kg or more to either meet the thermal test requirements or have multilateral approval,

C. Incorporating the Exemption Values from the Basic IAEA Safety Standards

One of the major topics considered in the revision process was the incorporation of the new Basic Safety Standards (BSS) for radiation protection The BSS were revised to reflect the consensus surrounding the latest recommendations of the International Commission on Radiological Protection and the Regulations call up the BSS as a general provision for radiological protection Consequently, the Regulations needed to take account of the revised BSS requirements The most contentious aspect was the adoption of the exemption values given in the BSS

The Regulations have always contained an exemption criteria which defined materials subject to their requirements The current Regulations define radioactive material as any material having a specific activity greater than 70 Bq/g The BSS, however, use a radionuclide-specific approach which leads to derived exemption values spanning seven orders of magnitude, and straddling 70 Bq/g in the case of activity concentration The BSS also present exemption values for total activity quantities (Bq)

It was recognised that the single exemption level of 70 Bq/g has no dose basis and that it was unlikely that this level satisfied the general dose criteria of 10 μSv in a year for exemption for all radionuclides A set of transport-specific scenarios were developed which reflected various exposure situations (exposure times, distances, source geometries, etc) Based on these scenarios both activity

concentration and total activity values were calculated which would result in meeting the 10 μSv/a value These transport derived values were comparable to the exemption values in the BSS and resulted in recommended activity concentrations ranging from 1 to 106 Bq/g Given the difficulty in technically justifying the 70 Bq/g value and the similarity in results from the transport scenarios and the BSS scenarios, it was determined to be preferable to simply adopt the BSS derived exemption values Consequently, the Regulations contain both activity concentration and "total activity per consignment" exemption values For mixtures of radionuclides, the "ratio rule" must be applied so that the sum of the activities (or activity concentrations) present for each radionuclide divided by the applicable exemption value is less than or equal to 1

D. Other Changes

Other changes of interest to shippers and package designers involved in the nuclear fuel cycle include revisions to the requirements applicable to fissile materials Fissile material exceptions (those conditions under which special packaging is not needed to account for the fissile nature of the contents) were amended and in one case now includes a consignment as well as package limits Consideration of accident conditions, such as crush, and the Type C test conditions were also added

E Implementation of the Revised Regulations

It will take a number of years for IAEA Member States and international organisations to implement corresponding revisions to their regulations based on the 1996 edition of Safety Series No 6 In the past it has taken approximately five years for this process to be reasonably complete and the earliest date for expected completion this time is 1999 The international transport organisations are striving to meet the 1999 target date Member States will likewise need to issue revisions in order to remain consistent with the international requirements

Resolutions Adopted by the IAEA General Conference (1996)

The 40th Session of the IAEA General Conference was held in Vienna from 16-29 September 1996 with delegations from 124 countries and representatives of various international organisations in attendance In reviewing the Agency's programmes and plans, the IAEA's Director General emphasised the Agency's achievements in its many fields of activity, including in particular the field of international safeguards and nuclear safety A series of Resolutions were adopted in the following areas

Strengthening the IAEA s Safeguards System

After having called upon the Agency to continue promoting greater collective security among States, this Resolution calls for improvement of the efficiency and effectiveness of the safeguards system Moreover, it recognises the importance of the draft model protocol to reinforce and improve the Agency's capacity to detect any undeclared nuclear activities

Nuclear Inspections in Iraq

This Resolution requires Iraq to hand over to the IAEA's Action Team without further delay any currently undisclosed nuclear-weapon-related equipment, material, and information Furthermore, Iraq must allow the Action Team unconditional and unrestricted rights of access in accordance with United Nations Security Council Resolution 707 The Agency's Action Team will continue to exercise its right to investigate further any aspect of Iraq's past nuclear weapons capability in

particular as regards any further relevant information that Iraq may still be withholding from the Agency

Safeguards in the Democratic People's Republic of Korea (DPRK)

This Resolution focused upon the DPRK's continuing non-compliance with its IAEA safeguards agreement It calls upon the DPRK to comply fully with the safeguards agreement and to take all steps the Agency may deem necessary to preserve all information relevant to verifying the accuracy and completeness of the DPRK's initial report on the inventory of nuclear material subject to safeguards

Safeguards in the Middle East

The purpose of this Resolution was to request the Agency to continue consultations with the States in the Middle East to facilitate the early application of full-scope IAEA safeguards to all nuclear activities in the region as relevant to the preparation of model agreements and as a necessary step towards the establishment of a nuclear-weapons-free zone (NWFZ) in the region

Africa Nuclear-Weapons-Free Zone

This Resolution commends the African States for their concerted efforts in establishing an African nuclear-weapons-free zone It also encourages African States to make every effort to ratify the Treaty as soon as possible so that it can enter into force without delay, and it reaffirmed its conviction that the establishment of other nuclear-weapons-free zones, especially in the Middle East, would enhance the security of Africa and the viability of the African nuclear-weapons-free zone

Nuclear Radiation and Waste Safety

The General Conference adopted several Resolutions on this subject One Resolution, "On the Establishment of Waste Demonstration Centres", invites the Agency to assist interested Member States in expanding the use of suitable existing training centres for practical training and demonstration of techniques for the processing and storage of radioactive waste resulting from the application of nuclear techniques in medicine, research and industry so that a demonstration and training facility would be available in each region, strengthening the co-ordination of resources, including those available in developing countries In a second Resolution, "On the Convention on Nuclear Safety", the General Conference welcomed the fact that this Convention would enter into force on 24 October 1996, and noted that the Agency would convene a preparatory meeting of Contracting Parties no later than April 1997 on the Convention's implementation In a third Resolution, "On the Safety of Radioactive Waste Management", the General Conference expressed its appreciation for the work done so far by the Open-Ended Group of Legal and Technical Experts to draft a convention on the subject, and its hope that the convention would be adopted in the near future

European Union

The 96/29/EURATOM Directive on Radiation Protection (1996)

On 13 May 1996 the Council of the European Community adopted Directive 96/29/Euratom setting forth basic standards for the protection of the health of both workers and the public against the dangers resulting from ionising radiation.

This Directive was published in the *Official Journal of the European Communities* 29 June 1996, No L 159

A review of this Directive can be found under the Chapter "Articles" in this issue of the *Nuclear Law Bulletin*

BILATERAL AGREEMENTS

Austria – Slovenia

Agreement on the Early Exchange of Information in the Event of a Radiological Emergency and on Questions of Common Interest in the Field of Nuclear Safety and Radiation Protection (1996)

This Agreement, signed on 19 April 1996, has not yet come into force It is based on the provisions of the IAEA's Convention on Early Notification of a Nuclear Accident and on the EC's Council Decision on Community arrangements for the early exchange of information in the event of a radiological emergency (87/600/EURATOM) It will not, however, be limited to early notification of radiological emergencies It will also encourage both Parties to co-operate in other fields, such as

- the exchange of information concerning nuclear programmes, as well as national legislation in the nuclear field,
- the exchange of test results on radioactivity levels in the environment,
- on-line exchange of data from the national radiological early warning systems, and
- yearly technical consultations

France – Russian Federation

Co-operation Agreement in the Field of Nuclear Energy (1996)

On 19 April 1996, the Governments of France and the Russian Federation signed an Agreement for co-operation in the field of peaceful uses of nuclear energy

The areas covered by this Agreement are as follows

- fundamental and applied research,
- controlled thermonuclear fusion,
- nuclear reactors and the application of nuclear energy for the production of electricity,
- nuclear fuel cycle,

- development and manufacture of mixed fuel (MOX) for use in civil reactors,
- delivery of nuclear substances and fuel for reactors including the supply of highly enriched uranium as fuel for research reactors,
- management of radioactive wastes,
- nuclear safety, radiation protection and protection of the environment,
- development of applications for nuclear energy in the fields of agronomy, medicine and industry,
- research and development of techniques, technologies, equipment and materials,
- elimination, under secure and safe conditions, of nuclear arms, and the utilisation for peaceful purposes of recovered fissile material, and
- conversion of defence technologies for civilian ends

This co-operation, which will continue for 25 years, will be carried out pursuant to specific agreements concluded by the Parties or by bodies that will have been so authorised

Russian Federation – United Kingdom

Co-operation Agreement on the Peaceful Uses of Nuclear Energy (1996)

This Agreement was signed on 3 September 1996 and will enter into force 90 days later Initially, it will remain in force for 15 years, following which it will remain in force unless either party gives one year's notice of termination It can be amended at any time by mutual consent

The Agreement is intended as a framework for collaboration between the United Kingdom and Russian civil nuclear industries Its scope is very broad, and it is envisaged that the co-operation will be implemented through specific arrangements to be negotiated separately between commercial or other organisations directly involved in the nuclear industry To further that end, it encourages those industries to exchange expertise and develop commercial business together The co-operation extends to the following areas

- safety of nuclear installations,
- regulation of nuclear and radiation safety,
- nuclear fuel cycle,
- training and plant management,
- financial and economic issues relating to the peaceful uses of nuclear energy,
- options for converting weapons grade nuclear material for civil use,

- nuclear material accounting and control, physical protection of nuclear materials and implementation of safeguards,
- design, development, construction, operation and maintenance of civil nuclear power reactors,
- decommissioning of civil nuclear facilities,
- long-term and fundamental research and development in nuclear energy,
- nuclear waste management and related environmental protection,
- methods of communicating with the public on nuclear matters, and
- production and utilisation of isotopes

The broad scope of the Agreement is further widened by mention of research and development in all of the above areas and by provision for other topics related to the peaceful uses of nuclear energy as may be agreed between the Parties

Norway – Russian Federation – United States

Declaration on Arctic Military Environmental Co-operation (1996)

On 26 September 1996, Norway, the Russian Federation and the United States signed a Declaration which establishes a framework for co-operation on military environmental issues in the Arctic, the Arctic Military Environmental Co-operation program (AMEC) It recognises the need to ensure the conservation and sustainable use of the Arctic The Declaration also addresses the need to prevent contamination of the environment from military activities and the need to carry out clean-up efforts These measures extend to the disposal of military arms and equipment. The Declaration covers radioactive waste resulting from military activities and would, for example, cover the operation of nuclear submarines operating in the Arctic region

To further the goals of the Declaration, a Steering Group with representatives from the three countries is established to organise the work under the AMEC program Co-operation between the Parties may include

- Discussing principles and methods for the repair and protection of the environment with regard to military activities in the Arctic,
- Studying processes of the movement of contamination and evaluating its environmental impact in the Arctic in connection with military activities,
- Reviewing the methods and organisation of work to prevent contamination and to carry out clean-up efforts in Arctic conditions,
- Examining methods of emergency response simulation

Co-operation may take several forms, including, but not limited to, meetings, exchanges of information, surveys of sources of contamination, research work and technology exchange

MULTILATERAL AGREEMENTS

No Coverage for Nuclear Damage in the Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea (HNS)*

1 Introduction

The International Maritime Organisation (IMO) had, for quite some time, dedicated a major effort to creating an international liability and compensation system for damage caused by hazardous and noxious substances when transported by sea Since radioactive materials may be considered as hazardous or noxious substances, the question of whether damage caused by these materials should be covered by this new system very naturally arose There were also potential implications for the Paris and Vienna Conventions on nuclear liability, since these Conventions also provide for liability for incidents in the course of transport of nuclear substances

At an international conference convened by the IMO in London, in April 1996, agreement was reached among the 73 participating States to adopt an international convention on liability and compensation for damage in connection with the carriage of hazardous and noxious substances by sea (the HNS-Convention) The question of including damage caused by radioactive materials in the HNS-Convention was a very divisive matter between States, both before and during the conference

This note reviews the discussion which took place on the HNS-Convention's potential application to radioactive materials, as well as the outcome of the conference It should perhaps be said at this introductory stage that the resolution of this issue was the total exclusion of damage caused by all radioactive materials from the HNS-Convention The newly adopted HNS-Convention will, therefore, not provide any protection against damage caused by radioactive materials

2 Liability Under the Nuclear Liability Conventions for Damage Caused in the Course of Transport of Nuclear Substances

Under the Paris Convention of 29 July 1960 on Third Party Liability in the Field of Nuclear Energy, as well as under the Vienna Convention of 21 May 1963 on Civil Liability for Nuclear Damage, the operator of a nuclear installation situated in the territory of a Contracting Party to that Convention from which or to which nuclear substances are transported is held strictly and exclusively liable for nuclear damage caused by an incident during such transport This principle applies to all means of transport

Nuclear substances (nuclear materials) are defined as nuclear fuel, other than natural and depleted uranium, and radioactive products or waste Radioactive products or waste do not include radioisotopes usable for certain purposes So, it follows from the definition of nuclear substances that certain substances are excluded from the scope of the nuclear liability Conventions The substances concerned – generally referred to as "excepted matters" – consist of natural and depleted uranium and radioisotopes used or intended to be used for industrial, commercial, agricultural, medical scientific or educational purposes

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* This note was kindly prepared by **Tomas Norström**, Director at the Swedish Ministry of Justice Division for Transport Law Mr Norström was the Swedish Representative to the IMO Conference dealing with the HNS Convention

The excepted matters were excluded from the nuclear liability Conventions as they were not considered to pose a significant risk of nuclear damage to third parties or to the environment, at least not such as to warrant the application of the special liability regime established by these Conventions

The term "nuclear damage" as defined in the Conventions includes merely damage to persons or property and – with regard to the Vienna Convention – any other loss or damage if and to the extent the law of the competent court so provides

The fact that the operator is exclusively liable means that the liability is channelled to him However, the principle of channelling the liability to the operator does not affect the application of any international agreement in the field of transport which was already in force or open for signature, ratification or accession at the date of the Paris or Vienna Conventions (Article 6 b of the Paris Convention and Article II 5 of the Vienna Convention) Thus, in exceptional cases a carrier may also be held liable for damage caused by a nuclear substance

The system under the Paris and Vienna Conventions of channelling the liability to the operator is motivated by the very special considerations involved in the transport of nuclear substances It has been said that the carrier will generally not be in a position to verify precautions in packing and containment taken by the operator who is sending the substances Moreover, if the carrier is to be liable he would have to obtain necessary insurance coverage in respect of potentially high liability amounts which would result in increased transport and insurance costs and, possibly, be detrimental to the capacity of the insurance market (cf *inter alia*, "Exposé des Motifs" of the *Paris Convention* as revised on 16 November 1982, paragraph 22)

3 Liability Under the HNS-Convention

The purpose of the HNS-Convention is to ensure compensation to victims for damage caused by certain hazardous and noxious substances when they are carried by sea. The Convention lays down the principle of strict liability for shipowners and creates a system of compulsory liability insurance The shipowner will, for any one incident, normally be entitled to limit his liability to an amount which is linked to the tonnage of the ship The limitation levels start at 10 million Special Drawing Rights (SDR) for a ship not exceeding 2,000 tonnes, and then increases per ton of the ship's tonnage up to a maximum of 100 million SDRs, which is reached for a ship of 100,000 tonnes

The Convention also establishes a supplementary regime for compensating victims when the compensation under the provisions of shipowner-liability is inadequate For this purpose an inter-governmental "HNS-Fund" is set up The compensation payable by the HNS-Fund is, however, limited to a certain amount, that being an aggregate amount of 250 million SDRs including the sum actually paid by the shipowner

According to the HNS-Convention, any substance carried on board a ship as cargo and referred to in, *inter alia*, the International Maritime Dangerous Goods Code (IMDG-Code), as amended, should be regarded as a hazardous and noxious substance Since Class 7 (radioactive materials) of the IMDG-Code comprises any radioactive material with a specific activity greater than 70 kBq/kg (2 nCi/g) damage caused by nuclear substances, even by "excepted matters", would, unless excluded, fall under the scope of the HNS-Convention

For the purposes of the HNS-Convention, damage means not only loss of life or personal injury and loss of or damage to property, but also loss or damage by contamination of the environment, the cost of preventive measures, and loss or damage caused by preventive measures This is both a more

detailed and broader provision than is found in the nuclear liability Conventions for determining the kind of damage which will be compensated

The Convention will cover any damage suffered in the territory (including the territorial sea) and damage by contamination of the environment in the exclusive economic zone (EEZ) of a State party to the Convention The Convention will also cover costs of preventive measures, wherever taken to prevent or minimise damage

The Discussion Before the IMO-Conference

4 Should Damage Caused by Radioactive Materials be Covered by the HNS-Convention?

The question of whether damage caused by radioactive materials should be covered by the HNS-Convention was the subject of many formal and informal discussions before the IMO-Conference

The nuclear liability Conventions lay down the principle of channelling liability to the operator of a nuclear installation except where contrary agreements already existed at the time the Paris or Vienna Conventions were adopted (See *supra*) Thus, the nuclear liability Conventions' principle of channelling liability to the operator seems to be based on the assumption that this principle will be recognised and respected by future international conventions

It was therefore recognised at an early stage that a Contracting Party to the Paris or Vienna Convention could not ratify a later carriers' liability Convention, such as the HNS-Convention, which contained no exclusion clause for nuclear damage, without facing contradictory obligations on the one hand, the obligation under the nuclear liability Conventions to observe the rule of channelling liability to the nuclear operator, and, on the other hand, the obligation to apply the rules of the carriers' liability Convention

To overcome this problem it was proposed to incorporate into the draft HNS-Convention an exclusion clause relating to damage caused by nuclear substances The exclusion clause would state that the Convention would not apply to damage caused by nuclear substances

> "*(i) if the operator of a nuclear installation is liable for such damage under either the Paris Convention of 29 July 1960 on Third Party Liability in the Field of Nuclear Energy and its additional Protocols of 28 January 1964 and 16 November 1982 or the Vienna Convention of 21 May 1963 on Civil Liability for Nuclear Damage or under any amendments to those Conventions or*
>
> *(ii) if the operator of a nuclear installation is liable for such damage by virtue of a national law governing the liability for such damage provided that such law is in all respects as favourable to persons who may suffer damage as either the Paris or Vienna Conventions as referred to under (i)*"

For some Delegations, one problem with this proposed exclusion clause was that it would not exclude those nuclear substances not addressed by the nuclear liability Conventions (the 'excepted matters") from the HNS-Convention With the proposed clause, such substances would fall under the HNS-Convention

5 Total Exclusion of Nuclear Damage?

It was claimed by many Delegations that the wording of the draft exclusion clause would exclude from the scope of the Convention only damage caused by nuclear substances for which the operator of a nuclear installation is liable under the Paris or Vienna Convention regimes or equally favourable national legislation This would mean that shipowners could be liable for all damage caused by nuclear substances in the territory of States where those regimes, or equally favourable national legislation, did not exist or apply The shipowners could also, since the HNS-Convention was to have a broader definition of damage, be liable for damage by contamination of the environment in the EEZ of any State party to the HNS-Convention Furthermore, shipowners could be liable for the cost of preventive measures taken to prevent or minimise damage by nuclear substances, wherever such measures were taken This would, according to these Delegations, pose severe difficulties for the purpose of the HNS-Convention, especially from an insurance point of view

Since the proposed exclusion clause would not exclude liability for nuclear damage, in connection with sea transport, in States not Parties to the Paris or Vienna Conventions, shipowners would, for such transport, be obliged to have insurance in accordance with the HNS-Convention's provisions on compulsory insurance However, the special protection and indemnity insurance (P & I), which covers shipowners' liability to third parties, does not include nuclear risks caused by substances of high-level radioactivity The point was also made that it would probably be quite difficult for the current P & I insurance market to cover such damage As insurance cover would not be available for damage caused by high-level nuclear substances, or at least would be very difficult to obtain, the inclusion of such substances in the scope of the HNS-Convention would make it difficult to comply with the rules on compulsory liability insurance, the Convention would be in danger of being unworkable

It was also claimed that the inclusion of high level nuclear substances in the HNS-Convention would lead to limits of liability for nuclear damage that are considered to be too low for damage caused by high-level substances

For these reasons total exclusion of nuclear damage from the HNS-Convention was proposed.

6 The HNS-Convention as a Gap-Filling Regime?

Other Delegations spoke in favour of retaining the exclusion clause mentioned above The Delegations favouring this option viewed the HNS-Convention as a gap-filling convention, specifically pointing to the fact that any other solution would result in gaps where damage from nuclear substances in certain situations could not be covered by any international liability and compensation convention These Delegations also supported the exclusion clause as it would have ensured compensation for damage arising out of the maritime transport of irradiated nuclear fuel (INF), high-level nuclear waste, and plutonium, to the extent that the operator is not liable for such damage under either the Paris or Vienna Conventions, or equally favourable national law

7 The HNS-Convention to Cover Low-Level Material (the "excepted matters")?

A third alternative put forward by some Delegations was to agree to the total exclusion of damage caused by nuclear substances covered by the Paris and Vienna Conventions (high-level material) but to include the so called "excepted matters" (cf paragraph 2 2) in the scope of the HNS-Convention These Delegations, based on experience, were not convinced that the excepted matters in certain situations would not pose a risk of causing damage When transported in large quantities and

in connection with, for example, fire, these substances could be toxic or give cause to extensive damage This alternative would have had the advantage of HNS-type damage (e g toxic damage from natural uranium hexafluoride) being covered by an international liability regime

The inclusion of excepted matters in the scope of the HNS-Convention would not have posed the aforementioned difficulties It was made clear during the discussions that P & I insurance cover is available for such substances Furthermore, the compensation amounts under the HNS-Convention could be regarded as sufficient for these kinds of nuclear substances

The Discussion at the IMO-Conference

At the time of the Conference it was clear that the only alternatives to be discussed were total exclusion of nuclear damage or inclusion of low-level material By that time, the alternative of the HNS-Convention being a gap-filling regime had faded away

The Delegations favouring total exclusion maintained their position that cover for nuclear damage in the HNS-Convention would be inconsistent with other international conventions and would create problems with respect to compulsory insurance and setting limits of liability that would ensure adequate compensation to victims for nuclear damage Some of these Delegations were also of the opinion that inclusion of the excepted matters in the HNS-Convention could have the undesired effect of pre-empting national law on nuclear liability which itself might provide compensation at levels that exceed those in the HNS-Convention

The Delegations favouring inclusion of the excepted matters into the Convention reiterated their position and stressed that without cover of damage caused by these substances, the HNS-Convention would be quite incomplete

The IMO-Conference decided, with a fairly broad majority, that the HNS-Convention should not apply to damage occurring during the maritime carriage of any radioactive materials So, the total exclusion alternative was chosen

The Conference, however, recognised that damage from excepted matters is a cause for serious concern and deserves further consideration in a nuclear liability regime The Conference therefore recommended, by the way of a Resolution*, that Member States of IMO and of the International Atomic Energy Agency should continue to work together in defining and considering issues of liability and compensation for nuclear damage occurring during the transport of radioactive materials

8. Some Concluding Remarks

In the field of maritime carriage of radioactive materials, experience has shown that serious difficulties are encountered when trying to obtain insurance cover for the carriers' liability This led in 1971, to the adoption of a Convention relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material The purpose of that Convention is to channel liability for nuclear damage to the operator of the nuclear installation liable under the Paris or Vienna Conventions The 1971 Convention can be regarded as reinstating the priority of nuclear law over maritime law in transport cases

* The text of this Resolution is reproduced in the Chapter "Texts" of this *Bulletin*

The fact that the IMO-Conference upheld the priority of nuclear law over maritime law for maritime transport of nuclear substances already covered by the nuclear liability Conventions can be said to be in line with the "priority-principle" by which nuclear law covers nuclear damage

However, with regard to damage caused by nuclear substances not falling under the nuclear liability Conventions (the excepted matters), the IMO-Conference can also be said to have upheld the priority of a nuclear liability regime to govern such damage One reason for this was that the Conference did not find it appropriate to regulate damage from excepted matters only with regard to one means of transport – maritime transport, rather, the problem should be addressed under a nuclear liability regime which would cover all forms of transport

The Comprehensive Nuclear Test-Ban Treaty (CTBT)*

On September 10, 1996, the United Nations General Assembly voted overwhelmingly to adopt the Comprehensive Nuclear Test-Ban Treaty (CTBT) One hundred fifty-eight Member States, including all the nuclear-weapon States, voted in favour Only India, Libya and Bhutan voted against, with Cuba, Lebanon, Mauritius, Syria and Tanzania abstaining The Treaty was signed at the opening of the 51st session of the General Assembly in New York on 24 September 1996 and by 1 October 1996 had been signed by 97 States

Long a goal of the international community, a CTBT was championed for years by the Non-Aligned Movement, while the nuclear-weapon States (NWS) blocked any serious negotiations Partly because progress on this issue became a G-77 condition for the indefinite extension of the Treaty on the Non-Proliferation of Nuclear Weapons at its Review and Extension Conference in 1995, the NWS agreed to the setting up of a negotiating committee within the Conference on Disarmament (CD) in Geneva where serious negotiations began in January 1994 Ambassador Jaap Ramaker, Netherlands, chaired the negotiations in their final phase In this phase of the negotiations, the NWS and in particular the United States and France, after the latter completed its last series of tests, became the driving force for completion of the Treaty by the deadline agreed upon at the NPT Extension Conference While no State finds the Treaty an ideal document, only India considers its flaws so great that it has vowed never to sign it As India had blocked consensus, it was impossible for the CD to forward the Treaty to the General Assembly Australia introduced the text as negotiated by the CD in the General Assembly

Main Features of the Treaty

Structure

The Main Treaty, a forty-page document, is supplemented by a Protocol of equal length with three parts setting out details of the modalities for verification of the Treaty Part I deals with the International Monitoring System (IMS), Part II sets out the conditions for On-Site Inspections, and Part III briefly describes Confidence-Building Measures, which consist of voluntary notification of large chemical explosions There are also two Annexes to the Protocol containing the location of monitoring stations for the IMS and the parameters for standard event screening by the International Data Centre (IDC)

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* This note was kindly prepared by **Merle Opelz**, Head of the International Atomic Energy Agency Office in Geneva. The text of the Treaty is reproduced in the Chapter "Texts" of this *Bulletin*

Basic Obligations

The CTBT bans any nuclear weapon test explosion or any other nuclear explosion at any place under jurisdiction or control of the States Parties The scope of the ban was one of the most controversial issues of the negotiations Until a very late stage in the negotiations, China wished to leave open the possibility for peaceful nuclear explosions, the United States only rallied to the cause of a zero yield ban in August 1995, India and many other non-aligned nations wished the scope to extend to sophisticated non-explosive testing technologies, which only the advanced countries possess

Organisation

The Treaty establishes an organisation (CTBTO) to ensure the implementation of its provisions including verification measures The CTBTO includes a Conference of State Parties an Executive Council and a Technical Secretariat, which, *inter alia*, is responsible for supervising the IMS and operating the IDC The CTBTO will be located in Vienna, Austria Some countries wished to entrust the IAEA with the verification of the Treaty, given the overlaps with verifying non-proliferation commitments, but the idea of an autonomous organisation, located in Vienna to facilitate cooperation with IAEA, prevailed

Verification and Inspections

The Treaty's verification regime includes the IMS composed of seismological, radionuclide, hydro acoustic and infra sound monitoring, consultation and clarification, on-site inspections, and confidence-building measures It sets up an elaborate global monitoring system for the sole purpose of detecting explosions only, not preparations for tests In the area of seismic monitoring, an experimental network of stations developed over the last twenty years by a CD Group of Scientific Experts already exists, backed up by a prototype IDC in the United States The use of national technical means (NTM) for detection is explicitly provided for The role of NTM in triggering on-site inspections was a bone of contention during the negotiations Many non-aligned States, and in particular Iran, wished to rely only on the IMS, as only a few advanced countries have NTMs and they could be used to harass certain developing countries Requests for on-site inspections must be approved by at least 30 affirmative votes of members of the Treaty's 51-member Executive Council The Executive Council must act within 96 hours of receiving a request for inspection The number of votes required was increased at the insistence of China, in the last change made to the Chairman s draft text just before it was presented to CD

Treaty Compliance and Sanctions

The Treaty provides for measures to redress a situation and to ensure compliance, including sanctions which the Conference may recommend to States Parties, and for settlement of disputes If the Conference or Executive Council determines that a case is of particular gravity, it can bring the issue to the attention of the United Nations

Amendments

Any State Party to the Treaty may propose an amendment to the Treaty, the Protocol or the Annexes to the Protocol Amendments shall be considered by an Amendment Conference and shall be adopted by a positive vote of a majority of the States Parties with no State Party casting a negative vote

Entry into Force

The Treaty will enter into force 180 days after the date of deposit of the instruments of ratification by all States listed in Annex 2 to the Treaty (44 States members of the Conference on Disarmament with nuclear power and/or research reactors as listed by the IAEA), but in no case earlier than two years after its opening for signature If the Treaty has not entered into force three years after the date of the anniversary of its opening for signature, a Conference of the States that have already deposited their instruments of ratification may convene annually to consider and decide by consensus what measures consistent with international law may be undertaken to accelerate the ratification process in order to facilitate the early entry into force of this Treaty As the listing of States includes the threshold States India, Israel and Pakistan, India took serious objection to this Article as being contrary to the fundamental norms of international law, as it implied that obligations could be imposed on a State without its consent Unless India changes its position "never to sign this unequal Treaty," the CTBT will never enter into force in its present form

Review

Ten years after entry into force, a Conference of the States Parties will be held to review the operation and effectiveness of this Treaty

Duration

The Treaty is of unlimited duration Each State Party has the right to withdraw from the CTBT if it decides that extraordinary events related to its subject matter have jeopardised its supreme national interests

Depositary

The Secretary-General of the United Nations is the Depositary of the Treaty In this capacity it is expected that he will convene the first meeting of a Preparatory Commission for the CTBTO in November in New York to launch the preparatory work that must be done establishing a Provisional Technical Secretariat, budgetary matters, rules of procedure, host country agreement. From 1997, the Preparatory Commission will meet in Vienna.

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The adoption of the CTBT by the quasi-totality of United Nations members has a symbolic value that may help to push forward efforts to consolidate the non-proliferation regime and to begin the long march towards nuclear disarmament The Treaty commitment not to carry out nuclear test explosions by the NWS and Israel adds legal weight and stability to the *de facto* moratorium that has existed since China announced its last test in August 1996 Pakistan will not join the Treaty unless India does, but all threshold States will feel the international pressure not to test, whether or not they adhere to the Treaty As several developing countries have pointed out, the CTBT can also be seen as an instrument for environmental protection Even without entry into force, the Provisional Technical Secretariat will be able to establish the procedures for the monitoring system, provided financial backing is forth-coming Hopefully the Conference on Disarmament will recover from the blow to its credibility, dealt by the final phases of the CTBT negotiations and the inability to achieve consensus on this vital issue, so that negotiations on the next step, the cut-off agreement, will be de-blocked

Entry into Force of the Convention on Nuclear Safety (1996)

On 26 July 1996, after ratification by Mexico, the IAEA announced that the Convention on Nuclear Safety had received the necessary number of ratifications for it to come into force According to Article 31 1, the Convention enters into force on the ninetieth day after the date of deposit of the twenty second instrument of ratification, acceptance or approval, including the instruments of seventeen States, each having at least one functioning nuclear installation The Convention, therefore, officially entered into force on 24 October 1996

The primary objective of this Convention is to achieve and maintain a high level of nuclear safety Thus, it provides for a mechanism aimed at ensuring its implementation once it comes into force This mechanism will take the form of meetings of the Contracting Parties to be held on a regular basis According to the terms of the Convention, a first preparatory meeting of the Contracting Parties will be held six months after the date of it coming into force At these regular meetings, the official reports by the Parties on the steps taken in their countries to meet their obligations under the Convention will be examined.

Convention on Nuclear Safety

List of signatures, ratification, acceptance, approval or accession

State	Date of Signature	Date of Deposit of Instrument	Entry into Force
Algeria	20 September 1994		
Argentina*	20 October 1994		
Armenia	22 September 1994		
Australia	20 September 1994		
Austria	20 September 1994		
Bangladesh	21 September 1995	21 September 1995 (accepted)	24 October 1996
Belgium*	20 September 1994		
Brazil*	20 September 1994		
Bulgaria*	20 September 1994	8 November 1995 (ratified)	24 October 1996
Canada*	20 September 1994	12 December 1995 (ratified)	24 October 1996
Chile	20 September 1994		
China*	20 September 1994	9 April 1996 (ratified)	24 October 1996
Croatia	10 April 1995	18 April 1996 (approved)	24 October 1996
Cuba	20 September 1994		
Czech Republic*	20 September 1994	18 September 1995 (approved)	24 October 1996
Denmark	20 September 1994		
Egypt	20 September 1994		
Finland*	20 September 1994	22 January 1996 (accepted)	24 October 1996
France*	20 September 1994	13 September 1995 (approved)	24 October 1996

State	Date of Signature	Date of Deposit of Instrument	Entry into Force
Germany*	20 Sept and 5 Oct 1994		
Ghana	6 July 1995		
Greece	1 November 1994		
Hungary*	20 September 1994	18 March 1996 (ratified)	24 October 1996
Iceland	21 September 1995		
India*	20 September 1994 (*)		
Indonesia	20 September 1994		
Ireland	20 September 1994	11 July 1996 (ratified)	24 October 1996
Israel	22 September 1994		
Italy	27 September 1994		
Japan*	20 September 1994	12 May 1995 (accepted)	24 October 1996
Jordan	6 December 1994		
Republic of Korea*	20 September 1994	19 September 1995 (ratified)	24 October 1996
Kazakstan	20 September 1996		
Lebanon	7 March 1995	5 June 1996 (ratified)	24 October 1996
Lithuania*	22 March 1995	12 June 1996 (ratified)	24 October 1996
Luxembourg	20 September 1994		
Mali	22 May 1995	13 May 1996 (ratified)	24 October 1996
Mexico*	9 November 1994	26 July 1996 (ratified)	24 October 1996
Morocco	1 December 1994		
Monaco	16 September 1996		
Netherlands*	20 September 1994		
Nicaragua	23 September 1994		
Nigeria	21 September 1994		
Norway	21 September 1994	29 September 1994 (ratified)	24 October 1996
Pakistan*	20 September 1994		
Peru	22 September 1994		
Philippines	14 October 1994		
Poland	20 September 1994	14 June 1995 (ratified)	24 October 1996
Portugal	3 October 1994		
Romania	20 September 1994	1 June 1995 (ratified)	24 October 1996
Russian Federation*	20 September 1994	12 July 1996 (accepted)	24 October 1996
Slovak Republic*	20 September 1994	7 March 1995 (ratified)	24 October 1996
Slovenia*	20 September 1994		
South Africa*	20 September 1994		
Spain*	15 November 1994	4 July 1995 (ratified)	24 October 1996
Sudan	20 September 1994		
Sweden*	20 September 1994	11 September 1995 (ratified)	24 October 1996
Switzerland*	31 October 1995	12 September 1996 (ratified)	11 December 1996
Syria	23 September 1994		
Tunisia	20 September 1994		
Turkey	20 September 1994	8 March 1995 (ratified)	24 October 1996
Ukraine*	20 September 1994		
United Kingdom*	20 September 1994	17 January 1996 (ratified)	24 October 1996
United States*	20 September 1994		
Uruguay	28 February 1996		

* Indicates that the State has at least one nuclear installation which has achieved criticality in a reactor core

(*) Indicates reservation/declaration was deposited upon signature

Comprehensive Nuclear Test Ban Treaty*

Preamble

The States Parties to this Treaty (hereinafter referred to as "the States Parties"),

Welcoming the international agreements and other positive measures of recent years in the field of nuclear disarmament, including reductions in arsenals of nuclear weapons, as well as in the field of the prevention of nuclear proliferation in all its aspects,

Underlining the importance of the full and prompt implementation of such agreements and measures,

Convinced that the present international situation provides an opportunity to take further effective measures towards nuclear disarmament and against the proliferation of nuclear weapons in all its aspects, and **declaring** their intention to take such measures,

Stressing therefore the need for continued systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goal of eliminating those weapons, and of general and complete disarmament under strict and effective international control,

Recognizing that the cessation of all nuclear weapon test explosions and all other nuclear explosions, by constraining the development and qualitative improvement of nuclear weapons and ending the development of advanced new types of nuclear weapons, constitutes an effective measure of nuclear disarmament and non-proliferation in all its aspects,

Further recognizing that an end to all such nuclear explosions will thus constitute a meaningful step in the realization of a systematic process to achieve nuclear disarmament,

Convinced that the most effective way to achieve an end to nuclear testing is through the conclusion of a universal and internationally and effectively verifiable comprehensive nuclear test-ban treaty, which has long been one of the highest priority objectives of the international community in the field of disarmament and non-proliferation,

Noting the aspirations expressed by the Parties to the 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time,

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* The Treaty was adopted by the United Nations General Assembly on 10 September 1996. For more information see the note in the chapter entitled "Multilateral Agreements" of this Bulletin. The Protocol to the Comprehensive Nuclear Test Ban Treaty and its Annexes 1 and 2 were not reproduced here due to their length. The Protocol is composed of three parts: Part I: The International Monitoring System and International Data Centre Functions; Part II: On-Site Inspections; and Part III: Confidence Building Measures.

Noting also the views expressed that this Treaty could contribute to the protection of the environment

Affirming the purpose of attracting the adherence of all States to this Treaty and its objective to contribute effectively to the prevention of the proliferation of nuclear weapons in all its aspects to the process of nuclear disarmament and therefore to the enhancement of international peace and security

Have agreed as follows

Article I Basic Obligations

1 Each State Party undertakes not to carry out any nuclear weapon test explosion or any other nuclear explosion, and to prohibit and prevent any such nuclear explosion at any place under its jurisdiction or control

2 Each State Party undertakes, furthermore, to refrain from causing, encouraging, or in any way participating in the carrying out of any nuclear weapon test explosion or any other nuclear explosion

Article II The Organization

A General Provisions

1 The States Parties hereby establish the Comprehensive Nuclear Test-Ban Treaty Organization (hereinafter referred to as "the Organization") to achieve the object and purpose of this Treaty to ensure the implementation of its provisions, including those for international verification of compliance with it and to provide a forum for consultation and cooperation among States Parties

2 All States Parties shall be members of the Organization A State Party shall not be deprived of its membership in the Organization

3 The seat of the Organization shall be Vienna, Republic of Austria

4 There are hereby established as organs of the Organization the Conference of the States Parties the Executive Council and the Technical Secretariat, which shall include the International Data Centre

5 Each State Party shall cooperate with the Organization in the exercise of its functions in accordance with this Treaty States Parties shall consult, directly among themselves, or through the Organization or other appropriate international procedures, including procedures within the framework of the United Nations and in accordance with its Charter, on any matter which may be raised relating to the object and purpose, or the implementation of the provisions, of this Treaty

6 The Organization shall conduct its verification activities provided for under this Treaty in the least intrusive manner possible consistent with the timely and efficient accomplishment of their objectives It shall request only the information and data necessary to fulfil its responsibilities under this Treaty It shall take every precaution to protect the confidentiality of information on civil and military activities and facilities coming to its knowledge in the implementation of this Treaty and, in particular shall abide by the confidentiality provisions set forth in this Treaty

7 Each State Party shall treat as confidential and afford special handling to information and data that it receives in confidence from the Organization in connection with the implementation of this Treaty It shall treat such information and data exclusively in connection with its rights and obligations under this Treaty

8 The Organization, as an independent body, shall seek to utilize existing expertise and facilities, as appropriate, and to maximize cost efficiencies, through cooperative arrangements with other international organizations such as the International Atomic Energy Agency Such arrangements, excluding those of a minor and normal commercial and contractual nature, shall be set out in agreements to be submitted to the Conference of the States Parties for approval

9 The costs of the activities of the Organization shall be met annually by the States Parties in accordance with the United Nations scale of assessments adjusted to take into account differences in membership between the United Nations and the Organization

10 Financial contributions of States Parties to the Preparatory Commission shall be deducted in an appropriate way from their contributions to the regular budget

11 A member of the Organization which is in arrears in the payment of its assessed contribution to the Organization shall have no vote in the Organization if the amount of its arrears equals or exceeds the amount of the contribution due from it for the preceding two full years The Conference of the States Parties may, nevertheless, permit such a member to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the member

B The Conference of the States Parties

Composition, Procedures and Decision-making

12 The Conference of the States Parties (hereinafter referred to as "the Conference") shall be composed of all States Parties Each State Party shall have one representative in the Conference, who may be accompanied by alternates and advisers

13 The initial session of the Conference shall be convened by the Depositary no later than 30 days after the entry into force of this Treaty

14 The Conference shall meet in regular sessions, which shall be held annually, unless it decides otherwise

15 A special session of the Conference shall be convened

(a) When decided by the Conference,

(b) When requested by the Executive Council, or

(c) When requested by any State Party and supported by a majority of the States Parties

The special session shall be convened no later than 30 days after the decision of the Conference, the request of the Executive Council, or the attainment of the necessary support, unless specified otherwise in the decision or request

16 The Conference may also be convened in the form of an Amendment Conference, in accordance with Article VII

17 The Conference may also be convened in the form of a Review Conference, in accordance with Article VIII

18 Sessions shall take place at the seat of the Organization unless the Conference decides otherwise

19 The Conference shall adopt its rules of procedure At the beginning of each session, it shall elect its President and such other officers as may be required They shall hold office until a new President and other officers are elected at the next session

20 A majority of the States Parties shall constitute a quorum

21 Each State Party shall have one vote

22 The Conference shall take decisions on matters of procedure by a majority of members present and voting Decisions on matters of substance shall be taken as far as possible by consensus If consensus is not attainable when an issue comes up for decision, the President of the Conference shall defer any vote for 24 hours and during this period of deferment shall make every effort to facilitate achievement of consensus, and shall report to the Conference before the end of this period If consensus is not possible at the end of 24 hours, the Conference shall take a decision by a two-thirds majority of members present and voting unless specified otherwise in this Treaty When the issue arises as to whether the question is one of substance or not, that question shall be treated as a matter of substance unless otherwise decided by the majority required for decisions on matters of substance

23 When exercising its function under paragraph 26(k), the Conference shall take a decision to add any State to the list of States contained in Annex 1 to this Treaty in accordance with the procedure for decisions on matters of substance set out in paragraph 22 Notwithstanding paragraph 22, the Conference shall take decisions on any other change to Annex 1 to this Treaty by consensus

Powers and Functions

24 The Conference shall be the principal organ of the Organization It shall consider any questions matters or issues within the scope of this Treaty, including those relating to the powers and functions of the Executive Council and the Technical Secretariat, in accordance with this Treaty It may make recommendations and take decisions on any questions, matters or issues within the scope of this Treaty raised by a State Party or brought to its attention by the Executive Council

25 The Conference shall oversee the implementation of, and review compliance with, this Treaty and act in order to promote its object and purpose It shall also oversee the activities of the Executive Council and the Technical Secretariat and may issue guidelines to either of them for the exercise of their functions

26 The Conference shall

(a) Consider and adopt the report of the Organization on the implementation of this Treaty and the annual programme and budget of the Organization, submitted by the Executive Council, as well as consider other reports,

(b) Decide on the scale of financial contributions to be paid by States Parties in accordance with paragraph 9,

(c) Elect the members of the Executive Council,

(d) Appoint the Director-General of the Technical Secretariat (hereinafter referred to as "the Director-General"),

(e) Consider and approve the rules of procedure of the Executive Council submitted by the latter,

(f) Consider and review scientific and technological developments that could affect the operation of this Treaty In this context, the Conference may direct the Director-General to establish a Scientific Advisory Board to enable him or her, in the performance of his or her functions, to render specialized advice in areas of science and technology relevant to this Treaty to the Conference, to the Executive Council, or to States Parties In that case, the Scientific Advisory Board shall be composed of independent experts serving in their individual capacity and appointed, in accordance with terms of reference adopted by the Conference, on the basis of their expertise and experience in the particular scientific fields relevant to the implementation of this Treaty,

(g) Take the necessary measures to ensure compliance with this Treaty and to redress and remedy any situation that contravenes the provisions of this Treaty, in accordance with Article V,

(h) Consider and approve at its initial session any draft agreements, arrangements, provisions, procedures, operational manuals, guidelines and any other documents developed and recommended by the Preparatory Commission,

(i) Consider and approve agreements or arrangements negotiated by the Technical Secretariat with States Parties, other States and international organizations to be concluded by the Executive Council on behalf of the Organization in accordance with paragraph 38 (h),

(j) Establish such subsidiary organs as it finds necessary for the exercise of its functions in accordance with this Treaty, and

(k) Update Annex 1 to this Treaty, as appropriate, in accordance with paragraph 23

C The Executive Council

Composition Procedures and Decision-making

27 The Executive Council shall consist of 51 members Each State Party shall have the right, in accordance with the provisions of this Article, to serve on the Executive Council

28 Taking into account the need for equitable geographical distribution, the Executive Council shall comprise

(a) Ten States Parties from Africa,

(b) Seven States Parties from Eastern Europe,

(c) Nine States Parties from Latin America and the Caribbean,

(d) Seven States Parties from the Middle East and South Asia,

(e) Ten States Parties from North America and Western Europe, and

(f) Eight States Parties from South-East Asia, the Pacific and the Far East

All States in each of the above geographical regions are listed in Annex 1 to this Treaty Annex 1 to this Treaty shall be updated, as appropriate, by the Conference in accordance with paragraphs 23 and 26(k) It shall not be subject to amendments or changes under the procedures contained in Article VII

29 The members of the Executive Council shall be elected by the Conference In this connection, each geographical region shall designate States Parties from that region for election as members of the Executive Council as follows

(a) At least one-third of the seats allocated to each geographical region shall be filled, taking into account political and security interests, by States Parties in that region designated on the basis of the nuclear capabilities relevant to the Treaty as determined by international data as well as all or any of the following indicative criteria in the order of priority determined by each region

i Number of monitoring facilities of the International Monitoring System,

ii Expertise and experience in monitoring technology, and

iii Contribution to the annual budget of the Organization,

(b) One of the seats allocated to each geographical region shall be filled on a rotational basis by the State Party that is first in the English alphabetical order among the States Parties in that region that have not served as members of the Executive Council for the longest period of time since becoming States Parties or since their last term, whichever is shorter A State Party designated on this basis may decide to forgo its seat In that case, such a State Party shall submit a letter of renunciation to the Director-General, and the seat shall be filled by the State Party following next-in-order according to this sub-paragraph, and

(c) The remaining seats allocated to each geographical region shall be filled by States Parties designated from among all the States Parties in that region by rotation or elections

30 Each member of the Executive Council shall have one representative on the Executive Council, who may be accompanied by alternates and advisers

31 Each member of the Executive Council shall hold office from the end of the session of the Conference at which that member is elected until the end of the second regular annual session of the Conference thereafter, except that for the first election of the Executive Council, 26 members shall be

elected to hold office until the end of the third regular annual session of the Conference, due regard being paid to the established numerical proportions as described in paragraph 28

32 The Executive Council shall elaborate its rules of procedure and submit them to the Conference for approval

33 The Executive Council shall elect its Chairman from among its members

34 The Executive Council shall meet for regular sessions Between regular sessions it shall meet as may be required for the fulfilment of its powers and functions

35 Each member of the Executive Council shall have one vote

36 The Executive Council shall take decisions on matters of procedure by a majority of all its members The Executive Council shall take decisions on matters of substance by a two-thirds majority of all its members unless specified otherwise in this Treaty When the issue arises as to whether the question is one of substance or not, that question shall be treated as a matter of substance unless otherwise decided by the majority required for decisions on matters of substance

Powers and Functions

37 The Executive Council shall be the executive organ of the Organization It shall be responsible to the Conference It shall carry out the powers and functions entrusted to it in accordance with this Treaty In so doing, it shall act in conformity with the recommendations, decisions and guidelines of the Conference and ensure their continuous and proper implementation

38 The Executive Council shall

(a) Promote effective implementation of, and compliance with, this Treaty,

(b) Supervise the activities of the Technical Secretariat,

(c) Make recommendations as necessary to the Conference for consideration of further proposals for promoting the object and purpose of this Treaty,

(d) Cooperate with the National Authority of each State Party,

(e) Consider and submit to the Conference the draft annual programme and budget of the Organization, the draft report of the Organization on the implementation of this Treaty, the report on the performance of its own activities and such other reports as it deems necessary or that the Conference may request,

(f) Make arrangements for the sessions of the Conference, including the preparation of the draft agenda,

(g) Examine proposals for changes, on matters of an administrative or technical nature, to the Protocol or the Annexes thereto, pursuant to Article VII, and make recommendations to the States Parties regarding their adoption,

(h) Conclude, subject to prior approval of the Conference, agreements or arrangements with States Parties, other States and international organizations on behalf of the Organization and supervise their implementation, with the exception of agreements or arrangements referred to in sub-paragraph (i)

(i) Approve and supervise the operation of agreements or arrangements relating to the implementation of verification activities with States Parties and other States, and

(j) Approve any new operational manuals and any changes to the existing operational manuals that may be proposed by the Technical Secretariat

39 The Executive Council may request a special session of the Conference

40 The Executive Council shall

(a) Facilitate cooperation among States Parties, and between States Parties and the Technical Secretariat, relating to the implementation of this Treaty through information exchanges

(b) Facilitate consultation and clarification among States Parties in accordance with Article IV and

(c) Receive, consider and take action on requests for, and reports on, on-site inspections in accordance with Article IV

41 The Executive Council shall consider any concern raised by a State Party about possible non-compliance with this Treaty and abuse of the rights established by this Treaty In so doing the Executive Council shall consult with the States Parties involved and, as appropriate, request a State Party to take measures to redress the situation within a specified time To the extent that the Executive Council considers further action to be necessary, it shall take, inter alia, one or more of the following measures

(a) Notify all States Parties of the issue or matter,

(b) Bring the issue or matter to the attention of the Conference,

(c) Make recommendations to the Conference or take action, as appropriate, regarding measures to redress the situation and to ensure compliance in accordance with Article V

D The Technical Secretariat

42 The Technical Secretariat shall assist States Parties in the implementation of this Treaty The Technical Secretariat shall assist the Conference and the Executive Council in the performance of their functions The Technical Secretariat shall carry out the verification and other functions entrusted to it by this Treaty, as well as those functions delegated to it by the Conference or the Executive Council in accordance with this Treaty The Technical Secretariat shall include, as an integral part, the International Data Centre

43 The functions of the Technical Secretariat with regard to verification of compliance with this Treaty shall, in accordance with Article IV and the Protocol, include inter alia

(a) Being responsible for supervising and coordinating the operation of the International Monitoring System,

(b) Operating the International Data Centre,

(c) Routinely receiving, processing, analysing and reporting on International Monitoring System data,

(d) Providing technical assistance in, and support for, the installation and operation of monitoring stations,

(e) Assisting the Executive Council in facilitating consultation and clarification among States Parties,

(f) Receiving requests for on-site inspections and processing them, facilitating Executive Council consideration of such requests, carrying out the preparations for, and providing technical support during, the conduct of on-site inspections, and reporting to the Executive Council,

(g) Negotiating agreements or arrangements with States Parties, other States and international organizations and concluding, subject to prior approval by the Executive Council, any such agreements or arrangements relating to verification activities with States Parties or other States, and

(h) Assisting the States Parties through their National Authorities on other issues of verification under this Treaty

44 The Technical Secretariat shall develop and maintain, subject to approval by the Executive Council, operational manuals to guide the operation of the various components of the verification regime, in accordance with Article IV and the Protocol These manuals shall not constitute integral parts of this Treaty or the Protocol and may be changed by the Technical Secretariat subject to approval by the Executive Council The Technical Secretariat shall promptly inform the States Parties of any changes in the operational manuals

45 The functions of the Technical Secretariat with respect to administrative matters shall include

(a) Preparing and submitting to the Executive Council the draft programme and budget of the Organization,

(b) Preparing and submitting to the Executive Council the draft report of the Organization on the implementation of this Treaty and such other reports as the Conference or the Executive Council may request,

(c) Providing administrative and technical support to the Conference, the Executive Council and other subsidiary organs,

(d) Addressing and receiving communications on behalf of the Organization relating to the implementation of this Treaty, and

(e) Carrying out the administrative responsibilities related to any agreements between the Organization and other international organizations

46 All requests and notifications by States Parties to the Organization shall be transmitted through their National Authorities to the Director-General Requests and notifications shall be in one of the official

languages of this Treaty In response the Director-General shall use the language of the transmitted request or notification

47 With respect to the responsibilities of the Technical Secretariat for preparing and submitting to the Executive Council the draft programme and budget of the Organization, the Technical Secretariat shall determine and maintain a clear accounting of all costs for each facility established as part of the International Monitoring System Similar treatment in the draft programme and budget shall be accorded to all other activities of the Organization

48 The Technical Secretariat shall promptly inform the Executive Council of any problems that have arisen with regard to the discharge of its functions that have come to its notice in the performance of its activities and that it has been unable to resolve through consultations with the State Party concerned

49 The Technical Secretariat shall comprise a Director-General, who shall be its head and chief administrative officer, and such scientific, technical and other personnel as may be required The Director-General shall be appointed by the Conference upon the recommendation of the Executive Council for a term of four years, renewable for one further term, but not thereafter The first Director-General shall be appointed by the Conference at its initial session upon the recommendation of the Preparatory Commission

50 The Director-General shall be responsible to the Conference and the Executive Council for the appointment of the staff and for the organization and functioning of the Technical Secretariat The paramount consideration in the employment of the staff and in the determination of the conditions of service shall be the necessity of securing the highest standards of professional expertise, experience efficiency, competence and integrity Only citizens of States Parties shall serve as the Director-General as inspectors or as members of the professional and clerical staff Due regard shall be paid to the importance of recruiting the staff on as wide a geographical basis as possible Recruitment shall be guided by the principle that the staff shall be kept to the minimum necessary for the proper discharge of the responsibilities of the Technical Secretariat

51 The Director-General may, as appropriate, after consultation with the Executive Council establish temporary working groups of scientific experts to provide recommendations on specific issues

52 In the performance of their duties, the Director-General, the inspectors, the inspection assistants and the members of the staff shall not seek or receive instructions from any Government or from any other source external to the Organization They shall refrain from any action that might reflect adversely on their positions as international officers responsible only to the Organization The Director-General shall assume responsibility for the activities of an inspection team

53 Each State Party shall respect the exclusively international character of the responsibilities of the Director-General, the inspectors, the inspection assistants and the members of the staff and shall not seek to influence them in the discharge of their responsibilities

E Privileges and Immunities

54 The Organization shall enjoy on the territory and in any other place under the jurisdiction or control of a State Party such legal capacity and such privileges and immunities as are necessary for the exercise of its functions

55 Delegates of States Parties, together with their alternates and advisers, representatives of members elected to the Executive Council, together with their alternates and advisers, the Director-General, the inspectors, the inspection assistants and the members of the staff of the Organization shall enjoy such privileges and immunities as are necessary in the independent exercise of their functions in connection with the Organization

56 The legal capacity, privileges and immunities referred to in this Article shall be defined in agreements between the Organization and the States Parties as well as in an agreement between the Organization and the State in which the Organization is seated Such agreements shall be considered and approved in accordance with paragraph 26 (h) and (i)

57 Notwithstanding paragraphs 54 and 55, the privileges and immunities enjoyed by the Director-General, the inspectors, the inspection assistants and the members of the staff of the Technical Secretariat during the conduct of verification activities shall be those set forth in the Protocol

Article III National Implementation Measures

1 Each State Party shall, in accordance with its constitutional processes, take any necessary measures to implement its obligations under this Treaty In particular, it shall take any necessary measures

(a) To prohibit natural and legal persons anywhere on its territory or in any other place under its jurisdiction as recognized by international law from undertaking any activity prohibited to a State Party under this Treaty,

(b) To prohibit natural and legal persons from undertaking any such activity anywhere under its control, and

(c) To prohibit, in conformity with international law, natural persons possessing its nationality from undertaking any such activity anywhere

2 Each State Party shall cooperate with other States Parties and afford the appropriate form of legal assistance to facilitate the implementation of the obligations under paragraph 1

3 Each State Party shall inform the Organization of the measures taken pursuant to this Article

4 In order to fulfil its obligations under the Treaty, each State Party shall designate or set up a National Authority and shall so inform the Organization upon entry into force of the Treaty for it The National Authority shall serve as the national focal point for liaison with the Organization and with other States Parties

Article IV Verification

A. General Provisions

1 In order to verify compliance with this Treaty, a verification regime shall be established consisting of the following elements

(a) An International Monitoring System,

(b) Consultation and clarification,

(c) On-site inspections, and

(d) Confidence-building measures

At entry into force of this Treaty, the verification regime shall be capable of meeting the verification requirements of this Treaty

2 Verification activities shall be based on objective information, shall be limited to the subject matter of this Treaty, and shall be carried out on the basis of full respect for the sovereignty of States Parties and in the least intrusive manner possible consistent with the effective and timely accomplishment of their objectives Each State Party shall refrain from any abuse of the right of verification

3 Each State Party undertakes in accordance with this Treaty to cooperate, through its National Authority established pursuant to Article III, paragraph 4, with the Organization and with other States Parties to facilitate the verification of compliance with this Treaty by, *inter alia*

(a) Establishing the necessary facilities to participate in these verification measures and establishing the necessary communication,

(b) Providing data obtained from national stations that are part of the International Monitoring System,

(c) Participating, as appropriate, in a consultation and clarification process,

(d) Permitting the conduct of on-site inspections, and

(e) Participating, as appropriate, in confidence-building measures

4 All States Parties, irrespective of their technical and financial capabilities, shall enjoy the equal right of verification and assume the equal obligation to accept verification

5 For the purposes of this Treaty, no State Party shall be precluded from using information obtained by national technical means of verification in a manner consistent with generally recognized principles of international law, including that of respect for the sovereignty of States

6 Without prejudice to the right of States Parties to protect sensitive installations, activities or locations not related to this Treaty, States Parties shall not interfere with elements of the verification regime of this Treaty or with national technical means of verification operating in accordance with paragraph 5

7 Each State Party shall have the right to take measures to protect sensitive installations and to prevent disclosure of confidential information and data not related to this Treaty

8 Moreover, all necessary measures shall be taken to protect the confidentiality of any information related to civil and military activities and facilities obtained during verification activities

9 Subject to paragraph 8, information obtained by the Organization through the verification regime established by this Treaty shall be made available to all States Parties in accordance with the relevant provisions of this Treaty and the Protocol

10 The provisions of this Treaty shall not be interpreted as restricting the international exchange of data for scientific-purposes

11 Each State Party undertakes to cooperate with the Organization and with other States Parties in the improvement of the verification regime, and in the examination of the verification potential of additional monitoring technologies such as electromagnetic pulse monitoring or satellite monitoring, with a view to developing, when appropriate, specific measures to enhance the efficient and cost-effective verification of this Treaty Such measures shall, when agreed, be incorporated in existing provisions in this Treaty, the Protocol or as additional sections of the Protocol, in accordance with Article VII, or, if appropriate, be reflected in the operational manuals in accordance with Article II, paragraph 44

12 The States Parties undertake to promote cooperation among themselves to facilitate and participate in the fullest possible exchange relating to technologies used in the verification of this Treaty in order to enable all States Parties to strengthen their national implementation of verification measures and to benefit from the application of such technologies for peaceful purposes

13 The provisions of this Treaty shall be implemented in a manner which avoids hampering the economic and technological development of the States Parties for further development of the application of atomic energy for peaceful purposes

Verification Responsibilities of the Technical Secretariat

14 In discharging its responsibilities in the area of verification specified in this Treaty and the Protocol, in cooperation with the States Parties the Technical Secretariat shall, for the purpose of this Treaty

(a) Make arrangements to receive and distribute data and reporting products relevant to the verification of this Treaty in accordance with its provisions, and to maintain a global communications infrastructure appropriate to this task,

(b) Routinely through its International Data Centre, which shall in principle be the focal point within the Technical Secretariat for data storage and data processing

1 Receive and initiate requests for data from the International Monitoring System,

ii Receive data, as appropriate, resulting from the process of consultation and clarification, from on-site inspections and from confidence-building measures, and

iii Receive other relevant data from States Parties and international organizations in accordance with this Treaty and the Protocol,

(c) Supervise, coordinate and ensure the operation of the International Monitoring System and its component elements, and of the International Data Centre, in accordance with the relevant operational manuals,

(d) Routinely process, analyse and report on International Monitoring System data according to agreed procedures so as to permit the effective international verification of this Treaty and to contribute to the early resolution of compliance concerns,

(e) Make available all data, both raw and processed, and any reporting products, to all States Parties each State Party taking responsibility for the use of International Monitoring System data in accordance with Article II, paragraph 7, and with paragraphs 8 and 13 of this Article

(f) Provide to all States Parties equal, open, convenient and timely access to all stored data

(g) Store all data, both raw and processed, and reporting products,

(h) Coordinate and facilitate requests for additional data from the International Monitoring System

(i) Coordinate requests for additional data from one State Party to another State Party

(j) Provide technical assistance in, and support for, the installation and operation of monitoring facilities and respective communication means, where such assistance and support are required by the State concerned,

(k) Make available to any State Party, upon its request, techniques utilized by the Technical Secretariat and its International Data Centre in compiling, storing, processing, analysing and reporting on data from the verification regime, and

(l) Monitor, assess and report on the overall performance of the International Monitoring System and of the International Data Centre

15 The agreed procedures to be used by the Technical Secretariat in discharging the verification responsibilities referred to in paragraph 14 and detailed in the Protocol shall be elaborated in the relevant operational manuals

B. The International Monitoring System

16 The International Monitoring System shall comprise facilities for seismological monitoring radionuclide monitoring including certified laboratories, hydroacoustic monitoring, infrasound monitoring, and respective means of communication, and shall be supported by the International Data Centre of the Technical Secretariat

17 The International Monitoring System shall be placed under the authority of the Technical Secretariat All monitoring facilities of the International Monitoring System shall be owned and operated by the States hosting or otherwise taking responsibility for them in accordance with the Protocol

18 Each State Party shall have the right to participate in the international exchange of data and to have access to all data made available to the International Data Centre Each State Party shall cooperate with the International Data Centre through its National Authority

Funding the International Monitoring System

19 For facilities incorporated into the International Monitoring System and specified in Tables 1-A, 2-A, 3 and 4 of Annex 1 to the Protocol, and for their functioning, to the extent that such facilities are agreed by the relevant State and the Organization to provide data to the International Data Centre in accordance with the technical requirements of the Protocol and relevant operational manuals, the Organization, as specified in agreements or arrangements pursuant to Part I, paragraph 4 of the Protocol, shall meet the costs of

(a) Establishing any new facilities and upgrading existing facilities, unless the State responsible for such facilities meets these costs itself,

(b) Operating and maintaining International Monitoring System facilities, including facility physical security if appropriate, and application of agreed data authentication procedures,

(c) Transmitting International Monitoring System data (raw or processed) to the International Data Centre by the most direct and cost-effective means available, including, if necessary, via appropriate communications nodes, from monitoring stations, laboratories, analytical facilities or from national data centres, or such data (including samples where appropriate) to laboratory and analytical facilities from monitoring stations, and

(d) Analysing samples on behalf of the Organization

20 For auxiliary network seismic stations specified in Table 1-B of Annex 1 to the Protocol the Organization, as specified in agreements or arrangements pursuant to Part I, paragraph 4 of the Protocol, shall meet the costs only of

(a) Transmitting data to the International Data Centre,

(b) Authenticating data from such stations,

(c) Upgrading stations to the required technical standard, unless the State responsible for such facilities meets these costs itself,

(d) If necessary, establishing new stations for the purposes of this Treaty where no appropriate facilities currently exist, unless the State responsible for such facilities meets these costs itself, and

(e) Any other costs related to the provision of data required by the Organization as specified in the relevant operational manuals

21 The Organization shall also meet the cost of provision to each State Party of its requested selection from the standard range of International Data Centre reporting products and services, as specified in Part I, Section F of the Protocol The cost of preparation and transmission of any additional data or products shall be met by the requesting State Party

22 The agreements or, if appropriate, arrangements concluded with States Parties or States hosting or otherwise taking responsibility for facilities of the International Monitoring System shall contain provisions for meeting these costs Such provisions may include modalities whereby a State Party meets any of the costs referred to in paragraphs 19 (a) and 20 (c) and (d) for facilities which it hosts or for which it is responsible, and is compensated by an appropriate reduction in its assessed financial contribution to the Organization Such a reduction shall not exceed 50 per cent of the annual assessed financial contribution of a State Party, but may be spread over successive years A State Party may share such a reduction with another State Party by agreement or arrangement between themselves and with the concurrence of the Executive Council The agreements or arrangements referred to in this paragraph shall be approved in accordance with Article II, paragraphs 26 (h) and 38 (i)

Changes to the International Monitoring System

23 Any measures referred to in paragraph 11 affecting the International Monitoring System by means of addition or deletion of a monitoring technology shall, when agreed, be incorporated into this Treaty and the Protocol pursuant to Article VII, paragraphs 1 to 6

24 The following changes to the International Monitoring System, subject to the agreement of those States directly affected, shall be regarded as matters of an administrative or technical nature pursuant to Article VII paragraphs 7 and 8

(a) Changes to the number of facilities specified in the Protocol for a given monitoring technology and

(b) Changes to other details for particular facilities as reflected in the Tables of Annex 1 to the Protocol (including, *inter alia*, State responsible for the facility, location, name of facility type of facility, and attribution of a facility between the primary and auxiliary seismic networks)

If the Executive Council recommends, pursuant to Article VII, paragraph 8(d), that such changes be adopted, it shall as a rule also recommend pursuant to Article VII, paragraph 8(g), that such changes enter into force upon notification by the Director-General of their approval

25 The Director-General, in submitting to the Executive Council and States Parties information and evaluation in accordance with Article VII, paragraph 8(b), shall include in the case of any proposal made pursuant to paragraph 24

(a) A technical evaluation of the proposal,

(b) A statement on the administrative and financial impact of the proposal, and

(c) A report on consultations with States directly affected by the proposal, including indication of their agreement

Temporary Arrangements

26 In cases of significant or irretrievable breakdown of a monitoring facility specified in the Tables of Annex 1 to the Protocol, or in order to cover other temporary reductions of monitoring coverage, the Director-General shall, in consultation and agreement with those States directly affected, and with the approval of the Executive Council, initiate temporary arrangements of no more than one year's duration, renewable if necessary by agreement of the Executive Council and of the States directly affected for another year Such arrangements shall not cause the number of operational facilities of the International Monitoring System to exceed the number specified for the relevant network, shall meet as far as possible the technical and operational requirements specified in the operational manual for the relevant network, and shall be conducted within the budget of the Organization The Director-General shall furthermore take steps to rectify the situation and make proposals for its permanent resolution The Director-General shall notify all States Parties of any decision taken pursuant to this paragraph

Cooperation National Facilities

27 States Parties may also separately establish cooperative arrangements with the Organization, in order to make available to the International Data Centre supplementary data from national monitoring stations that are not formally part of the International Monitoring System

28 Such cooperative arrangements may be established as follows

(a) Upon request by a State Party, and at the expense of that State, the Technical Secretariat shall take the steps required to certify that a given monitoring facility meets the technical and operational requirements specified in the relevant operational manuals for an International Monitoring System facility, and make arrangements for the authentication of its data Subject to the agreement of the Executive Council, the Technical Secretariat shall then formally designate such a facility as a cooperating national facility The Technical Secretariat shall take the steps required to revalidate its certification as appropriate,

(b) The Technical Secretariat shall maintain a current list of cooperating national facilities and shall distribute it to all States Parties, and

(c) The International Data Centre shall call upon data from cooperating national facilities, if so requested by a State Party, for the purposes of facilitating consultation and clarification and the consideration of on-site inspection requests, data transmission costs being borne by that State Party

The conditions under which supplementary data from such facilities are made available, and under which the International Data Centre may request further or expedited reporting, or clarifications, shall be elaborated in the operational manual for the respective monitoring network

C Consultation and Clarification

29 Without prejudice to the right of any State Party to request an on-site inspection States Parties

30 A State Party that receives a request pursuant to paragraph 29 directly from another State Party shall provide the clarification to the requesting State Party as soon as possible, but in any case no later than 48 hours after the request The requesting and requested States Parties may keep the Executive Council and the Director-General informed of the request and the response

31 A State Party shall have the right to request the Director-General to assist in clarifying any matter which may cause concern about possible non-compliance with the basic obligations of this Treaty The Director-General shall provide appropriate information in the possession of the Technical Secretariat relevant to such a concern The Director-General shall inform the Executive Council of the request and of the information provided in response, if so requested by the requesting State Party

32 A State Party shall have the right to request the Executive Council to obtain clarification from another State Party on any matter which may cause concern about possible non-compliance with the basic obligations of this Treaty In such a case, the following shall apply

(a) The Executive Council shall forward the request for clarification to the requested State Party through the Director-General no later than 24 hours after its receipt,

(b) The requested State Party shall provide the clarification to the Executive Council as soon as possible but in any case no later than 48 hours after receipt of the request,

(c) The Executive Council shall take note of the clarification and forward it to the requesting State Party no later than 24 hours after its receipt,

(d) If the requesting State Party deems the clarification to be inadequate, it shall have the right to request the Executive Council to obtain further clarification from the requested State Party

The Executive Council shall inform without delay all other States Parties about any request for clarification pursuant to this paragraph as well as any response provided by the requested State Party

33 If the requesting State Party considers the clarification obtained under paragraph 32(d) to be unsatisfactory, it shall have the right to request a meeting of the Executive Council in which States Parties involved that are not members of the Executive Council shall be entitled to take part At such a meeting, the Executive Council shall consider the matter and may recommend any measure in accordance with Article V

D On-Site Inspections

Request for an On-Site Inspection

34 Each State Party has the right to request an on-site inspection in accordance with the provisions of this Article and Part II of the Protocol in the territory or in any other place under the jurisdiction or control of any State Party, or in any area beyond the jurisdiction or control of any State

35 The sole purpose of an on-site inspection shall be to clarify whether a nuclear weapon test explosion or any other nuclear explosion has been carried out in violation of Article I and, to the extent possible to gather any facts which might assist in identifying any possible violator

36 The requesting State Party shall be under the obligation to keep the on-site inspection request within the scope of this Treaty and to provide in the request information in accordance with paragraph 37 The requesting State Party shall refrain from unfounded or abusive inspection requests

37 The on-site inspection request shall be based on information collected by the International Monitoring System, on any relevant technical information obtained by national technical means of verification in a manner consistent with generally recognized principles of international law, or on a combination thereof The request shall contain information pursuant to Part II, paragraph 41 of the Protocol

38 The requesting State Party shall present the on-site inspection request to the Executive Council and at the same time to the Director-General for the latter to begin immediate processing

Follow-up After Submission of an On-Site Inspection Request

39 The Executive Council shall begin its consideration immediately upon receipt of the on-site inspection request

40 The Director-General, after receiving the on-site inspection request, shall acknowledge receipt of the request to the requesting State Party within two hours and communicate the request to the State Party sought to be inspected within six hours The Director-General shall ascertain that the request meets the requirements specified in Part II, paragraph 41 of the Protocol, and, if necessary, shall assist the requesting State Party in filing the request accordingly, and shall communicate the request to the Executive Council and to all other States Parties within 24 hours

41 When the on-site inspection request fulfils the requirements, the Technical Secretariat shall begin preparations for the on-site inspection without delay

42 The Director-General, upon receipt of an on-site inspection request referring to an inspection area under the jurisdiction or control of a State Party, shall immediately seek clarification from the State Party sought to be inspected in order to clarify and resolve the concern raised in the request

43 A State Party that receives a request for clarification pursuant to paragraph 42 shall provide the Director-General with explanations and with other relevant information available as soon as possible, but no later than 72 hours after receipt of the request for clarification

44 The Director-General, before the Executive Council takes a decision on the on-site inspection request, shall transmit immediately to the Executive Council any additional information available from the International Monitoring System or provided by any State Party on the event specified in the request, including any clarification provided pursuant to paragraphs 42 and 43, as well as any other information from within the Technical Secretariat that the Director-General deems relevant or that is requested by the Executive Council

45 Unless the requesting State Party considers the concern raised in the on-site inspection request to be resolved and withdraws the request, the Executive Council shall take a decision on the request in accordance with paragraph 46

Executive Council Decisions

46 The Executive Council shall take a decision on the on-site inspection request no later than 96 hours after receipt of the request from the requesting State Party The decision to approve the on-site inspection shall be made by at least 30 affirmative votes of members of the Executive Council If the Executive Council does not approve the inspection, preparations shall be stopped and no further action on the request shall be taken

47 No later than 25 days after the approval of the on-site inspection in accordance with paragraph 46 the inspection team shall transmit to the Executive Council, through the Director-General a progress inspection report The continuation of the inspection shall be considered approved unless the Executive Council, no later than 72 hours after receipt of the progress inspection report, decides by a majority of all its members not to continue the inspection If the Executive Council decides not to continue the inspection, the inspection shall be terminated, and the inspection team shall leave the inspection area and the territory of the inspected State Party as soon as possible in accordance with Part II, paragraphs 109 and 110 of the Protocol

48 In the course of the on-site inspection, the inspection team may submit to the Executive Council through the Director-General, a proposal to conduct drilling The Executive Council shall take a decision on such a proposal no later than 72 hours after receipt of the proposal The decision to approve drilling shall be made by a majority of all members of the Executive Council

49 The inspection team may request the Executive Council, through the Director-General to extend the inspection duration by a maximum of 70 days beyond the 60-day time-frame specified in Part II paragraph 4 of the Protocol, if the inspection team considers such an extension essential to enable it to fulfil its mandate The inspection team shall indicate in its request which of the activities and techniques listed in Part II, paragraph 69 of the Protocol it intends to carry out during the extension period The Executive Council shall take a decision on the extension request no later than 72 hours after receipt of the request The decision to approve an extension of the inspection duration shall be made by a majority of all members of the Executive Council

50 Any time following the approval of the continuation of the on-site inspection in accordance with paragraph 47, the inspection team may submit to the Executive Council, through the Director-General a recommendation to terminate the inspection Such a recommendation shall be considered approved unless the Executive Council, no later than 72 hours after receipt of the recommendation decides by a two-thirds majority of all its members not to approve the termination of the inspection In case of termination of the inspection, the inspection team shall leave the inspection area and the territory of the inspected State Party as soon as possible in accordance with Part II, paragraphs 109 and 110 of the Protocol

51 The requesting State Party and the State Party sought to be inspected may participate in the deliberations of the Executive Council on the on-site inspection request without voting The requesting State Party and the inspected State Party may also participate without voting in any subsequent deliberations of the Executive Council related to the inspection

52 The Director-General shall notify all States Parties within 24 hours about any decision by and reports, proposals, requests and recommendations to the Executive Council pursuant to paragraphs 46 to 50

Follow-up After Executive Council Approval of an On-Site Inspection

53 An on-site inspection approved by the Executive Council shall be conducted without delay by an inspection team designated by the Director-General and in accordance with the provisions of this Treaty and the Protocol The inspection team shall arrive at the point of entry no later than six days following the receipt by the Executive Council of the on-site inspection request from the requesting State Party

54 The Director-General shall issue an inspection mandate for the conduct of the on-site inspection The inspection mandate shall contain the information specified in Part II, paragraph 42 of the Protocol

55 The Director-General shall notify the inspected State Party of the inspection no less than 24 hours before the planned arrival of the inspection team at the point of entry, in accordance with Part II, paragraph 43 of the Protocol

The Conduct of an On-Site Inspection

56 Each State Party shall permit the Organization to conduct an on-site inspection on its territory or at places under its jurisdiction or control in accordance with the provisions of this Treaty and the Protocol However, no State Party shall have to accept simultaneous on-site inspections on its territory or at places under its jurisdiction or control

57 In accordance with the provisions of this Treaty and the Protocol, the inspected State Party shall have

(a) The right and the obligation to make every reasonable effort to demonstrate its compliance with this Treaty and, to this end, to enable the inspection team to fulfil its mandate,

(b) The right to take measures it deems necessary to protect national security interests and to prevent disclosure of confidential information not related to the purpose of the inspection,

(c) The obligation to provide access within the inspection area for the sole purpose of determining facts relevant to the purpose of the inspection, taking into account sub-paragraph (b) and any constitutional obligations it may have with regard to proprietary rights or searches and seizures,

(d) The obligation not to invoke this paragraph or Part II, paragraph 88 of the Protocol to conceal any violation of its obligations under Article I, and

(e) The obligation not to impede the ability of the inspection team to move within the inspection area and to carry out inspection activities in accordance with this Treaty and the Protocol

Access, in the context of an on-site inspection, means both the physical access of the inspection team and the inspection equipment to, and the conduct of inspection activities within, the inspection area

58 The on-site inspection shall be conducted in the least intrusive manner possible, consistent with the efficient and timely accomplishment of the inspection mandate, and in accordance with the procedures set forth in the Protocol Wherever possible, the inspection team shall begin with the least intrusive procedures and then proceed to more intrusive procedures only as it deems necessary to collect sufficient information to clarify the concern about possible non-compliance with this Treaty The

inspectors shall seek only the information and data necessary for the purpose of the inspection and shall seek to minimize interference with normal operations of the inspected State Party

59 The inspected State Party shall assist the inspection team throughout the on-site inspection and facilitate its task

60 If the inspected State Party, acting in accordance with Part II, paragraphs 86 to 96 of the Protocol restricts access within the inspection area, it shall make every reasonable effort in consultations with the inspection team to demonstrate through alternative means its compliance with this Treaty

Observer

61 With regard to an observer, the following shall apply

(a) The requesting State Party, subject to the agreement of the inspected State Party, may send a representative, who shall be a national either of the requesting State Party or of a third State Party to observe the conduct of the on-site inspection,

(b) The inspected State Party shall notify its acceptance or non-acceptance of the proposed observer to the Director-General within 12 hours after approval of the on-site inspection by the Executive Council

(c) In case of acceptance, the inspected State Party shall grant access to the observer in accordance with the Protocol,

(d) The inspected State Party shall, as a rule, accept the proposed observer, but if the inspected State Party exercises a refusal, that fact shall be recorded in the inspection report

There shall be no more than three observers from an aggregate of requesting States Parties

Reports of an On-Site Inspection

62 Inspection reports shall contain

(a) A description of the activities conducted by the inspection team,

(b) The factual findings of the inspection team relevant to the purpose of the inspection,

(c) An account of the cooperation granted during the on-site inspection,

(d) A factual description of the extent of the access granted, including the alternative means provided to the team, during the on-site inspection, and

(e) Any other details relevant to the purpose of the inspection

Differing observations made by inspectors may be attached to the report

63 The Director-General shall make draft inspection reports available to the inspected State Party. The inspected State Party shall have the right to provide the Director-General within 48 hours with its comments and explanations, and to identify any information and data which, in its view, are not related

to the purpose of the inspection and should not be circulated outside the Technical Secretariat The Director-General shall consider the proposals for changes to the draft inspection report made by the inspected State Party and shall wherever possible incorporate them The Director-General shall also annex the comments and explanations provided by the inspected State Party to the inspection report

64 The Director-General shall promptly transmit the inspection report to the requesting State Party, the inspected State Party, the Executive Council and to all other States Parties The Director-General shall further transmit promptly to the Executive Council and to all other States Parties any results of sample analysis in designated laboratories in accordance with Part II, paragraph 104 of the Protocol, relevant data from the International Monitoring System, the assessments of the requesting and inspected States Parties, as well as any other information that the Director-General deems relevant In the case of the progress inspection report referred to in paragraph 47, the Director-General shall transmit the report to the Executive Council within the time-frame specified in that paragraph

65 The Executive Council, in accordance with its powers and functions, shall review the inspection report and any material provided pursuant to paragraph 64, and shall address any concerns as to

(a) Whether any non-compliance with this Treaty has occurred, and

(b) Whether the right to request an on-site inspection has been abused

66 If the Executive Council reaches the conclusion, in keeping with its powers and functions, that further action may be necessary with regard to paragraph 65, it shall take the appropriate measures in accordance with Article V

Frivolous or Abusive On-Site Inspection Requests

67 If the Executive Council does not approve the on-site inspection on the basis that the on-site inspection request is frivolous or abusive, or if the inspection is terminated for the same reasons, the Executive Council shall consider and decide on whether to implement appropriate measures to redress the situation, including the following

(a) Requiring the requesting State Party to pay for the cost of any preparations made by the Technical Secretariat,

(b) Suspending the right of the requesting State Party to request an on-site inspection for a period of time, as determined by the Executive Council, and

(c) Suspending the right of the requesting State Party to serve on the Executive Council for a period of time

E Confidence-Building Measures

68 In order to

(a) Contribute to the timely resolution of any compliance concerns arising from possible misinterpretation of verification data relating to chemical explosions, and

(b) Assist in the calibration of the stations that are part of the component networks of the International Monitoring System,

each State Party undertakes to cooperate with the Organization and with other States Parties in implementing relevant measures as set out in Part III of the Protocol

Article V Measures to Redress a Situation and to Ensure Compliance, Including Sanctions

1 The Conference, taking into account, *inter alia,* the recommendations of the Executive Council shall take the necessary measures, as set forth in paragraphs 2 and 3, to ensure compliance with this Treaty and to redress and remedy any situation which contravenes the provisions of this Treaty

2 In cases where a State Party has been requested by the Conference or the Executive Council to redress a situation raising problems with regard to its compliance and fails to fulfil the request within the specified time, the Conference may, *inter alia,* decide to restrict or suspend the State Party from the exercise of its rights and privileges under this Treaty until the Conference decides otherwise

3 In cases where damage to the object and purpose of this Treaty may result from non-compliance with the basic obligations of this Treaty, the Conference may recommend to States Parties collective measures which are in conformity with international law

4 The Conference, or alternatively, if the case is urgent, the Executive Council, may bring the issue including relevant information and conclusions, to the attention of the United Nations

Article VI Settlement of Disputes

1 Disputes that may arise concerning the application or the interpretation of this Treaty shall be settled in accordance with the relevant provisions of this Treaty and in conformity with the provisions of the Charter of the United Nations

2 When a dispute arises between two or more States Parties, or between one or more States Parties and the Organization, relating to the application or interpretation of this Treaty, the parties concerned shall consult together with a view to the expeditious settlement of the dispute by negotiation or by other peaceful means of the parties' choice, including recourse to appropriate organs of this Treaty and by mutual consent, referral to the International Court of Justice in conformity with the Statute of the Court The parties involved shall keep the Executive Council informed of actions being taken

3 The Executive Council may contribute to the settlement of a dispute that may arise concerning the application or interpretation of this Treaty by whatever means it deems appropriate, including offering its good offices, calling upon the States Parties to a dispute to seek a settlement through process of their own choice, bringing the matter to the attention of the Conference and recommending a time-limit for any agreed procedure

4 The Conference shall consider questions related to disputes raised by States Parties or brought to its attention by the Executive Council The Conference shall, as it finds necessary, establish or entrust organs with tasks related to the settlement of these disputes in conformity with Article II, paragraph 26(j)

5 The Conference and the Executive Council are separately empowered, subject to authorization from the General Assembly of the United Nations, to request the International Court of Justice to give an advisory opinion on any legal question arising within the scope of the activities of the Organization An agreement between the Organization and the United Nations shall be concluded for this purpose in accordance with Article II, paragraph 38(h)

6 This Article is without prejudice to Articles IV and V

Article VII Amendments

1 At any time after the entry into force of this Treaty, any State Party may propose amendments to this Treaty, the Protocol, or the Annexes to the Protocol Any State Party may also propose changes, in accordance with paragraph 7, to the Protocol or the Annexes thereto Proposals for amendments shall be subject to the procedures in paragraphs 2 to 6 Proposals for changes, in accordance with paragraph 7, shall be subject to the procedures in paragraph 8

2 The proposed amendment shall be considered and adopted only by an Amendment Conference

3 Any proposal for an amendment shall be communicated to the Director-General, who shall circulate it to all States Parties and the Depositary and seek the views of the States Parties on whether an Amendment Conference should be convened to consider the proposal If a majority of the States Parties notify the Director-General no later than 30 days after its circulation that they support further consideration of the proposal, the Director-General shall convene an Amendment Conference to which all States Parties shall be invited

4 The Amendment Conference shall be held immediately following a regular session of the Conference unless all States Parties that support the convening of an Amendment Conference request that it be held earlier In no case shall an Amendment Conference be held less than 60 days after the circulation of the proposed amendment

5 Amendments shall be adopted by the Amendment Conference by a positive vote of a majority of the States Parties with no State Party casting a negative vote

6 Amendments shall enter into force for all States Parties 30 days after deposit of the instruments of ratification or acceptance by all those States Parties casting a positive vote at the Amendment Conference

7 In order to ensure the viability and effectiveness of this Treaty, Parts I and III of the Protocol and Annexes 1 and 2 to the Protocol shall be subject to changes in accordance with paragraph 8, if the proposed changes are related only to matters of an administrative or technical nature All other provisions of the Protocol and the Annexes thereto shall not be subject to changes in accordance with paragraph 8

8 Proposed changes referred to in paragraph 7 shall be made in accordance with the following procedures

(a) The text of the proposed changes shall be transmitted together with the necessary information to the Director-General Additional information for the evaluation of the proposal may be provided by

any State Party and the Director-General The Director-General shall promptly communicate any such proposals and information to all States Parties, the Executive Council and the Depositary

(b) No later than 60 days after its receipt, the Director-General shall evaluate the proposal to determine all its possible consequences for the provisions of this Treaty and its implementation and shall communicate any such information to all States Parties and the Executive Council

(c) The Executive Council shall examine the proposal in the light of all information available to it including whether the proposal fulfils the requirements of paragraph 7 No later than 90 days after its receipt, the Executive Council shall notify its recommendation, with appropriate explanations to all States Parties for consideration States Parties shall acknowledge receipt within 10 days

(d) If the Executive Council recommends to all States Parties that the proposal be adopted it shall be considered approved if no State Party objects to it within 90 days after receipt of the recommendation If the Executive Council recommends that the proposal be rejected it shall be considered rejected if no State Party objects to the rejection within 90 days after receipt of the recommendation

(e) If a recommendation of the Executive Council does not meet with the acceptance required under sub-paragraph (d), a decision on the proposal, including whether it fulfils the requirements of paragraph 7, shall be taken as a matter of substance by the Conference at its next session

(f) The Director-General shall notify all States Parties and the Depositary of any decision under this paragraph,

(g) Changes approved under this procedure shall enter into force for all States Parties 180 days after the date of notification by the Director-General of their approval unless another time period is recommended by the Executive Council or decided by the Conference

Article VIII Review of The Treaty

1 Unless otherwise decided by a majority of the States Parties, ten years after the entry into force of this Treaty a Conference of the States Parties shall be held to review the operation and effectiveness of this Treaty, with a view to assuring itself that the objectives and purposes in the Preamble and the provisions of the Treaty are being realized Such review shall take into account any new scientific and technological developments relevant to this Treaty On the basis of a request by any State Party the Review Conference shall consider the possibility of permitting the conduct of underground nuclear explosions for peaceful purposes If the Review Conference decides by consensus that such nuclear explosions may be permitted, it shall commence work without delay, with a view to recommending to States Parties an appropriate amendment to this Treaty that shall preclude any military benefits of such nuclear explosions Any such proposed amendment shall be communicated to the Director-General by any State Party and shall be dealt with in accordance with the provisions of Article VII

2 At intervals of ten years thereafter, further Review Conferences may be convened with the same objective, if the Conference so decides as a matter of procedure in the preceding year Such Conferences may be convened after an interval of less than ten years if so decided by the Conference as a matter of substance

3 Normally, any Review Conference shall be held immediately following the regular annual session of the Conference provided for in Article II

Article IX Duration and Withdrawal

1 This Treaty shall be of unlimited duration

2 Each State Party shall, in exercising its national sovereignty, have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized its supreme interests

3 Withdrawal shall be effected by giving notice six months in advance to all other States Parties, the Executive Council, the Depositary and the United Nations Security Council Notice of withdrawal shall include a statement of the extraordinary event or events which a State Party regards as jeopardizing its supreme interests

Article X Status of the Protocol and the Annexes

The Annexes to this Treaty, the Protocol, and the Annexes to the Protocol form an integral part of the Treaty Any reference to this Treaty includes the Annexes to this Treaty, the Protocol and the Annexes to the Protocol

Article XI Signature

This Treaty shall be open to all States for signature before its entry into force

Article XII Ratification

This Treaty shall be subject to ratification by States Signatories according to their respective constitutional processes

Article XIII Accession

Any State which does not sign this Treaty before its entry into force may accede to it at any time thereafter

Article XIV Entry into Force

1 This Treaty shall enter into force 180 days after the date of deposit of the instruments of ratification by all States listed in Annex 2 to this Treaty, but in no case earlier than two years after its opening for signature

2 If this Treaty has not entered into force three years after the date of the anniversary of its opening for signature, the Depositary shall convene a Conference of the States that have already deposited their instruments of ratification upon the request of a majority of those States That Conference shall examine the extent to which the requirement set out in paragraph 1 has been met and shall consider and decide by consensus what measures consistent with international law may be undertaken to accelerate the ratification process in order to facilitate the early entry into force of this Treaty

3 Unless otherwise decided by the Conference referred to in paragraph 2 or other such conferences this process shall be repeated at subsequent anniversaries of the opening for signature of this Treaty until its entry into force

4 All States Signatories shall be invited to attend the Conference referred to in paragraph 2 and any subsequent conferences as referred to in paragraph 3, as observers

5 For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the 30th day following the date of deposit of their instruments of ratification or accession

Article XV Reservations

The Articles of and the Annexes to this Treaty shall not be subject to reservations The provisions of the Protocol to this Treaty and the Annexes to the Protocol shall not be subject to reservations incompatible with the object and purpose of this Treaty

Article XVI Depositary

1 The Secretary-General of the United Nations shall be the Depositary of this Treaty and shall receive signatures, instruments of ratification and instruments of accession

2 The Depositary shall promptly inform all States Signatories and acceding States of the date of each signature, the date of deposit of each instrument of ratification or accession, the date of the entry into force of this Treaty and of any amendments and changes thereto, and the receipt of other notices

3 The Depositary shall send duly certified copies of this Treaty to the Governments of the States Signatories and acceding States

4 This Treaty shall be registered by the Depositary pursuant to Article 102 of the Charter of the United Nations

Article XXVII Authentic Texts

This Treaty, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations

Annex 1 to the Treaty

List of States Pursuant to Article II, Paragraph 28

Africa

Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libyan Arab Jamahiriya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome & Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Togo, Tunisia, Uganda, United Republic of Tanzania, Zaire, Zambia, Zimbabwe

Eastern Europe

Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, Moldova, Poland, Romania, Russian Federation, Slovakia, Slovenia, The former Yugoslav Republic of Macedonia, Ukraine, Yugoslavia

Latin America and the Caribbean

Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela

Middle East and South Asia

Afghanistan, Bahrain, Bangladesh, Bhutan, India, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakstan, Kuwait, Kyrgyzstan, Lebanon, Maldives, Oman, Nepal, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Syrian Arab Republic, Tajikistan, Turkmenistan, United Arab Emirates, Uzbekistan, Yemen

North America and Western Europe

Andorra, Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Holy See, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Malta, Monaco, Netherlands, Norway, Portugal, San Marino, Spain, Sweden, Switzerland, Turkey, United Kingdom of Great Britain and Northern Ireland, United States of America

South East Asia, the Pacific and the Far East

Australia, Brunei Darussalam, Cambodia, China, Cook Islands, Democratic People's Republic of Korea, Fiji, Indonesia, Japan, Kiribati, Lao People's Democratic Republic, Malaysia, Marshall Islands, Micronesia (Federated States of), Mongolia, Myanmar, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Thailand, Tonga, Tuvalu, Vanuatu, Viet Nam

Annex 2 to the Treaty

List of States Pursuant to Article XIV

List of States members of the Conference on Disarmament as at 18 June 1996 which formally participated in the work of the 1996 session of the Conference and which appear in Table 1 of the International Atomic Energy Agency's April 1996 edition of "Nuclear Power Reactors in the World and of States members of the Conference on Disarmament as at 18 June 1996 which formally participated in the work of the 1996 session of the Conference and which appear in Table 1 of the International Atomic Energy Agency's December 1995 edition of "Nuclear Research Reactors in the World"

Algeria, Argentina, Australia, Austria, Bangladesh, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Democratic People's Republic of Korea, Egypt, Finland, France, Germany, Hungary, India, Indonesia, Iran (Islamic Republic of), Israel, Italy, Japan, Mexico, Netherlands, Norway, Pakistan Peru, Poland, Romania, Republic of Korea, Russian Federation, Slovakia, South Africa, Spain Sweden, Switzerland, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America Viet Nam Zaire

1996 International Conference on Hazardous and Noxious Substances and Limitation of Liability*

Resolution on Liability and Compensation for Damage Occurring During the Transport of Radioactive Materials**

THE CONFERENCE,

HAVING ADOPTED the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, 1996 (HNS Convention),

NOTING that Article 4, paragraph 3(b) specifically provides that the HNS Convention shall not apply to damage occurring during the maritime carriage of radioactive materials

RECALLING that compensation for nuclear damage, including damage in the course of all forms of transport to and from a nuclear installation, is provided under the liability and compensation regimes established by the 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy, as amended, and the 1963 Vienna Convention on Civil Liability for Nuclear Damage,

NOTING further that these regimes channel liability exclusively to the operator of a nuclear installation, in contrast to the principle of the HNS Convention which channels liability primarily to the shipowner,

CONSIDERING that many States at present developing national laws governing liability for nuclear damage,

BEARING IN MIND that certain radioactive materials, called "excepted matter", were excluded from the scope of these nuclear liability conventions on the grounds that they were not considered to pose a significant risk of nuclear damage to third parties or the environment that would warrant the application of the special liability regime established by those conventions,

RECOGNIZING that it would be difficult for the HNS Convention to cover damage from radioactive materials, including excepted matter, because it only applies to carriage by sea,

CONSIDERING, however, that damage from radioactive materials, including excepted matter, is cause for serious concern and deserves further consideration in a nuclear liability regime,

RECOMMENDS that Member States of the International Maritime Organization and the International Atomic Energy Agency work together in defining and considering issues of liability and compensation for damage occurring during the transport of radioactive materials

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* Refer to the note prepared by Mr Norström, reproduced in the Chapter Multilateral Agreements of the present Bulletin Mr Norström is Director at the Swedish Ministry of Justice, Division for Transport Law and was the Swedish Representative of the IMO Conference dealing with the HNS Convention

** This Resolution was adopted in May 1996

BIBLIOGRAPHY AND NEWS BRIEFS

BIBLIOGRAPHY

Finland

***Nuclear Inter Jura 95, "Nuclear Law as a Source of Confidence",* Helsinki 1995, (ISBN 951-591-044-7), 862 pages**

These Proceedings comprise both the written contributions and the record of discussions from the biennial Congress of the International Nuclear Law Association (INLA), held in Helsinki from 3 to 7 September 1995 The Association, formed in 1972, is based in Brussels and has approximately 500 members from 40 countries The meeting was attended by academics, civil servants, practitioners of nuclear law, scientists, representatives from the nuclear industry, insurance companies and international organisations such as the International Atomic Agency, the NEA and the European Commission The title of the Congress, "Nuclear Law as a Source of Confidence", reflects the increasing importance of the new safety culture and the role of nuclear law in enhancing that culture

As with previous Congresses, this one was organised around five working groups, each specialising in one of the following topics on the peaceful use of nuclear energy licensing and decommissioning, liability and financial security, international nuclear trade, radiation protection, and radioactive waste management Each working group, having previously chosen a specific theme within its field of competence, presented its report

In addition to the reports of the working groups, individual papers were presented on the five topics noted above For the first time, the Congress dedicated a session to Economies in Transition, focusing on countries from the former Soviet bloc The Congress concluded with a report from the Ad Hoc Working Group on Rules of Conduct for the Civil Uses of Nuclear Energy

United Kingdom

***Review of European Community & International Environmental Law Special Issue on International Nuclear Law,* Volume 5, Issue 3, 1996, published by Blackwell, 279 pages.**

This special edition of the *Review of European Community & International Environmental Law* is devoted to international nuclear law Marking the tenth anniversary of the Chernobyl accident (26 April 1986), it examines developments in international nuclear law since that occurrence The issue contains nine articles prepared by legal experts in the field of nuclear and environmental law

The first article, by the Editor of the *Review*, Philippe Sands, entitled "Observations on International Nuclear Law Ten Years after Chernobyl", assesses whether international law on nuclear

substances has developed significantly since the accident at Chernobyl The development of this branch of the law has taken place in the context of an expansion of the law on the protection of the environment and, as the author points out, the accident may have acted as a catalyst for such an expansion

Simon Carroll addresses the concerns of non-nuclear States in an article entitled "Transboundary Impacts of Nuclear Accidents Are the Interests of Non-Nuclear States Adequately Addressed by International Nuclear Safety Instruments ?" The article examines deficiencies which were revealed by the Chernobyl accident in three different areas the safety of nuclear installations notification and assistance in the event of an accident and the civil liability and compensation regime

The article entitled "Policy Responses to Chernobyl in Italy, France and Germany A Comparative Analysis", by Angela Liberatore, looks at the continuing impact of the Chernobyl accident on national policies The author points out how neighbouring States belonging to the same international body (the European Union) have adopted different procedures to respond to the same transboundary threat.

Antonia Layard focuses on liability issues in the article entitled "Nuclear Liability Damage Reform After Chernobyl" The article looks at the two principal Conventions implementing the third party liability regime for nuclear accidents the Paris Convention and the Vienna Convention The author examines this regime, both in terms of its shortcomings and challenges

The article by Joanne Scott, entitled "Nuclear Health and Safety Legal Aspects of the Euratom Treaty", assesses the extent to which the objectives of the Euratom Treaty have been met Whilst acknowledging that not all of the aims of the Treaty have been achieved, the article goes on to examine the contributions made by the Treaty, in particular with regard to consultation requirements and basic safety standards

Patrick Reyners, in an article on "The Convention on Nuclear Safety of 1994", examines the principal provisions of the Convention, analysing the mechanism in the Convention which provides for the active co-operation of States in the field of nuclear safety This mechanism requires the Contracting Parties to submit their national safety policies for review It thus establishes a co-operative regime by incentives, rather than having an international body dictate uniform standards

The article by Paul C Szasz, entitled "IAEA Safeguards for NPT", reviews the development of the safeguards system administered by the International Atomic Energy Agency (IAEA) in the context of the 1968 Non-Proliferation Treaty (NPT) It also considers some of the deficiencies in the system that have become apparent and suggests various improvements that could be made

Recent developments in the field of the NPT are further examined in the final article in the *Review*, by Tuiloma Neroni Slade, entitled "1995 Review and Extension of the Treaty on the Non-Proliferation of Nuclear Weapons" The 1995 Treaty Review and Extension Conference was convened at United Nations headquarters in New York in April/May 1995 The author outlines the issues addressed and the decisions taken at the Conference

The articles contained in the *Review* survey developments in international nuclear law since the Chernobyl accident Succinctly written, they constitute a constructive examination and critique of these developments In providing a forum for the articles, the *Review* makes a valuable contribution to a better perception of international nuclear law by non-specialists

OECD Nuclear Energy Agency

***Panorama of Nuclear Legislation in Central and Eastern Europe and the NIS,* OECD, Paris, 1996, 91 pages**

The present study is an updated version of the first edition, which was published in *Nuclear Law Bulletin* No 56 in October 1995

Its objective is to provide a global view of the current state of legislation governing the peaceful uses of nuclear energy in sixteen countries of Eastern Europe, five of which are New Independent States The study also contains information on the institutional framework within which nuclear activities in each of the countries are carried out Moreover, its format, which is identical for all countries, facilitates comparative analysis Finally, each chapter concludes with a chart showing the structure of the competent regulatory authority

The completion of this study was greatly facilitated by the co-operation of national representatives in the countries concerned Anyone interested in obtaining a copy of this publication may write directly to the Secretariat of the NEA

NEWS BRIEFS

International Nuclear Law Association

Nuclear Inter Jura '97

The International Nuclear law Association (INLA) will hold its 13th Congress from 15 to 19 September 1997 at the "Palais des Congrès Vinci" in Tours, France The Tours Congress will also be the occasion to celebrate the 25th anniversary of the creation of the INLA The theme chosen for Nuclear Inter Jura '97 is "Nuclear Law from the 20th to the 21st Century" Held twice a year, this Congress provides an opportunity for all its members, as well as for the interested public, to participate in a review of the evolution of nuclear law and to exchange ideas on the legal problems relating to the peaceful uses of nuclear energy

The Congress will comprise five working sessions covering the following themes licensing and decommissioning, radiation protection, international nuclear trade, liability and insurance and radioactive waste management A special session will be dedicated to radioelements, in recognition of the centenary of the discovery of radioactivity Indeed, the Tours Congress has been given the title "Centenary of Radioactivity", to mark the celebration of this event The working sessions will be concluded by a round table on the direction of nuclear law at the beginning of the 21st century

This event is organised by the President of the INLA, Mr Jean-Léo David, with assistance from Electricité de France, Framatome and Cogema for the CEA group, Assuratome, Assurances Saint Honoré, the City of Tours and the European Commission Further information may be obtained from the Technical Secretariat of the INLA, Commissariat à l'Energie Atomique, 31-33 rue de la Fédération, 75752 Paris Cedex 15 Telephone 01 40 56 16 72, Fax 01 40 56 12 15

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OECD PUBLICATIONS, 2, rue André-Pascal, 75775 PARIS CEDEX 16
PRINTED IN FRANCE
(67 96 58 1) ISBN 92-64-14728-4 – No. 49211 1996
ISSN 0304-341X

NUCLEAR LAW
Bulletin

SUPPLEMENT TO No. 58

Bulgaria

1985 Act on the Use of Atomic Energy for Peaceful Purposes, as revised in 1995 (20 July 1995)

Italy

Decree on the transposition of the Euratom Directives on Radiation Protection (17 March 1995)

December 1996

BULGARIA

LAW ON THE USE OF ATOMIC ENERGY FOR PEACEFUL PURPOSES*

Promulgated by publication in the Official Journal [*Durzhaven Vestnik-D.V.*] No. 79/1985, as revised (D.V. No. 80/1985) and modified (D.V. No. 69/1995)

CHAPTER I

General Provisions

Article 1.

(1) Atomic energy in the Republic of Bulgaria shall be used for peaceful purposes only.

(2) The use of atomic energy for the production of nuclear weapons or other nuclear explosive devices, as well as any means of mass destruction, is prohibited.

(3) The co-operation of the Republic of Bulgaria with other States in the use of atomic energy shall be implemented in a manner which ensures adherence to the Treaty on the Non-proliferation of Nuclear Weapons.

Article 2. (Revised: D.V. No. 69/1995)

(1) Special nuclear material and nuclear facilities are State property.

(2) Other ionising radiation sources may be property of:

1. the State;
2. legal entities;
3. Bulgarian nationals.

(3) The mining, processing and production of nuclear material, the transportation of and trade with special nuclear material, and the use of nuclear facilities are State monopoly.

* This English translation was provided by the Bulgarian authorities and was subsequently edited by the OECD/NEA.

(4) The Council of Ministers shall specify the cases when the persons referred to in paragraph 2, Sections a) and b) may be owners of ionising radiation sources, as well as the conditions and procedure thereof.

(5) The conditions and procedure under which the State grants concessions for the use of nuclear material and nuclear facilities shall be provided for in a special Act.

Article 3. (Revised: D.V. No. 69/1995)

Atomic energy shall be used in accordance with the aims and the principles of nuclear and radiation safety, and protection of the life and health of people and the environment shall have priority before economic and other social needs.

Article 4. (Repealed: D.V. No. 69/1995)

Article 5. (Repealed: D.V. No. 69/1995)

Article 6. (Revised: D.V. No. 69/1995)

(1) Legal and natural persons generating radioactive waste shall make contributions to the fund "Safe Storage of Radioactive Waste", and legal persons using nuclear facilities shall make contributions to the fund "Decommissioning of Nuclear Facilities".

(2) The amount of contributions, the terms and procedure for the use of the resources under the funds shall be defined by the Council of Ministers.

(3) Radioactive wastes shall become State property after they have been handed over by the persons referred to in paragraph 1, who prior to the handing over thereof shall ensure the observation of the nuclear and radiation safety standards and regulations.

Article 7.

The State regulates the use of atomic energy.

Article 8. (Revised: D.V. No. 69 /1995)

Legal and natural persons utilising nuclear material, nuclear facilities and other ionising radiation sources shall ensure their physical protection in accordance with the regulatory acts.

Article 9.

Examination of persons by means of ionising radiation regardless of the examination objective may be carried out only with their consent.

Article 10. (Revised: D.V. No. 69 /1995)

The State shall be responsible for providing scientific, technical and other knowledge on the use of atomic energy.

Article 11.

The Republic of Bulgaria shall co-operate with other States and International Organisation in the use of atomic energy.

CHAPTER II

Management of the Use of Atomic Energy

Article 12. (Revised: D.V. No. 69 /1995)

(1) The Committee on the Use of Atomic Energy for Peaceful Purposes shall implement the State policy on the safe use of atomic energy.

(2) The Committee on the Use of Atomic Energy is a State body under the Council of Ministers. Its composition is subject to determination by the Council of Ministers.

Article 13. (Revised: D.V. No. 69 /1995)

(1) The Committee on the Use of Atomic Energy for Peaceful Purposes shall:

1. be engaged in the development of concepts and programmes, shall co-ordinate and finance investigations and developments in the field of atomic energy;

2. determine the requirements for the safe use of atomic energy and the procedure for accounting for, storage and transportation of nuclear material;

3. determine criteria and requirements for the training, qualification and certification of the work force involved in the use of atomic energy;

4. collect and provide information for the use of relevant bodies and organisation concerning events related to nuclear and radiation safety;

5. co-ordinate regulatory activities aimed at the safe use of atomic energy;

6. determine remediation measures for areas of the environment that have been adversely affected by radiation sources, as well as the implementation of such measures;

7. implement international co-operation of the Republic of Bulgaria in the field of atomic energy and participate in the work of international organisations in that area.

(2) The activities referred to in paragraph 1 shall be implemented jointly with the ministries and other institutions within their terms of reference.

Article 14. (Revised: D.V. No. 69 /1995)

(1) Under the Committee on the Use of Atomic Energy for Peaceful Purposes there are established the following advisory bodies:

1. Council on the Safety of Nuclear Facilities – on the issues of the safety of nuclear facilities and their licensing;

2. Council on Radiation Protection – on the issues of radiation protection on the territory of the Republic of Bulgaria.

(2) The composition of the Council on the Safety of Nuclear Facilities and the Council on Radiation Protection is determined jointly by the Chairman of the Committee on the Use of Atomic Energy for Peaceful Purposes, the Minister for the Environment and the Minister for Public Health and is approved by the Council of Ministers.

Article 15. (Revised: D.V. No. 69 /1995)

The legal and natural persons involved in the use of atomic energy shall:

1. organise the use of atomic energy, including research and development, as well as the introduction of efficient technology and methods;

2. ensure the observation of the requirements of safety and qualification of the workforce in the field of atomic energy;

3. organise and carry out rescue and remediation operations on their own sites.

Article 16. (Revised: D.V. No. 69 /1995)

The legal and natural persons involved in the design, delivery, construction or manufacture of installations, equipment and technologies and in the provision of services on sites utilising atomic energy should observe the requirements for nuclear and radiation safety.

Article 16a. (Revised: D.V. No. 69 /1995)

(1) The land near nuclear facilities and national radioactive waste repositories, the subterranean area under them and the air space above them may be declared as special status zones by Act. The procedures for the establishment of such zones and the regime for their use are defined in accordance with the standards and regulations on nuclear and radiation safety.

(2) In the special status zones there may be restrictions or prohibitions regarding the use of natural resources, the construction, repair and reconstruction of residential, commercial and public buildings, the use and sale of property, as well as the relocation of individuals from these zones into other areas should that be necessary for the purposes of nuclear and radiation safety.

(3) In the event of an accident in a nuclear installation or at a national radioactive waste repository, decisions on imposing the restrictions referred to in paragraph 2 shall be taken by the Council of Ministers.

(4) The expenditures and all unfavourable consequences arising from the actions referred to in paragraph 2, other than nuclear damage, shall be reimbursed by the State.

CHAPTER III

State Control

Part I

General Provisions

Article 17.

The State control of the safe use of atomic energy and the transportation and storage of and accounting for nuclear material shall be implemented by the Committee on the Use of Atomic Energy for Peaceful Purposes through the Inspectorate on the Safe Use of Atomic Energy.

Article 18. (Revised: D.V. No. 69 /1995)

The Inspectorate on the Safe Use of Atomic Energy shall:

1. exercise control over all natural and legal persons to ensure the observance of the established requirements on the safe use of atomic energy and of the procedure in respect of the accounting for, storage and transportation of nuclear material and radioactive substances;

2. issue licences for activities involving the use of atomic energy;

3. exercise control jointly with the other specialised regulatory agencies for the safe use of atomic energy;

4. register ionising radiation sources;

5. assign studies, investigations, expert assessments and other activities with regard to the exercise of the control.

Article 19. (Revised: D.V. No. 69 /1995)

(1) The legal and natural persons engaged in the management or use of nuclear material, nuclear installations, radioactive substances or other ionising radiation sources shall forthwith notify the Committee on the Use of Atomic Energy for Peaceful Purposes of the operational changes which have taken effect, as well as of any accident conditions relevant to nuclear and radiation safety and of the accounting for, storage and transportation of nuclear material.

(2) The Committee on the Use of Atomic Energy for Peaceful Purposes shall notify competent bodies of the events and accident conditions relevant to nuclear and radiation safety that have occurred.

Article 20. (Revised: D.V. No. 69 /1995)

The Ministry of Public Health, Ministry of the Environment, Ministry of Internal Affairs, Ministry of Agriculture and other State bodies exercise specialised control within their terms of reference.

Article 21. (Repealed: D.V. No. 69 /1995)

Part II

Licences and Registration

Article 22. (Revised: D.V. No. 69 /1995)

(1) Activities relating to the use of atomic energy shall be implemented after the issuance of licences by the Inspectorate on the Safe Use of Atomic Energy.

(2) Ionising radiation sources shall be registered by the Inspectorate on the Safe Use of Atomic Energy upon their procurement in or import into the Republic of Bulgaria by an owner or a user thereof.

Article 23. (Revised: D.V. No. 69 /1995)

(1) Licences are required for:

1. the selection of site, design, construction, manufacture of equipment, commissioning, operation, decommissioning and for all alterations of designs and constructions, for the execution of deliveries and provision of services significant to the safety of nuclear installations and sites designed for the mining, handling or storage of radioactive substances or work in connection with other sources of ionising radiation;

2. the procurement, manufacture, import, export of, trade with, storage and transportation of nuclear material, radioactive substances and other ionising radiation sources.

(2) The types of activities which are issued with licences may be combined and a general licence may be issued, as well as separate licences.

(3) Certain activities in relation to the use of atomic energy or certain sources or groups of ionising radiation sources may be exempted from the issuance of licences and the registration under the terms provided for in the nuclear and radiation safety standards and regulations.

(4) The terms, procedure and timing of the issuance of licences and the registration or exemption thereof are determined by the Committee on the Use of Atomic Energy for Peaceful Purposes.

(5) The legal and natural persons issued with licences should have enough authority, financial and material resources provided by the owner of a nuclear installation, nuclear material or other ionising radiation source and appropriate organisational structure and personnel to implement their obligations to ensure the appropriate physical protection and nuclear and radiation safety provided for in the standards, regulations and terms of the issued licences.

Article 23a. (Revised: D.V. No. 69 /1995)

(1) Taxes shall be collected for the issuance of licences in the field of atomic energy and the registration of ionising radiation sources, as well as for the provision of information and expert services.

(2) The taxes referred to in paragraph 1, the sanctions and fines referred to in Part V shall be paid into the "Nuclear Research and Nuclear and Radiation Safety" fund under the management of the Committee on the Use of Atomic Energy for Peaceful Purposes.

(3) The amount of taxes, the procedure and terms of use of the resources under the fund shall be determined by the Council of Ministers.

(4) Legal entities financed via state budget shall be exempted from the taxes referred to in paragraph 1.

Article 24.

(1) A licence or a refusal to issue a licence may be subject to appeal before the Chairman of the Committee on the Use of Atomic Energy for Peaceful Purposes via the Inspectorate on the Safe Use of Atomic Energy within 7 days from the notification.

(2) (Repealed: D.V. No. 69 /1995)

(3) (Repealed: D.V. No. 69 /1995)

Article 25. (Revised: D.V. No. 69 /1995)

(1) The issued licences may be repealed, altered or temporarily suspended by order of the Head of the Inspectorate on the Safe Use of Atomic Energy if:

1. the requirements for the safety ensurance have been violated;

2. the terms provided for in the licence have been altered or violated;

3. new circumstances that can affect the safety have occurred.

(2) The order referred to in paragraph 1 may be subject to appeal before the Chairman of the Committee on the Use of Atomic Energy for Peaceful Purposes within 7 days from the notification.

(3) The making of an appeal shall not suspend the execution of the order.

Article 26. (Revised: D.V. No. 69 /1995)

(1) An issued licence referred to in Article 23 shall not repeal the requirements for other licences provided for in other regulatory Acts governing the same activity.

(2) The persons referred to in Article 2 may become owners of ionising radiation sources designed for medical purposes after the issuance of a licence by the Ministry of Public Health.

(3) The terms and procedure for the issuance of licences shall be determined by ordinance of the Chairman of the Committee on the Use of Atomic Energy for Peaceful Purposes and the Minister for Public Health.

Part III

Powers and Obligations of the Supervisory Inspectors

Article 27.

The inspectors from the Inspectorate on the Safe Use of Atomic Energy and the inspectors from the other specialised regulatory agencies bodies shall exercise operative control over the safe use of atomic energy and the accounting for and storage and transportation of nuclear material.

Article 28. (Revised: D.V. No. 69 /1995)

(1) The supervising inspectors shall be entitled to:

1. free access at any time to the premises and places where equipment is fabricated, where nuclear installations are constructed, commissioned, operated or decommissioned, where radioactive materials and other ionising radiation sources are mined, utilised and stored, or where nuclear material is stored and transported;

2. inspect nuclear equipment and sites with ionising radiation sources, as well as documentation relative to the carrying out of tests, together with reports thereon;

3. require officials and citizens to provide, with regard to the inspections and audits being executed, the necessary explanations and information to clarify the safety situation;

4. execute and require the execution of tests and expert assessments;

5. check the qualification and certification of personnel;

6. take samples and materials for analysis and expert assessment in quantities necessary for the execution thereof.

(2) State bodies, legal entities, officials and citizens should render assistance to the control inspectors discharging their powers referred to in paragraph 1.

Article 29.

Supervisory inspectors shall be required to take part in the commissions involved in the identification of the causes of accidents which occur as a result of the use of atomic energy, and to take part in response measures.

Article 30.

(1) On the basis of the results from examinations, the supervisory inspectors shall prescribe mandatory measures aimed at preventing and eliminating violations of the requirements for the safe use of atomic energy and for accounting for, storage and control of nuclear material.

(2) (Revised: D.V. No. 69 /1995) Mandatory directions shall be issued to the heads or authorised competent representatives of the legal entities and nationals implementing activities in the area of atomic energy use.

(3) (Revised: D.V. No. 69 /1995) The persons referred to in paragraph 2, who have been issued with mandatory directions, shall notify supervising inspectors of the implementation thereof within the time fixed.

(4) (Revised: D.V. No. 69 /1995) The mandatory directions referred to in paragraph 1 may be subject to appeal before the Head of the Inspectorate on the Safe Use of Atomic Energy, within 7 days of the notification, who shall issue an order with his decision within three days.

(5) (Revised: D.V. No. 69 /1995) The order referred to in paragraph 4 may be subject to appeal before the Chairman of the Committee on the Use of Atomic Energy for Peaceful Purposes within 7 days of the notification.

(6) (Revised: D.V. No. 69 /1995) An act of appeal shall not suspend the execution of the mandatory direction.

Article 31. (Repealed: D.V. No. 69 /1995)

Article 32. (Repealed: D.V. No. 69 /1995)

CHAPTER IV

Civil Liability For Damage

Article 33. (Revised: D.V. No. 69 /1995)

Civil liability for nuclear damage is determined in accordance with the provisions of the Vienna Convention.

Article 34. (Altered D.V. No. 69 /1995)

(1) The prescribed period for bringing actions for compensation for damage caused by a nuclear accident is five years and is calculated from the date on which the person suffering nuclear damage had knowledge or should have had knowledge of both the damage and the operator of the nuclear

installation. This period shall not exceed the periods for bringing actions provided for by the Vienna Convention.

(2) A person suffering nuclear damage from a nuclear accident which is due in whole or in part to his/her intentional or grossly negligent act shall not be compensated or the compensation shall be reduced.

Article 35. (Revised: D.V. No. 69 /1995)

(1) The liability of the operator of a nuclear power plant for damage caused by any nuclear accident shall be limited to leva equivalent of 15 million Special Drawing Rights (SDR) of the International Monetary Fund. For other types of nuclear installations this liability shall be limited to leva equivalent of 5 million SDR of the International Monetary Fund.

(2) 10% of the amount defined in accordance with paragraph 1 shall be reserved for the payment of admitted claims brought one year from the date of the nuclear accident.

(3) The State shall pay admitted claims for compensation for nuclear damage by providing the necessary funds to the extent that insurance or other financial security of the operator is inadequate for the payment of amounts under these claims, but not in excess of the limit of the liability established pursuant to paragraph 1.

(4) The State shall pay compensation for the damage resulting from a nuclear accident directly caused by a severe natural disaster of an extraordinary character up to the limit of the liability established pursuant to paragraph 1.

Article 36. (Revised: D.V. No. 69 /1995)

Nuclear damage caused on the territory of a State non-Party to the Vienna Convention shall be compensated solely on the basis of an international agreement to which the Republic of Bulgaria is a Party or on the principle of reciprocity.

Article 36a. (Revised: D.V. No. 69 /1995)

When satisfying claims for compensation for nuclear damage, claims for loss of life or physical injury shall be compensated with priority.

Article 36b. (Revised: D.V. No. 69 /1995)

The Council of Ministers shall identify:

1. the number of nuclear installations;

2. the operator of each nuclear installation;

3. exclusion of small quantities of nuclear material from the application of the Vienna Convention;

4. the type, terms and timing of the financial security covering liability for nuclear damage of the operator.

Article 37. (Revised: D.V. No. 69 /1995)

(1) To the extent to which this Act and the Vienna Convention do not otherwise provide, rules against causing harm or damage shall apply.

(2) The regulations on impermissible injury shall also apply to the liability for damage caused by other ionising radiation sources, regardless of the location thereof, including the use for medical purposes, in so far as a special Act does not provide otherwise.

Article 38. (Revised: D.V. No. 69 /1995)

(1) Claims for nuclear damage, except for the cases when the Vienna Convention otherwise provides, shall be within the competence of the Bulgarian courts. The Sofia City Court shall have jurisdiction in the first instance.

(2) Legal proceedings under this Act shall be gratuitous for Bulgarian nationals and the principle of reciprocity shall apply for foreign nationals.

CHAPTER V

Administrative and Penal Provisions

Article 39. (Revised: D.V. No. 69 /1995)

(1) An official or a national who does not comply with a mandatory direction pursuant to Article 30, shall be subject to a fine of 2000 to 45 000 leva.

(2) An official or a national who prevents a control inspector from discharging his/her control duties shall be subject to a fine of 2000 to 45 000 leva.

(3) For the violations referred to in paragraph 1 and 2 legal entities shall be subject to property sanctions of 50 000 to 500 000 leva.

(4) The fine shall be from 5000 to 100 000 leva if a violation referred to in paragraph 1 and 2 has been recommitted.

(5) Property sanctions of 100 000 to 5 000 000 leva shall be imposed if:

1. a violation referred to in paragraph 3 has been recommitted;

2. a violation entails the failure to fulfil an international agreement.

Article 40. (Revised: D.V. No. 69 /1995)

A worker or an employee who does not abide by the rules for work with nuclear material and nuclear installations or other ionising radiation sources shall be subject to a fine of 2000 to 50 000 leva.

Article 41. (Revised: D.V. No. 69 /1995)

An employer, who does not keep a worker or a servant notified of the radiation situation at his/her workplace, as well as of the received external and internal irradiation, shall be sentenced to a fine of 2000 to 50 000 leva.

Article 42. (Revised: D.V. No. 69 /1995)

An official or a national who commits or allows to be committed another breach of this Act or of a regulation issued for the application thereof, if the action does not constitute an offence, shall be imposed with a fine of 2000 to 45 000 leva.

Article 43.

(1) Offences shall be established by means of reports drawn up by supervisory inspectors. Sanctions shall be issued by the Chairman of the Committee on the Use of Atomic Energy for Peaceful Purposes or by the heads of the corresponding organisations, under the guidance of which specialised regulatory agencies have been established, or by government officials who have been empowered.

(2) The Act on Offences and Administrative Sanctions provides for the procedure by which offences are proved, punishments are issued and appeals made.

ADDITIONAL PROVISIONS

§1 In the meaning of this Act:

1. "ionising radiation source" means any installation, facility, device or radioactive material emitting directly ionising particles (electrons, alpha-particles, protons, etc.) or indirectly ionising particles (photons, neutrons);

2. "radioactive substance" means substance (material) containing unstable atomic nuclei which in their transformation emit ionising radiation;

3. (Revised: D.V. No. 69 /1995) "nuclear material" means any source or special nuclear material;

4. (Revised: D.V. No. 69 /1995) "initial material" means uranium containing the mixture of isotopes in ratio as occurring in nature; uranium depleted in the isotope 235; thorium; any of the abovementioned substances in the form of metal, alloy, chemical compound or concentrate; material containing one or several out of the abovementioned substances with concentration specified by the nuclear and radiation safety standards and regulations;

5. (Revised: D.V. No. 69 /1995) "special nuclear material" means plutonium-239; uranium-233; uranium enriched in isotopes 235 or 233; any material containing one or several out of the abovelisted substances;

6. (Revised: D.V. No. 69 /1995) "uranium enriched in isotopes 235 or 233" means uranium containing isotopes 235 or 233 or both isotopes in an amount such that the percentage ratio of the sum of these isotopes to the isotope 238 is greater than the ratio of the isotope 235 to the isotope 238 occurring in nature;

7. (Revised: D.V. No. 69 /1995) "nuclear facility" means an ionising radiation source in which a chain reaction of nuclear fission occurs or where a special nuclear material is stored or transported. "Nuclear installation" is defined under the Vienna Convention.

8. "radiation safety (radiation protection)" means a combination of requirements, measures, means and methods serving for the protection of man and the environment from the harmful effects of ionising radiation;

9. "nuclear safety" means a state and quality of a nuclear facility preventing via technical means and organisational measures the occurrence of an accident;

10. (Revised: D.V. No. 69/1995) "accident" (in the meaning of nuclear and radiation safety) means an extraordinary event, which entails or may entail the excession of the limits or the breach of the conditions of radiation effect on the man and the environment established in the nuclear and radiation safety standards and regulations;

11. (Revised: D.V. No. 69/1995) "radioactive waste" means radioactive substances generated in the processing or utilisation of radioactive materials, as well as other ionising radiation sources or components thereof, further utilisation of which is not foreseen and which require special measures for their long-term storage and isolation from the biosphere provided for in the nuclear and radiation safety standards and regulations;

12. (Revised: D.V. No. 69/1995) "financial security" means security furnished to the operator by the State, insurance company, bank or other entity, which secures compensation of a person who suffers injury or damage;

13. (Revised: D.V. No. 69/1995) "Vienna Convention" means the Vienna Convention on Civil Liability for Nuclear Damage (promulgated in D.V. No. 76/1994; revised: D.V. No. 91/1994) and the Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention (promulgated in D.V. No. 76/1994, revised: D.V. No. 91/1994).

CONCLUDING PROVISIONS

§ 2 A new part is established in Chapter 11 of the Special Part of the Penal Code as follows:

Part V

Offences in the use of atomic energy for peaceful purposes

Article 356d.

(1) An official, who orders or allows to be commenced or implemented an activity without or prior to the issuance of a licence provided for in the Act on the Use of Atomic Energy for Peaceful Purposes or in violation of the licence, shall be sentenced to imprisonment for a maximum of two years, or reformatory labour, or a fine of up to 20 000 leva.

(2) If an action under the preceding paragraph has been recommitted or immediate danger to the life and health of another person has been created, the sentence shall be imprisonment for a maximum of three years.

Article 356e.

An official, who assigns or allows a person without the necessary qualification to work with nuclear material, nuclear facilities or other ionising radiation sources, shall be sentenced to imprisonment for a maximum of one year, or reformatory labour, or a fine of up to 10 000 leva.

Article 356f.

(1) A person, who causes damage to nuclear material, nuclear facility or other source of ionising radiation and thus causes serious property damage or damage to the environment or creates a danger to the life and health of another person, shall be sentenced to imprisonment from five to fifteen years.

(2) If in the cases referred to in the preceding paragraph there has been caused:

a) a moderate or severe physical injury to one or several persons, the sentence shall be imprisonment from eight to fifteen years;

b) death of one or more persons with or without consequence under Section a), the sentence shall be imprisonment from ten to twenty years or capital punishment.

Article 356g.

If by an action referred to in the preceding Article due to carelessness there has been caused:

a) serious property damage;

b) a moderate or severe physical injury to one or more persons with or without consequences under Section a);

c) death of one or more persons with or without consequences under Sections a) and b), the sentence shall be: under Section a) imprisonment for a maximum of five years; under Section b) imprisonment for a maximum of eight years; under Section c) imprisonment from three to fifteen years.

Article 356h.

(1) A person who violates the nuclear and radiation safety regulations, knowing that his/her action could cause bodily injury to or the death of another person, shall be sentenced to imprisonment for a maximum of three years.

(2) A person who violates the nuclear and radiation safety regulations and causes intentionally serious property damage, physical injury to or the death of another person, shall be sentenced:

a) if serious property damage has been caused - to imprisonment from five to fifteen years;

b) if a moderate or severe injury to one or more persons has been caused with or without consequences under Section a) to imprisonment from five to twenty years;

c) if the death of one or more persons has been caused with or without consequences under Sections a) and b) to imprisonment from ten to twenty years or capital punishment.

Article 356i.

If due to carelessness by an action referred to in the preceding article there has been caused:

a) serious property damage;

b) a moderate or serious physical injury to one or more persons with or without consequences under Section a);

c) death of one or more persons with or without consequences under Sections a) and b), the sentence shall be: under Section a) imprisonment for a maximum of five years; under Section b) imprisonment for a maximum of eight years; under Section c) imprisonment from three to fifteen years.

Article 356j.

In the cases referred to in Article 356f, paragraph 2, Article 356g, Sections b) and c), Article 356h, paragraph 2, and Article 356i, Sections b) and c) the court shall deprive the offender of their rights under Article 37.

§ 3 For the application of this Act the Council of Ministers shall adopt regulations.

§ 4 This Act shall abrogate the Act on State Control of Nuclear Safety (D.V. No. 54/1980).

§ 5 The implementation of the Act is assigned to the Council of Ministers.

TRANSITIONAL AND CONCLUDING PROVISIONS
to the amended and supplemented Act on the Act on the Use of Atomic Energy for Peaceful Purposes
(Published: D.V. No. 69/1995)

§ 6 Throughout the Act the wording "natural environment" to be substituted by "environment" and the wording "People's Republic of Bulgaria" to be substituted by "Republic of Bulgaria".

§ 7 The Committee on the Use of Atomic Energy for Peaceful Purposes in agreement with the relevant ministries shall adopt regulatory acts determining the standards and regulations for nuclear and radiation safety and other requirements for the safe use of atomic energy.

§ 8 The nuclear facilities which do not meet the requirements of the Act on the Use of Atomic Energy for Peaceful Purposes or the Act for the application thereof shall be brought into compliance with them at the instance of the relevant State bodies as agreed by the Committee on the Use of Atomic Energy for Peaceful Purposes.

§ 9 At the end of Article 8 of the transitional provisions of the Act on the State Fees and Taxes (promulgated: issue 104/1951; altered and added: issue 89/1959, issue 21/1960; D.V. No. 53/1973, issue 87/1974, issue 21/1975; issue 55/1991, and issue 100/1992) there is added at the end of the first sentence: "and the Act on the Use of Atomic Energy for Peaceful Purposes".

ITALY

Legislative Decree No 230 on transposition of the Euratom Directives on Radiation Protection (Directives Euratom 80/836, 84/467, 84/466, 89/618, 90/641, 92/3)

(17 March 1995)

EXTRACTS

CHAPTER I*

General Radiation Protection Principles

Article 1. *Scope*

1. The provisions of this Decree shall apply:

   a) to the construction, operation and decommissioning of nuclear installations;

   b) to the production, importation, export, handling, processing, use, marketing, holding, storage, transport, termination of holding, collection and disposal of radioactive materials and to any other activity or situation involving a significant risk arising from such radiation, including work with radiation-generating devices and mining activities, as well as exposure to natural sources of radiation, when the conditions set out in Annex I obtain.

2. The conditions for implementing this Decree set out in Annex I shall be updated, to take account of technical progress and European Union directives and recommendations, by means of decrees issued by the Prime Minister on a proposal by the Minister for Health and the Minister for the Environment and in conjunction with the Minister for Industry, Trade and Craft Trades, the Minister for Employment and Social Security and the Minister for the Civil Service, having consulted the National Environmental Protection Agency (ANPA), the Higher Institute for Prevention and Safety at Work (ISPESL) and the National Health Institute for Conference of State-Regions. The said decrees shall also lay down, taking account of technical progress and European Union directives and recommendations, specific implementing provisions for particular activities and situations, including those involving exposure to natural sources of radiation.

* Unofficial translation by the European Commission. The annexes to the Decree have not been reproduced due to their volume.

Article 2. ***Principles of Radiation Protection***

1. In order to provide the most effective protection against ionising radiation for the health of the general public and of workers and for the environment, the following general principles shall be observed in respect of the activities covered by this Decree:

a) the types of activities involving exposure to ionising radiation shall be justified in advance and periodically reviewed in the light of the benefits that they confer;

b) exposures to ionising radiation shall be kept as low as reasonably achievable, account being taken of economic and social factors;

c) the sum of the doses and committed doses received shall not exceed the prescribed limits, as laid down in this Decree and the associated implementing provisions.

CHAPTER III

Bodies

Article 8. ***Interministerial Coordination and Consultation Council***

1. An interministerial coordination and consultation Council to deal with the problems arising from the peaceful use of nuclear energy shall be set up at the Ministry of Industry, Trade and Craft Trades. It shall comprise the Director-General for Energy Sources and Basic Industries, who shall act as chairman, and 9 members nominated as the respective representatives of the Ministry of Industry, Trade and Craft Trades, the Ministry of the Interior, the Ministry of the Environment, the Ministry of Defence, the Ministry of Employment and Social Security, the Ministry of Health, the Ministry of Transport, the Department for the Coordination of Civil Protection at the Prime Minister's Office and the ANPA.

2. The representatives of the ministries shall be at least of the administrator grade.

3. The secretarial functions of the Council shall be carried out by officials of the Directorate-General for Energy Sources and Basic Industries.

4. If the chairman is absent or unable to attend, he may delegate his functions to the Deputy Director-General for Energy Sources and Basic Industries from the Ministry of Industry, Trade and Craft Trades.

5. The members of the Council and the secretaries shall be appointed for a period of 4 years by decree of the Prime Minister on the basis of a proposal from the Minister for Industry, Trade and Craft Trades.

6. The Council shall give its opinion on draft legislation concerning the peaceful use of nuclear energy, for the purposes *inter alia* of coordinating the activities of the various authorities in this area, including those relating to the implementation of this Decree.

7. In order to examine specific problems, the Chairman may set up working parties and may call on experts nominated by public authorities to take part in the work of the Council.

8. The way in which the Council is to operate shall be laid down in a decree issued by the Minister for Industry, Trade and Craft Trades.

Article 9. ***Technical Committee for Nuclear Safety and Health Protection***

1. A technical Committee for nuclear safety and health protection against ionising radiation shall be set up at the National Environmental Protection Agency (ANPA). It shall comprise 16 experts on nuclear safety, health protection against ionising radiation or fire protection, of whom:

a) 12 shall be nominated by the Ministry of the Interior, the Ministry of Industry, Trade and Craft Trades, the Ministry of Public Works, the Ministry of Employment and Social Security, the Ministry of Health and the Ministry of the Environment, viz. 2 from each ministry;

b) 2 shall be nominated by the Agency for New Technologies, Energy and the Environment (ENEA);

c) 2 shall be nominated by the ANPA.

2. If the installations are State maritime property or ports, 2 experts nominated by the Ministry of Transport and the Ministry of Defence shall be included on the Committee. Similarly, for matters dealing with a specific region or autonomous province an expert nominated by the region or autonomous province will be included on the Committee.

3. To deal with matters concerning the implementation of this law which impinge on areas that fall under the responsibility of the Higher Institute for Prevention and Safety at Work (ISPESL), the National Health Institute, the National Research Council, the Ministry of Defence and the Department for the Coordination of Civil Protection, the Committee shall also include an expert nominated by the authorities concerned.

4. The Committee shall give the opinions provided for by this law with a view to the issuing of the authorisations referred to in Chapter VII and to the preparation of the emergency plans referred to in Chapter X.

5. When requested to do so, the Committee shall issue opinions and assist the State authorities on technical problems concerning nuclear safety and the protection of workers and the general public against the risks arising from ionising radiation.

6. The members of the Committee and the officials of the Committee's secretariat shall be appointed for a period of 4 years by decree of the Prime Minister and may be reappointed. The Chairman, chosen from the above-mentioned members, shall be appointed by decree of the Prime Minister.

7. To deal with special problems, the Chairman may invite other experts, Italian or foreign, who are qualified in specific sectors to take part in the Committee's work. Such experts shall not have any voting rights.

8. A minimum of 10 members must attend each committee meeting for the meeting to be valid.

9. The Committee's running costs shall be met by the ANPA in accordance with Article 1 bis(5) of Law No 61 of 21 January 1994.

Article 10. ***Inspection Work***

1. In addition to the responsibilities of the individual authorities governed by existing legal provisions, including those of the bodies belonging to the National Health Service, and by the provisions of Chapters IV, VIII and IX, inspection for the purposes of this Decree and, as regards nuclear safety and health protection, for the purposes of Law No 1860 of 31 December 1962 shall be the responsibility of the ANPA through the intermediary of its own inspectors.

2. The inspectors referred to in paragraph 1 shall be appointed by order of the Chairman of the ANPA.

3. These inspectors shall have right of access to any premises in which the activities subject to their supervision are performed and may carry out any checks which have a bearing on nuclear safety and the protection of workers, the general public and the environment. They may in particular:

a) obtain data and information from the staff concerned;

b) obtain any information and have access to any documents, even of a restricted or classified nature, which concern nuclear safety and radiation protection;

c) request proof that machinery and equipment is in good working order;

d) carry out any checks they deem necessary in order to ensure compliance with the technical regulations and specific requirements drawn up under this Decree.

4. A copy of the inspection report shall be issued to the operator or his representative at the workplace, who shall be entitled to have their own comments included in the report. If the operator or his representative does not sign the report, the inspector shall indicate the reasons for this in the report itself.

5. In the performance of their duties, the inspectors of the ANPA act as officials of the criminal investigation department of the police.

6. The ANPA shall inform the competent local supervisory bodies of the actions it has taken.

CHAPTER IV

Mining Operations

Article 11. ***Scope***

1. The provisions of this chapter shall apply to mining operations carried out in areas covered by a prospecting or exploration permit or a mining licence and which involve the risk of radiation exposure when

the conditions set out in Annex I obtain. The procedures for assessing whether or not such conditions obtain shall be established by decree of the Minister for Industry, Trade and Craft Trades, in conjunction with the Minister for Employment and Social Security, the Minister for Health and the Minister for the Environment, after consultation of the ANPA.

2. Supervision of the system for protecting workers employed in the activities referred to in paragraph 1 against the risks arising from ionising radiation shall be carried out by the Ministry of Industry, Trade and Craft Trades, through the intermediary of the chief engineer of the office responsible for the area concerned, who shall be assisted by the bodies of the national health service responsible for the area concerned and by the ANPA within their respective spheres of competence.

3. (...)

4. (...)

5. (...)

CHAPTER V

Provisions Governing Importation, Production, Marketing, Transport and Holding

Article 18. ***Importation and Production of Radioactive Materials for Commercial Purposes***

1. The importation for commercial purposes of radioactive materials, or of products, apparatus and any other devices containing such materials shall be notified in advance at least 60 days before such activities commence.

2. The production for commercial purposes of the radiation sources referred to in paragraph 1 shall be notified in advance at least 60 days before the activity itself commences.

3. For the purposes of these provisions, production is to be taken to include any handing, fractionation, dilution or other operation performed on radioactive materials or on the device containing them such that a product that contains this material and differs from the original product may be placed on the market.

4. The notification referred to in paragraphs 1 and 2 shall be addressed to the Ministry of the Environment, the Ministry of Industry, Trade and Craft Trades, the Ministry of Employment and Social Security, the Ministry of Health, the Ministry of the Interior, and the ANPA.

5. For the purposes of compliance with the provisions mentioned in Article 2, the notification procedures as well as the conditions governing any exemption from the notification requirement shall be laid down in a decree issued by the Minister for Industry, Trade and Craft Trades, after consulting the other Ministers referred to in paragraph 4, any other authorities involved and the ANPA.

6. Marketing activities shall remain subject to the provisions mentioned in Article 4 of Law No 1860 of 31 December 1962.

Article 19. ***Obligation to Provide Information***

1. Any person who imports or produces for commercial purposes, or otherwise trades in, radioactive materials or products and devices of any kind that contain such materials shall ensure that every source placed on the market is accompanied by written information on the technical precautions to be taken to prevent any undue exposure and on the procedures to be followed when the said items are disposed of or cease to be in the possession of the holder.

2. The decree referred to in Article 18 shall lay down the manner in which the obligation to provide information is to be fulfilled as well as any exemptions in complying with the provisions mentioned in Article 2.

Article 20. ***Register of Commercial Transactions and Summary Record of Transactions Carried Out***

1. Any person who produces for commercial purposes, or otherwise trades in, radioactive materials shall keep a record of all the commercial transactions relating to such materials, indicating the contracting parties.

2. A summary record of the commercial transactions carried out shall be forwarded to the ANPA.

3. For the purposes of these provisions, a commercial transaction means any transfer, even if free of charge, carried out as a commercial activity.

4. The decree referred to in Article 18 shall lay down the requisite registration procedures as well as the procedures and time limits for forwarding the summary record. Special provisions may be drawn up for the materials referred to in Article 23.

5. If the records referred to in paragraph 1 also contain the information required for the records referred to in Article 22(3), they shall replace the latter. For this purpose, the decree referred to in paragraph 4 shall indicate the registration procedures to be followed in such cases.

Article 21. ***Transport of Radioactive Materials***

1. In respect of the transport of the materials referred to in Article 5 of Law No 1860 of 31 December 1962 and subsequent amendments and additions that is carried out in one's own name and on behalf of another person, or in one's own name and on one's own behalf, even where use is made of equipment other than that for which one has full responsibility and over which one has full control, the provisions of the said law shall continue to apply. The authorisations required under these provisions, issued after consulting the ANPA and the Ministry of the Interior, may contain specific requirements laid down by the ANPA.

2. After consulting the ANPA, the Minister for Transport shall issue decrees containing regulations governing the various modes of transport, implementing inter alia European Union directives and recommendations as well as international agreements on the transport of dangerous goods.

3. Persons carrying out the transport operations referred to in paragraph 1 shall forward to the ANPA a summary record of the transport operations completed, indicating the materials carried. The decree referred to

in Article 18 shall lay down the criteria for implementing this provision, the procedures to be followed, the time limits for preparing and forwarding the said summary record, and any exemptions.

Article 22. ***Holding of Sources of Ionising Radiation***

1. Without prejudice to the provisions referred to in Article 3 of Law No 1860 of 31 December 1962 and subsequent amendments and additions, any person who in whatever capacity holds radiation sources, including radiation-generating devices, shall within 10 days report this fact to the departments of the national health service responsible for the area concerned, the provincial headquarters of the fire service, the ANPA and, where it lies within their responsibility, the Labour Inspectorate, the harbour master and the port medical office, indicating the protective measures taken.

2. The provisions in paragraph 1 shall not apply:

a) to nuclear fuel and special fissile materials used or intended for the installations referred to in Chapter VII, even when they are in transit;

b) to radiation sources that are being transported, as well as those stored during the transport operation for a period not exceeding 10 days;

c) to radioactive materials extracted during mining operations and stored in the area covered by the exploration or mining licence.

3. The source holders referred to in paragraph 1 shall ensure that records are kept of the sources held, indicating arrivals and releases of these sources for reasons of decay, waste disposal or transfer, or termination of possession.

4. The Minister for Health, in conjunction with the Minister for the Environment, the Minister for Industry, Trade and Craft Trades, the Minister for Employment and Social Security and the Minister for the Interior, and after consulting the ANPA, shall issue a decree laying down the procedures, conditions and quantities relating to the reporting of radioactive materials, the procedures and characteristics relating to the reporting of radiation-generating devices, and the requisite registration procedures.

Article 23. ***Holding of Special Fissile Materials, Source Materials, Ores and Nuclear Fuel***

In accordance with Article 3 of Law No 1860 of 31 December 1962, the holders of special fissile materials, source materials, ores and radioactive materials shall report these items and, in addition, keep accounts of them in the manner and for the quantities to be laid down in a decree by the Minister for Industry, Trade and Craft Trades after consulting the ANPA.

Article 24. ***Termination of Holding of Ionising Radiation Sources***

1. Any person who has held radiation sources as defined in Articles 22 and 23 shall, within 10 days, inform the authorities referred to in the said articles of cases in which he has ceased to hold these sources, such cases to include waste transfers to third parties.

2. The information referred to in paragraph 1 is not required where it concerns the final disposal in the environment of radioactive wastes carried out in accordance with the provisions of this Decree or of the authorisations issued under this Decree, or to cases in which radioactive materials are administered to individuals for purposes of diagnosis, treatment or clinical scientific research.

3. The obligation to provide information referred to in paragraph 1 shall not apply to the transfer of sources to third parties carried out as a commercial activity.

4. The decree referred to in Article 22 shall lay down the procedures and conditions governing the information required under the present article.

Article 25. ***Mislaying, Loss and Retrieval of Radioactive Materials***

1. The mislaying or loss, for whatever reason, of radioactive materials in whatever form and of devices containing such materials shall be immediately reported to the departments of the national health service and to the provincial headquarters of the fire service responsible for the area concerned, to the nearest law enforcement agency, to the harbour master and the port medical office, where they are responsible, and to the ANPA.

2. If the materials and devices referred to in paragraph 1 are retrieved by the person sending the original notification, the nearest law enforcement agency shall be informed immediately.

3. The finding of materials or devices bearing information or marks from which it can clearly be inferred that radioactivity is present shall be immediately reported to the nearest law enforcement agency.

Article 26. ***Sources of a Recognised Type***

1. By virtue of their properties and the scale of the risk which they present, certain sources or types of radiation sources may be classified as "sources of a recognised type".

2. The Minister for Industry, Trade and Craft Trades, in conjunction with the Minister for the Interior, the Minister for Health, the Minister for Employment and Social Security and the Minister for the Environment, and after consulting the ANPA, the ISPESL and the ISS, shall issue a decree laying down the criteria and procedures for giving the classification referred to in paragraph 1 as well as the exemptions, based on the scale of the risk, from the reporting, licensing or physical monitoring obligations set out in this Decree.

3. The decree referred to in paragraph 2 shall take account of Community legislation concerning the principle of mutual recognition.

CHAPTER VI

System for Licensing Installations and Special Provisions Governing Radioactive Waste

Article 27. ***Authorisation to Use Radiation Sources***

1. Installations, establishments, institutes, departments, medical practices and laboratories engaged in activities involving, for whatever purpose, the holding, use or handling of radioactive materials and of products or devices of any kind containing such materials, or the processing, storage and, where appropriate, disposal of waste, or the use of apparatus generating ionising radiation shall require prior authorisation, as laid down in this chapter. Henceforth, the phrase "use of sources of ionising radiation" is to be taken to mean all the activities referred to in this paragraph.

2. The use of sources of ionising radiation referred to in paragraph 1 shall be divided into 2 categories: A and B. The Prime Minister, on a proposal from the Minister for Industry, Trade and Craft Trades, in conjunction with the Minister for the Environment, the Minister for the Interior, the Minister for Employment and Social Security and the Minister for Health, and after consulting the ANPA, shall issue a decree laying down the conditions for classifying uses under the said categories in the light of the risks to workers and the general public arising from such activities. This decree shall also lay down the relevant radiation protection criteria, the procedural rules for granting authorisation, the circumstances in which exemptions from such authorisations are allowed, and the specialist advisory bodies set up in such a way as to represent all the requisite specialist disciplines.

3. The provisions of this chapter shall not apply to the activities governed by the provisions of Chapters IV and VII.

4. Where applicable, the provisions of Article 13 of Law No 1860 of 31 December 1962 and subsequent amendments and conditions remain in force.

Article 28. ***Category A Uses***

1. Category A uses shall require prior authorisation from the Ministry of Industry, Trade and Craft Trades, issued in conjunction with the Ministry of the Environment, the Ministry of the Interior, the Ministry of Employment and Social Security and the Ministry of Health, after consulting the ANPA. This authorisation shall cover the siting of the installation, the suitability of the premises, of the radiation protection system, of the operating methods, of the equipment and of the qualifications of staff, the consequences of any accidents and, where applicable, the procedures adopted for the removal and disposal of radioactive waste. A copy of the authorisation shall be sent by the Ministry of Industry, Trade and Craft Trades to the other ministries consulted, to the President of the interested autonomous region or province, to the mayor, prefect, and provincial headquarters of the fire service responsible for the area concerned, and to the ANPA.

2. The authorisation may lay down specific conditions governing the construction, testing, operation and, where appropriate, the de-commissioning of the installations.

Article 29. *Category B Uses*

1. Category B uses shall require prior authorisation concerning the suitability of the site for the premises, of the radiation protection system, of the operating methods, of the equipment and of the qualifications of staff as well as the consequences of any accidents and, where applicable, the procedures adopted for the removal or disposal of radioactive waste in the environment.

2. The competent authorities for the granting of a certificate of approval as mentioned in paragraph 1, concerning activities involving exposure for medical purposes, as well as the procedures for granting this certificate of approval, are defined by the legislation of the regions and autonomous provinces, which must be promulgated within a period of 180 days from the date on which the decree mentioned in Article 27 enters into force. This legislation determines or defines the technical agencies to be consulted in order to obtain such a certificate; competent requisite bodies must be represented within these agencies, including the local Chief of the Fire Brigade. In other cases, the certificate of approval is granted by the prefect, after consultation with competent technical agencies, including the local Chief of the Fire Brigade. A copy of the certificate of approval shall be sent to the ANPA.

3. The authorisation, issued on the basis of the technical documentation provided, may lay special conditions regarding tests and the operations involved.

Article 30. *Authorisations for the Disposal of Waste in the Environment*

1. Apart from the cases specified in this chapter and in Chapters IV and VII, the Minister for the Environment, in conjunction with the Minister for Health and the Minister for Industry, Trade and Craft Trades, and after consultation with the ANPA, shall lay down by decree level of emission of solid liquid and gaseous radioactive waste in the environment, for which an authorisation is required.

2. The competent authorities for the granting of authorisations and the procedural rules for granting such authorisations shall be determined by the legislation of the regions and autonomous provinces concerned. There shall be a 180-day period commencing from the date the afore-mentioned decree enters into force. These procedures shall provide for consultation with authorised local technical agencies.

3. The authorisation may establish specific requirements, notably as regards the characteristics of waste presenting risks other than radiological. A copy of the authorisation shall be sent to the Ministries described in paragraph 1 above and to the ANPA.

Article 31. *Collection of Radioactive Waste on Behalf of Third Parties*

1. The collection of radioactive waste from third parties for transfer to processing or storage facilities or for disposal in the environment as described in Article 30, even where the equipment used belongs to others, shall require an authorisation from the Ministry of Industry, Trade and Craft Trades, to be issued after consulting the ANPA.

2. A decree issued by the Minister for Industry, Trade and Craft Trades after consulting the ANPA shall lay down provisions governing the procedures for granting the authorisation referred to in paragraph 1 as well as any exemptions from the licensing requirement.

Article 32. ***Shipments, Imports and Exports of Radioactive Waste***

1. Shipments of radioactive waste from and to Member States of the European Union, imports and exports of such waste from and to other States and the transit of such shipments through Italian territory shall require prior authorisation.

2. The authorisation referred to in paragraph 1 shall be issued by:

a) the authority with jurisdiction for the granting of the certificate of approval, as described in Article 29, or of the authorisation as described in Article 30, after consultation with the duly authorised technical agencies, in the case of shipments, imports or exports, carried out in respect of the activities subject to the provisions concerning the granting of authorisation, as described in Articles 29 and 30, or in respect of activities not subject to such provisions;

b) the Ministry of Industry, Trade and Craft Trades, after consulting the ANPA, in the case of shipments, imports and exports carried out in respect of the other licensing requirements set out in this Decree, and in cases of transit through Italian territory.

3. In the case of shipments to Member States of the European Union and of imports or exports from or to other States, the authorisation in question shall be approved by the competent authorities of the Member States of destination or of transit. Such approval shall be sought by the authority referred to in paragraph 2 that is responsible for granting the authorisation and shall be deemed to have been given if no reply has been received within 2 months of receipt of the application, unless the Member State concerned requests an extension of up to 1 month of the said time limit or has informed the European Commission that it does not accept the automatic approval procedure in general, in accordance with Article 17 of Directive 92/3/Euratom.

4. In conjunction with the Minister for the Interior, the Minister for Employment and Social Security, the Minister for Health and the Minister for the Environment and after consulting the ANPA, the Minister for Industry, Trade and Craft Trades shall issue a decree laying down the criteria, methods and procedural provisions for the granting of the authorisation referred to in this article. This decree may provide for specific exemptions from obligations and special prohibitions on the import and export of waste. These may also cover countries of origin or destination.

Article 33. ***Authorisations Concerning Installations for Radioactive Waste Storage or Disposal***

1. Without prejudice to existing provisions concerning an environmental compatibility statement, the construction, establishment or operation of installations for the storage or disposal in the environment, with or without prior treatment, of radioactive waste from other installations including those run by the same operator shall be subject to prior authorisation. This authorisation shall be issued by the Ministry of Industry, Trade and Craft Trades in conjunction with the Minister for the Environment, the Minister for the Interior, the Minister for Employment and Social Security and the Minister for Health, after consulting the interested autonomous regions or provinces and the ANPA.

2. In agreement with the Minister for the Environment and the Minister for Health and in conjunction with the Minister for the Interior and the Minister for Employment and Social Security, and having consulted the ANPA, the Minister for Industry, Trade and Craft Trades shall issue a decree laying down the radioactivity or concentration levels and the types of waste to which the provisions of this article apply as well as the procedural provisions for the granting of an authorisation in respect of the various types of installation.

Depending on the type of installation concerned, this Decree may allow authorisations to be issued in various stages, including that of shutdown, and special conditions to be laid down for each stage, including testing and operation.

CHAPTER VII

Installations

Article 36. ***Documentation on Nuclear Safety and Health Protection***

1. The person applying for the authorisation referred to in Article 6 *et seq.* of Law No 1860 of 31 December 1962 in respect of the installations mentioned in Article 7(a), (c), (d), (e) and (f), shall forward to both the Ministry of Industry, Trade and Craft Trades and the ANPA the following documents so that compliance with nuclear safety and health protection requirements may be verified:

a) preliminary plans of the installation complete with a topographical map, explanatory diagrams, drawings and descriptions of the installation and a preliminary study concerning the disposal of radioactive waste;

b) a preliminary safety report, indicating the safety and protection measures envisaged.

2. The authorisation referred to in Article 6 of Law No 1860 of 31 December 1962 shall be issued after completion of the procedure set out in this chapter.

Article 37. ***Installations Not Subject to the Authorisation Referred to in Article 6 of Law No 1860 of 31 December 1962***

1. Nuclear installations designed to produce electricity, including those not subject to the authorisation referred to in Article 6 *et seq.* of Law No 1860 of 31 December 1962, may be built only after approval has been given from the point of view of nuclear safety and health protection.

2. This approval shall be given by the Minister for Industry, Trade and Craft Trades, after consultation of the ANPA and following a request from the applicant, accompanied by the documents mentioned in the previous article, in accordance with the procedure set out in this chapter.

3. The provisions referred to in the previous paragraphs shall be applicable to installations of any type built and operated by government bodies.

Article 38. ***Technical Examination***

1. On the basis of the documentation referred to in Articles 36 and 37, the ANPA shall carry out a technical examination and draw up a technical report on the preliminary plan, giving its opinion on the location of the installation and on its features as set out in the preliminary plans, and also containing any information that will

enable a comprehensive preliminary assessment to be made of the nuclear safety and health protection profile of the installation and of its operation.

2. The ANPA may, in addition to the documentation submitted to it under Articles 36 and 37, ask the parties concerned for all further documentation it deems necessary for the purposes of the examination.

3. The technical report drawn up by the ANPA shall contain a critical examination of the preliminary safety report and of the preliminary study on the disposal of radioactive waste.

Article 39. ***Consultation with the Authorities Concerned***

1. The Ministry of Industry, Trade and Craft Trades shall forward a copy of the ANPA's technical report to the Ministry of the Interior, the Ministry of Employment and Social Security, the Ministry of Health and the other ministries concerned.

2. The Ministry of Industry, Trade and Craft Trades and the other ministries concerned may ask the ANPA for further information and for any data that will enable a full assessment to be made of the site of the installation and of the preliminary plans.

3. All the ministries concerned shall forward to the ANPA, within 60 days of receipt of the technical report, their opinions on the preliminary plans and on the site of the installation.

Article 40. ***Opinion of the ANPA***

1. Taking into account any observations made by the various ministries, the Technical Committee referred to in Article 9 shall express a final technical opinion specifying any requirements to be laid down as regards the implementation of the plans.

2. The ANPA shall forward to the Ministry of Industry, Trade and Craft Trades its opinion drawn up on the basis of that of the Technical Committee along with any observations from the various authorities.

Article 50. ***Operating Licence***

1. The operating licence shall be granted in respect of successive operational stages, subject to the successful outcome of successive groups of nuclear tests, and shall stipulate the limits and conditions which the operator must observe.

2. The application for an operating licence for each stage shall be addressed to the Ministry of Industry, Trade and Craft Trades. Each application must be accompanied by certificates of satisfactory completion of the relevant group of nuclear tests and by evidence that the installation's features are such that a stage of safe operation may be envisaged subject to certain limits and conditions. A copy of the application along with a copy of the said documents shall at the same time be addressed to the ANPA.

3. Having examined the letter and the supporting documents and, in the case of the installations referred to in Articles 36 and 37, after consulting the Technical Committee, the ANPA shall forward to the Ministry of Industry, Trade and Craft Trades its own opinion, stipulating any limits and conditions for plant operation.

4. The Ministry of Industry, Trade and Craft Trades shall issue an operating licence subject to compliance with any requirements drawn up by the ANPA, such compliance to be overseen by the ANPA.

5. (...)

Article 55. ***Authorisation for the Decommissioning of Nuclear Installations***

1. The operations involved in the decommissioning of a nuclear installation shall be subject to prior authorisation by the Ministry of Industry, Trade and Craft Trades, after consultation of the Ministry of the Environment, the Ministry of the Interior, the Ministry of Employment and Social Security, the Ministry of Health and the ANPA and on the basis of an application from the licensee. Where necessary, such authorisations shall be issued for the individual intermediate stages leading up to the planned final state.

2. The subdivision into intermediate stages must be shown to be part of an overall decommissioning plan, which shall be enclosed with the application for an authorisation concerning the first stage.

3. For each stage, a copy of the authorisation application shall be sent to the authorities referred to in paragraph 1 and to the ANPA, together with the plan of the operations to be carried out, a description of the state of the installation including an inventory of the radioactive materials present, a description of the state of the installation itself at the end of the stage in question, a safety analysis concerning the operations to be carried out and the state of the installation at the end of the operations, a description of the intended use of the resulting radioactive materials, an assessment of the effects on the external environment and a radiation protection programme for emergency situations. The holder of the operating licence shall also propose in the plan the situations in which it will no longer be possible to guarantee the technical conditions for compliance with the individual provisions of this Decree and with the rules governing plant operation.

CHAPTER VIII

Health Protection of Workers

Article 59. ***Activities Covered - Supervision***

1. The provisions of this chapter shall apply to the activities referred to in Article 1 that are carried out by employed or similarly-classified persons within the meaning of Article 60, including activities pursued by the State, public bodies at local, regional or national level, departments of the national health service, educational establishments, universities and research laboratories.

2. Supervision of arrangements to protect the workers mentioned in paragraph 1 from radiation hazards shall be entrusted not only to the ANPA but also to the Ministry of Employment and Social Security through the intermediary of the labour inspectorate and, in the case of radiation-generating devices, to the departments of the national health service responsible for the areas concerned.

3. The provisions of this article shall not affect the rules laid down for the activities referred to in Chapter IV.

4. Compliance with the provisions of this Chapter does not imply exemption from the obligations of employers, managers, supervisors, workers and competent medical practitioners, as defined in Legislative Decree No 626 of 19 September 1994, or from supervisory duties laid down in the same Decree.

Article 61. ***Obligations of Employers, Managers and Supervisory Staff***

1. Employers who pursue and managers who direct the activities governed by this Decree and the supervisory staff who oversee such activities must, within the limits of their relevant duties and responsibilities, implement the protection and safety measures provided for by this chapter and by the provisions deriving therefrom.

2. Before commencing the activities referred to in paragraph 1, employers shall obtain from a qualified expert as defined in Article 77 a written report containing assessments and other information on radiation protection aspects relating to the activities themselves. For this purpose employers shall provide qualified experts with the requisite data and information. As regards the risks associated with ionising radiation, this report shall constitute the document referred to in Article 4(2) of Legislative Decree No 626 of 19 September 1994.

3. On the basis of the information contained in the report mentioned in paragraph 2 and, subsequently, of the information referred to in Article 80, employers, managers and supervisory staff shall in particular:

a) ensure that the workplaces in which a radiation hazard exists are, in compliance with the provisions of the Decree referred to in Article 82, identified, delineated, signposted and classified into areas, and that access to them is appropriately controlled;

b) ensure that the workers concerned are classified for radiation protection purposes, in compliance with the provisions of the Decree referred to in Article 82;

c) prepare internal rules on protection and safety appropriate to the radiation hazard, ensuring that a copy of these rules is made available for consultation in areas used by workers and in particular in the controlled areas;

d) supply workers, where necessary, with instruments for dosimetric monitoring and with protective equipment, taking account of the risks to which they are exposed;

e) inform workers, as part of a radiation protection training programme and in relation to the tasks to which they are assigned, of the specific risks to which they are exposed, the standards relating to health protection, the consequences of failing to comply with medical requirements, the manner in which they should carry out their tasks, and the internal rules referred to in sub-paragraph c);

f) ensure that individual workers observe the internal rules referred to in sub-paragraph c), use the instruments and equipment referred to in sub-paragraph d) and observe the working procedures referred to in sub-paragraph e);

g) ensure that sources of ionising radiation, excluding unsealed sources that are being handled, are indicated by means of appropriate signs;

h) provide workers with the results of dosimetric monitoring that relate directly to them.

4. As regards the obligations set out in paragraph 3, excluding those mentioned in sub-paragraph 3(f), and where it is necessary to carry out physical monitoring as defined in Article 75, the employers, managers and supervisory staff referred to in 1 shall use the services of the qualified experts referred to in Article 77 and, for medical aspects, the medical practitioners referred to in Article 83; where it is not necessary to carry out physical monitoring, the persons mentioned shall comply with the provisions set out in sub-paragraphs 3(c), (e) and (f) and provide any of the protective equipment referred to in sub- paragraph 3(d) that is necessary.

5. All financial costs arising from physical monitoring and medical surveillance for radiation protection purposes shall be borne by the employer.

Article 63. ***Obligations of Operators of Controlled Areas Using the Services of Outside Workers***

1. Operators of one or more controlled areas who use the services of outside workers shall be responsible for protecting these workers against the risks of ionising radiation, either directly or through contractual agreements with the outside undertaking that employs these workers or with the worker himself if the latter is self-employed, and shall be responsible for the aspects of their protection that are directly related to the nature of the controlled area and of the work which the outside workers are required to perform.

2. In particular, for each outside worker performing activities in a controlled area, the operator of the controlled area must:

a) check, using the radiation passbook referred to in Article 62, that the worker, before carrying out work in the controlled area, has been passed by an approved medical practitioner as fit to face the type of risk associated with the work itself;

b) ensure that the outside worker concerned, apart from the information referred to in Article 62(3)(b), has received or is receiving specific training in connection with the characteristics of the controlled area where the work is to take place;

c) ensure that the outside worker concerned has been issued with personal protective equipment where this is necessary;

d) ensure that the outside worker concerned has been issued with personal dosimetric monitoring equipment appropriate to the type of work performed and that he receives any operational dosimetric monitoring that may be necessary;

e) insofar as he is responsible, ensure compliance with the general principles referred to in Article 2(1)(a) and (b) and the exposure limits referred to in Article 96;

f) take the necessary steps to ensure that assessments of the doses associated with the work are entered in the radiation passbook.

Article 68. ***Obligations of Workers***

1. Workers must:

a) observe the instructions issued by the employer or his representatives as regards individual and collective protection and safety, as a function of the task to which they are assigned;

b) use, in accordance with specific instructions, the protective equipment and dosimetric monitoring instruments provided by the employer;

c) immediately notify the employer, manager or member of supervisory staff of any shortcomings in such protective and safety equipment and dosimetric instruments, and any other conditions of risk which they observe;

d) neither remove nor modify, without prior authorisation, any equipment, including safety equipment, signs, protective equipment and measuring devices;

e) not undertake on their own initiative operations which lie beyond their sphere of competence or which may compromise protection and safety;

f) undergo medical surveillance as required under this Decree.

2. For the purposes of the provisions of Article 66, workers who carry out, on behalf of several employers, activities which expose them to the risk of ionising radiation must inform each employer of the activities carried out for the other employers. They must also inform employers of any earlier activities. Outside workers must show the radiation passbook to the operator of a controlled zone before performing the tasks assigned to them.

Article 74. ***Accidental and Emergency Exposures***

1. After any accidental or emergency exposure, employers, managers and supervisory staff, within the limits of their respective duties and competencies, must obtain from the qualified expert a technical report setting out the circumstances of and reasons for the exposure, insofar as these can be ascertained by the qualified expert, and an assessment of the doses received by the workers concerned. The provisions of Article 91 shall remain in force.

2. Only civil protection workers and volunteers may be subjected to emergency exposures. These persons must be informed in advance of the risks involved and supplied with protective equipment appropriate to the circumstances in which the exposure occurs.

3. The Minister for the Interior, in conjunction with the Minister for Employment and Social Security, the Minister for Health, the Minister for Civil Protection and the Minister for Industry, Trade and Craft Trades, shall issue a decree laying down conditions and levels for the emergency exposure of civil protection workers and volunteers.

4. In the case of mining and quarrying work, emergency measures shall be carried out by appropriately trained volunteers.

Article 75. ***Physical Monitoring***

1. Physical monitoring for the protection of workers and the general public must be carried out where the activities performed involve the classification of workplaces into one or more controlled or supervised areas or the classification as exposed workers of those assigned to such activities.

2. Employers pursuing the activities governed by this Decree must take steps to ensure that physical monitoring is carried out in accordance with the provisions of the decree referred to in Article 82, on the basis of the information in the report referred to in Article 61(2) and, subsequently, in the report referred to in Article 80(1) [not reproduced in these extracts].

Article 76. ***Dosimetric Services***

1. Without prejudice to the powers conferred under existing legislation, any person carrying out individual dose monitoring, including the activities governed by Chapter IV, is subject to supervision by the ANPA and, for this purpose, shall notify the ANPA, within 30 days, that the said activities have commenced.

2. The persons referred to in 1 shall forward to the INSPESL and the ANPA, in a manner prescribed by the latter, the results of the measurements carried out so that they may be entered in a national register of exposed workers. This register shall be established under a decree issued by the Minister for Employment and Social Security in conjunction with the Minister for Health, after consulting the ANPA.

Article 82. ***Methods of Classifying Workplaces and Workers for the Purposes of Radiation Protection and Physical Monitoring***

1. After consulting the ANPA, the Minister for Employment and Social Security and the Minister for Health shall issue a decree laying down and updating:

a) the criteria for classifying workplaces into different areas for radiation protection purposes;

b) the criteria for carrying out physical monitoring and classifying workers into categories;

c) the categories into which the apprentices and students referred to in Article 70 are classified for radiation protection purposes.

2. The same decree shall specify the circumstances in which workers may be exposed to radiation.

3. In compliance with the radiation protection objectives laid down in the directives adopted by the Council of the European Communities, the criteria, categories and procedures referred to in paragraph 1 shall be such as to ensure that the health protection of workers, apprentices and students against the risks arising from ionising radiation is as effective as possible.

Article 83. ***Medical Surveillance***

1. The employer shall ensure through the intermediary of one or more medical practitioners that exposed workers, apprentices and students receive medical surveillance in accordance with the provisions of this chapter and those of the decree referred to in Article 82. This surveillance shall be based on the principles governing occupational medicine.

2. Medical surveillance of exposed workers who are not classified in Category A shall be provided by means of competent medical practitioners or approved medical practitioners. Medical surveillance of Category A workers shall be provided by approved medical practitioners.

3. The employer may not assign the persons referred to in paragraph 1 to any activity involving the risk of exposure to ionising radiation if the medical findings are unfavourable.

4. The employer shall ensure that the medical practitioners referred to in paragraph 1 work in conditions that enable them to carry out their tasks.

5. The employer must give the medical practitioners referred to in paragraph 1 access to any information or documentation which they consider necessary for assessing the state of health of the exposed workers and provide such working conditions as are relevant to the medical assessment of the workers' fitness for work.

6. The functions of an approved medical practitioner or a competent medical practitioner may not be performed by the employer in person or the managers who pursue and direct the activity in question, or by those supervising this activity, or by the supervisory bodies referred to in Article 59(2).

Article 92. ***Notification of Major Accidents and Exposures, and Occupational Diseases***

1. Employers shall, without delay and within no more than 3 days, notify the ANPA, the provincial labour inspectorate and the departments of the national health service responsible for the area in question of any accidents arising from the activities described in Article 59 and any exposures at levels above the values laid down under Article 96.

2. Medical practitioners shall notify the provincial labour inspectorate and the departments of the national health service responsible for the area concerned of any cases of occupational diseases within 3 days of their diagnosis.

3. Medical practitioners, public and private medical establishments, and public or private social insurance institutions that draw up reports on cases of tumours which in their view have been caused by occupational exposure to ionising radiation shall forward to the ISPESL a copy of the relevant documents containing the clinical or anatomico-pathological findings and details of the occupational history involved.

4. Details of the tumour cases referred to in paragraph 3 shall be entered by the ISPESL in the register referred to in Article 71(2) of Legislative Decree No 626 of 19 September 1994.

Article 96. ***Exposure Limits***

1. In relation to the various conditions of exposure referred to in the decree mentioned in Article 82, the Prime Minister, on a proposal from the Minister for Health, in agreement with the Minister for the Environment, the Minister for Employment and Social Security and the Minister for Civil Protection, and after consulting the CNR, ANPA, ENEA, ISS and ISPESL, shall issue a decree specifying:

a) dose limits for:

1. exposed workers;
2. apprentices and students;
3. self-employed workers and persons employed by third parties;
4. non-exposed workers.

b) the dose values involving the special medical surveillance and the obligation referred to in Articles 91 and 92 respectively.

2. The Decree referred to in paragraph 1 may also lay down special dose limits or exposure conditions for female workers of child-bearing age and for the female apprentices and female students of child-bearing age referred to in Article 70.

3. Dose limits for members of the public shall be laid down in a decree issued by the Prime Minister on a proposal from the Minister for the Environment, in conjunction with the Minister for Health and the Minister for Civil Protection, and after consultation of the CNR, ANPA, ISS and ISPESL.

4. As a means of ensuring compliance with the dose limits, the decrees referred to in paragraphs 1 and 3 shall define specific radiation protection quantities together with the criteria for their use. These provisions shall also cover cases where external and internal exposure are combined.

5. The decrees referred to in paragraphs 1 and 3 may lay down special cases to which the dose limits that they specify do not apply.

6. The Decree referred to in paragraph 1 shall also lay down the concentration values for radionuclides in minewater for the purposes of Article 16(1), as well as the dose values referred to in Articles 101(2) and 115(1).

7. The dose limits and values referred to in paragraphs 1 and 3 as well as the special quantities and the criteria referred to in paragraph 4 must be laid down and updated in the light of the radiation protection objectives laid down in the directives of the Council of the European Communities.

CHAPTER IX

Health Protection of the Population

SECTION I

General Protection of the Population

Article 97. ***Activities Covered. Supervision***

1. The provisions of this chapter shall apply to the activities which in some way expose the population to the risks arising from ionising radiation.

2. The health protection of the population shall be the responsibility of the Ministry for Health, which shall make use of the departments of the national health service.

3. Supervision of measures to protect the health of the population shall cover all sources of ionising radiation in order to prevent, in accordance with the general principles referred to in Article 2, exposure of the population and contamination of the environmental matrices, food products and beverages for human or animal use, or of other important matrices.

4. The supervision referred to in paragraph 3 shall be carried out by the departments of the national health service responsible for the area concerned and the ANPA, which shall report directly to the Minister for Health, the Minister for the Environment and the Minister for Civil Protection.

Article 98. ***Specific Bans***

1. It shall be prohibited to market, produce, import, use, prepare or hold for commercial purposes the following products, where radioactive materials have been deliberately added to them, either directly or through activation:

a) toiletries and cosmetics;

b) objects for domestic or personal use, apart from those intended for medical or paramedical use;

c) toys;

d) foodstuffs and beverages;

e) lightning-protection devices.

2. The ban referred to in paragraph 1 shall not apply to the sources of a recognised type mentioned in Article 26.

3. It shall be prohibited to use radiation sources on people, unless it is done for diagnosis, treatment or clinical scientific research in accordance with the standards in force.

4. It shall also be prohibited to produce, import, use or market electronic remote-viewing equipment or devices for the electronic reproduction of images which emit ionising radiation at higher levels than those established by decree of the Minister for Health, in conjunction with the Minister for Industry, Trade and Craft Trades and with the other authorities concerned, following consultation of the ANPA.

5. Where duly substantiated, specific exemptions shall be granted from the bans referred to in paragraphs 1 and 4 by decree of the Minister for Health, in accordance with the general principles referred to in Article 2.

Article 99. ***General Rules Governing Protection - Limitation of Exposure***

1. Anyone conducting the activities covered by this Decree shall take all the necessary measures to prevent members of the public from being exposed to the risk of receiving doses or committed doses which are above those laid down in the Decree referred to in Article 96, including exposures resulting from the contamination of matrices.

2. Anyone conducting the activities covered shall also adopt all appropriate safety and protection measures to reduce the contributions to the doses or committed does received by the reference groups of the population to a level which is as low as reasonably achievable.

3. The provisions referred to in paragraph 1 shall not apply to the cases referred to in Article 96(5).

Article 100. ***Significant Increases in the Risk of Contamination of the Environment and of Exposure of Persons***

1. In the event of the detection within the perimeter of an installation or during transportation, of any unforeseen radioactive contamination or of any accident resulting in a significant increase in the risk of the exposure of people, the operator or the transporter shall take the appropriate steps to avoid an increase in the risk, requesting where necessary the assistance of the civil protection services through the Prefect responsible for the area concerned.

2. If the accident referred to in paragraph 1 results in the risk of a spread of contamination or, in any event, of exposure of persons beyond the perimeter of the installation, the operator shall immediately inform the Prefect and the national health service departments responsible for the area concerned, who/which shall then, in accordance with the level of risk, inform the ANPA.

3. Without prejudice to the provisions of Article 25, the requirements in paragraphs 1 and 2 shall also apply to the installations and transport operations not covered by the provisions of this Decree whenever the operator or the transporter learns of accidents involving radioactive materials and causing the situations referred to in the said paragraphs.

Article 101. ***Exceptional Situations***

1. If, during the activities covered by this Decree involving operations with radioactive materials, accidents occur which could lead to significant contamination of the atmosphere, the water, the soil and the other matrices in areas beyond the perimeter of an installation, the operators carrying out these operations shall:

a) immediately inform the Prefect, the provincial headquarters of the fire service, the departments of the national health service responsible for the area concerned and the ANPA, if the activities come under Articles 29 and 30, and immediately inform the same persons as well as the head of the port authority and the port medical office if the accidents concern harbour environments or other areas under the jurisdiction of port authorities and territorial waters and relate to activities covered by other licensing measures provided for in this Decree and in Law No 1860 of 31 December 1962;

b) take all precautions necessary to reduce radioactive contamination in the areas outside the perimeter of the installation so as to limit the risk to the population.

2. Once the Prefect has received the information referred to in paragraph 1, he shall immediately forward it to the Department responsible for coordinating civil protection at the Prime Minister's Office.

3. The installations and situations which are covered by this Decree but which differ from those referred to in Section I of Chapter X and which may cause the dose values fixed in Article 96(6) to be exceeded in the critical group of the population shall be assessed in accordance with the provisions of Law No 225 of 24 February 1992 with a view to their possible inclusion in the intervention plans provided for by that Law.

4. The plants and situations referred to in paragraph 3 shall be covered by the provisions in Section II of Chapter X.

5. The levels of significant contamination, and other conditions, to which the provisions of this article are applicable shall be laid down for the atmosphere, water and soil in a decree issued by the Minister for the Environment in conjunction with the Minister for Health and the Minister for the Interior, after consultation of the ANPA; these levels and conditions shall be established for foodstuffs, feedingstuffs and beverages for human and animal consumption and for other matrices by a decree issued by the Minister for Health, in conjunction with the Minister for the Environment, after consultation of the ANPA.

Article 102. ***Special Provisions Governing Radioactive Waste***

1. Anyone pursuing an activity covered by this Decree shall take the necessary steps to ensure that radioactive waste is managed in accordance with the specific codes of practice and any technical instructions in the licensing requirements so as to avoid any risks of exposure to members of the public.

2. Without prejudice to any contingency and emergency measures to protect public health, workers and the environment, the Ministry for the Environment and the Ministry for Health shall have the right, within the scope of their respective powers, while keeping each other informed and after consulting the ANPA, to order the adoption of appropriate measures, along with further means of measurement, monitoring and surveillance needed for health protection, especially in places where several sources of radioactive waste coexist. The mayor shall have the same right in respect of the activities covered by Articles 29 and 30.

Article 104. ***Monitoring of Environmental Radioactivity***

1. Without prejudice to Article 54 and to the competence of the autonomous regions and provinces as well as of the ANPA, the monitoring of environmental radioactivity shall be carried out by the Ministry for the Environment; the monitoring of foodstuffs, feedingstuffs and beverages for human and animal consumption shall be carried out by the Ministry for Health. These ministries shall keep each other informed of the results of the monitoring carried out. All monitoring measures shall involve coordination between regional and national monitoring networks.

2. The regional networks shall be managed by the individual regions in accordance with the instructions issued by the Ministry for Health and the Ministry for the Environment. The regions may, for the purposes of taking samples and measurements, use the services of suitably equipped institutes, bodies and organisations. This may be done through various forms of cooperation between the regions themselves. The instructions issued by the ministries shall also concern the standardisation and intercalibration of the methods and techniques used for sampling and measurement.

3. The national networks shall make use of the measurements taken by suitably equipped institutes, bodies and organisations.

4. In order to ensure the uniformity of the measurement criteria and of the sampling and measuring arrangements for the national networks with a view to the unified interpretation of the data collected, and pursuant to Article 35 of the Treaty establishing the European Atomic Energy Community, technical coordination functions shall be entrusted to the ANPA. To this end, the ANPA, in accordance with the instructions from the Ministry of Health and the Ministry of the Environment, shall:

a) coordinate the steps taken by the institutions, bodies or organisations referred to above concerning radioactivity levels in the atmosphere, water, soil, foodstuffs, beverages and the other important matrices, in accordance with the relevant implementing provisions and the requirements for standardisation and intercalibration;

b) organise the installation of sampling stations to measure radioactivity whenever this is necessary to back up a systematic overall national measuring network, possibly contributing equipment and resources, including funding;

c) forward, in accordance with Article 36 of the EAEC Treaty, information on the measurements carried out.

5. With regard to the national networks, the ANPA shall also disseminate the results of the measurements carried out.

6. The alarm network run by the Ministry for the Interior in accordance with Law No 469 of 13 May 1961 shall make an independent contribution to the system of national networks.

SECTION II

Protection of Patients

Article 109. *General Principles - Surveillance*

1. The provisions of this Section govern the use of ionising radiation for medical purposes, the aim being the radiation protection of persons exposed for whatever reason to treatment or to individual or collective diagnoses involving the use of ionising radiation.

2. In application of the principles referred to in Article 2(1)(a) and (b), the types of use covered in this Section shall be justified by their medical benefits, and the corresponding exposures must be kept to the lowest reasonably achievable level which is compatible with the requirements of diagnosis and treatment.

3. Supervision of the implementation of this Section shall be the sole responsibility of the departments of the national health service responsible for the area concerned.

CHAPTER X

State of Nuclear Emergency

SECTION I

Emergency Plans

Article 115. *Nuclear Emergency*

1. The nuclear emergency governed by this chapter refers to the situations resulting from accidents in nuclear installations as referred to in Articles 36 and 37 which lead, or may lead, to the release of radioactivity into the environment resulting in doses to the critical group of the population which are above the values laid down in the provisions referred to in Article 96(6):

a) in installations outside of the national territory;

b) in nuclear-powered ships in port areas;

c) during the transportation of radioactive materials;

d) which cannot initially be linked to any specific area of national territory.

2. The Prime Minister, on a proposal from the Ministry for Health, in conjunction with the Minister for the Environment, the Minister for the Interior and the Minister for the Coordination of Civil Protection, having consulted the ANPA, the National Health Institute, the ISPESL and the CNR, shall establish by decree, with reference to the relevant Community and international guidelines, reference dosimetric values for planning

action in emergency situations. Until the decree enters into force, the plans referred to in this chapter shall refer to the relevant recommendations of the competent Community and international bodies.

Article 116. ***External Emergency Plan***

1. In order to protect, for reasons of public safety, the public and property from the harmful effects arising from a nuclear emergency, an external emergency plan shall be prepared for each of the installations set out in Articles 36 and 37 of this Decree.

2. The external emergency plan shall provide for a coordinated set of measures appropriate to the prevailing circumstances, to be taken by the responsible authorities in the event of an accident in a nuclear installation involving a threat to public safety.

Article 121. ***National Emergency Plan***

1. The Department for the Coordination of Civil Protection at the Prime Minister's Office, in agreement with the Ministry of the Interior and with the assistance of civil protection bodies, as provided for in Law No 225 of 24 February 1992, and of the ANPA, shall prepare a national plan of protection against radiological emergencies in the whole country.

2. The Department for the Coordination of Civil Protection at the Prime Minister's Office, in agreement with the Ministry of the Interior, shall include in the plan referred to in paragraph 1, in accordance with the arrangements referred to in the same paragraph and within 6 months of receipt of the report referred to in Article 117(4), the measures needed to deal with any consequences of accidents which are not limited to provincial or interprovincial level. The ANPA shall express its views once it has consulted the technical committee referred to in Article 9. The plan shall be forwarded to the Prefects concerned, who shall then carry out the operational planning and prepare the corresponding implementing provisions within their sphere of competence. The plan shall also be forwarded to all the authorities concerned by the emergency measures.

3. The plan referred to in paragraphs 1 and 2 shall set out the protective measures to be taken to deal with the radiological consequences of accidents in installations outside of the national territory, as well as for other radiological emergencies which cannot be linked in advance to any specific area of the national territory. In the cases referred to in this paragraph, the technical requirements for emergency planning shall be proposed by the ANPA, once it has consulted the technical committee.

4. For the cases referred to in paragraph 3, the planning of the protective measures shall include the requirements for the initial notification of the accident which might trigger the implementation of protection measures.

Article 122. ***Implementation of the External Emergency Plan***

1. The external emergency plan and the protective measures referred to in Article 121 shall be implemented in accordance with the provisions of Law No 225 of 24 February 1992 and the corresponding implementing provisions.

2. The director of a nuclear installation must immediately notify the Prefect, the chief provincial fire officer and the ANPA of any nuclear accident involving a threat to public safety or the risk of damage to property, giving an indication of the steps taken to contain the accident and any other technical details for the implementation of the external emergency plan and stating the likely magnitude of the accident.

3. He shall also be subject to this obligation in respect of any event or abnormality which might give rise to a threat to public safety.

4. The Prefect shall immediately inform the Department for the Coordination of Civil Protection at the Prime Minister's Office and the directorate-general for civil protection and the fire-fighting services of the Ministry of the Interior, as well as the head of the regional government and the departments of the national health service responsible for the area concerned. The Prefect shall implement the measures set out in the external emergency plan or, where necessary, those referred to in Article 121(2) for which he is responsible.

5. The chief provincial fire officer shall provide the initial emergency technical assistance under the emergency plan.

6. In cases where the threat to public safety or the risk of damage is likely to spread to adjacent provinces, the Prefect shall immediately notify the Prefects concerned.

Article 123. ***Data Processing and Evaluation Centre***

1. In order to provide a common technical support unit for dealing with the radiological emergencies referred to in this chapter, the data processing and evaluation centre shall be set up under the ANPA.

2. The centre shall be a technical facility for the Minister for the Coordination of Civil Protection, partly to assist in the work of the operational civil protection committee referred to in Article 10 of Law No 225 of 24 February 1992.

3. (...)

4. (...)

5. (...)

6. (...)

SECTION II

Informing the General Public

Article 127. ***Situations Covered***

1. The provisions of this Section relate to the measures and procedures for informing the general public of health protection measures and of how to act in the event of a radiological emergency, and apply to the emergency situations referred to in Section I of this chapter, as well as to the cases set out in Article 101(2).

Article 128. ***Definitions***

1. Without prejudice to the definitions in Chapter II, the following definitions shall apply for the purposes of the application of this Section:

a) population likely to be affected in the event of a radiological emergency: any population group for which an intervention plan has been drawn up in the event of a radiological emergency;

b) population actually affected in the event of a radiological emergency: any population group for which specific protection measures are taken as soon as a radiological emergency occurs;

c) intervention plan: the emergency plans referred to in Section I of this chapter or the plans referred to in Law No 225 of 24 February 1992, which take account of the situations listed in Article 101(3).

Article 129. ***Obligation to Provide Information***

1. The information provided for in this Section shall be communicated to the population groups defined in Article 128 without any request being made. The information shall be available to the public in normal circumstances, in a pre-alarm phase or in a radiological emergency.

Article 130. ***Prior Information***

1. The population likely to be affected in the event of a radiological emergency shall be given information about the health-protection measures applicable to it and about the action it should take in the event of such an emergency.

2. The information provided shall at least include the following elements:

a) the nature and characteristics of radioactivity and its effects on human beings and on the environment;

b) the types of radiological emergency covered and their consequences for the general public and the environment;

c) the action to be taken in the event of a radiological emergency;

d) the authorities and bodies responsible for the emergency action and measures to be taken to inform, alert, protect and assist the general public in the event of a radiological emergency.

3. Detailed information shall be provided to particular population groups according to their activities, functions and responsibilities vis-à-vis the community and to any role they may have to play in the event of an emergency.

Article 131. ***Information in the Event of a Radiological Emergency***

1. The population actually affected by a radiological emergency shall be informed without delay of the facts of the emergency, of the action to be taken and, of the health-protection measures applicable to it, as appropriate to the case in point,

2. In particular, information shall be provided rapidly and regularly on:

a) the type of emergency which has occurred and, depending on the information available, its characteristics: type, origin, extent and probable development;

b) the instructions to be followed depending on the type of emergency which has occurred and any announcements recommending cooperation;

c) which authorities and bodies to contact for information, advice, assistance, aid and any cooperation.

3. Where time is available, the information referred to in paragraph 2 shall be supplemented by a reminder of the basic facts about radioactivity and its effects on human beings and on the environment.

4. If the emergency is preceded by a pre-alarm phase, the population shall receive information on how and when further information will be provided on the development of the situation.

5. Specific information shall be provided, including in the pre-alarm phase, to particular population groups according to their activities, functions and possible responsibilities vis-à-vis the community and to the role which they may have to play in the situation in question.

Article 133. ***Standing Committee for Information on Protection Against the Risks Arising from Ionising Radiation***

1. A Standing Committee for information on protection against the risks arising from ionising radiation shall be set up at the Ministry of Health and shall be responsible for:

a) preparing and updating the prior information referred to in Article 130 and 132 and indicating the appropriate channels for its dissemination;

b) preparing the general outline of the information to be disseminated in the event of an emergency, as referred to in Article 131, and setting out the criteria for determining the appropriate means of communication;

c) providing advice to the bodies referred to in Article 134;

d) studying the ways of checking that the prior information has reached the population, for which it shall use, inter alia, the facilities of the National Health Service and its computer system.

2. The Minister for Health, in conjunction with the Minister for the Interior, the Minister for the Coordination of Civil Protection and the Minister for the Environment, having consulted the ANPA, shall appoint the Committee by decree. The Committee shall comprise fifteen experts in radiation protection, civil protection and mass communication. The same decree shall lay down the rules for the operation of the Committee.

Article 135. ***Circulation of Information in the European Union***

1. The information disseminated in accordance with Article 131 shall be forwarded by the Department for the Coordination of Civil Protection at the Prime Minister's Office to the European Commission and to those Member States which are, or are likely to be, affected as required under Article 10(2) of 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.

2. The Department for the Coordination of Civil Protection at the Prime Minister's Office shall forward to the European Commission, at the latter's request, the information referred to in Articles 130 and 122.

Article 160. ***Time Limits for Application***

1. Except where otherwise stipulated in the following paragraphs, the provisions of this Decree shall apply from 1 January of the year following the publication of this Decree in the Official Gazette.

2. The provisions referred to in Articles 18, 19, 20, 21(3), 22, 24, 26, 27, 30, 31, 33, 34, 98, 101 and 105(2) shall apply 3 months after the entry into force of the decrees provided for in the said articles.

3. The provisions referred to in Chapter VIII on the medical surveillance of non-category A workers shall apply from 1 July of the year following the date of the publication of this Decree in the *Official Gazette*.

4. The provisions referred to in Article 107 shall apply 3 years after the date of entry into force of the Decrees provided for in the said paragraphs; until that time, the activities shall continue to be conducted in accordance with existing conditions. The ANPA and the ISPESL shall be the approved institutes as referred to in Article 107(3).

5. Until the provisions mentioned in paragraphs 1, 2 and 3 start to apply, the corresponding provisions established in Presidential Decree No 185 of 13 February 1964, with the relevant procedures and application thresholds, shall remain in force.

Article 161. ***Implementing Decrees***

1. The implementing provisions provided for by this Decree shall be issued 31 December 1995. These provisions shall be based on the principles of the system of radiation protection referred to in Article 2 in order to provide the most effective physical and health protection of the general public and workers, and of the

environment and shall take account of the recommendations of the European Community and of the other international organisations responsible.

2. The opinions required for the issuing of the implementing provisions referred to in paragraph 1 shall be submitted no later than 90 days after a request is made. If no action has been taken by this deadline, the opinions shall be considered to be favourable.

3. The opinions required for the issuing of the implementing provisions referred to in paragraph 1 are decided after consultation with the Conference State Region in accordance with Article12 paragraph 5 of the Law No 400 of 23 August 1988.

Article 162. ***Special Provisions Concerning the Ministry of Defence***

1. The Prime Minister, on the basis of a proposal from the Minister for Defence and having consulted the Interministerial Coordination and Consultation Council, shall issue a decree specifying the rules governing nuclear safety and health protection in the area of defence.

2. In order to guarantee the protection of the general public and workers against the risks of ionising radiation, these rules shall follow the principles of radiation protection established in this Decree and in Community legislation, due account being taken of the particular requirements relating to the institutional tasks of the armed forces in peace time.

Article 163. ***Repeal***

1. Presidential Decree No 185 of 13 February 1964 is hereby repealed.

2. The references to Presidential Decree No 185 of 13 February 1964 contained in laws, decrees, regulations and circulars shall be deemed to refer to the corresponding provisions of this legislative Decree.

3. The present Decree, bearing the State's seal, will be inserted into the Italian official compilation of legal acts. It is the responsibility of each to adhere to such Decree and to ensure its compliance.