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Nuclear Energy Agency
Organisation for Economic Co-operation and Development

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ARTICLES

The reform of the Paris Convention on Third Party Liability in the Field of Nuclear Energy and of the Brussels Supplementary Convention

An overview of the main features of the modernisation of the two Conventions

by Roland Dussart Desart*

A. Introduction

A.1. The beginnings: the fundamental principles

The arrival of nuclear energy gave rise to the need, almost half a century ago, to devise a regime of liability in keeping with the new risks associated with this technology: risks that were not only catastrophic, but also insidious, because they were incapable of detection by ordinary human beings. The principles underlying this regime have stood the test of time, even if the accusation is now sometimes made that some of them were also designed to protect an industry in its infancy.

These principles are as follows:

- the operator of a nuclear installation is objectively liable, meaning that the victim of nuclear damage does not have to prove fault in order to be compensated;
- channelling of the liability onto the operator alone, both to avoid sterile debate between professionals and to allow the insurance sector to mobilise the necessary resources;
- financial limitation on the liability of the operator.

The international nature of the nuclear industry, the serious risk of transborder damage and the carriage operations in this sector led to international conventions being entered into which, having enshrined the three abovementioned principles, were designed in particular to:

- avoid jurisdictional conflicts arising between a number of courts belonging to more than one state;
- prevent the available coverage from being unwisely used up by excluding from its benefit those assets connected with the operation of installations;

* Roland Dussart Desart is the Head of Division in the Office of President of the *Service Public Fédéral Economie, PME, Classes Moyennes & Energie* in Belgium. Facts given and opinions expressed in this article are the responsibility of the author alone.

- fix uniform periods of limitation;
- regulate transport operations in order to guarantee continuity of coverage;
- unify and limit clauses excluding liability.

These were the guiding principles that led to the signing, in succession, of the Paris Convention on Third Party Liability in the Field of Nuclear Energy,¹ a regional instrument within the framework of the OEEC (which became the OECD in 1961) in 1960 (referred to hereinafter by the initials PC), and the Vienna Convention on Civil Liability for Nuclear Damage,² a worldwide instrument under the auspices of the IAEA, in 1963 (the VC).

The perceived need to increase the amounts of cover paid for out of public funds led to a third instrument being entered into on 31 January 1963, the Brussels Supplementary Convention (BSC)³ which offers some states that are Parties only to the Paris Convention the security of two additional tiers of compensation: a second one payable by the installation state where the incident originated and a third made up of contributions from the Parties, prorated according to their Gross National Product and their installed nuclear capacity.

There have been some interim modifications to this machinery, mostly to increase the amounts of money available, but overall it is still in place.

A.2. The impetus for the modernisation process

The Chernobyl catastrophe acted as a catalyst for the negotiation and adoption of a number of international conventions in the field of nuclear energy. I will cite here instruments such as the Convention on Early Notification of a Nuclear Accident (1986), the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1986) or the Convention on Nuclear Safety (1994).⁴

It further demonstrated how inadequate was the coverage provided under the existing conventions on liability for nuclear damage, and showed the extent of crossborder damage, which had previously been a virtual concept but which suddenly took on a very real dimension.

The Joint Protocol

In the field of liability for nuclear damage, the first bridge to be hastily put in place between the Vienna and Paris Conventions, came with the Joint Protocol on the Application of the Vienna

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1. The text of the Paris Convention currently in force is available on the Web site of the NEA at: www.nea.fr/html/law/nlparis_conv.html.
 2. The text of the Vienna Convention of 1963 is available on the Web site of the IAEA at: <http://www.iaea.org/Publications/Documents/Infcircs/1996/inf500.shtml>.
 3. The text of the Brussels Convention currently in force is available on the Web site of the NEA at: www.nea.fr/html/law/nlbrussels.html.
 4. The text of these three Conventions is available on the Web site of the IAEA at: www.iaea.org/Publications/Documents/Conventions/index.html.

Convention and the Paris Convention⁵ (adopted on 21 September 1988, entered into force in 1992), which extends the benefit of the application of whichever of these two Conventions the installation state is Party to, to the States Parties to the other convention, provided they have ratified the Joint Protocol. If the Parties to the VC have for the most part ratified this Protocol, the Parties to the PC have been less diligent about doing so.⁶

Revision of the Vienna Convention⁷

In the same time-frame, programmes for international cooperation on nuclear safety have been developed, and this has revived interest in the Vienna Convention, to which several countries from Central and Eastern Europe have now adhered. In the same way as the Paris Convention, that convention however seemed to have become outdated in a number of respects. In 1990, as a result, the IAEA set in motion the process of revision of the Vienna Convention. The Parties to the Paris Convention played an active part in this work and drew on it quite openly when they began their own process.

The Convention on Supplementary Compensation for Nuclear Damage (CSC)⁸

Given the relatively low levels of coverage suggested by the Parties to the Vienna Convention, the proposal was made to supplement it from the outset by an instrument calling upon international cooperation.

This Convention on Supplementary Compensation, which for a long time was referred to as the “Umbrella”, is intended to offer a worldwide supplement to the amounts provided for under national law, whether these are based on the Vienna Convention or the Paris Convention, or comply with a number of criteria that guarantee equivalence, which are listed in an Annex. This formulation has been called the “grandfather clause”. In practice, as currently drafted, especially as regards the provision in its Annex requiring compliance with the legal conditions in force on 1 January 1995, it affects only the United States.

The CSC was also designed to serve as an umbrella for regional supplementary conventions, both those already in existence, like the Brussels Supplementary Convention, or still at the concept stage, like the regional convention discussed during the drafting work by the South American states, or another one that might be put in place in the Far East.

5. The text of the Joint Protocol is available on the Web site of the NEA at: www.nea.fr/html/law/nljoint_prot.html.

6. As at 10 March 2005, 14 Parties to the VC (Bulgaria, Cameroon, Chile, Croatia, the Czech Republic, Egypt, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Ukraine) were Parties to the Joint Protocol while only nine Parties to the PC (Denmark, Finland, Germany, Greece, Italy, the Netherlands, Norway, Slovenia and Sweden) have ratified that instrument.

7. For a general analysis of the topic, see Vanda Lamm “The Protocol amending the 1963 Vienna Convention”, *Nuclear Law Bulletin* No. 61, p. 7.

8. For a general analysis of the topic, see Ben McRae “The Compensation Convention: Path to a Global Regime for Dealing with Legal Liability and Compensation for Nuclear Damage”, *Nuclear Law Bulletin* No. 61, p. 27.

Given the small number of ratifications, everyone is asking when this Supplementary Convention will enter into force. It will require ratification by states with a substantial number of nuclear installations, foremost among them being the United States, the main promoter of the convention, or perhaps France, Russia or Japan, before this instrument becomes a reality and attracts other states to adhere to it.

Revision of the Paris Convention on Third Party Liability in the Field of Nuclear Energy (PC) and the Brussels Supplementary Convention to the Paris Convention (BSC)

The completion in 1997 of the process of revision of the Vienna Convention coincided with the official start of work on revising the Paris Convention, which in turn was followed by work starting on the revision of the Brussels Supplementary Convention (1999).

Because the Vienna and Paris Conventions are so closely related, it is possible here to make an almost systematic comparison between the results of the two revisions.

The two Supplementary Conventions will be examined at the end of the article.

B. The Revision of the Paris Convention⁹

B.1. Problem areas

The revision process will always seem too long to an outside observer. The time it took to revise the Vienna Convention and to update the Convention on Supplementary Compensation will remain in people's minds: the temptation to go back to the beginning was too great, especially in a forum where the Contracting Parties, in particular those of them that have nuclear installations, were in the end in the minority. Much time was also lost in trying to find ways of making the state liable as the issuer of operating licences.

It also has to be admitted that the length of time it took to revise the Paris and Brussels Conventions, from 1998 to 2004, was also fraught with setbacks.

The different approaches of the Law of the Sea

Even the extension of geographical scope to cover exclusive economic zones, with all its corollaries in terms of jurisdiction of the courts, gave rise, as it did in Vienna but between different Parties, to a prolonged dispute illustrating the different approaches to the law of the sea.

The search for other means of financing

In setting themselves very ambitious standards at the outset, especially with regard to the minimum amounts to be offered, the negotiators found themselves faced with a hesitant insurance market. True, the convention also allows resort to financial guarantees, but the cost of these and their scarcity make them unattractive. At one point during the Vienna negotiations the setting up of

9. The Protocol of 12 February 2004 amending the Paris Convention is available on the NEA Web site at : www.nea.fr/html/law/paris_convention.pdf.

“managed” voluntary pools of operators had been envisaged, but in the end this did not attract sufficient support.

Assessing the terrorist threat after the attacks of 11 September 2001

The 11 September attacks undoubtedly gave the insurers a rude awakening in their assessment of the risks. Though the risk of terrorism was clearly well covered by the Paris Convention, since there is no clause excluding terrorism in Article 9, the probability of a nuclear power station becoming the object of such an attack was suddenly dramatically increased, which quite naturally prompted a new assessment of capacity, and a request from the insurance sector for Article 9 to be reviewed. In the final analysis, terrorism will remain covered by the conventions; what is more, the way in which it is covered will, as in the past, for reasons connected with « historic » forms of terrorism, sometimes be subject to special arrangements whereby the state acts to insure the risk, in exchange for a premium.

Adaptation or adoption of other international conventions or instruments containing clauses excluding nuclear risks

The development of other international instruments has had to be kept under constant scrutiny, given the risk that the negotiators of such texts would base themselves on a literal reading of the old Paris Convention, only to find that their cover was inadequate and delete the nuclear exception, or allow claims for damages beyond those covered by the twin Paris/Brussels instruments. It was therefore necessary not only to explain in other fora the existing regime with all its extensions and interpretations (for example the PC provides a coverage of 15 million Special Drawing Rights (SDR) but there is a recommendation by the NEA¹⁰ to increase this to SDR 150 million), but also to “sell” the positive effects of a revision whose date of entry into force nobody knew, on the basis of a protocol that had not yet been opened for signature. The most striking example in this respect is still that of the EU Directive on environmental liability,¹¹ which was being negotiated while work was going on to revise the Paris Convention and which was adopted a short time later.

Adoption of European Union Council Regulation (EC) 44/2001¹²

This regulation, on jurisdiction and the recognition and enforcement of judgments in civil et commercial matters, suddenly deprived most of the Parties to the Paris Convention that are also members of the European Union (excluding Denmark) of the right to adopt international conventions derogating from the provisions of that regulation. That was indeed the purpose of revising Article 13, which derogated from the Community law principle of deciding which court has jurisdiction on the basis of the domicile of the victim, thus allowing one single forum. In the end, it took two years to convince the competent European Union bodies of the relevance of the provisions proposed, and for the Parties that are members of the EU to be authorised to sign the Amending Protocols, on 12 February 2004.

10. Recommendation of the Steering Committee of 20 April 1990 [NE/M(90)1].

11. Directive 2004/35/EC of the European Parliament and the Council of 21 April 2004 on environmental liability, as to the prevention and compensation of environmental damage [Official Journal No. L 143 of 30/04/2004 p. 0056-0075].

12. Council Regulation (EC) n° 44/2001 of 22 December 2000 on jurisdiction, recognition and enforcement of judgments in civil and commercial matters [Official Journal No. L 012 of 16/01/2001 p. 0001-0023].

B.2. Key points in the revision of the Paris Convention, in light of the Vienna Convention

B.2.a. Definitions

1. Nuclear incident

The first definition to feature in the Paris Convention [Article 1(a)(i)] is noticeably shortened, reducing a nuclear incident to any occurrence or succession of occurrences having the same origin which causes nuclear damage.

The part of the original definition of an incident relating to the radioactive properties and hazardous properties that go to make up a nuclear incident are moved into the new definition of nuclear damage, which means that the notion of a nuclear incident still has all the same components, once all the various elements are brought together.

This phrase in the definition confirms the interpretation already given to the pre-existing definition, whereby even emissions authorised by the rules could qualify as an incident where they gave rise to nuclear damage.

On the other hand, the corresponding definition that appears in Article I(1) of the Vienna Convention adopted identical wording, but was accompanied by supplementary language that also included “as regards preventive measures, [any occurrence that] creates a serious and imminent threat of damage of this kind”.

The Vienna definition thus includes a temporal paradox which assimilates a nuclear incident to a threat of damage, while nuclear damage can only be caused by a nuclear incident. The Vienna Convention resolves this paradox in its definition of preventive measures, which are presented as being taken after a nuclear incident. The serpent is thus biting its own tail.

The Paris Convention attempts another solution to avoid this paradox, by its definition of preventive measures, which are subject to compensation, whether they are taken after a nuclear incident has occurred or after an event that creates a serious and imminent threat of nuclear damage, to reduce nuclear damage once it has actually happened, in other words after a “true” nuclear incident. This is designed to avoid a situation where only “ordinary” safety measures such as acquiring equipment or training emergency teams are eligible, while, as will be seen later with regard to the definition of safety measures, some national laws have mechanisms that are if not equivalent in effect, then at least very similar.

2. Nuclear installations

The Protocol to amend the Paris Convention expanded the definition of the nuclear installations covered by Article 1(a)(ii) to those installations in the course of decommissioning as well as installations intended for the disposal of nuclear substances. These two extensions clearly do not prevent one of the Parties from relying on Article 1(b) of the convention, in order to obtain an exemption for these installations from the Steering Committee of the OECD/NEA on the grounds that they present a reduced risk. In the case of the disposal, their operator will most probably be a public authority, given the exceptionally long-lasting nature of the operation.

If the revised Vienna Convention remains silent as to these two types of installations, it still appears that they are covered, because final disposal is after all still storage.

The Vienna Convention is more explicit on a different issue: it now expressly states in the new Article I B that it does not apply to nuclear installations used for non-peaceful purposes, even though one French diplomat did point out the paradox in the adage *si vis pacem para bellum*.

It differs in this respect from the Paris Convention which, in the absence of any express exemption, can be taken to apply to military installations where these installations fulfil the criteria in the definition. As to the BSC, it expressly refers, in its one paragraph of preamble, to the use of nuclear energy for peaceful purposes, and says so in Article 2. It therefore does not apply to military nuclear installations; it is hard to see how a mechanism for inter-state co-operation could apply to manifestations of national sovereignty such as these.

3. Damage

Both the Paris Convention [Article 3] and the Vienna Convention [Article I] offer a laconic definition of damage, limited to personal injury and damage to property, and excluding damage to the installation. National legislators were thus free in practice to come up with an ad hoc definition, or even to refer to the general law.

A laconic definition or an incomplete one?

The definition of damage was the subject of long debate during the review of the Vienna Convention, the concern being to expressly cover the broadest field possible, while at the same time laying down certain safeguards to avoid abuses that could result in the available coverage being prematurely used up, at the expense of the most « traditional » kinds of damage.

In the Paris Convention as amended [Article 1(a)(vii)], nuclear damage now covers:

“1. loss of life or personal injury;

2. loss of or damage to property;

and each of the following to the extent determined by the law of the competent court:

3. economic loss arising from loss or damage referred to in sub-paragraph 1 or 2, insofar as not included in those subparagraphs, if incurred by a person entitled to claim in respect of such loss or damage;

4. the cost of measures of reinstatement of impaired environment, unless such impairment is insignificant, if such measures are actually taken or to be taken, and insofar as not included in subparagraph 2;

5. loss of income deriving from an economic interest in any use or enjoyment of the environment, incurred as a result of a significant impairment of that environment, and insofar as not included in subparagraph 2;

6. the costs of preventive measures, and any loss or damage caused by such measures.”

For all these types of damage, with the exception of those referred to in item 6, the loss or damage must result from ionising radiation emitted by a source inside a nuclear installation or emitted by fuel in a nuclear installation, or nuclear substances that are being transported (...) whether the loss

is caused by the radioactive properties of this matter or from a combination of these properties with toxic, explosive or other properties (...).

Subtle differences between Paris and Vienna: a detail or an obstacle?

It should be noted here that there is a difference from the amended Vienna Convention which includes in the foregoing list – which served as a model for the Paris text – an Article I(1)(k)(vii) referring to “any other economic loss, other than any caused by the impairment of the environment, if permitted by the general law on civil liability of the competent court”.

The actual object of this last subsidiary provision was never very clear in Vienna and its promoters, who wanted more than anything else to have a “catch-all” type of clause, were unable to put forward any convincing examples. Faced with this uncertainty, and the impossibility of giving it a meaningful definition, this item did not appear in the final amended Paris Convention. The fear was expressed that this difference might cast doubt on the ratification of the CSC by one of the Parties to the Paris Convention as amended. In this respect, Article II of the CSC makes the States Parties to the Paris and Vienna Conventions, as well as to their respective amendments, fully eligible; ratification of the CSC would also mean adoption of the provisions on the definition of damage found both in the body of the CSC and in its Annex. All the Parties concerned would have to do is make a finding that such a provision “is not permitted” in the law of the competent court.

Definitions ancillary to that of damage

The definition of damage contains new concepts which in turn require supplementary definitions:

Measures of Reinstatement: reasonable measures, approved by the competent authorities, which aim to reinstate or restore damaged components of the environment or to reintroduce such components into the environment. The law of the state where the damage is suffered shall determine which authorities are competent to give such approval.

Preventive Measures: reasonable measures taken by any person, after a nuclear incident has occurred or an event taken place that causes a serious and imminent threat of nuclear damage, to prevent or reduce the damage referred to above, authorised by the competent authority if this is required by the law of the state where the measures were taken.

Reasonable Measures: found under the law of the competent court to be appropriate and proportionate, having regard in particular to the nature and extent of the damage, the extent to which such measures are likely to be effective, and the relevant scientific and technical expertise.

Damage to the environment: a reasonable challenge

Where environmental damage is concerned, it should be borne in mind that it is often forgotten that cases of *res nullius* are increasingly rare: much of what we consider as being part of the environment belongs to an actual or legal person, which may be a public body, and which, as such, already has the right to seek reparation for damage to property, and this reparation, under the general law, must in principle be made in kind.

The extent of the environmental damage that can be taken into consideration is governed by a number of factors:

- it is limited to the effective reinstatement of the impaired environment;
- insignificant impairment is excluded;
- the reinstatement measures must be reasonable;
- they have to be approved by the competent authorities;
- measures to reintroduce destroyed components must also be reasonable.

This framework is even rounded off by a definition of reasonable measures which could well appear shocking to judges who apply the principle of proportionality on a daily basis, but they will be consoled by the fact that the circumstances to be taken into account are given for information only.

Loss of profit deriving from enjoyment of the environment

The most original feature, and the one most likely to present a new risk for the insurance companies, is undoubtedly that of loss of profit deriving from use of the environment.

However, this notion too is narrowly drawn. While the principle has to be present in the laws of the Parties, they are free to vary its scope of application. It is only loss of income that is subject to compensation: anyone who merely has rights of enjoyment of the environment without earning money from it has no right to be compensated. What is more, the loss of income must derive from a significant impairment to that environment. There will no doubt be attempts to emphasise the adjective significant, but on the basis of current trends, it is probable that this test will more and more often be satisfied. The essential feature is the requirement that there be actual impairment to the environment itself. There can thus be no question of compensation for loss resulting simply from fear or rumour.

One assessment among others of the new definition of damage

Great importance was attached to the definition of damage both in Vienna and Paris. However, for civil law countries that have watched the notion of damage developing through case-law rather than the building up of a body of statutory provisions, the respective scope of the damage covered before and after ratification of the Protocol will often be quite similar, simply more clearly delineated.

A detailed demonstration of this can be given by reference to the law of one State Party, Belgium. Items 1 and 2 of Article 1(a)(vii) do not pose any problems, in the PC text; item 3 was already included under items 1 and 2. Preventive measures (6) are covered by application of the general insurance regime, and the extent of environmental damage (4) is, in the end, relatively limited in the sense that a substantial portion of the reinstatement measures will fall under item 2.

The new definition certainly has several things to recommend it: to a large extent, it unifies the concept of damage, even if items 3 to 6 are limited by the law of the competent court; it follows the trend and the concepts used in other “modern” conventions; it is compatible with the VC and the CSC and it allows the Joint Protocol to be applied. Finally, in spite of everything, it leaves states freedom to manoeuvre in the definition of some aspects of damage and, ultimately, it provides for recourse to the courts to decide whether certain measures are reasonable and proportionate.

A further direct and immediate advantage of this extensive and explicit definition finally emerged with the justification of the nuclear exclusion clause in the European Directive on environmental liability.¹³ Without this definition, the nuclear exclusion clause adopted in that draft

13. See note 11.

directive would not have survived, and that would have cast doubt on the exclusive nature of the cover of nuclear incidents by the twin Paris/Brussels regime, and with it the whole basis of the system that had been in existence for some forty years.

However, one cannot hide the fact that, for all its detail, the definition of damage will continue to be written about and will still be of interest to the legislators.

As to preventive measures, for example, there could be a number of very different approaches to having the cost of intervention borne by the various public services. In the most extreme case, such intervention would be deemed to be part of the normal duties of the authority concerned, and it would therefore not be able to recover the costs. At the opposite extreme, some legal systems appear to provide for fixed amounts to be billed upon intervention, which are supposed to represent a share of the costs incurred in keeping these services available in readiness for an incident. In the case of a major disaster exceeding the available coverage, the state might be expected to waive any such claims (this has already happened in Belgium with fire insurance); the impact of “pricing” of this kind might be greater in the case of minor incidents.

B.2.b. Geographical Scope

While the original Vienna Convention was silent on this point – and thus, in principle, generous – Article 2 of the Paris Convention confined its application to incidents and damage occurring within the territory of the Parties alone, except where a Party enacted more generous provisions in its national law. Certain Parties have made use of this option, but most of them have not; this timid provision, in contradiction with the principle that the polluter pays, was finally unable to hold out against the global trend.

The new machinery set up under Article 2(a) extends the benefit of the Paris Convention to cover damage that occurs within the territory:

- of the Contracting Parties;
- of the Parties to the Vienna Convention that are also Parties to the Joint Protocol, provided the state of the operator is also a Party to the said Protocol;
- of non-Contracting States that do not have nuclear installations;
- of other non-Contracting States that have such installations but offer reciprocal advantages based on principles identical to those in the Paris Convention, such as the objective and exclusive liability of the operator, recognition and enforcement of judgments and the free transfer of compensation.

This machinery thus satisfies “non nuclear” states that are neighbours of Parties to the Paris Convention and often highly critical of them, because they will now be able to benefit unconditionally from it. The risk remains, however, that the victims of damage in the territory of such states will try to make use of the Convention both in the courts of the installation state and the courts of the place where the damage occurred, if, for example, they did not obtain full satisfaction from the first court to hear the case. The execution of the judgments of courts that do not have jurisdiction under the PC can be prevented in the territory of the Parties; on the other hand, if the operator has assets in the territory of this non-Contracting State, the issue becomes more problematic.

As to states with nuclear installations, it should be noted that Article 7(g) provides that a Contracting Party may set amounts of liability for nuclear damage that are lower than those fixed

under Article 7 or Article 21(c) (phasing-in, see below), where the non-Contracting State does not grant equivalent reciprocal advantages. Article 7(g) thus defines the principle of reciprocity contained in Article 2(a)(iv), as applying only to the compensation offered. The content of Article 7(g) might have formed part of Article 2, but it seemed more logical to group all the financial provisions together in Article 7. This provision could give rise to problems of allocation, a fortiori if several non-Contracting States are claiming different amounts. It is, of course, always possible to find mathematical formulae to express this unequal division, but, on the ground, the fact that damage is spread out over time means that those responsible for dividing up the amounts of compensation could be faced with an extremely delicate task.

Article I A, introduced into the Vienna Convention, sets out machinery which has a similar effect but is based on the reverse logic: the scope of application is, a priori, generous, but counterbalanced by the possibility each Party has of excluding damage occurring in the territory of non-Contracting States where these have nuclear installations and do not offer reciprocal advantages. However, it does not go into the same level of detail as the Paris Convention; it will be a matter for interpretation which of the texts will in the end be judged to be clearer.

B.2.c. Transport

The transport regime, governed by Article 4 of the Paris Convention, underwent only one change of substance, with the insertion of a new Article 4(c), of which there is no equivalent in the Vienna Convention. This provision limits the option of transferring liability for carriage to another nuclear operator to cases where the latter has a direct interest in the said carriage. This is a novel measure, the object of which is to put an end to the practice noted by some Parties of designating operators subject to very low levels of liability as the operators liable for certain carriage operations. This practice could be viewed as distorting competition; it also increases the risk and the amount of the compensation to be paid by the state if a disaster should occur, with the difference between the reduced amount and EUR 700 million being payable by the authorities responsible for such undervaluations.

B.2.d. The amounts

The amounts discussed below are sometimes covered by insurance, sometimes by financial guarantees, and sometimes by commitments made by the public authorities. We are not referring here to budgetary funds that are called upon on a regular basis such as those set up by the IOPC Funds¹⁴ to compensate the victims of oil spills : it is a characteristic feature of the Paris and Brussels Conventions that they have never been put into practice. It would thus be counterproductive to permanently tie up the capital committed to them, the management of which would give rise to problems on a daily basis and require cumbersome permanent structures to be set up.

The units of account

The Vienna Convention used the gold dollar as its unit of reference. Questions were raised about the actual value of this unit of account. The problem was solved by adopting the only workable unit for a global instrument, the special drawing right [Article V]. This basket of currencies managed by the International Monetary Fund was put together, during the revision process, from American

14. International Oil Pollution Compensation Funds.

dollars (USD), pounds sterling (GBP), Japanese yen (JPY), French francs (FRF) and German marks (DEM). Since then, the euro (EUR) has taken the place of the franc and the mark.

Up until now, the Paris and Brussels Conventions had used the SDR as the unit of account. The SDR was supposed to offer the Contracting Parties two appreciable advantages: on the one hand, a degree of stability in the face of the risk of competitive devaluations, and on the other, neutrality for the Parties each of whom had their own monetary instruments. It was, however, paradoxical to make the compensation of victims who were presumably European depend on the progress of a currency as unstable as the dollar or as distant as the yen. These two currencies in fact represent between them more than 50% of the SDR basket.

The introduction of the euro changed the nature of the problem: this currency is already shared by 9 of the 14 “historic” Contracting Parties, among them most of the main contributors under the Brussels Supplementary Convention.

The replacement of the SDR by the euro brings a series of immediate advantages:

- complete transparency not only for Parties that have already adopted the euro but also for their citizens;
- easier mobilisation of insurance capabilities which, in the euro zone, no longer need to take account of exchange risks between their national currency and the SDR;
- greater stability for most of the other Parties whose economy and currencies have a natural tendency to converge with those in the euro zone rather than those of the United States or Japan.

The base amounts

Article V of the Vienna Convention henceforth provides, instead of USD 5 million gold which could be valued at EUR 50 million, for an amount of liability of SDR 300 million (equivalent to EUR 360 million), which may be reduced to SDR 150 million where the installation state makes up the difference.

Article 7 of the Paris Convention set a maximum amount of liability of the operator at SDR 15 million, or EUR 18 million. This amount could further be reduced by two-thirds, for low-risk installations or for transport operations. Most of the Contracting Parties did not wait for work to begin on revising the Paris Convention, any more than did those concerned with the Vienna Convention, to make substantial changes to the amounts laid down in their respective national laws. Taking into consideration the growing disparity between the amounts offered by the legal systems of the Contracting Parties, the inadequacy of the amount in the Paris Convention and the Chernobyl disaster, the Steering Committee of the NEA adopted a recommendation in 1990¹⁵ whereby the Contracting Parties were invited to bring the amount for a nuclear operator’s liability up to at least SDR 150 million, or around EUR 180 million.

Article 7 of the convention thus underwent several fundamental changes. Going forward, it presents the amount at which the Parties must fix the operator’s liability as a common minimum and no longer as a maximum. This new baseline thus expressly leaves the Parties free either to fix a different, higher level of liability (which still represents a maximum for the operator), or to adopt an unlimited liability regime.

15. See note 10.

The new base amount is raised to EUR 700 million, which represents almost a fourfold increase in the SDR 150 million recommended in 1990. It was arrived at by taking into account not only currency erosion, but also the multiple factors which serve to increase the amount needed if an incident should occur, in different degrees depending on the law of the Parties, such as the extension of the geographical scope to non-Contracting States, on certain conditions, or also the new definition of damage extending to the environment or to preventive measures. The ultimate criterion for setting the common base was, finally, that of insurance capability for civil liability for nuclear damage.

A novel option henceforth institutionalised: unlimited civil liability

It should be pointed out here that Germany chose the option whereby the operator is subject to unlimited liability, with German law nonetheless always fixing that portion of the operator's liability for which it must have cover from a third party. Beyond that, the operator must compensate the victims until its own assets are exhausted.

The compatibility of this system with the Paris Convention and its implications in the light of the tiers in the Brussels Supplementary Convention have long fuelled the debates of the NEA Group of Experts on nuclear third party liability which led to the adoption of recommendations that make fairly free with the texts so that Germany can continue to benefit from the international tier of the BSC. Since Switzerland took the same course without however having ratified the Paris Convention, the negotiators thus had two additional reasons to amend the Paris and Brussels Conventions: to better integrate the unlimited liability regimes, while satisfying Germany and preparing the way for Switzerland's entry.

Article 10(b) of the revised PC adapts, for those operators whose liability is not limited, the obligation already incumbent on "ordinary" operators under Article 10(a), to have and maintain a financial security of the amount established under Article 7(a) or (b). Since, in the absence of a ceiling, an operator cannot obtain unlimited security or insurance, the Contracting Party must assign it a minimal limit, which clearly may not be less than the minimum established for operators benefiting from a regime of limited civil liability, under the same Article 7 (a) or (b).

Phasing-in

The Vienna negotiators put in place a transitional formula for states unable to offer the new base amounts straight away. By virtue of the option opened up by Article V(1)(c), states (which includes Parties to the VC) may, for 15 years from the entry into force of the Protocol, offer a transitional amount of liability of not less than SDR 100 million (= EUR 120 million). The same article allows a still lower amount, provided the state compensates up to SDR 100 million.

The raising of the base amount in the Paris Convention could also have proved an obstacle to its ratification by new Parties. Article 21(c) of the final provisions of the Paris Convention was also amended so that only those states adhering after 1 January 1999 (in which respect the Protocol amending the PC is visibly more restrictive than the one that amends the VC), may limit the operator's liability to EUR 350 million for a period of five years starting from 12 February 2004. It should be noted here that a Party that relies on this technique may nevertheless ratify the Brussels Supplementary Convention as long as it agrees to cover, from public funds, the difference between the operator's liability and the EUR 700 million minimum [BSC, Article 3(e)].

Special cases: carriage and low-risk installations

Article V(2) of the revised Vienna Convention now allows a special amount to be fixed for low-risk installations, as long as this is not less than SDR 5 million (equivalent of EUR 6 million).

The revised Vienna Convention thus arrived at the amount set in the old Paris Convention for these same installations.

In Paris, these amounts were also the subject of an upward revision, proportionately much higher than the rise in the amount of the civil liability of the operator.

The minimum amount for low-risk installations is multiplied by 12, giving EUR 70 million pursuant to Article 7(b)(i); the minimum amount for carriage is multiplied by 14, giving EUR 80 million pursuant to Article 7(b)(ii).

It would be difficult to analyse these amounts objectively since they were the fruit of political compromise, and, for instance, to justify the difference of EUR 10 million between the respective minimum amounts for low risk installations and carriage. The increase coefficient could be explained, for carriage, by concern about drawing attention to an activity that is often controversial and, for low-risk installations, by the realisation of what the cost of pollution, even at a low level, would be in populated areas like university campuses.

In the end, in Vienna as well as Paris, it is the state that assumes the risk of the wrong decision having been taken with regard to the “base” amounts, in other words EUR 700 million for Paris and EUR 360 million for Vienna.

The State guarantee

The Paris Convention, by contrast with Article VII(1) of the Vienna Convention, did not contain any fallback clause for cases where the insurance or the financial security of the operator became unavailable, for example in case of bankruptcy. It might indeed have been thought that the Installation State, even if it had complied with its international obligations by enacting adequate legislation, would be in default for not ensuring that these were effective. The insertion of an express provision had the clear advantage of obviating any discussions that would cause delay in an emergency situation. Article 10(c) henceforth imposes on the state the obligation to pay the compensation for nuclear damage for which the operator is liable to the extent that its insurance or financial security is either unavailable or insufficient to cover the amounts referred to in Article 7(a) (at least EUR 700 million) or 21(c) (phasing-in).

Even if it is highly improbable that the same installation would be the scene of two separate incidents in the same year, there is one other case in which the state guarantee might be called on. This would be where the sum offered by the insurer is not, as the strict wording of Article 7(a) requires, at least EUR 700 million for each nuclear incident, but only EUR 700 million per year covered by the premium. Other, minority, Parties want these policies to include a clause requiring immediate reconstitution (meaning within one or two months) of the cover, thus decreasing the risk that they will have to intervene under Article 10(c). Such a reconstitution clause still represents a cost, however, in terms of insurance capability as well as premiums, and it is not impossible that the question will one day arise in terms of distortion of competition.

The amounts in the Supplementary Conventions

The first Supplementary Convention, that of Brussels, had made it possible to increase the amount of liability of the operator under the Paris Convention. This complement is made up of two tiers of public funds offered in succession, according to need, by the installation state of the incident, and afterwards by the community of Contracting Parties.

The tier borne by the Installation State was intended to cover the difference between the amount for which the operator was liable and SDR 175 million, or around EUR 210 million. With the progressive increase in national amounts, the installation state tier has been “wiped out” in part or even entirely for many states over the years.

The international tier allocated by the Contracting Parties covered the reparation of damages between SDR 175 million and 300 million, in other words between EUR 210 million and 360 million.

The revised Brussels Convention maintains the principle and the nature of these three tiers in Article 3(b).

In order to grant the Parties the possibility of continuing with the practice of making the operator bear all or part of their own tiers, the tier for which the installation state is liable now covers the difference between the amount offered under the first tier and EUR 1.2 billion. Put another way, the second tier will be borne entirely by the operator under an unlimited liability regime, even though this tier is by nature considered as coming out of public funds.

The third tier is always fed exclusively from the public funds of the Contracting Parties, with an initial amount of EUR 300 million. When this tier was increased this was not done in the same proportion as the operator’s tier; this was in particular because the new contribution formula increased the part played by the installed nuclear capacity.

The total amount of the three available tiers is thus now EUR 1.5 billion, in other words a fourfold increase in compensation by comparison with the system as it was before.

The Vienna conference devoted a great deal of attention to the Brussels Supplementary Convention in an attempt to supplement the Vienna Convention with a similar system, but one which would have the advantage of serving as an umbrella not only for Vienna but also for Paris, or even for other regional conventions. Its principles will be examined later. What the Convention on Supplementary Compensation intrinsically proposes is an amount that depends on the number of Contracting Parties, and more especially of their installed nuclear capacity. This Supplementary Convention therefore still remains subject to a question mark, both as to what its effects will be and when it will enter into force.

The following is a comparative table allowing the few available figures to be better understood:

<i>Table showing amounts of civil liability for nuclear damage</i> (1) (M = Million)				
Notes	Paris Convention	Revised Paris Convention	Revised Vienna Convention	Vienna Convention
Amount of operator's civil liability	EUR 18 M maximum (2)	EUR 700 M minimum	EUR 360 M	USD-gold 5 M = approx. EUR 50 M
Phasing-in	–	EUR 350 M	EUR 120 M	–
Duration	–	5 years	15 years	–
Reduced civil liability Transport	EUR 6 M	EUR 80 M	EUR 6 M	–
Reduced civil liability Installations	EUR 6 M	EUR 70 M	–	–
Supplementary Conventions				
	<i>Brussels Supplementary Convention</i>	<i>revised BSC</i>	<i>Convention on Supplementary Compensation</i>	
Operator	From EUR 6 M to (2)	EUR 700 M minimum	EUR 360 M	
Installation State	Up to EUR 210 M (3)	Up to EUR 1 200 M (3)	Optional	
International Tier	Up to EUR 360 M (4)	Up to EUR 1 500 M	Depends on Parties	
(1) Amounts in SDR (PC, BSC, VC, RVC) are converted here at the rate 1 SDR=1.2 EUR				
(2) Raised to EUR 180 M by a 1990 NEA recommendation				
(3) Tier that could be “wiped out” if it is absorbed by the one for which the operator is liable				
(4) Total amount available depending on the amount of civil liability of the operator				

B.2.e. Periods of limitation

By virtue of Article 8 of the Paris Convention, actions for compensation had to be begun within ten years from the nuclear incident, if they were not to be time-barred, but national legislation could allow more generous time limits provided this did not prejudice the rights of those who had begun actions within the ten-year time period. It was also open to the national legislator to fix a period of limitation of at least two years to run from the moment the victim became aware of the damage and of which operator was liable.

These provisions were unfavourable to victims, especially in the case of personal injury happening a long time after the incident itself, and they have now been radically modified by the Protocol.

The period of limitations for actions for compensation for personal injury has gone from ten to 30 years [Article 8(a)(i)], and the period for other forms of damage stays fixed at ten years. The revised Convention still allows longer periods to be laid down by the national legislature, subject to the same reservation that the rights of claimants who filed a claim during the principal period must be

protected. Even though the causal connection between the nuclear incident and the personal injury suffered will be more and more difficult to establish with the passage of time, the new time limit of 30 years (which some Parties were already applying) undoubtedly responds to a social need.

The “optional” time limit that starts to run from awareness of the injury has gone from two to three years [Article 8(d)].

It should be noted that the revised Vienna Convention provides for identical periods of limitation in Article VI but that Article VIII(2) now gives mandatory priority to cases of personal injury.

However, this option was rejected for the Paris Convention. Some Parties saw this as an attack on the constitutional principle of equality, while others raised questions about the practical workings of such a mechanism which would have obliged them to build up reserves for a hypothetical future, not to mention its potentially perverse effects on the triggering of the application of the Brussels Supplementary Convention. The attitude when faced with the principle of priority obviously varies depending on which options were chosen with regard to the amount of the liability. Under one regime, that of unlimited civil liability, it is a simple matter to reject any notion of priority, even if, on the facts, the assets available belonging to the operator liable are also limited and will tend to decrease over time.

Finally, we should note that one provision common to both conventions, setting a limitation period of 20 years for incidents involving fuel, radioactive products or radioactive waste that are stolen, lost, thrown overboard or abandoned at the time of the incident, has disappeared from both conventions [Article VI(2) of the Vienna Convention of 1963 ; Article 8(b) of the Paris Convention of 1960].

B.2.f. Exclusion clauses

Article 9 of the Paris Convention exempts the operator from all liability if the damage is caused by acts of armed conflict, civil war or insurrection; as has been mentioned earlier, this clause has been interpreted from time immemorial as not granting exemption for acts of terrorism, on whatever scale.

By contrast, the Paris Convention allowed the Parties to exempt the operator from liability in cases of natural disasters of an exceptional character. This possibility to derogate is abrogated by the Amending Protocol. This modification is in line with a culture of security that is unable to come to terms with the fact that installations might not be able to resist such events and, a fortiori, that the victims of such an unforeseen circumstance should be deprived of compensation.

The maintenance of coverage of terrorism and the deletion of the possibility of excluding risks of disaster are two important gains at a time when both terrorism and the vagaries of nature have shaken the confidence of the insurance world. As to terrorism in particular, it should be noted that special temporary mechanisms have cast some states that are particularly exposed in the role of insurer, on payment of a premium. These exceptional systems have – and will for the future – made it possible to face up to severe difficulties in securing an adequate overall insurance capability.

Article IV(3)(b) of the Vienna Convention, which used to exclude natural disasters and left it to the Parties to add them, has also been deleted, despite momentary hesitation on the part of certain countries that are particularly vulnerable to earthquakes. Acts of terrorism are covered here, too.

B.2.g. The rules on jurisdiction

Under the original Conventions [Article 13(a) and (b) of the PC ; Article XI(1) and (2) of the VC], the courts of the Contracting Party in whose territory the incident occurs have jurisdiction. Where the incident occurs outside such territory or in a place which cannot be determined with certainty, actions shall lie with the courts of the Contracting Party in whose territory the installation of the operator liable is situated. There are special rules to resolve jurisdictional conflicts [Article 13(c) of the PC ; Article XI(3) of the VC].

Jurisdiction over the exclusive economic zone or its equivalent

Article 13 of the Paris Convention, like the corresponding provision in the Vienna Convention, was the subject of protracted debate when it came to extending jurisdiction to exclusive economic zones or their equivalents established by maritime states with differing conceptions of the law of the sea.

From now on, under Article 13 of the revised Paris Convention or Article XI *bis* of the revised Vienna Convention, nuclear incidents that occur within the exclusive economic or similar zones, provided these have been notified to the Secretary-General of the OECD before the incident, fall under the jurisdiction of the courts of the Party that has established the said zone. This provision was controversial because it sets up a system of “floating” jurisdiction, less obvious than the rule of the courts of the installation state of the operator liable, but justified by the need to favour the court that will probably also be the closest to the greatest number of victims. Fears persist, however, that it will be no easy matter to determine which is the competent court, because this depends on knowing the exact time and place of the incident, while the courts of the state of the operator liable had the advantage of remaining a constant factor throughout.

The new Article 13(e) of the revised Paris Convention refines this provision so that it will not be taken as a precedent for other purposes than those of the convention; it was not thought necessary to go into such detail in the Vienna Protocol.

The single forum

Another provision introduced as Article 13(h) of the Paris Convention and also featuring in the revised Vienna Convention [new Article XI(4)] obliges national legislators to ensure that only one court has jurisdiction over any given incident.

The object of this provision is to make it easier to do this as a sort of “closed bid” process without having to decide disputes between the courts. It also allows states to select, at the outset, the court best able to deal with a large number of claims: to take the example of Belgium, the Court of First Instance of Brussels was chosen as, though there is no nuclear installation within its area, it has the best logistical resources and can hear cases in both the country’s main languages.

Action by the state on behalf of its nationals

While the drafters of the revised Vienna Convention were inspired to adopt a single forum by the Parties to the Paris Convention, who introduced it into “their” convention after the fact, the new Article XI A of the Vienna Convention is itself an innovation in that it obliges the Contracting Parties to allow states to bring actions on behalf of their nationals or persons resident in their territory, provided these persons have given their consent. A similar provision was introduced in Article 13(g) of the Paris Convention. It will greatly facilitate the representation of victims who, without it, would

have thought twice about taking proceedings in a foreign court, with all the expense and problems of language, traditions and legal procedure that this involves.

B.2.i. Joint and several liability

Article 5(d) of the Paris Convention governs the situation where several operators are liable for the same nuclear damage. This article, or at any rate its French text, created a problem resulting from a literal translation into French of the expression “joint and several liability”, which came out as “*solidaire et cumulative*” which is at the very least ambiguous: what was the extent of this joint liability, were the debtors each liable for the whole or could they still discuss it between themselves and divide it up? The new wording of Article 5(d) removes this doubt by keeping only the term “*solidaire*”.¹⁶ Each operator may thus be subject to a claim for the whole of the damage, leaving him free to make a claim against the other operator liable for that portion which exceeds his own liability. “Own liability” here does not necessarily mean the amount fixed for him by the applicable legislation pursuant to Article 7(a), but the actual part of the damage for which he is responsible. This might not necessarily be a simple matter of dividing by the number of operators involved, but could be arrived at by a study of causation or by reference to contractual agreements entered into before or after the incident, always provided that these factors have no impact on the total compensation available for the victims. This reasoning clearly only makes sense in the case of nuclear incidents causing an amount of damage that is less than the sum total of the amounts for which the operators concerned are liable.

The revised PC maintains the exception in this context for cases where the nuclear damage occurs in the course of carriage, whether in one and the same means of transport or during incidental storage at one and the same nuclear installation, limiting the total amount of liability to the highest amount established for any one of the operators pursuant to Article 7.

As in the pre-existing regime, in no case may the final amount of the operator’s liability be greater than that established for it pursuant to Article 7.

B.2.j. Other amended provisions

The Protocol to Amend the Paris Convention covers various other provisions: these are of course changes made necessary by the adoption of new definitions or the renumbering of some of the articles; they also include modifications of a more technical nature, such as the exclusion of definitions of national law and national legislation, the conflict of law rules [Article 14], a reservation concerning the application of general rules of public international law [Article 16 *bis*], a minor simplification of the dispute resolution clause [Article 17], the setting up of five-yearly consultations between the Parties [Article 22], and changes to the final clauses to bring them into line with current treaty practice [Articles 18, 19, 20, 23 and 24].

16. Translator’s note : literally « joint », but normally used to translate the legal concept of « joint and several ».

C) The Brussels Supplementary Convention (BSC)¹⁷

C.1 Basic Principles

In the end, the revision of the Brussels Supplementary Convention went into less detail than that of the Paris Convention: its main principles remained the same, as do its relationship to the Paris Convention and its geographical scope.

C.1 a. Its origins

The Brussels Supplementary Convention was born out of the realisation that the amounts of liability of operators bore no relation to the actual consequences of a serious incident. On 31 January 1963, 13 of the Parties to the Paris Convention thus adopted this supplementary instrument.

C.1 b. Supplementing the Convention and its limits

The supplementary nature of this instrument is clear from Article 1 – left intact by the revision – which states that the regime set up under the BSC is subject to the provisions of the Paris Convention. It follows – and unrevised Article 19 of the BSC expressly says so – that no state may become or remain a Party to the BSC if it is not a Party to the PC.

In the case of a nuclear incident causing nuclear damage for which an operator covered by the Paris Convention is liable, the amount of which exceeds the cover provided by the said operator, the BSC is triggered on the basis of the definitions and mechanisms in the Paris Convention, subject however to two exceptions:

- the BSC only applies to installations for peaceful use;
To avoid any disputes arising out of this provision, each Party must communicate to the Depository of the BSC, pursuant to Article 13, a list of the nuclear installations for peaceful use located in its territory. This article has not been substantially modified.
- the scope of application of the BSC is limited to the territory of the Contracting Parties to the BSC;
The territory referred to has indeed also been extended to include the exclusive economic zone of a Contracting Party and to such Party's continental shelf where the said shelf is explored or exploited. It still remains the case, though, that states that are not Parties to the BSC, even if they are Parties to the PC, are excluded from the benefit of this provision [Article 2].

C.1 c. The basis of intervention: solidarity not liability

There was no debate, as there had been over the underlying premises of the revision of the Vienna Convention itself, about the possibility of imputing liability to states as holders of the powers of authorisation and supervision over installations that proved defective.

17. The Protocol of 12 February 2004 to amend the Brussels Convention is available on the Web site of the NEA at: www.nea.fr/html/law/brussels_supplementary_convention.pdf

Article 3(c) thus continues to provide that the laws of each Contracting Party must:

- either establish the liability of the operator at not less than EUR 1.5 billion (except where this is increased pursuant to Article 12 *bis*);
- or provide that where the liability of the operator is limited to EUR 700 million (or to a higher amount established by the same legislature), the public funds allocated by the Installation State as well as by all the Contracting Parties are allocated on a basis other than coverage of the liability of the operator.

C.2 Modifications to the BSC

The modifications made to the BSC are thus mainly of a technical nature. Their purpose was mostly to bring the BSC into line with unlimited liability regimes, to avoid situations where the international tier was held back until the operator's resources were completely used up: from now on, the international tier may, under the provisions of the convention itself, be called up once the threshold of EUR 1.2 billion is reached, with no need to wait until the operator's cover is exhausted. The text of the convention is thus brought into line with declarations made by the Parties in the past that they did not wish to penalise the most generous regimes.

C.2 a. The amounts

The amounts provided for by this Convention have already been discussed above; they fall under the same regime as those distributed pursuant to the Paris Convention [Article 1, BSC], unless they are reserved for victims in the territory of Parties to this Supplementary Convention alone, subject to the extension already described in item C.1.c [Article 2, BSC].

C.2 b. The structure

The structure in three tiers is maintained in Article 3(b), with the necessary adaptations required by the introduction of phasing-in or state security:

- the tier falling under the Paris Convention, the amount of which is at least EUR 700 million, payable by the operator liable [or the state called upon to intervene in case the latter defaults, pursuant to Article 10(c) PC, or also the state relying on phasing-in pursuant to Article 21(c) PC, in which case its adhesion to the BSC is subject to coverage of the difference between the reduced amount and EUR 700 million];
- followed by the tier of the installation state, which can be from EUR 500 million to zero, according to whether or not the national legislators have chosen to burden the operator with cover obligations exceeding EUR 700 million, and finally;
- an international tier, jointly provided by all the Parties, of EUR 300 million.

C.3 c. Trails that lead nowhere

At the Vienna negotiations, other sources of additional finance, for example the setting up of voluntary pools to which operators could contribute; either based on the number of reactors in service, or on the installed nuclear capacity, were contemplated.

C.3 d. Calculation of contributions

A new balance can be seen in the method of calculating the contributions of the Contracting Parties: formerly, these contributions were calculated with 50% based on gross national product (GNP) and 50% based on the level of thermal power. From now on, this will be 35% based on gross domestic product (GDP) and 65% based on thermal power [Article 12, BSC].

This new ratio is the fruit of political negotiation concerned with the need to reconcile the application of the principle that the polluter pays, which is only partly relevant here, since public funds are involved (it would be more appropriate to say that the licence-giver pays) with the need to maintain the principle of solidarity between Parties that have nuclear installations and those that do not. As to replacing the GNP by the GDP, this was prompted by the concern to use the nomenclature best suited to national accounting, now that the former GNP has become less reliable as between the European Union States whose intra-Community exchanges are becoming more difficult to calculate.

C.3. e. The variability of the international tier

Finally, while in the original BSC the international tier was fixed, irrespective of the number of Parties [Article 3(b)(iii) BSC], there is now a new Article 12 *bis* that, by an extrapolation of the formula used in Article 12, allows the international tier to be increased pro rata according to the GDP and the nuclear installations brought into the existing “baskets” by a new Party. The expected effect will be limited in financial terms, unless a lot of states with nuclear installations ratify the BSC; the new formula is however much more satisfactory from the political and intellectual standpoints – for one thing, the proselytising tendency of the Parties to the BSC can no longer be suspected of being aimed at reducing the Parties’ contributions, and for another, the increased risk resulting from new adhesions is compensated by an increase in the third tier.

This mechanism at last offers some consolation for the relatively low increase in the third tier in comparison with the other two. The third tier in practice represents no more than 20% of the total funds available, as against 40% before the revision, and this can be explained by the substantial increase in the contribution of the state having the greatest number of nuclear installations, and *inter alia* by the new weighting of factors in Article 12 which mean that one single Party bears almost 40% of this tier. This same pitfall arose in Vienna when the financing of the CSC was discussed; the impact of even more extreme weighting factors is compensated for in that case by introducing a mechanism for setting a ceiling on contributions.

C.3. f. Reciprocity

The notion of reciprocity appears in several provisions of the revised convention. It first concerns non-Contracting States:

Article 2(a)(iv) of the Paris Convention, to which we refer above, introduces reciprocity in relation to geographical scope, laying down the conditions under which the benefit of the Convention may be extended to damage suffered in non-Contracting States which have nuclear installations and which themselves offer reciprocity based on legislation affording equivalent benefits. Article 7(g) clarifies the principal of reciprocity in respect of compensation, allowing a Party to limit the amount available for such a state if its legislation does not afford reciprocal benefits of an equivalent amount.

Each Party, even though bound by the principle of reciprocity laid down in Article 2(a)(iv) (provided that requirements are effectively met), remains free pursuant to Article 7(g) to give effect to this reciprocity in relation to the amount available for non-Contracting States. It remains to be seen how Parties will exercise this option, which shall certainly impact on the speed at which Paris funds are exhausted and therefore on the mobilisation of the Brussels Supplementary Convention.

Lastly, reciprocity could also apply to certain States Party to both the Vienna Convention and the Joint Protocol. Even where some of these states accede to the revised Vienna Convention, the difference in amounts offered by the two systems could lead some Parties to express a reservation pursuant to Article 18 of the Paris Convention. Such a reservation could also apply to damage suffered in other territories to which a Contracting Party extends the scope of application of its legislation pursuant to Article 2(b).

Nevertheless, even amongst Parties, the increase of the operator liability amount to the highest common denominator has not eliminated all disparities and therefore the door has been left open for the application of the reciprocity principle.

In fact, when Parties adopt an unlimited liability regime, the non-discrimination rule set out in Article 14 of the Convention can no longer reasonably be considered to apply. Article 15(b) of the Paris Convention, which provides that compensation for damage in excess of the SDR 5 million initial amount may be applied “under conditions”, only applies to the public funds. Revised Article 15(b) does away with this criterion and therefore allows the application of the principle of reciprocity to the amount to be made available by the operator in excess of EUR 700 million. After application of the Brussels Supplementary Convention, the authorisation to derogate from the non-discrimination rule will be applied beyond EUR 1.5 billion. This discrimination may not be applied either to states without nuclear installations, or to states designated in Article 2(a)(ii) or (iv) or Parties designated in Article 2(a)(i) which offer reciprocal benefits, whether in the form of unlimited liability or of amounts higher than the minimum laid down in the convention. These principles of application of the reciprocity principle are set out in the Recommendation on the Application of the Reciprocity Principle to Nuclear Damage Compensation Funds adopted by the Contracting Parties during the Conference on the Revision of the Paris Convention and of the Brussels Supplementary Convention, and attached in Annex III to the Final Act of this Conference dated 12 February 2004.

The principle of reciprocity sometimes gives rise to criticism; nevertheless, it should also be considered as a factor generating emulation for all states involved, whether or not they are Parties to the international third party liability conventions.

C.3. g. Changes to other provisions

The Protocol to Amend the BSC includes a variety of other provisions: these changes are consequential upon the modifications to the Paris Convention, such as adaptation of the following:

- Articles 6 and 7 to the new rules on limitation periods;
- Article 5(a) extending the rights of recourse of the Contracting Parties that intervene pursuant to Article 3(b) and (g), where the operator has such a right by virtue of Article 6(f) of the PC;
- Article 14(b) to reflect the impossibility of excluding natural disasters of an exceptional nature; or
- renumbering of certain articles.

They also include modifications of a more technical nature, such as:

- the deletion of Article 4 which was an unnecessary transposition of the rules on joint and several liability in Article 5(d) of the PC to apply to public funds;
- the minor simplification of the dispute resolution clause [Article 17 PC]; and
- the adaptation of the final clauses to bring them into line with current treaty practice [Articles 18, 20, 21 and 25 PC].

C.3. h. A gateway to the Convention on Supplementary Compensation (CSC)

The Convention on Supplementary Compensation, concluded in Vienna, was drafted from the outset with the possibility in mind that it would be superimposed on the “regional” Conventions, whether they already existed, like the BSC, or were still at the concept stage. The Parties to the BSC did not wish to exclude that possibility. However, since funds under the BSC are by definition reserved to the Contracting Parties alone, the possibility that third tier funds could be used to satisfy obligations under another international agreement (e.g. the CSC) is made subject, in the new Article 14(d), to the agreement of all the Contracting Parties to the BSC. In other words, all the Parties would have to simultaneously ratify the CSC. Such a move could only be envisaged if the CSC were to attract a number of other states with a lot of nuclear installations, failing which the risk of public funds being called upon by a larger number of states will increase, without the prospect of a better return to compensate.

This provides a good opportunity to refer briefly to that other Supplementary Convention.

D. The Convention on Supplementary Compensation (CSC)

Is there really any point in comparing the CSC and the BSC? The CSC is admittedly described as supplementing the regional solidarity agreements, where appropriate, and Article XII(a) thereof expressly recognises these mechanisms, whether they involve the Parties acting together to fulfil their “national” obligations or to provide supplementary financing falling outside the scope of the CSC. The fact must not be lost sight of that most of the Parties to the BSC claimed that they found it hard to envisage signing two complementary conventions with different mechanisms, allocation rules and beneficiaries.

The BSC has the advantage of being part of one single regime, that of the PC. The CSC is open not only to Parties to the Vienna and Paris Conventions, but also to Parties whose legislation bears some relationship, but presents a higher risk of divergence.

Intrinsically, the BSC proposes clear thresholds for its three tiers, even if the first two might become confused. What is more, the amount of EUR 1.5 billion is available from the date of entry into force of the protocol of amendment, and if new Parties adhere this can only increase.

The CSC has offered an open formula from the outset. In order to enter into force it needs at least five Parties and 400 000 units of nuclear power [Article XX CSC]. But, even if the principal states in terms of installed power were to adhere, the CSC would still only offer EUR 360 million (equivalent of SDR 300 million), mostly because of the effect of a mechanism that caps the intervention of those states that are potentially its largest contributors [Article IV(c) CSC].

Lastly, the CSC provides for the available funds to be shared, with half divided on an equal basis among all the eligible victims, and half going only to those victims located outside the installation state [Article XI(1) CSC]. This mechanism is only overridden if the Installation State “offers” at least EUR 720 million (equivalent of DTS 600 million) under its national laws [Article XI(2) CSC].

To conclude, if states without any nuclear installations look favourably on a CSC that

- favours the compensation of damage incurred outside the borders of the Installation State [Article XI CSC]; and
- exempts them or considerably reduces their contributions using a contributions system that gives a 90% weighting to the installed nuclear capacity [Article IV(a)(i) CSC] and 10% to the rate of assessment at the United Nations [Article IV(a)(ii) CSC];

in spite of everything, the final result will on the whole be disappointing. Other states that have nuclear installations and are thus potential contributors have shown hesitation with regard to the CSC because it grants preferential treatment to damage suffered outside the borders of the state of the installation that is liable, a form of discrimination that is difficult to justify to their national parliaments. However, what is required of the Parties to the PC in order to circumvent this discrimination is never more than EUR 20 million, plus a margin to protect against fluctuations in the SDR.

E. Conclusions

We have thus arrived at the end of a long process of international negotiations that are now slowly being transposed into national legislation. The revised Vienna Convention came into force on 4 October 2003, between Argentina, Belarus, Latvia, Morocco and Romania.

Pessimists will ask why, from three Conventions (PC, VC, BSC) at the start, we will soon have five (RPC, VC, RVC, CSC, BSC), since both the revised and unrevised Vienna Conventions will no doubt also be cohabiting for a time. They will be sorry, too, that it was not possible to find a timely solution to some of the thorny old problems, such as the paradox of property at the site of the installation, or why other, simpler, issues have not been expressly dealt with, such as the treatment of military installations. They will also say that there was a lack of foresight in not covering nuclear fusion installations, and that certain aspects of the geographical scope of the instruments are already proving controversial. It is regrettable, too, that reciprocity, a concept that is anathema to multilateral international conventions, has infiltrated each instrument to a greater or lesser degree. It would be surprising if anyone had actually made a full study of the impact reciprocity that varies according to circumstance would have in the operational context of a major disaster.

Optimists will say that the new instruments all show a substantial increase in the amount of cover they provide, this in spite of the difficult climate prevailing in the insurance sector and where public authorities are concerned. What is more, it has proved possible to achieve this result in a world in which, even for the Contracting Parties, there are a number of exceptional factors weighing on the future of the nuclear industry.

Apart from the amounts themselves, there are some substantial improvements in the RPC and the RVC:

- to the limitation periods, now extended;
- to the limits on the exemption clauses;
- to the fate of victims in the territory of non-Contracting States;
- in the clarification of which court has jurisdiction;
- in the coverage of damages to the environment;
- with the principle of the single competent court.

In the RPC:

- to the list of installations referred to;
- by the introduction of objectivity for transport operations;

In all the conventions:

- by the inclusion of unlimited liability regimes.

In the Supplementary Conventions:

- to the observance of the polluter pays principle in the contribution factors under the Supplementary Conventions.

The revised Vienna Convention has already entered into force, and it should not be long before the Paris Convention follows. In practice, Parties that are also members of the European Union were invited to deposit their instruments of ratification simultaneously, and to do so no later than the end of 2006. It is important to keep to this timetable, because it will serve to justify the “nuclear exception” that appears in several community law provisions.

We can thus now look at the choices made by each of the Parties with regard to the options opened up by the Protocols.

How many Parties will adopt base amounts above EUR 700 million or an unlimited liability regime?

Will unlimited liability not one day become the rule, with conventions limited only to the much less vital tasks of setting the amounts to be covered by insurance and financial assistance mechanisms?

Will they decide that it is necessary to define the extent to which the types of damage described in Article 1 (vii)(3) to (6) are covered?

How will they settle the amounts of less than EUR 700 million for carriage and low-risk installations?

How many of them will enact limitation periods longer than those in Article 8?

What limits will they set on the kinds of damage covered, other than personal injury and damage to property?

Will the Convention on Supplementary Compensation for Nuclear Damage enter into force one day?

Aside from these questions, which will provide much food for thought for specialists in international and comparative law, my lasting impression is that the seal of approval has been set on this system and these principles which, despite major geopolitical upheavals, have remained relevant for over 45 years, and will continue to be relevant for a long time to come.

The Proliferation of International Nuclear Law's Actors: Resolution 1540 and the Security Council's Fight Against Weapons of Mass Destruction Falling into Terrorists' Hands

by Bruno Demeyere*

*“To conclude a treaty would take forever,
and it would probably never enter into force. (...)
Getting the real countries to sign on (...)
would take forever. (...)
A multilateral treaty structure is not necessary.
What is needed is a common understanding
of the items that should be controlled.”¹*

Introduction

23 September 2003: President Bush, turning the protester into a partner during his annual speech in front of the United Nations (UN), asks “the UN Security Council to adopt a new anti-proliferation resolution” compelling Member States “to criminalise the proliferation of Weapons of Mass Destruction” (WMD).² While WMD were one of the contentious issues during the run-up to

* LL.M, Harvard; Assistant at the Institute for International Law from Katholieke Universiteit Leuven, Belgium & Member of the Brussels Bar (*‘avocat’*). The author wishes to thank Frederik Naert, Luc Reydam and Carlton Stoiber for comments provided on earlier versions. This paper was originally a dissertation submitted in partial fulfillment of the requirements to obtain the University Diploma in International Nuclear Law, after the author attended the 2004 Session of the International School of Nuclear Law, organized by the OECD Nuclear Energy Agency in Montpellier, France. I also want to particularly thank Fiona Wagstaff from the OECD Nuclear Energy Agency for all her assistance while revising this article. The author alone is responsible for the facts mentioned and opinions expressed in this article

1. Cummings, Edward (US State Department, Legal Adviser), in *Proceedings of the 89th Annual Meeting of the American Society of International Law*, 1995, p. 380.
2. President Addresses UN General Assembly, 23 September 2004, at the following URL: www.state.gov/p/io/rls/rm/2003/24321.htm in which President Bush also requested the UN Security Council “to enact strict export controls consistent with international standards, and to secure any and all sensitive materials within (states’) own borders” and declared that “The United States stands ready to help any nation draft these new laws, and to assist in their enforcement”.

the 2003 Iraq war, states' common interest in a unified approach in the post-9/11 security environment triggered, following the American president's appeal, diplomatic negotiations, concerted action and, eventually, a single document.

28 April 2004: The Security Council (SC) unanimously adopts Resolution 1540 entitled "Non-Proliferation of WMD".³ The terrorist attacks perpetrated in Madrid on 11 March 2004 are fresh on everyone's minds. While not mentioned as such in its title, the resolution is intended as an anti-terrorist measure, as it explicitly aims to close an international legal loophole⁴ by proactively ensuring from a legal point of view that non-state actors cannot get their hands on WMD materials. Indeed, all international arms treaties adopted so far are exclusively designed to curtail proliferation between states and, legally speaking, do not address the issue of WMD being transferred to or among non-state actors.^{5 6}

Given the post-Cold War security environment, no longer characterised by two opposing superpowers but by a multi-polar world in which some states and an unknown number of non-state actors openly seek to acquire WMD capabilities, the inherited state-centric focus adopted by arms control treaties began to look increasingly anachronistic, taking into account the threat of WMD terrorism and in light of the fact that it is often those states remaining outside the treaty regimes which are of most concern.⁷

While a few well-known exceptions remain on the table and rightly cause concern, the vast majority of states are now committed to not acquiring any WMD by virtue of their membership in and – in certain cases monitored – compliance with the major relevant treaty regimes.^{8 9} Most analysts agree that the threats posed by rogue states are pale compared to the threat posed by terrorists willing to die and kill on a large scale.¹⁰ Recognising this assessment of threats, this is the point where Resolution 1540 steps in.

This paper analyses Resolution 1540 with a specific focus on nuclear materials and on nuclear weapons – one of the three types of weapons included under the resolution's general "WMD" heading – as they are being dealt with under current international nuclear law. In a Part I, an analysis will be made of states' main obligations under the resolution to refrain from helping non-state actors in gaining access to WMD on the one hand, and to adopt legislation prohibiting non-state actors from

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3. The full text of this resolution can be accessed at the following URL: www.un.org/Docs/sc/unsc_resolutions04.html and is reproduced in the chapter "Texts" of this *Bulletin*.
 4. Global Policy Forum, *Security Council Approves Resolution to Deny Terrorists WMD*, 29 April 2004, at the following URL: www.globalpolicy.org/empire/terrorwar/un/2004/0429wmd.htm.
 5. Zagaris, Bruce, "UN Security Council adopts Resolution to Prevent Proliferation of Mass Destruction Weapons (sic)", *International Enforcement Law Reporter*, July 2004.
 6. Fidler, David, "International Law and Weapons of Mass Destruction: End of the Arms Control Approach?", *Duke Journal of Comparative and International Law*, Winter/ Spring 2004, p. 57.
 7. Fidler, David, *op.cit.*, p. 64.
 8. Non-Proliferation Treaty (1968), Comprehensive Nuclear Test Ban Treaty (1996), Chemical Weapons Convention (1993) and the Biological Weapons Convention (1972).
 9. Thakur Ramesh and Newman Edward (ed.), *New Millennium, new perspectives: the United Nations, security, and governance*, *United Nations University Press*, 2000, p. 132.
 10. Imai Ryukicki, *Weapons of Mass Destruction: Major Wars, Regional Conflicts, and Terrorism*, *Asia-Pacific Review*, Vol. 9, No. 1, 2002, p. 98-99.

having any sort of contact with WMD, on the other hand. Part II assesses the obligations states have under the resolution in the field of domestic and export control, in order to prevent illicit trafficking and to combat black markets in nuclear material. Having outlined the basic obligations states have under the resolution, Part III intends to put this resolution in both a historic and an international legal perspective by briefly retracing the UN's record in terms of addressing threats posed by WMD and the approach taken by the SC in adopting Resolution 1540. Indeed, the fact that this resolution has been adopted under Chapter VII of the UN Charter and that it compels all Member States to adopt domestic legislation, is far from being controversial. Part IV tries to assess, in a more systematic way, what the resolution's major advantages are and by which vision it is inspired in terms of international law and the UN's role against the proliferation of WMD – to the detriment of disarmament? In this part, the role of the “1540 Committee”, established by the resolution in order to oversee its implementation, will be placed in the broader perspective of other actors involved in non-proliferation issues, with particular emphasis on the relationship with the International Atomic Energy Agency (IAEA) and the Nuclear Suppliers Group (NSG).

Given constraints of space, the very relevant and related “Proliferation Security Initiative”¹¹ (PSI) will not be analysed in this article. Still, it is important to mention that the *idea* of this initiative has been implicitly endorsed by the resolution.¹² The fact that Resolution 1540 has increased the legitimacy of the PSI has almost immediately triggered a certain number of states to declare their supporting, if not joining, the Initiative.

Throughout this article, the perspective is to underline the controversies and debates the resolution's negotiation generated while situating the resolution within previously existing international nuclear law: does it change, reinforce or merely reiterate the latter? Looking ahead, questions are raised as to how this resolution could influence the enforcement of international legal norms for the non-proliferation of nuclear weapons: are we entering a new era, leaving behind the era of nuclear non-proliferation norms being enforced in a less than lacklustre way?

Part I. Prohibition of assisting terrorists and the requirement to criminalise their actions: the Resolution's commandments

To which substances does the resolution apply and will it be applied to all?

Before analysing the Resolution's substantive content outlined in its paragraphs 1 and 2, it is appropriate to underline here that the concept of “Weapons of Mass Destruction” (WMD), used in the resolution, includes both nuclear, chemical and biological weapons. Thus, at least implicitly, this concept does not include radiological weapons (dirty bombs), a type of weapon which is occasionally included in the definition of WMD.¹³ Still, this approach taken by the resolution is in line with the

11. For an excellent analysis, see Michael Byers, “Policing the High Seas: The Proliferation Security Initiative”, *American Journal of International Law*, Vol. 98, No. 3 (July 2004), p. 526; see also www.proliferationsecurity.info.

12. See in particular Resolution 1540, paragraph 10. It must be emphasised that this paragraph explicitly provides that such “co-operative action” must be taken “consistent with international law”. In this respect, it may be noted that the introduction before the first of four “Interdiction Principles for the Proliferation Security Initiative”, available at www.proliferationsecurity.info, states that these Principles are “consistent with national legal authorities and relevant international law and frameworks, including the UN Security Council.” (emphasis added).

13. David P. Fidler, “Weapons of Mass Destruction and International Law”, *American Society of International Law Insights*, 97, February 2003, at www.asil.org/insights/insigh97.htm.

December 2004 Report of the UN Secretary-General's High-Level Panel on Threats, Challenges and Change which explicitly states that radiological weapons "are more weapons of mass disruption than mass destruction."¹⁴ Furthermore, one should note that the obligations of paragraphs 1 and 2, discussed immediately below, equally apply to the means of delivery¹⁵ of nuclear, chemical and biological weapons.

While no one will contest the decision that "WMD" applies to nuclear, chemical and biological weapons, this still does not solve the problem of which products fall under each of these three categories.

One can read Resolution 1540 any way one wants, but every reading makes it all the more painfully clear that the resolution does anything but give us a clear sense of which items fall under its scope of application. While certain substances will undoubtedly qualify under one of these three categories, such an empiric "we know it when we see it" approach might become untenable once the less obvious cases arise. In the absence of any indication that Resolution 1540 would be a mere framework resolution, construing these terms might become contentious – especially as we have 191 states potentially having their own views on a given item's characterisation.

Equally before analysing the resolution's substantive obligations, one should consider the latter in light of the procedural framework in which these obligations are inserted. Indeed, states always find it easier to apply, within the realm of international law and with the sceptre of perceived greater legitimacy this mode of action entails, their daily domestic business: targeting non-state actors by using the state as the first line of control, guardian which is in this case being guarded by a specially established Committee of the Security Council. This Committee has a two-year mandate, whereby all states had to submit by 28 October 2004 a report "on steps they have taken or intend to take to implement this resolution".¹⁶ As of mid-April 2005, about 112 states had submitted such a report.¹⁷ The particular relationship between the Committee established by the SC and the SC itself needs to be emphasised. Indeed, according to paragraph 4 of the resolution, the Committee shall "report to the Security Council for its examination, on the implementation of this resolution". Thus, the Committee manages the process set in motion by Resolution 1540 and reports thereupon to the SC, which will in the end be the organ having the competence to examine states' compliance and make decisions where necessary.

14. 2004 Report of the UN Secretary-General's High-Level Panel on Threats, Challenges and Change, December, page 39, para. 113, available at www.un.org/secureworld. In the same paragraph, the Panel adds that "there is a premium on educating the public about the limited consequences of radiological weapons in order to mitigate some of the alarm and uncertainty that would be unleashed in the event of an attack."

15. "Means of delivery" are defined "for the purpose of this resolution only" as "missiles, rockets and other unmanned systems capable of delivering nuclear, chemical or biological weapons, that are specifically designed for such use".

16. UN Security Council Resolution 1540, 28 April 2004, paragraph 4. On 11 June 2004, the chairman (Ambassador Motoc from Romania) and Vice-Chairman (Ambassador Baja from the Philippines) of the Committee were elected (UN Security Council document S/2004/472).

17. See the page on "National Reports" on the Web site of the 1540 Committee, available at: <http://disarmament2.un.org/Committee1540/report.html>.

The key of this resolution's significance lies in the monitoring of its implementation:¹⁸ this is not a mere paper regime. However, the onus of implementing this resolution rests upon states¹⁹ that wanted to make it explicitly clear that the Committee should not undercut, conflict or alter the mandates of multilateral treaty-established organisations or the role of States Party thereto.²⁰ Thus, the resolution is to be interpreted, according to its drafters, as complementary to rather than in contradiction with existing regimes and their efforts to curb proliferation and to monitor disarmament.

Leaving aside the uncertainties for the certainties, it is beyond doubt that paragraphs 1 and 2 of Resolution 1540 are at the core of the resolution's operative part, the first containing an obligation of abstention applicable to states, the latter containing an obligation for each state to enact domestic legislation. To what extent do these two paragraphs go beyond existing "hard law" treaties? Or, to phrase the question differently: why has Resolution 1540 been so widely heralded as a major step forward?

Paragraph 1: Refrain from support to non-state actors

In Paragraph 1, the SC:

"decides that all states shall refrain from providing any form of support to non-state actors that attempt to develop, acquire, manufacture, possess, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery;" (emphasis added)

Through this wording, the resolution goes beyond the text of the "non-assistance commitment" of Article I of the Treaty on the Non-Proliferation of Nuclear Weapons (1968) (NPT), as the latter article is only applicable to nuclear-weapon states as they are defined under Article 9(3) of the NPT (*de facto* the Permanent Five of the SC), these states are bound by the commitment of this Article I "not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices" (emphasis added). At the same time, as far as nuclear-weapon states are concerned, while they are prevented ever since the NPT from transferring to both state and non-state actors, Resolution 1540 prohibits the much wider concept of "providing any form of support".

The bottom-line problem is that there is, apart from the NPT Review Conference held once every five years, no treaty mechanism which explicitly establishes a system to check compliance with Article I.²¹ Under Resolution 1540, to the contrary, all states, irrespective of their official or unofficial nuclear weapons programme and of their being a party to the NPT or not, are bound by this obligation

18. Bruce Zagaris, "UN Security Council adopts Resolution to Prevent Proliferation of Mass Destruction Weapons" (sic), *International Enforcement Law Reporter*, July 2004.

19. Cf. the remarks made in this respect by Ambassador Baja (Philippines) at the 4950th meeting of the SC of Thursday, 22 April 2004 at 9:50 a.m. (S/PV.4950).

20. UN SC Resolution 1540, paragraph 5: (the Security Council) "decides that none of the obligations set forth in this resolution shall be interpreted so as to conflict with or alter the rights and obligations of States Parties to the Nuclear Non-Proliferation Treaty, the Chemical Weapons Convention and the Biological and Toxin Weapons Convention or alter the responsibilities of the International Atomic Energy Agency or the Organization for the Prohibition of Chemical Weapons."

21. Serge Sur (ed.), "Disarmament and Arms Limitation Obligations: Problems of Compliance and Enforcement", UNIDIR, 1994, p. 255.

vis-à-vis non-state actors. Thus, the *status quo* for those states outside the NPT²² remains that they are not bound by any restriction as regards assisting other state actors that are equally outside the whole system. On the other hand, as Resolution 1540 takes the point of view of the entity possessing the materials *vis-à-vis* the entity desirous to gain access to them and not the other way around, Resolution 1540 does not change anything to Article II of the NPT, according to which “each non-nuclear-weapon State Party to the treaty undertakes not to receive the transfer of nuclear weapons.”

Paragraph 2: Adopt and enforce domestic legislation

Whereas the content of the obligation contained in the resolution’s paragraph 1 is rather straightforward, many more questions are being raised in respect of paragraph 2 and will undoubtedly be raised when it comes to assessing a given state’s compliance with this paragraph. In paragraph 2 – as this paragraph gives teeth to the Resolution and is without any doubt the most important provision – the SC:

“Decides (...) that all states, in accordance with their national procedures, shall adopt and enforce appropriate effective laws which prohibit any non-state actor to manufacture, acquire, possess, develop, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery, in particular for terrorist purposes, as well as attempts to engage in any of the foregoing activities, participate in them as an accomplice, assist or finance them.” (emphasis added)

Textually at least, this paragraph contains no reference whatsoever as to whether the said law should be of a criminal law nature. From the resolution’s preparatory works and from its sponsors’ views, however, it is unequivocally clear that this is the intention. The qualification “in accordance with their national procedures” explicitly allows for each national system to decide on the degree of punishment, within the resolution’s framework. This seeming tolerance for national systems’ diversity should not let us forget, as a letter from the 1540 Committee’s chairman to the president of the SC indicates, that the resolution does impose “binding far-reaching obligations on all Member States”.²³ As will be further analysed below, while falling short of being a true global legislator, the SC has indirectly acted as such, since it virtually compels all nationally competent bodies to adopt domestic legislation which should contain certain elements. Still, paragraph 2 leaves wide open all sorts of discussions as to whether a given law satisfies the requirement that it be both appropriate and effective. How appropriate are effective laws and how effective are appropriate laws?

On paper at least, adopting domestic legislation should be coupled with its effective implementation, the resolution containing a requirement to “enforce” those laws. Further on in the same paragraph the mention of “in particular for terrorist purposes” indicates once again that this resolution is to be considered as being part of each state’s national legal framework of anti-terrorism measures which should be *enforced*. If ever any doubt would have remained after Resolution 1373 (2001), which will be further dealt with below in the section on the use of Chapter VII by the SC: tolerating, harbouring or assisting terrorists is no longer an option for any state.

22. India, Israel, Pakistan and, if one follows the opinion of those accepting that state’s notice of withdrawal from January 2003, North Korea.

23. Letter dated 8 December 2004 from the Chairman of the Security Council Committee established pursuant to Resolution 1540 (2004) addressed to the President of the Security Council, available at <http://daccessdds.un.org/doc/UNDOC/GEN/N04/639/39/PDF/N0463939.pdf?OpenElement>.

Despite the seemingly wide range of activities covered by paragraph 2, it must be pointed out from the perspective of international nuclear law that the resolution cannot boast the diversity of activities covered by Article 7 of the Convention on the Physical Protection of Nuclear Material²⁴ (CPPNM). However, concepts such as “theft”, “embezzlement” and “fraudulent obtaining”, contained in Article 7 CPPNM but not mentioned in Resolution 1540, will eventually be covered by the resolution’s more generic concept of “possess(ing)”. On the other hand, whereas “manufacture” does not need to be criminalised pursuant to CPPNM, it figures prominently in the second paragraph of Resolution 1540.

Although not obvious upon reading Article 7 CPPNM in isolation, this article remains subject to the convention’s limited scope. Indeed, pursuant to Article 2, paragraphs 1 and 2 CPPNM, the convention is only applicable to “nuclear material used for peaceful purposes while in international nuclear transport (or) while in domestic use, storage and transport” (emphasis added). Thus, one of the big shortcomings of the CPPNM, namely the absence of any obligation for states to criminalise anything related to military uses of nuclear material, equally affects the obligation to criminalise contained in CPPNM, Article 7. Fortunately but surprisingly given states’ well-known enthusiasm when it comes to creating circumstances favourable to military activities supported by the state, Resolution 1540 applies to nuclear material both within a civilian and military context.

While CPPNM and Resolution 1540 basically are similar from the point of view of substantive legal obligations, despite the exceptions mentioned, Resolution 1540 operates a real procedural revolution in the world of good intentions and poor compliance. Indeed, contrary to the Chemical Weapons Convention’s Article VII (“National Implementation Measures”) paragraph 5,²⁵ no agency performed the role of watchdog checking whether states actually did anything after having signed up to CPPNM in terms of ensuring the acts mentioned in its Article 7 were actually translated into a “punishable offence”, as requested by this Article. Given the mandate and mere existence of the Committee established pursuant to Resolution 1540, it is to be expected that the vast majority of UN Member States will at least demonstrate some good efforts to enact “appropriate effective laws”. In order to counter any *ex post facto* discussions whether a given domestic legislation satisfies these criteria, the SC could implement the recommendation of the High-Level Panel on Threats, Challenges and Change to the effect that “the Security Council, acting under its resolution 1540 (2004), can offer states model legislation for security, tracking, criminalization and export controls, and by 2006 develop minimum standards for United Nations Member State implementation”.²⁶ This could be coupled with an explicit confirmation from the practice which seems to have developed: Resolution 1540 is similar to a directive in European law, as the resolution is binding on Member States as regards its aims but it leaves to Member States the choice of ways and means of reaching these objectives.²⁷

24. INFCIRC/274/Rev.1, May 1980. As of 21 September 2004, this Convention had 106 Parties and 45 Signatories. See www.iaea.org/Publications/Documents/Conventions/cppn_status.pdf.

25. “Each State Party shall inform the Organization of the legislative and administrative measures taken to implement the Convention.”

26. 2004 Report of the UN Secretary-General’s High-Level Panel on Threats, Challenges and Change, December, p. 43, para. 136, available at www.un.org/secureworld.

27. Stefan Talmon, “The Security Council as World Legislature”, *American Journal of International Law*, Vol. 99, No. 1, January 2005, p. 193.

Where are paragraphs 1 and 2 leading the international legal architecture for both anti-terrorism and anti-proliferation efforts?

Despite their clearly different focus and function, both paragraphs 1 and 2 of Resolution 1540 have in common that they both suffer from a worrying uncertainty regarding the definitions of concepts used: are these concepts to be construed according to each national legal system's definitions, or do they receive an autonomous international meaning, applicable irrespective of any national legal tradition? This will be crucial in view of national differences in defining criminal law concepts such as "attempt" and "accomplice".²⁸ Which activities can be qualified as the bottom line of a "form of support to non-state actors"? It is to be hoped that the Committee in charge of overseeing the resolution's implementation will provide guidance in this respect.

A very recent development has come to corroborate the legal security architecture envisioned by Resolution 1540: on 13 April 2005, after several years of protracted negotiations, the UN General Assembly adopted the International Convention for the Suppression of Acts of Nuclear Terrorism.²⁹ While a separate analysis of this Convention is obviously outside the scope of the present paper, it must be emphasised that this convention basically proceeds from the same approach as the Resolution and that it will undoubtedly bolster both the definitional diversity and procedural enforcement mechanisms of the CPPNM. On the other hand, the proposed anti-terrorist Convention, which will be submitted for signature to states in September 2005, can under no circumstances be understood as being a substitute for the obligations states have under Resolution 1540. Indeed, the International Convention for the Suppression of Acts of Nuclear Terrorism basically aims to criminalise the unlawful possession or use of radioactive material "with the intent to cause death or bodily injury" or "with the intent to cause substantial damage to property or to the environment" [Article 2]. Given the explicit requirement of "intent" enshrined in the convention's text, the latter is much more limited than the objectively verifiable acts which are to be criminalised pursuant to Resolution 1540. At the same time, both the new convention and Resolution 1540 have managed to circumvent the well-known definitional problems surrounding the concept "terrorist", a universally-accepted definition of which has proven to be one of the major challenges facing international law. Thus, the drafters of the Convention on Nuclear Terrorism speak of "any person" who has a specified intent, while Resolution 1540 focuses on "non-state actors". Still, it is important to point out that, whereas certain aspects of the Convention on Nuclear Terrorism might already be incorporated into Resolution 1540 (which leaves some room for national authorities to manoeuvre in implementing it), it remains crucial that states explicitly adhere to the proposed convention. Indeed, the latter contains a provision of an international criminal legal nature [Article 7] and a provision pointing out which types of jurisdiction under international law a state should provide for vis-à-vis acts to be incriminated pursuant to the Convention on Nuclear Terrorism [Article 9] – both of which are aspects in respect of which Resolution 1540 is deficient. Therefore, the Convention on Nuclear Terrorism and Resolution 1540 need to be perceived as complementary instruments in the fight against nuclear terrorism.

It is clear that paragraphs 1 and 2 of the resolution reflect the 2002 American National Security Strategy's desire to create "new, strict standards for all states to meet in the global war against terrorism."³⁰ However, as will equally be argued at the end of Part II, the resolution falls short of combining the non-proliferation perspective with efficient and clear provisions of an international criminal law nature: while states are indeed obliged to criminalise certain activities within their

28. Resolution 1540, paragraph 2 *in fine*.

29. For more information, see www.un.org/law/terrorism/ and, more specifically, <http://daccessdds.un.org/doc/UNDOC/GEN/N05/295/27/PDF/N0529527.pdf?OpenElement>.

30. National Security Strategy of the United States (2002), point 18, at www.whitehouse.gov/nsc/nss.html.

domestic criminal legislation and to enforce the enacted legislation,³¹ it is uncertain whether this criminalisation needs to be based on the territorial and/or nationality principle of criminal jurisdiction.³² The resolution most certainly does not require states to provide for universal jurisdiction over the activities enumerated in its paragraph 2. Furthermore, contrary to Articles 7 to 13 CPPNM, the Resolution is silent as to obligations belonging to the realm of international legal co-operation, for example in matters of fact-finding or extradition.

Despite these procedural weaknesses, which need not be a stumbling block on the road towards effective implementation, it must be emphasised that the resolution's paragraph 2 represents the new cornerstone in the previously existing security architecture by its criminalising actions of non-state actors. Indeed, the prohibitions embodied in the NPT, the Biological Weapons Convention and the Chemical Weapons Convention are directed to the actions of states, not individuals. Whereas the latter two contain, just like CPPNM, provisions compelling those states *which are a party to the treaty* to enact domestic legislation applicable to individuals falling under the scope of any of the principles for the exercise of jurisdiction allowed by the relevant treaty, all of the previously existing treaty regimes left international law's jurisdictional gaps wide open and provided for no fall-back solution in the event that an offender does not fall under any of the jurisdictional grounds provided for by those treaties due to a lack of nexus with the state desirous to exercise jurisdiction.³³ Theoretically at least, under the system designed by Resolution 1540, no offender should be beyond the reach of at least one state's criminal law, *if* all states implement the resolution and *if* the person can be effectively caught by one state. Otherwise, while the requirement of dual criminality should be automatically fulfilled where all states implement the resolution, there could still be extradition issues.

Part II: Domestic and Export Controls: Making the world a better place starts by monitoring your own borders

As far as international nuclear law is concerned, Resolution 1540 has introduced a real revolution vis-à-vis the previously existing system of export control, recently labelled "deficient" on a number of occasions by the Director-General of the IAEA, Dr. Elbaradei. The said export control system relies on a system of informal clubs of countries, which are often deliberately far from universal in nature given their membership of both exporting and supplying countries, which make

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31. The concept of "enforce" is, like others used in this resolution, unclear: how much efforts must a state deploy before the Committee will be satisfied the state in question is "enforcing" the enacted legislation? It remains to be seen whether this obligation will be construed strictly, or whether we are evolving to a system similar to the one used in treaties enshrining social and political human rights ("second generation" rights), as exemplified by the International Covenant on Economic, Social and Cultural Rights (1966), Article 2 (1): "Each State Party (...) undertakes to take steps (...) to the maximum of its available resources, with a view to achieving progressively the full realization of (...) the present Covenant" (emphasis added).
 32. This is striking, especially in light of the Convention on Physical Protection of Nuclear Material, Article 8, which clearly provides for the enactment of criminal legislation based on the principle of territoriality and the principle of nationality.
 33. Michael P. Scharf, "Clear and Present Danger: Enforcing the International Ban on Biological and Chemical Weapons through Sanctions, Use of Force, and Criminalization", *Michigan Journal of International Law*, Spring 1999, 500, 506.

non-binding gentlemen's agreements, without any link between those export control systems and the existing verification system of the IAEA safeguards.³⁴

For nuclear materials, most well-known is the Nuclear Suppliers Group (NSG)³⁵ with its Guidelines for Nuclear Transfers³⁶ containing an export 'trigger list' in respect of which governmental assurances about peaceful purposes are necessary. All listed nuclear materials and facilities have to be placed under physical protection.³⁷ Given its limited membership, the NSG has not been able to prevent numerous illicit traffic and smuggling networks in nuclear materials, the most recent and well-known example of such networks being the one headed by the Pakistani A.Q. Khan.

Whereas it is not new that concerns are being expressed in respect of the efficiency of the nuclear export control systems, the drastic extent to which Resolution 1540 aims to intervene in this area has almost passed unnoticed. First of all, paragraph 3 on export controls, one of the resolution's longest, *is* binding. The binding character of this provision is in line with the entire resolution, of course, but is reinforced by the paragraph's introductory concept "decides" and the exhortatory connotation this entails. Irrespective of whether this is a good or a bad thing, the fact is that the SC has created arms control law of a type that is usually only done through treaty negotiations or informal agreements among states.³⁸

The obligations imposed by paragraph 3 apply to various stages and steps of the entire transportation cycle. Generally applicable is the requirement to "take and enforce effective measures to establish domestic controls". This general requirement is an end-goal, in respect of which states must *inter alia* take (a) measures to account for and secure WMD, (b) physical protection measures and (c) border controls (...) (against) illicit trafficking and brokering in WMD.

The word "effective" is used throughout this paragraph. This word's true meaning will have to be assessed depending on a state's specific situation. This, I would argue, places a higher burden of proof on countries which are of proliferation concern because of a worrying presence of non-state actors. Or, to drop names while recognising that in all cases an extremely high standard should apply, "effective" could be different in Norway from what should be expected from Pakistan. Still, as the implementation of this paragraph especially will have quite a significant price tag, such a higher standard of scrutiny can only be earnestly advocated where the states concerned are provided with the necessary international financial or logistical assistance. One could interpret in this sense paragraph 7, which "recognizes that some states may require assistance in implementing the provisions of this resolution within their territories and invites states in a position to do so to offer assistance (...)".

"Appropriate effective physical protection measures" as the first line of defence

Physical protection is the Achilles' heel of all efforts aimed at preventing WMD proliferation. Indeed, "the most effective, least expensive way to prevent nuclear terrorism is to lock down and

34. Dr. Mohamed ElBaradei, "Nuclear Non-Proliferation: Global Security in a Rapidly Changing World", Carnegie International Non-Proliferation Conference, Washington DC, 21 June 2004.

35. www.nuclearsuppliersgroup.org.

36. INFCIRC/254.

37. Jozef Goldblat, *Arms Control: The New Guide to Negotiations and Agreements*, SIPRI, 2003, p. 117.

38. Jim Wurst, "Security Council Approves Resolution to Deny Terrorists WMDs", Global Policy Forum, 29 April 2004, at www.globalpolicy.org/empire/terrorwar/un/2004/0429wmd.htm.

secure weapons and fissile materials in every country and every facility that has them”.³⁹ This rule of thumb has, however, been blatantly disregarded in 2003 in Iraq, where an enormous amount of explosives capable of detonating nuclear weapons remains missing due to an appalling lack of security, triggering justified concerns about their being in terrorists’ hands, eager to use them.⁴⁰

Poor physical protection [i.e. non-compliance with paragraph 3(b)] quasi-automatically results in an impossibility to “account for and secure” WMD [i.e. non-compliance with paragraph 3(a)]. The resolution clearly addresses this link by requiring both. Whether intended to prevent state or non-state actors access to nuclear materials, *all* states now need to have such measures in place as a matter of international legal obligation, rather than a mere security option. Albeit indirectly, and while taking into account all concerns and objections that will be dealt with below, the resolution is strongly rooted into a classic international law structure, based on sovereign states, as it relies upon the national mechanism of all 191 UN Member States that need to prevent a leakage at the base: either terrorists themselves stealing nuclear material, or terrorists hiring formerly employed nuclear scientists to sell their ware and expertise.⁴¹

The “physical protection” prescribed by Resolution 1540 means a normative boost forward vis-à-vis *all* UN Member States, irrespective of their IAEA/NPT membership and of their accepting the IAEA Code of Conduct on the Safety and Security of Radioactive Sources.⁴² This Code of Conduct is, for the time being, not legally binding from the point of view of public international law, as it remains at the stage of recommending IAEA Member States to take certain protective measures and to adopt certain legislation allowing for the safe and secure control over radioactive sources. To the extent that certain substances qualifying as “radioactive sources” under the Code of Conduct⁴³ can be integrated into objects falling under the Resolution’s scope of application, the Code of Conduct’s implementation will be greatly enhanced, even if this is not the case in respect of all of its provisions. The debate surrounding the question to what extent the Code of Conduct has any value in assessing a state’s compliance with Resolution 1540 is similar to the one about the normative value of previously existing, informal “export control” arrangements and will be addressed later on in this part.

Border and Export Controls: Formalising the Informal?

Paragraph 3(c) requires that all states, through “border controls and law enforcement efforts” tackle, “including through international co-operation”, “illicit trafficking and brokering”. Furthermore, paragraph 3(d) requires them to put in place “national export (...) controls”. In respect of the latter, it is explicitly stated that states should “establish and enforce appropriate criminal or civil penalties for violations of such export control laws and regulations” (emphasis added). Due to limitations of space,

39. Sam Nunn, “Black Dawn: a WMD Terrorism Exercise”, 4 May 2004, Brussels, at www.nti.org/c_press/speech_nunnbrussels_050404.pdf.

40. James Glanz, William J. Broad and David Sanger, “Huge Cache of Explosives Vanished from Site in Iraq”, *The New York Times*, 25 October 2004; “IAEA; Tons of Iraq explosives missing”, CNN, 25 October 2004 ; David Sanger, “Iraq Explosives becomes Issue in Campaign”, *The New York Times*, 26 October 2004.

41. Paul Reynolds, “Nuclear Weapons: Can they be stopped?”, BBC News Online World Affairs, 18 October 2004.

42. Approved by the IAEA Board of Governors on 8 September 2003.

43. See the Code of Conduct’s Annex I: List of Sources Covered by the Code and Table I: Activities Corresponding to Thresholds of Categories.

the very interesting paragraph 3(d) falls beyond the scope of this contribution. However, it must be mentioned that, here again, the effect will be greatest vis-à-vis countries which remain outside the formal treaty regimes or outside the informal arrangements. In a similar way to issues mentioned in respect of paragraph 2, one should note that no guidance is given concerning the question of which legal system – and which body of law belonging to the latter – defines the concepts used in paragraph 3(d).

Worse however is the fact that the introductory part to Article 3 stipulates that this article's requirements also include that states "establish appropriate controls over related materials". As it is situated in the introduction to Article 3, this obligation applies to all parts of Article 3.

The concept of "related materials" is defined in a footnote as "materials, equipment and technology covered by relevant multilateral treaties and arrangements, or included on national control lists, which could be used for the design, development, production or use of nuclear, chemical and biological weapons and their means of delivery" (emphasis added).

By including such a wide-ranging definition, one sees once again that paragraph 3 should really be perceived as being intended to be comprehensive. By its using "or", the resolution seems to be suggesting, in line with general principles of international law, that in the event that a state has a "national control list" which falls under the lists of "treaties and arrangements", the latter should prevail. Indeed, the formal requirement of having such a national list should not be used as a way to circumvent the international community's best practices. Therefore, paragraph 6 "recognizes the utility in implementing this resolution of effective national control lists and calls upon all Member States, when necessary, to pursue at the earliest opportunity the development of such lists". (emphasis added)

However, what exactly are those "relevant multilateral treaties and arrangements", the lists of which will become crucial when assessing a state's compliance with the resolution?

As far as nuclear weapons are concerned, the "relevant multilateral treaties" seem to be the items falling under the scope of application of the Non-Proliferation Treaty and CPPNM. On the other hand, the relevant "arrangements" – usually far less common than hard law instruments in the field of arms control law⁴⁴ – seem to be both the Zangger Committee,⁴⁵ the Nuclear Suppliers Group⁴⁶ and, as far as the "means of delivery" are concerned, the Missile Technology Control Regime,⁴⁷ no matter how flawed the latter is.⁴⁸

Having said this, the crux of the matter and real testing point will need to be addressed once legal definitions need to come alive amidst a world of international politics. First of all, all of the

44. Richard Williamson, "Hard law, Soft law, and Non-Law in multilateral arms control: some compliance hypotheses", *Chicago Journal of International Law*, Spring 2003, p. 67.

45. www.zanggercommittee.org.

46. However, the Nuclear Suppliers Group has adopted strict guidelines, rendering the Zangger Committee, at least from the outside, a superfluous arrangement. See Jozef Goldblat, *Arms Control: the new guide to negotiations and agreements*, Sipri, 2003, p. 119.

47. www.mtrc.info. One could also add, as far as biological and chemical weapons are concerned, the Australia Group: www.australiagroup.net.

48. Richard Williamson, "Law and the H-bomb: Strengthening the non-proliferation regime to impede advanced proliferation", *Cornell International Law Journal*, 1995, p. 147.

mentioned “arrangements” are of a non-binding, political nature, otherwise referred to as “soft law”.⁴⁹ The prevailing view is that they do not amount to treaties and do not create rights and obligations binding under international law.⁵⁰ Second, these “arrangements” are extremely limited in terms of membership when compared to the UN’s 191 Member States, all of which are subject to the obligations of Resolution 1540.

Long before discussions about Resolution 1540 were in the air, criticism had already been voiced against these “arrangements”, labelling them as discriminatory “oligopolies – born in secrecy – (which constitute a) club of white countries”.⁵¹ It cannot be denied that most of these regimes are composed of like-minded exporting/supplying states sharing policy goals and interests and that the opposite is true for certain (constellations of) states within the UN system, a factor hampering the development of an intense, cooperative export control regime.⁵²

How will this (perceived) state of affairs interfere with the implementation of Resolution 1540? Uncertainty abounds, but it can be expected that those countries which consider they are being discriminated against by the “trigger list” of a given “arrangement”, precluding their procuring without difficulties certain items, will raise strong objections to any attempt considering these lists as having any binding or even indicative value when it comes to assessing whether a state has respected its obligations under Resolution 1540, paragraph 3. Doing so would indeed amount to giving them universally binding force, a normative upgrading which it is highly uncertain whether even these arrangements’ members would approve.

This analysis demonstrates one of the more general objections to so-called SC legislation: while the Council has indeed tried to define certain concepts (such as “related materials” and “means of delivery”), nothing has been said about how to construe “relevant multilateral treaties and arrangements”. These vague and unclear concepts could result in very slow implementation at the national level of 191 states, each of which will have to follow its national legislative procedures in order to give specific meaning thereto. On the other hand, just like European Union directives, this technique *does* leave a certain margin to national constituencies, possibly resulting in diverging interpretations of the very same concept around the globe...⁵³

Still, the way the resolution currently stands demonstrates the first part of the quotation from Edward Cummings, mentioned at the very beginning of this paper.⁵⁴ Indeed, “a multilateral treaty structure is not necessary” in order to combat the proliferation of WMD. However, the quotation’s

49. Richard Williamson, “Hard law, Soft law, and Non-Law in multilateral arms control: some compliance hypotheses”, *Chicago Journal of International Law*, Spring 2003, 63: “soft law consist of instruments that are not binding but are nevertheless declaratory of aspirational norms of international behavior.”

50. Christer Ahlström, “The Status of Multilateral Export Control Regimes: An examination of Legal and Non-Legal Agreements in International Co-operation”, *Iustus Förlag AB*, Uppsala, 1999, p. 20.

51. B. Chellaney, *An Indian Critique of US Export Controls*, 38 *Orbis* (1994), No. 3, p. 440-443, as quoted in Christer Ahlström, *op.cit.*, p. 309.

52. Christer Ahlström, *op.cit.*, 421-422.

53. See Stefan Talmon, “The Security Council as World Legislature”, *American Journal of International Law*, Vol. 99, No.1, January 2005, p. 188-192.

54. See footnote 1: “To conclude a treaty would take forever, and it would probably never into force. A multilateral treaty structure is not necessary. What is needed is a common understanding of the items that should be controlled.”

second part mentioned that “what is needed is a common understanding of the items that should be controlled.” As indicated above, this will be the *real* problem in implementing paragraph 3.

At least part of the solution may be found by stressing that the lists which are used by these arrangements have been elaborated by experts, and often represent a trade-off between the conflicting values of allowing the trade flow of dual-use goods for peaceful purposes, on the one hand, and preventing the same dual-use goods from being diverted for military applications, on the other hand. The lists certainly make sense from the perspective of an exemplary peace-loving state in the UN,⁵⁵ the *bonus pater familias* of international law. On the other hand, they are a threat to the domestic sovereignty and trade interests of those states which, while sincerely refusing any WMD programme whatsoever, want to promote trade interests (be it as producer or consumer) due to domestic constituencies’ pressure.

The Committee in charge of overseeing the implementation of Resolution 1540 will have to draw the fine line between using the experience and expertise of these arrangements and informal documents while at the same time having to avoid creating any impression of trying to impose their content on states, especially when they are not a party to them. At the same time, paradoxes arise when taking into account the fact that, at the end of the day when assessing the implementation of Resolution 1540 by a certain country, issues of state responsibility *will* be put on the table. Thus, it can be recommended to consider these informal arrangements in exactly the same way as they have been set up and want to be perceived. They are to be used as a carrot, not as a stick.

International criminal law as the weak point of the Resolution’s effectiveness?

If ever Resolution 1540 is to become an effective instrument in the fight against nuclear smuggling and terrorism, it is vital to stress the interplay between its provisions on export control (paragraph 3) on the one hand and its provisions on the criminalisation of non-state actors (paragraph 2) on the other hand. The whole exercise will only manage to have any meaningful effect if these incriminations are indeed being applied in countries where law enforcement used to be non-existing vis-à-vis these issues. As previously indicated, one can only regret that, contrary to the CPPNM with its numerous law enforcement, co-operation and extradition provisions,⁵⁶ it seems like Resolution 1540 has neglected to bolster its effectiveness in relation to non-proliferation with provisions belonging to the realm of international criminal law and the realm of interstate cooperation in penal matters.^{57 58} Rather than being discouraged by this deficiency, states should seize this opportunity to consider attempting to convert Resolution 1540’s content into the form of a multilateral treaty containing straightforward obligations to co-operate and extradite.

In the following part, the analysis will assess from various perspectives the very last phrase of the Preamble, namely that the SC is “acting under Chapter VII of the Charter of the United Nations.”

55. Charter of the United Nations, Article 4: “Membership in the United Nations is open to all other peace-loving states.”

56. See especially Articles 7-13.

57. Cfr. the recommendations made in Barry Kellman and David Gualtieri, “Barricading the Nuclear Window – a Legal Regime to Curtail Nuclear Smuggling”, *University of Illinois Law Review*, 1996, p. 667.

58. This includes issues such as mutual legal assistance and effective extradition provisions or effective prosecution of offenders.

At the same time, the opportunity will be seized to assess the UN's actions, past and present, in the fight against WMD proliferation.

Part III: We have been here before: Chapter VII as the Security Council's magical tool in the fight against the use of WMD by terrorists?

The United Nations and WMD proliferation in light of nuclear terrorism

The UN has a long history of engagement and disengagement with WMD, leading to mixed results in this field.⁵⁹ Despite certain efforts in this direction and certain committees/working groups being established, the UN did not take, as far as the Cold War period is concerned, non-proliferation and disarmament questions seriously enough,⁶⁰ although one could invoke in its defence the fact that the Organization was generally paralysed by the globe's divisive bipolarity. Overall, despite the UN's centrality in generating institutional responses to WMD threats, the SC has been irresolute when confronted with *concrete* WMD problems, mainly because of one of its Permanent Five members' threatening to use its veto.⁶¹

Waging the legal fight against nuclear terrorism was, when judged by the operational effects felt on the ground, all good intentions to foster treaty negotiations notwithstanding,⁶² definitively not the main achievement of the New York and Geneva-based UN institutions. Voices were raised to ask whether the international community was taking full advantage of the UN.⁶³ This relative failure can be demonstrated by the fact that the most relevant instrument concluded so far in this field – the Convention on the Physical Protection of Nuclear Material – was concluded under the auspices of the Vienna-based IAEA – which, admittedly, does have strong links to the UN. It has only been since April 2005, with the UN General Assembly's adopting an International Convention for the Suppression of Acts of Nuclear Terrorism, that the UN has proven to be able to overcome some of the issues previously deadlocking it⁶⁴ though it remains to be seen how many states will sign up to this convention once they are offered the opportunity to do so in September 2005.

Overall, it is indeed the IAEA which should be credited for its having taken the lead, for example by its adopting, in 2002, a Plan of Activities to protect against Nuclear Terrorism,⁶⁵ designed to upgrade worldwide protection against terrorist acts involving nuclear and other radioactive materials by making the strong physical protection of nuclear facilities and materials the first line of

59. Ramesh Thakur and Edward Newman (ed.), *op.cit.*, p. 144-146, 148.

60. Serge Sur (ed.), *Disarmament and Arms Limitation Obligations: Problems of Compliance and Enforcement*, UNIDIR, 1994, p. 105.

61. International Peace Academy, *Weapons of Mass Destruction and the United Nations: Diverse Threats and Collective Responses*, June 2004, at www.ipacademy.org.

62. The Stanley Foundation, *The Role of the United Nations in Eliminating Weapons of Mass Destruction: Report of the Twenty-Seventh United Nations Conference*, 23-25 February 1996, p. 3.

63. The Stanley Foundation, *op.cit.*

64. See www.un.org/law/terrorism/ and, more specifically, <http://daccessdds.un.org/doc/UNDOC/GEN/N05/295/27/PDF/N0529527.pdf?OpenElement>.

65. For this and other IAEA initiatives, see www-ns.iaea.org/security/, especially the IAEA DG's report of 12 August 2002, GOV/INF/2002/11-GC(46)/14.

defence against nuclear terrorism.⁶⁶ The IAEA also adopted, in 2003, a Report on Measures to Protect against Nuclear Terrorism.⁶⁷

The post-Cold War period, characterised by its relief from the previous Armageddon mentality,⁶⁸ proved capable of overcoming the previously existing tension, as demonstrated by the Conference on Disarmament's successfully negotiating the Chemical Weapons Convention (1993) and the – so far not yet entered into force – Comprehensive Test Ban Treaty (1996). It was also during this period that the SC adopted Resolution 984 (1995)⁶⁹ which took note of the security safeguards provided by the nuclear weapons states in their commitment to not using nuclear weapons against non-nuclear weapons states *if* the latter are parties to the NPT. Also in 1995, the NPT Review Conference decided to indefinitely extend the treaty.

The wake up call of 9/11 was immediately⁷⁰ answered by the UN Secretary-General, who called upon the General Assembly to react to the risks posed by terrorist attacks using biological or nuclear weapons.⁷¹ For once and for all, the UN was to become a strong player in the fight against WMD proliferation. Obviously, legal initiatives' effectively being adopted and implemented are entirely subject to political considerations and momentum. It suffices to recall the regrettable example of the United States of America's curtailing, in one blow in 2001, year long efforts to finally provide the Biological Weapons Convention with an institutional structure in charge of verifying compliance.⁷²

Despite some regrettable setbacks in this period, it would have been an unforgivable mistake not to seize the window of opportunity suddenly offered by the Bush administration in the aforementioned September 2003 speech. Fortunately, the UN *has* acted by virtue of SC Resolution 1540.

Certainly, the UN's action deserves to be commended: it is the only institution in today's world capable of serving the disaggregated interests of its Member States, all of which have multifaceted disarmament and non-proliferation goals. Put bluntly while bearing in mind the presence of non-state actors in countries of concern such as Pakistan and India – both of which remain, as does Israel, outside the IAEA and NPT safeguards system – using the UN is the only option if any action is to

66. IAEA Action to combat nuclear terrorism, at the following URL: www.iaea.org/NewsCenter/Features/Nuclear_Terrorism/index.shtml.

67. IAEA GC (47)/17, 20 August 2003, Nuclear Security – Measures to Protect against Nuclear Terrorism, at www.iaea.org/About/Policy/GC/GC47/Documents/gc47-17.pdf.

68. Agnès Marcaillou, *The current global disarmament agenda: trends and obstacles*, speech held on behalf of the UN Department for Disarmament Affairs, 21 May 2004, at www.swefor.org/engelska/gothenburg/download/a_marcaillou.pdf.

69. SC Resolution 984 (11 April 1995) on “security assurances against the use of nuclear weapons to non-nuclear-weapon States that are Parties to the Treaty on the Non-Proliferation of Nuclear Weapons”.

70. Also the IAEA reacted swiftly by its adopting, on 21 September 2001 at its General Conference a Resolution entitled “Measures to improve the security of nuclear materials and other radioactive materials, containing measures against illicit trafficking” and measures about the *physical protection*, though it must be said that these documents, quite logically, remain at the stage of “inviting” and “appealing” all states to join existing programs and treaties.

71. Speech of Kofi Annan to the General Assembly, October 1st 2001, AG/1193, at www.un.org/News/fr-press/docs/2001/AG1193.doc.htm.

72. Lisa Tabassi and Scott Spence, “Arms Control II: the Case of the OPCW”, in Krieken and Mackay (eds.), *The Hague: Legal Capital of the World*, TMC Asser Press 2004.

have universal consequences, even though the SC is an utterly politicised body,⁷³ where the crux of authority lies with the five official nuclear-weapons states.

Given the controversial technique used by the SC to invoke Chapter VII in order to address the issue of WMD proliferation to non-state actors, the remainder of this part will present and assess these controversies and possible future implications.

Chapter VII as heightened legitimacy?

Who has the competence to decide that another entity has a certain authority which it can exercise vis-à-vis other subjects? International law is all about states' desiring to win this race, is all about states' allocating these roles in their global dance of sovereigns⁷⁴ opposed by their national interests but united by the need to address common problems, thus triggering joint initiatives in which they accept to forfeit parts of their sovereignty for the common good.

Thus, the SC enters into the debate. The SC is a hybrid organ, part of an organisation having as one of its basic principles all members' sovereign equality⁷⁵ but consisting of 15 members who can adopt decisions in respect of which all UN Member States undertake to "accept and carry out" their content.⁷⁶ The SC's prime responsibility being "the maintenance of international peace and security",⁷⁷ it "shall determine the existence of any threat to the peace, breach of the peace, or act of aggression".⁷⁸ If such determination occurs, the situation is plainly governed by Chapter VII of the UN Charter. In this event, the Council has at its disposal a wide range of measures – up to authorising the use of armed force – to restore "international peace and security". Subject to having obtained the required nine votes and not having been vetoed⁷⁹ by one of the Permanent Five's members⁸⁰, the SC's qualifying a given issue or situation as a "threat to international peace and security" opens the separate legal regime of Chapter VII.

All throughout the process leading up to the resolution's adoption, states considered the absence in international law of any binding norm prohibiting states from proliferating WMD to non-state actors, and the gap resulting from this absence, as a sufficient reason to justify, with urgency, extreme means. Although Article 25 of the UN Charter confirms, in general, the binding force of SC Resolutions and invoking Chapter VII might not have been necessary provided that the language

73. The Stanley Foundation, *The Role of the United Nations in Eliminating Weapons of Mass Destruction: Report of the Twenty-Seventh United Nations Conference*, 23-25 February 1996, p. 9-10.

74. Alfred P. Rubin, "Ethics and Authority in International Law", *Cambridge Studies in International and Comparative Law*, Cambridge University Press, 1997.

75. UN Charter, Article 2(1): "The Organization is based on the principle of the sovereign equality of all its Members."

76. UN Charter, Article 25, "The Members of the United Nations agree to accept and carry out the decisions of the Security Council in accordance with the present Charter."

77. UN Charter, Article 24(1).

78. UN Charter, Article 39.

79. UN Charter, Article 27(3). An abstention, however, is not considered a veto.

80. China, France, Russia, United Kingdom and United States of America.

adopted by the resolution was mandatory,⁸¹ recourse to Chapter VII was deemed necessary. As demonstrated by the analysis above of the Resolution's paragraph 3, part of the obligations states have under the resolution, consist in the adoption, at the national level of all 191 UN Member states, of national legislation. All throughout the discussions, states made it clear that the motive underlying the use of Chapter VII was to make the resolution unequivocally *legally* binding, on the one hand, and to send a strong *political* message about the seriousness with which the SC regards this issue, on the other.⁸²

By using Chapter VII, the SC's 15 members have the ability to bypass the otherwise applicable requirement that, in order to have written⁸³ and binding international law, a state needs to have expressed its consent to the content of the norm. Desirous to remedy these burdensome requirements of "classic" international law, the SC chose the option of imposing obligations rather than relying on multilateral negotiations painfully negotiated and agreed upon by all signatories. It has done so deliberately, exemplified by the SC's president stating that Resolution 1540 would be "the first major step towards having the Security Council legislate for the rest of the United Nations' membership".⁸⁴ This revolutionises the idea that only states have the capacity to legislate and produce international law.⁸⁵ The impact of this idea must be assessed in light of the fact that the SC has done so in reaction to a *general* phenomenon⁸⁶ – *in casu* proliferation of WMD to non-state actors – in light of which the SC has decided to take a pro-active approach rather than having to wait – again – to have to qualify a *specific* situation as a threat to international peace and security.

Pakistan, to take the most ardent example, has not hesitated to criticize this non-democratic approach both before, during and after the adoption of Resolution 1540, advocating that not the SC but the Conference on Disarmament should function as the sole multilateral negotiating forum for this type of issue.⁸⁷ While all UN Members were given an opportunity to present their views on the Resolution pending its adoption, thus making the discussions as inclusive as possible, they obviously lacked any voting, let alone veto, powers. As the SC is sovereign in its decision to qualify a given situation as a "threat to international peace and security", diplomacy and lobbying are the only options available to a state opposing the use of Chapter VII. Irrespective of the use of Chapter VII, Article 103 of the Charter⁸⁸ always applies, including whenever the SC phrases its resolutions in such a way as to

81. Cf., *inter alia*, "Commentary on Article 25", Jost Delbrück in *The Charter of the United Nations*, Simma (ed.), 1997, especially 455-458. See also International Court of Justice, "Legal Consequences for States of the Continued Presence of South Africa in Namibia (South West Africa) notwithstanding Security Council Resolution 276 (1970)", Advisory Opinion of 21 June 1971, para. 113.

82. See for example the intervention of the Spanish ambassador to the UN, Mr. Arias, during the debates of Thursday, 22 April 2004.

83. Abstraction is being made here of customary international law.

84. Press Conference by Security Council President, 2 April 2004, at www.un.org/News/briefings/docs/2004/pleugerpc.doc.htm.

85. On the many controversies surrounding this quite recently technique discovered by the SC, see Stefan Talmon, "The Security Council as World Legislature", *American Journal of International Law*, Vol. 99, No. 1, January 2005, 175, p. 181.

86. Stefan Talmon, *op.cit.*, p. 180.

87. Pakistan Press International Information Services, "Pakistan supports improvement in working methods of UN disarmament machinery", Wednesday, 13 October 2004.

88. "In the event of a conflict between the obligations of the Members of the United Nations under the present Charter and their obligations under any other international agreement, their obligations under the present Charter shall prevail."

impose obligations on UN Member States: from then on, there is no longer a way out for any Member State.

Chapter VII as the Road towards Enforcing Resolution 1540 through Armed Force?

As Chapter VII has been put openly on the table, even though the invocation thereof was contested in the SC until the very last moment, it is crucial to assess what its potential consequences will be in case of partial or total non-compliance by a state with the resolution's terms. I can only agree with the Chayes' analysis that, as "the principal source of non-compliance is not willful disobedience but the lack of capability or clarity or priority, then coercive enforcement is as misguided as it is costly."⁸⁹ In this sense, Resolution 1540 explicitly recognises the financial burden the resolution's implementation entails for certain countries and tries to remedy this by "inviting" other states to assist.⁹⁰ It is to be hoped that the acceptance of this invitation will largely be determined by a well-understood self-interest within an overall cooperative framework. The United States, to take just one example, has immediately indicated such willingness to assist any state that would require assistance in the resolution's implementation.⁹¹

As previously indicated, it is undeniable that the SC was aware of and intended to remedy the situation of developing countries, as it indicated⁹² a willingness to assess a state's efforts in light of its resources and good faith. Still, the more delicate question remains: how will the SC react in the event that a certain state demonstrates blatant bad faith, for example by refusing to submit a report worthy of that name or, worse, by expressing its opposition to the resolution's objectives? There seemed to be a rather general understanding and agreement among SC Members that, in the words of the Spanish ambassador, "the resolution in no way explicitly or implicitly gives a blank check for the use of coercive measures, including the use of force, in cases of non-compliance".⁹³ As such, the resolution does not contain an automatic grant for the use of force. Still, it must be stressed that this aspect has not been explicitly incorporated into the resolution itself. Furthermore, proposals which were raised to limit the applicability of Chapter VII to a limited number of the operative part's paragraphs, were not accepted.

Despite these uncertainties, the trend should be clear: the SC assumes compliance by all states while, at the same time, refusing to explicitly include, *a priori*, an enforcement perspective. The framework of reference is one of cooperating and of bargaining in case of difficulties in complying with the resolution's obligations rather than projecting immediate punishment.⁹⁴ In case of persisting non-compliance, the SC⁹⁵ will seize the matter and decide upon any necessary measures, using any of the instruments usually at its disposal, choosing among them the one(s) it regards as being most suited

89. A. Chayes and A.H. Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements*, 1995, p. 22.

90. UN SC Resolution 1540, paragraph 7.

91. US Department of State, Bureau of International Organization Affairs, *UN Security Council Resolution on Non-Proliferation*, 28 April 2004, at www.state.gov/p/io/rls/fs/2004/31963.htm.

92. SC Resolution 1540, paragraph 7.

93. Debates of Thursday 22 April 2004 at 9:50 a.m.

94. Cf. the distinctions in this respect by Lori Damrosch, *The Permanent Five as Enforcers of Controls on Weapons of Mass Destruction: Building on the Iraq 'Precedent'?*, *European Journal of International Law*, 2002, Vol., 13, No.1, p. 308–309.

95. Rather than the specific Committee it has established to monitor this resolution's implementation.

to address the issue at hand. Thus, any enforcement action would require a new SC resolution specifically tailored to the specific situation the Council is confronted with.⁹⁶ All these various concerns seem to be reflected in paragraph 11, in which the SC “expresses its intention to monitor closely the implementation of this resolution and, at the appropriate level, to take further decision which may be required to this end” (emphasis added).

The case of persistent non-compliance by a *state*, Member of the UN, needs to be clearly distinguished from the hypothesis that a non-state actor, despite all good efforts by the state on which territory it operates to comply with Resolution 1540, would manage to perpetrate an attack against targets in another state, hereby using WMD. The window of legally permitted action available to the attacked state is entirely unclear: whereas SC Resolution 1373 (2001) – discussed in the following paragraph – seemed to suggest, for the first time by the UN itself, that the “inherent right of self-defence”⁹⁷ might equally be applicable when the author of the “armed attack” has no link to a state, the International Court of Justice has, in its recent 2004 Advisory Opinion on the Separation Barrier, opined that there is no self-defense against non-state actors unless their actions can be attributed to a state.⁹⁸ In this sense, the failure of one state to prevent non-state actors on its territory from acquiring WMD might put the state which is, as a result of this failure, attacked, in an impasse where public international law will be silenced due to political considerations’ overtaking the debate, only the authorisation to use armed force pursuant to the Charter’s Chapter VII being possible. Hereby, it remains to be seen to what extent pragmatism withstands the International Court of Justice’s attempt to curtail the doctrine of self-defense’s elasticity.⁹⁹

The use of Chapter VII to accomplish what could otherwise never be accomplished: a slippery slope?

The use of Chapter VII as a way to compel *all* UN Member States to adopt domestic legislation has, before Resolution 1540, only been used once, namely in Resolution 1373,¹⁰⁰ adopted on 28 September 2001 and entitled “Threats to international peace & security caused by terrorist acts”. From the relevant point of view of substance, Resolution 1373 aims to address the issue of terrorist groups’ possessing considerable financial support to secure or work on the design of weaponised nuclear material. Certainly, thematic SC Resolutions on terrorism have been around for some time, for example Resolution 1269 of 12 October 1999 on “the responsibility of the Security Council in the maintenance of peace and security”. For the first time, however, through Resolution 1373 and its use

96. Cf. the speech by Ambassador Thomson (United Kingdom) during the April 22nd, 2004 discussions.

97. UN Charter, Article 51.

98. International Court of Justice, *Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory*, 9 July 2004, paragraphs 138 – 139, at www.icj-cij.org. One should note, however, that several Judges have criticized the Opinion on this specific point. See, on this question, Frederik Naert and Jan Wouters, “Shockwaves through international law after 11 September: finding the right responses to the challenges of international terrorism” in C. Fijnaut, J. Wouters and F. Naert (eds.), especially pp. 430-432 and 446-450. See also Frederik Naert, “The impact of the fight against terrorism on *ius ad bellum*”, 10 *Ethical Perspectives* 2004, pp. 146, p. 153-155.

99. Michael Lacey, *Self-defense or self-denial: the proliferation of weapons of mass destruction*, Indiana International & Comparative Law Review, Volume 10:2, p. 294.

100. For the sake of completeness, one will indicate that the SC has, at two other occasions, equally adopted “Security Council legislation” without hereby compelling UN Member States to adopt domestic legislation, namely through the adoption of Resolutions 1422 and 1487 on the International Criminal Court. See, on this point, Stefan Talmon, *op.cit.*, p. 177-178.

of Chapter VII, the SC required all states to criminalise and otherwise prohibit certain activities of terrorists, especially in respect of their being financed. In order to oversee the implementation of this resolution, as is now the case for Resolution 1540, the SC established a Counter-Terrorism Committee.^{101 102} As all states had to adopt anti-terrorist legislation pursuant to an obligation imposed on them by the SC, the latter had found a way to bypass international law's requirement of having to obtain consent of all states before a given written instrument can receive worldwide applicability. Apparently at ease with this technique, the SC has used the same tool in Resolution 1540. Given the extreme nature of this measure, certain limits will need to be taken into account if the SC does not want to lose credibility. Indeed, resorting too frequently to the same technique might evoke growing resistance to the SC which would thus, rather than being at the forefront of the fight against terrorism by rotating towards the centre, risk gradually gravitating towards the outskirts of all relevant actors.

Part IV: Merits and Demerits of Resolution 1540: Implementation as the Real Test

After Resolution 1540 has been poured into the glass of all counter-proliferation efforts, is the glass half-full or half-empty? Whereas the SC has traditionally been characterised by its indecisiveness in the face of specific WMD problems, this time, it has acted resolutely in the face of a loophole in international law in terms of preventing terrorists from acquiring or attempting to acquire WMD, an objective for which the traditional non-proliferation and disarmament regimes were absolutely ill-suited.

At the same time, two important factors which previously contributed to the SC's irresoluteness have not been eliminated at all by the resolution: first, despite the establishment of a Committee, Resolution 1540 remains short of providing the UN with its own inspections regime. In the long run, establishing such a regime should become one of the international community's major concerns.¹⁰³ Second, there still remains a lack of precise criteria according to which one can assess proliferation threats, resulting in a great amount of difficulty when one tries to predict which responses will be considered appropriate in light of a specific threat. At the same time, the resolution provides few guidelines on how and according to which criteria the international community – as seated in the SC – intends to deal with proliferation by the well-known hold-out states which have decided to remain outside the classic treaty regimes.¹⁰⁴ While it is clear that the response will differ depending on the extent to which a breach is considered serious by those affected, there still remains a wide range of possible actions which can be taken, ranging from diplomacy to armed action.¹⁰⁵ At this point in time, the only analysis which can certainly be made is that any response will be dependent on the specific facts of the case, and the relationship any of the five veto-powers in the SC maintains with these facts.

101. The Web site of which is available at www.un.org/Docs/sc/committees/1373/documentation.html.

102. For an in-depth analysis of this Resolution, see E. Rosand, "Security Council Resolution 1373, the Counter-Terrorism Committee, and the fight against terrorism", *American Journal of International Law*, vol. 97, 2nd issue, 2003, 333. See also N. Angelet, "Vers un Renforcement de la Prévention et la répression du terrorisme par des moyens financiers et économiques?", in *Le droit international face au terrorisme: après le 11 septembre 2001*, Karine Bannelier (ed.), Paris, Pedone, 2003.

103. Trevor Findlay, *A Standing United Nations WMD Verification Mechanism?*, 6 July 2004, via www.vertic.org.

104. International Peace Academy, *Weapons of Mass Destruction and the United Nations: Diverse Threats and Collective Responses*, June 2004, at www.ipacademy.org.

105. Jozef Goldblat and Pericles Gasparini Alves, *Responses to violations of arms control agreements*, in Serge Sur (ed.), "Disarmament and Arms Limitation Obligations: Problems of Compliance and Enforcement", UNIDIR, 1994, p. 281.

If the use of force is being considered, one hopes that, by then, specific follow-up will have been given to the “rules and guidelines” and the “criteria of legitimacy” for the use of force, as recommended in Part Three (“Collective security and the use of force”) of the UN Secretary-General’s High-Level Panel on Threats, Challenges and Change (December 2004).¹⁰⁶

Despite these uncertainties, one cannot sufficiently applaud the fact that, after having remained reactive for years, the SC has indicated a strong desire to become proactive. On paper at least, one of international law’s gaps has been filled. In practice, it obviously is too early to assess to what extent the resolution’s provisions will be implemented.

Let us not fool ourselves: the threat which Resolution 1540 seeks to address is inevitably linked to *states’* possessing WMD.¹⁰⁷ The SC has, strategically speaking, taken the right approach, even though one can rightly argue about the legality and desirability of this course of action, to act pursuant to the UN Charter’s Chapter VII. No state can claim to be outside the whole regime, unless it wants to face the uncertain course of action chosen by the SC in those instances. Their concerns should be heard, for using the tools of power is one thing, maintaining one’s credibility and managing to inspire action is another thing. Indeed, logistically speaking, the SC cannot really monitor the effectiveness of the implementation of the resolution at the level of all 191 Member States: submitting a formal report is one thing, checking its being substantively acted upon is quite another thing. Therefore, despite the informal possibility for non-SC Members to express their views, this resolution still falls far short of any sincerely inclusive process, and therefore does not exclude the possibility that some states will resist.¹⁰⁸ It is the old debate about and tension between efficiency and legitimacy, which is being crossed this time by the factor of compelling 191 national parliaments to use their legitimacy to increase the SC’s efficiency.

‘Embellish the world, start by cleaning your own house’, is the central strategy chosen by Resolution 1540: every sovereign state has the obligation to implement the resolution for all territories under its jurisdiction. ‘Clean your own house and make sure others are in a position to effectively do so, is the Resolution’s second course of action, by its providing for assistance and co-operation mechanisms benefiting those states that want to but cannot implement it. At the same time, the use of Chapter VII and the establishment of a Committee indicate that the obligations are intended to be more than mere paperwork.

The Role of Other Relevant Actors

Obviously, by its adopting this resolution in the same field as Resolution 1373, the SC has positioned itself as playing the leading role in the fight against terrorism, while the proper role of existing arms control and disarmament treaties as well as of institutions active in this field, has been expressly recognised. Indeed, in the fifth paragraph of Resolution 1540, the SC:

“Decides that none of the obligations set forth in this resolution shall be interpreted so as to conflict with or alter the rights and obligations of State Parties to the Nuclear Non-Proliferation Treaty, the Chemical Weapons Convention and the Biological and Toxin Weapons Convention

106. Accessible at www.un.org/secureworld/report.pdf See especially paras. 183-209.

107. International Peace Academy, *Weapons of Mass Destruction and the United Nations: Diverse Threats and Collective Responses*, June 2004, at www.ipacademy.org, p. 17.

108. Stefan Talmon, *op.cit.*, p. 192.

or alter the responsibilities of the International Atomic Energy Agency or the Organization for the Prohibition of Chemical Weapons;”

Here, the resolution clearly indicates that it does not intend nor purport to alter or affect states’ obligations under the existing multilateral or regional treaty regimes. Neither does the Resolution change the statutory responsibilities of the OPCW and the IAEA, organisations which are nevertheless called upon to assist and co-operate with the Committee established pursuant to Resolution 1540 by providing their expertise. This will be extremely useful in order to share information, thus avoiding a duplication of efforts.¹⁰⁹

One should, on the other hand, avoid that the 1540 Committee be transformed into a super organisation disregarding the technological specificities and respective civilian sectors of the three types of WMD over which it has the responsibility vis-à-vis non-state actors.¹¹⁰ Indeed, the proliferation of non-proliferation organisations is not necessarily a bad thing, and concentrating them into the one-and-only ultimate organisation will not necessarily increase the system’s force or reliability.¹¹¹

It seems that, after a few months of prevailing uncertainty as to the respective organs’ relationship, the right balance has been found. For example, after a request by the 1540 Committee to both the OPCW and IAEA to embark upon inter-organisational co-operation,¹¹² the Director-General of the OPCW expressed the readiness of the Organization’s Technical Secretariat to provide technical assistance.¹¹³ In this sense, the High-Level Panel on Threats, Challenges and Change expressly recommends that the 1540 Committee “should establish a permanent liaison with IAEA, OPCW and the Nuclear Suppliers Group”.¹¹⁴

Thus, the resolution carefully avoids stepping on the toes of competent bodies.¹¹⁵ While decisively acting as the leading body in this field, the SC has thus avoided, at the same time, monopolising the subject, further demonstrated by the discussions held, during the UN General Assembly’s 59th regular session (2004), on the topic entitled “Measures to prevent terrorists from

109. Lisa Tabassi, *A Note on UN Security Council Resolution 1540 (2004)*, The Chemical and Biological Weapons Conventions Bulletin, Issue No. 64, June 2004, p. 12-13.

110. Harald Muller, *Specific Approaches: Nuclear, Chemical and Biological Proliferation*, in Serge Sur (ed.), *Disarmament and Arms Limitation Obligations: Problems of Compliance and Enforcement*, UNIDIR, 1994, p. 269.

111. Paul C. Szasz, *The Proliferation of Arms Control Organizations*, in Niels M. Blokker & Henry G. Schermers (ed.), *Proliferation of International Organizations*, Kluwer Law International, 2001, p. 135, 143.

112. UN Press Conference by Chair of Security Council Committee Aimed at Preventing Terrorist Acquisition of Mass Destruction Weapons, 27 September 2004, at www.un.org/News/briefings/docs/2004/Motoc040927.doc.htm.

113. See *OPCW Director General, Ambassador Rogelio Pfirter, visits the United Nations and meets UN Secretary General*, Press release, 11 October 2004, at www.opcw.org.

114. Report of the UN Secretary-General’s High-Level Panel on Threats, Challenges and Change, December 2004, page 43, para. 136, available at www.un.org/secureworld.

115. Thus the words of Ambassador Thomson (United Kingdom) during the 22 April, 9:30am discussions.

acquiring WMD” as part of its debates on “General and complete disarmament”¹¹⁶: the SC takes the lead, but appreciates the importance of delegating to other actors responsibilities in which they are specialised.

Resolution 1540: unilateralism disguised as multilateralism?

The balancing exercises done on the tightrope of the international legal order, based on state sovereignty and structured along a positivist-dualist mode, are subtle in respect of the hold-out states that have refused to join any of the existing treaty regimes: the resolution does not compel these states to adopt those treaties but provides, at the same time, an obligation to comply with the parts of the resolution which mirror previously existing law. The resolution could well be an incentive to join a particular system. Rather than judging past actions, the resolution sets forward-looking standards for how states should act in the future.¹¹⁷ Thus, the SC has enhanced its key role in the area of non-proliferation as part of the global struggle in the fight against terrorism.¹¹⁸ The SC has authoritatively ended the debate about whether certain international nuclear law norms are of a customary international law nature: they are binding on all UN Member States, by virtue of the UN Charter’s Chapter VII, customary law or not.¹¹⁹

It is both fortunate and surprising that the US has explicitly advocated in favour of the UN’s co-operative multilateral system. Indeed, right after 9/11, many of the American officials openly considered breaking down the universal approach by focusing on bilateral measures based on a discriminate non-proliferation policy, thus embarking on an era of retrenchment of multilateralism, to be replaced by an era of confrontational unilateral and bilateral US initiatives.¹²⁰ This approach was inspired by the impression the USA seemed to have that the existing multilateral system was unlikely to serve its key interests in an effective global nuclear non-proliferation regime protecting against nuclear terrorism.¹²¹ Such ideas remind us of Anne-Marie Slaughter’s “International law in a world of liberal states”¹²² in her theory’s formulation at its earliest stage:¹²³ discrimination would be the name

116. Items included in the provisional agenda of the fifty-ninth regular session of the General Assembly, To convene on 14 September 2004, Published by the UN Department of Public Information, 44359 – DPI/2358 – August 2004 – 3m, agenda – item 66(r).

117. US Department of State, Bureau of International Organization Affairs, April 28, 2004, *UN Security Council Resolution on Non-Proliferation*, at www.state.gov/p/io/rls/fs/2004/31963.htm.

118. Cfr. the heavy emphasis placed on this dimension in the Statement by Russia’s Ministry of Foreign Affairs, *In relation to adoption of UN Security Council Resolution on Nonproliferation*, 30 April 2004, at www.iss.niit.ru/sobdog-e/sd-172.htm.

119. Lisa Tabassi, *A Note on UN Security Council Resolution 1540 (2004)*, *The Chemical and Biological Weapons Conventions Bulletin*, Issue No. 64, June 2004, p. 12-13.

120. Antonio F. Perez, *The Adequacy of International Law for Arms Control, Post-September 11*, in *American Society of International Law Proceedings*, “Arms Control and Nonproliferation”, 2002, p. 274.

121. Patricia Hewitson, *Nonproliferation and reduction of nuclear weapons: risks of weakening the multilateral nuclear nonproliferation norm*, *Berkeley Journal of International Law*, 2003, 405 (“Between Empire and Community: the United States and Multilateralism 2001-2003: a mid-term assessment; arms control”).

122. Anne-Marie Slaughter, *International Law in a World of Liberal States*, *European Journal of International Law*, Volume 6, 1995, p. 503.

123. It must be stressed that Anne-Marie Slaughter has, over the years, greatly adopted her theory.

of the game, justifying a disaggregate web of international legal commitments with different standards depending on the Contracting States' domestic constituency.

Despite all these theories having floated around both before and after 9/11, the USA has tried to achieve the broadest consensus possible throughout the process leading to the Resolution's adoption. Most important given today's multi-polar context, all of Resolution's 1540 obligations are equally applicable to all UN Member States in a non-discriminatory way, contrary to the NPT's openly discriminatory system which distinguishes in terms of rights and obligations between nuclear and non-nuclear weapon states. This clearly is one of Resolution 1540's great advantages: by avoiding any complaint *a priori* of discrimination, it curtails those who would de-legitimise the regime.¹²⁴ Turning from theory and paper to practice and implementation, a strong recommendation should be emitted that Committee 1540 ensures the same non-discriminatory approach, thus ensuring that the resolution's implementation does not become an instrument merely serving US foreign policy objectives to the detriment of genuine multilateral objectives.

Choosing the road of Chapter VII walks the thin line between, on the one hand, the efficiency of only a handful of actors having to agree and, on the other hand, the sometimes frustratingly slow process of having to agree on a treaty's terms and thereafter getting states to sign up for it. At the same time, this approach maintains the legitimacy attached to SC's decisions. With President Bush' being re-elected in November 2004, it is to be expected that the WMD issue will remain the centerpiece of the leading power's strategic doctrine. At the same time, controversy remains as to whether the way in which this resolution was adopted signals the end of the traditional reliance on multilateral arms control *treaties*. It remains to be seen whether states will increasingly shy away from multilateral treaties as the traditionally dominant policy and legal approach to WMD.¹²⁵ The May 2005 Review Conference of the Non-Proliferation Treaty will certainly indicate in which direction the international community is heading.

Fears of nuclear terrorism are here to stay, especially as more countries are predicted to turn to nuclear energy, entailing more transfers within the global nuclear fuel cycle.¹²⁶ Unless Dr. Elbaradei's proposal on multilateral control over the nuclear fuel cycle is adopted, the said fuel cycle will continue to exist according to a disaggregated pattern of public/private traders dispersed across the globe, whereby each transport of nuclear materials causes security risks.^{127, 128} The perceived threat has changed: mirroring early 1960's fears that there would be about 25 nuclear weapons states by the end of the 1970s,¹²⁹ the post-9/11 environment is characterised by fears that a terrorist looms around every corner, desirous and capable of using WMD in an attack against innocent civilians. In light of a threat perceived to be serious, the SC chose the path of prevention, along with the concerns as to its intrusive

124. Richard Williamson, *Law and the H-bomb: strengthening the nonproliferation regime to impede advanced proliferation*, Cornell International Law Journal, Winter 1995, 167.

125. David Fidler, *op.cit.*, 39-40 and 43.

126. On 21 March, 2005, the IAEA Director-General, Dr. Elbaradei, at the OECD-hosted *International Conference on Nuclear Power for the 21st Century*, presented the IAEA's latest predictions in this respect. See www.iaea.org/NewsCenter/Statements/2005/ebsp2005n004.html.

127. Katrin Bennhold, *Nuclear Comeback strokes terror fears*, International Herald Tribune, 18 October 2004.

128. Risks which are far from eliminated under the proposal to multilateralise the nuclear fuel cycle, as it would lead to quite frequent transports of nuclear materials across the globe.

129. Thomas Graham, "Nuclear Non-proliferation and Nuclear Terrorism", *Transnational Lawyer*, 2004 (Symposium: Bordering on Terror – Global Business in Times of Terror – The Legal Issues).

and onerous character such path entails. If properly applied, one might never know whether and how many attacks using WMD have been prevented by the SC's initiative.

In spite of its short history and even before the 28 October 2004 deadline to submit initial reports, a number of states have openly considered this deadline as an opportunity to assemble all information available at the national level. In a joint statement, for example, Russia and China explicitly "favour strict implementation of the resolution".¹³⁰ Another striking example confirming the initial analysis that – abstraction made of the question whether this was a good idea and a legitimate procedure – the Resolution's approach, relying on a Chapter-VII backed Resolution, has worked is Pakistan's swift adoption, in September 2004, of an Export Control Act.¹³¹

Disarmament: a deliberate oversight?

For all this resolution merits applause, it does not make any progress at all on the issue of disarmament, the most effective remedy to fears of proliferation. While the resolution's sponsors invoked that including disarmament would distract its focus, many other states openly deplored this approach.¹³² In order to secure the necessary votes, the sponsors eventually accepted some references to disarmament in the preamble,¹³³ which obviously have no teeth in this resolution with its heavy emphasis on non-proliferation, considered to be the most ominous security threat of our times.¹³⁴ The USA being the resolution's initial sponsor, it is for history and the NPT's 2005 Review Conference to decide how sincere this country is in its efforts to "pursue negotiations in good faith"¹³⁵ leading to disarmament and in conformity with Article VI of the NPT, or whether Resolution 1540 was designed to get the entire world's horses ready and keep them busy while failing itself to even start think about implementing Article VI of the NPT. It is indeed remarkable that, after 9/11, the big powerhouses' priorities are exclusively focused on criminalisation and law enforcement issues to the detriment of

130. BBC Monitoring Asia Pacific, *Full text of 14 October China-Russia Joint Statement*, Friday, 15 October 2004 and Xinhua News Agency, *China, Russia to co-operate in nuclear nonproliferation*, Thursday, 14 October 2004.

131. Full name: "the Export Control on Goods, Technologies, Material and Equipment related to Nuclear and Biological Weapons and their Delivery Systems Act", see BBC Monitoring Newsfile, "Pakistan Assembly passes bill to control nuclear goods export", Tuesday, 14 September 2004 and Pakistan Press International Information Services, "Pakistan supports improvement in working methods of UN disarmament machinery", Wednesday, 13 October 2004.

132. For example, Ambassador Pleuger (Germany, then Chairman of the SC) voted for the Resolution but regretted that no explicit language was included to deal with disarmament issues. See: Jim Wurst, "Security Council Approves Resolution to Deny Terrorists WMDs", Global Policy Forum, 29 April 2004, at www.globalpolicy.org/empire/terrorwar/un/2004/0429wmd.htm.

133. Cf. Preamble, paragraph 2 ("reaffirming (...) the need for all Member States to fulfill their obligations in relation to arms control and disarmament") and paragraph 13 ("Encouraging all Member States to implement fully the disarmament treaties and agreements to which they are party") (underlining added). The word "disarmament" does not figure in the Resolution's operative part.

134. UN Press Conference by Chair of Security Council Committee Aimed at Preventing Terrorist Acquisition of Mass Destruction Weapons, 27 September 2004, at www.un.org/News/briefings/docs/2004/Motoc040927.doc.htm.

135. Non-Proliferation Treaty, Article VI.

disarmament issues.¹³⁶ This trend forgets the crucial relationship between both aspects, a delicate relationship which has recently been reiterated by Secretary-General Kofi Annan, speaking about the May 2005 NPT Review Conference, that “progress in both disarmament and non-proliferation will be essential, and neither should be held hostage to the other”.¹³⁷ Non-proliferation efforts having received a tremendous boost forward through Resolution 1540, one can only hope that the same will be true in respect of disarmament at the NPT Review Conference.

Conclusion: “This is a race we cannot afford to lose”¹³⁸

The extent to which the perceived threat of non-state actors successfully using WMD is real did not constitute the subject of analysis of this paper. Taking in this respect a positivist approach, this article adopted the point of view that states have decided the threat was real enough to warrant the adoption of an instrument sanctioned by a very high source of authority: Chapter VII of the UN Charter, an exceptional response to a perceived clear and present danger that non-state actors would take advantage of international law’s gap.¹³⁹ Thus, the Resolution is intended to become an instrument to act against this threat and to prevent a tragedy before it materialises.

In case certain states openly refuse to comply with Resolution 1540, we are heading towards an uncertain future, in which the resolution’s projected rule of law risks to be eventually replaced by the rule of UN-backed force. If the conversation currently going on among UN members leads to a general and internalised understanding that no state can provide any support whatsoever to terrorists and if all states externalise this understanding through their domestic criminal law, the world will be a better place than it was before 28 April 2004. Will practical implementation withstand theoretical analysis?

136. Agnès Marcaillou, *The Current global disarmament agenda: trends and obstacles*, speech made on behalf of the UN Department for Disarmament Affairs, 21 May 2004, at: www.swefor.org/engelska/gothenburg/download/a_marcaillou.pdf.

137. Kofi Annan’s statement on the thirty-fifth anniversary of the Treaty on the Non-Proliferation of Nuclear Weapons, entitled “Nuclear Non-Proliferation Treaty True Cornerstone of Global Security”, 4 March 2005, SG/SM/9748 ; DC/2948. See www.un.org/News/Press/docs/2005/sgsm9748.doc.htm.

138. US Department of State, *UN Security Council Resolution 1540: The US Perspective*, Andrew Semmel, Principal Deputy Assistant Secretary for Nuclear Nonproliferation, October 12, 2004, at www.state.gov/t/np/rls/rm/37145.htm.

139. Cfr. the remarks made by Ambassador Baja (Philippines) at the SC’s 4950th meeting of Thursday, 22 April 2004, at 9:50 a.m. (S/PV.4950).

Protection of Nuclear Facilities Against Aircraft Crash Legal Aspects Concerning Licensing and Supervision Currently Under Discussion in Germany

by Ulrike Feldmann*

I. Introduction

The German Atomic Energy Act (*Atomgesetz* – AtG)¹ demonstrates that there was awareness of the possibility of sabotage, malevolent acts and other illegal interference by third parties in relation to nuclear facilities long before 11 September 2001, insofar as a licence:

- for the storage of nuclear fuel [Section 6 AtG];
- for erection, operation or otherwise holding of a stationary nuclear installation [Section 7 AtG]; or
- for the treatment, processing and other utilisation of nuclear fuel outside installations requiring a licence [Section 9 AtG];

may only be granted if – besides the fulfilment of other licensing requirements:

- the necessary precautions have been taken in the light of the state of the art in science and technology to prevent damage resulting from the storage or utilisation of nuclear fuel, or from the erection and operation of the installation [Section 6(2)(2); Section 7(2)(3); Section 9(2)(3) AtG]; and if
- the necessary protection has been provided against disruptive action or other interference by third parties [Section 6(2)(4); Section 7(2)(5); Section 9(2)(5) AtG].

According to German law the term “necessary precautions” (also called “prevention of damage” – *Schadensvorsorge*) means – as interpreted by the Federal Constitutional Court and the Federal Administrative Court – protection against danger (*Gefahrenabwehr*) and precaution against risks (*Risikovorsorge*).

The licensee must take every precautionary measure against danger (*Gefahrenabwehr*) with no regard to costs. The licensee must also take precautionary measures against risks (*Risikovorsorge*), but the measures, especially the costs, must be proportional to the risk which they prevent (Principle of proportionality). If it seems virtually impossible that damage could occur, the licensee is not obliged

* Ulrike Feldmann is Legal Adviser at the Wirtschaftsverband Kernbrennstoff-Kreislauf e.V. – the German Association for the Nuclear Fuel Cycle. The facts mentioned and the opinions expressed are the responsibility of the author alone.

1. The 2002 consolidated text of this act is reproduced in the Supplement to NLB 70.

by the Atomic Energy Law to take any measures at all. According to the ruling of the Federal Constitutional Law Court,² uncertainties beyond the level of practical common sense are based on the limitation of ability of human perception and have to be regarded as part of everyday “life-risks”, which have to be tolerated by everybody. This remaining risk is referred to in German law as *Restrisiko*, which might be translated as “residual risk”.

This categorisation of risks has decisive implications on the legal means available to the licensing and supervisory authorities after having granted the licence. The licensing authority may only impose obligations or revoke licences or approvals under Section 17 AtG if the necessary precaution against risk has not been taken, and not simply because there remains a residual risk. The same applies to the legal means available to the supervisory authority.

Being regarded as highly unlikely before 11 September 2001, aircraft crashes were mostly seen as subject to the provisions on necessary precautions [Section 6(2)(4) AtG and Section 7(2)(3) AtG] rather than those concerning the necessary protection against disruptive action etc. [Section 6(4)(2) and Section 7(2)(5)].

The question of whether the wording “the necessary precautions have been taken in the light of the state of the art in science and technology to prevent damage resulting from the erection and operation of the installation” has to be interpreted in the sense that the necessary precautions include precautions against the crash of an aircraft was thoroughly discussed during licensing procedures for nuclear power plants and other nuclear installations in Germany before 11 September 2001. However, the evaluations were based on the premise that such a crash would be accidental. Before 11 September the opinion broadly shared by German lawyers was that the probability of an accidental aircraft crash seemed so small that no requirements were necessary in the sense of “necessary precautions”. At that time nobody could imagine that a civil aircraft could be deliberately crashed, and terrorist attacks were not thought to fall under the scope of the Atomic Energy Act.

However, in cases foreseen for example in Section 7(2) AtG, where a licence “may” only be granted (and not “shall be granted” as in Section 6(2) AtG) the licensing authority is not obliged “automatically” – although all preconditions named in Section 7(2) AtG have been fulfilled – to grant the licence, because in these cases the licensing authority retains the “right of refusal” (*Versagungsermessen*). It goes without saying that the authority cannot arbitrarily dispose of this special right of refusal, but only by bringing forward serious reservations against the planned nuclear installation. Within its power of discretion the authority can oblige the licensee to take additional precautionary measures, i.e. measures against the residual risk (*Restrisiko*).

Due to this legal instrument, to precautionary measures voluntarily taken by licensees and to the multiple-barrier-protection-system, to which all nuclear power plants adhere, there already existed an extensive protection system against an aircraft crash before 11 September 2001. In addition, all nuclear power plants in respect of which the first partial construction licence was granted after 1973 were required to meet the criteria laid down in 1974 in the – classified – guidelines 19.1 on the crash of aircraft released by the Reactor Safety Commission (*Reaktorsicherheitskommission* – RSK).³ From 1979 onwards these guidelines foresaw the necessity of protection against the crash of a fast-flying military jet.

2. Order of 8 August 1978 (concerning the NPP Kalkar), BVerGE 49,89, p. 143; published in *Neue Juristische Wochenschrift* (NJW) 79, 359 (363).

3. RSK is an advisory body of the Federal Ministry for Environment, Nature Conservation and Nuclear Safety.

II. Developments after 11 September 2001

Following the terrorist attacks on 11 September 2001, the risk of aircraft impact has been under re-evaluation and the following questions are newly debated in Germany:

- whether aircraft crashes and especially deliberate ones fall within the scope of the Atomic Energy Act, and if so:
- whether deliberate aircraft crashes are still to be regarded as a residual risk, i.e. as part of the everyday life-risk (*Restrisiko*) or whether 11 September has led to a new security assessment which requires additional security measures according to Section 6(2)(2) AtG, or Section 7(2)(3) AtG;⁴ or
- whether aircraft crashes should be considered under Section 6(2)(4) AtG or Section 7(2)(5) AtG and whether the necessary protection has to be taken in the light of “the state of the art in science and technology” as foreseen in Sections 6(2)(2) and 7(2)(3) respectively.

Soon after 11 September 2001, discussions at administrative and industrial levels started to evaluate the risk of a deliberate crash of a large civil aircraft. The Federal Ministry for the Environment asked, among others, the Company for Reactor Safety (*Gesellschaft für Anlagen und Reaktorsicherheit mbH – GRS*)⁵ to re-evaluate the risk assessment for nuclear facilities regarding protection against deliberate crashes of civil aircraft. Furthermore, the Federal Ministry discussed this topic with the Federal Ministry for the Interior and the Ministries for the Interior of the German federal states (*Länder*) as well as with the supervisory bodies of the *Länder*.

The outcome of the legal discussions was, as could be expected, that it was impossible to reach a unanimous opinion on the legal categorisation.⁶ The owners of nuclear installations are of the opinion that terrorist attacks are comparable to acts of war, which undoubtedly do not fall within the scope of the Atomic Energy Act. This view is supported by the Law on Air Safety (*Luftsicherheitsgesetz*), which was recently signed by the president of the Federal Republic of Germany. This law allots responsibility of preventing aircraft attacks to the state and not to private bodies. Nevertheless, the nuclear industry offered to take additional organisational and structural measures on a voluntary basis.

In its answer to parliamentary questions from the fraction of the Free Democratic Party⁷ the federal government answered – in line with the concept of the Law on Air Safety – that combating terrorism is basically the responsibility of the state, but that the state alone cannot guarantee security. Therefore, the owner of a nuclear installation is responsible for the basic preventive security of the plant against the impacts of external dangers (e.g. structural security measures, surveillance of the plant or checking of external personnel). The prevention of specific dangers lies within the responsibility of the police, i.e. the state. In its answer to the above-mentioned parliamentary questions, the federal government also stated that it had agreed with the Ministries for the Interior and

4. In this context Section 9 is of no practical relevance.

5. GRS is a scientific-technical expert and research organisation.

6. The same applies to the discussion within the judicial literature, although it seems that the majority of legal experts dealing with this subject are of the opinion that terrorist attacks on nuclear installations do not fall within the scope of the Atomic Energy Act and, even if they would, such risks would have to be regarded as part of the everyday life-risk.

7. *Bundestags-Drucksache* 15/2829 of 31.03.2004, p. 4.

the supervisory bodies of the *Länder* on certain – classified – technical, personnel and organisational security measures at nuclear sites but also at airports and in aircraft. One of these measures taken by the competent authorities, for example, was to install a no-flying zone around every nuclear installation in Germany. The technical, personnel and organisational security measures at nuclear sites lie, according to the government, within the responsibility of the owners of the respective nuclear installation. Through these actions, the federal government has demonstrated that it is convinced that the whole catalogue of agreed security measures against terrorist attacks on nuclear installations has considerably heightened the security standard in Germany, which had already been one of the highest in the world concerning protection against aircraft impact.⁸

However, the Federal Ministry for the Environment and the Office for Radiological Protection are of the opinion that the terrorist attack on 11 September 2001 has led to a new security assessment and that the risk of terrorist attacks has to be evaluated as a risk against which precautionary measures in the sense of *Risikovorsorge* under Section 7(2)(5) AtG have to be taken. The Federal Ministry instructed the licensing and supervisory authorities of the *Länder* to base their decisions on its opinion.

This legal point of view is shared by GRS. In its experts' report,⁹ GRS came to the conclusion that precautionary measures to be taken to prevent aircraft impact (obviously including those resulting from terrorist attacks) are part of the "necessary precaution" foreseen in Sections 6 and 7 AtG and that the licensing authority can oblige the licensee under the third sentence of Section 17(1) AtG to take such measures.

The focal point in this discussion is whether all measures taken under the so-called security level 4 have to be regarded as part of the "necessary precaution".

Technically speaking, four levels of security are used. They can roughly be described as follows:

- Security level 1: Concerns measures foreseen under this level which shall prevent nuclear events during normal operation;
- Security level 2: Concerns measures foreseen under level 2 which shall prevent nuclear events during interruption of operation;
- Security level 3: Concerns security measures to master a nuclear event;
- Security level 4a: Concerns measures to master (very) rare nuclear accidents such as e.g. aircraft crashes, chemical explosions or the failure of the automatic system of rapid shutdown;
- Security level 4b: Concerns measures to prevent core damage in case of a nuclear event;
- Security level 4c: Concerns measures to guarantee the integrity of the safety containment or rather to guarantee the delaying and the limitation of released radioactive substances (as far as the released amount is concerned).

8. *Bundestags-Drucksache* 15/2829, p. 10.

9. GRS-Report "*Risikovorsorge außerhalb des Störfallspektrums*", volume GRS-189, 2001; the legal part "*Auslegungsüberschreitende Ereignisse*" und *atomrechtliche Schadensvorsorge*" by Roller is published in *Verwaltungsarchiv* 2004, p. 63-87. This view is shared by Koch/John, *Atomrechtliche Fragen der Sicherheit und Sicherung von Kernkraftwerken nach den Terroranschlägen vom 11. September 2001 in den USA*, *Deutsches Verwaltungsblatt* 2002, p. 1578-1588.

Until today, a unanimous opinion has not been provided on the legal categorisation of nuclear measures foreseen under level 4 – either through licensing decisions, case law, or in the legal literature. It seems that in the legal literature, many authors dealing with the subject of terrorist attacks on nuclear installations, if not the majority, are still of the opinion that terrorist attacks are comparable to acts of war and that therefore these incidents do not fall within the scope of the Atomic Energy Act. But even when assuming that these incidents fall within the scope of the Atomic Energy Act, these authors refuse to recognise an obligation of the licensee to take precautionary measures, because these incidents seem highly unlikely and are to be regarded as remaining residual risks.¹⁰ Furthermore, it is pointed out that even if an aircraft crash should be considered under Section 7(2)(5) AtG, the principle of proportionality, which undoubtedly is an unwritten fundamental principle, has to be observed. Therefore back-fitting measures against the crash of a large modern civil aircraft could not be imposed on the licensee because these measures would be disproportionate.¹¹

1. Impact of the legal discussions on licensing procedures

Whenever an operator now applies for authorisation under Sections 6 or 7 AtG, the question of whether and how the respective nuclear installation meets the requirements to ensure protection against aircraft impact plays a key role in the licensing procedure. Licences issued under Sections 6 and 7 AtG will in future specifically state that the nuclear installation in question meets the requirements against aircraft impact.

Interim storage facilities

This was, for instance, the case, when the Federal Office for Radiation Protection (*Bundesamt für Strahlenschutz – BfS*), which is – among others – responsible for licensing the storage of nuclear fuel, granted the operation licence for the interim on-site storage facility at the nuclear power plant in Lingen on 7 November 2002. In the licence, BfS emphasised that the extreme scenario of a deliberate crash of a large aircraft had been investigated. The experts, consulted by the BfS, confirmed that even in this case no inadmissible radiological consequences were to be feared. This expertise was also confirmed by BfS for other interim on-site storage facilities.¹² BfS stated expressly that acts of terrorism and sabotage must be considered under Section 6(2)(4) AtG.

Transportation casks and storage casks

In connection with the licensing procedures for the on-site interim storage facilities, the Reactor Safety Commission stated on 11 July 2002 that the different types of licensed transportation casks and

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10. See for example: Leidinger, *Die Verantwortung des Betreibers für den Schutz vor Einwirkungen Dritter*, *Deutsches Verwaltungsblatt (DVBl)* 2004, 95-103; Ossenbühl, *Terroristische Angriffe auf Kernkraftwerke – aus rechtlicher Sicht*, *Neue Zeitschrift für Verwaltungsrecht (NVwZ)* 2002, 290-297; Böwing, *Die Vorsorge gegen äußerst seltene, auslegungüberschreitende Vorfälle im Atomrecht – die Sicht der Betreiber*, lecture given on 12. *Deutsches Atomrechtssymposium in Köln*, 7 Oct. 2003.
 11. See in this respect Sandler, Former President of the Federal Administrative Court, in *Neue Zeitschrift für Verwaltungsrecht (NVwZ)*, 2002, p. 681.
 12. See www.bfs.de/transport/publika/flab18062003/printversion.

storage casks guarantee, due to their specific construction, the safe enclosure of the radioactive substances even in the event of a forced crash of a common type of large aircraft.¹³

Nuclear fuel assembly plant

The Ministry for the Environment of Lower Saxony issued a licence for alteration of fabrication of the nuclear fuel assembly plant (Advanced Nuclear Fuel GmbH) in Lingen on 21 March 2002. In contrast to BfS, the Ministry of Lower Saxony classified rare incidents like the crash of a fast military jet or a deliberate crash of a civil aircraft as “residual risk”, against which the applicant is not obliged by Section 7(2)(5) to take “necessary precautionary measures”. The Ministry of Lower Saxony based its opinion on the actual status report by the Ministry for the Interior, according to which no specific risk of a deliberate aircraft crash existed for the fuel element fabrication at the time the approval was granted. The Ministry added that meanwhile – since 11 September 2001 – special measures to ensure flight security and supervision of air traffic had been taken, minimising even further the abstract “residual risk”¹⁴ existing.

Enrichment plant

More recently, on 14 February 2005, another nuclear licence was granted. The Ministry for Traffic, Energy and Land Planning of Northrhine-Westphalia (*Ministerium für Verkehr, Energie und Landesplanung von Nordrhein-Westfalen – MVEL*) granted Urenco Germany permission for the final extension of the enrichment plant in Gronau and the construction of a storage facility. Of course, aircraft impact was addressed in the licensing process. The Northrhine-Westphalian Ministry stated that the deliberate crash of an aircraft does not belong to those incidents against which precautionary measures have to be taken according to the special security guidelines. Therefore special radiation protection dose limits do not exist for such an incident and have not to be established. Nevertheless, the Northrhine-Westphalian Ministry categorised measures against accidental and deliberate aircraft impact as “necessary precautions” in the sense of Section 7(2)(5) AtG, in light of which additional construction measures have to be taken. On the other hand, the Ministry emphasised that only an integrated security concept will be able to guarantee the necessary protection and that this concept must include security measures taken by the state, the licensees and other institutions or persons concerned according to responsibility and possibility of action.

Nuclear power plants

The issue of terrorist attacks on nuclear installations not only plays a key role in the licensing procedures but is also an important topic for the Federal Ministry for Environment and its advisory body, the Federal Office for Radiological Protection. As the present German government favours the phasing-out of nuclear energy, the subject of terrorist attacks has been used to re-evaluate existing licences.

After a licence has been granted, the authorities can only impose subsequent requirements (back-fitting measures) under certain conditions named under Section 17(1) AtG. Similarly, once

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13. RSK-Report, *Sicherheit deutscher Zwischenlager für bestrahlte Brennelemente in Lagerbehältern bei gezieltem Absturz von Großflugzeugen*, www.rskonline.de (Stellungnahme/FLABZWILAG).
 14. Approval for alteration of the fabrication of nuclear fuel elements issued by the Ministry for the Environment of Lower Saxony on 21 March 2002, p. 20-21.

granted, licences and approvals can only be revoked under the conditions foreseen under Section 17(1). Of special interest in this connection is Section 17(5) AtG:

“Licences or general approvals shall be revoked if such revocation is necessary to avoid substantial hazards to the personnel, third parties or the general public and if subsequently imposed obligations cannot remedy the situation within a reasonable period of time”.

2. *Court decisions dealing with terrorist attacks*

Federal Administrative Court

The fundamental court decision in which the question of terrorist attacks and aircraft crashes played a decisive role was the decision of the Federal Administrative Court (*Bundesverwaltungsgericht*) on 19 January 1987 concerning the nuclear power plant in Neckarwestheim. In connection with the question as to whether or not the authority could oblige the licensee to equip the on-site security service with guns, the Federal Court held that the level of necessary precaution under Section 7(2)(5) AtG depends on the state of the art in science and technology as in Section 7(2)(3) AtG and that incidents such as an aircraft crash fall within the scope of Section 7(2)(5) AtG.¹⁵ Further, the Federal Court held that the authorities can oblige the licensee to take structural-technical measures to prevent damage for a certain period of time (about half an hour) until the arrival of the police.

Supreme Administrative Courts

In its decision of 28 May 1997, the Higher Administrative Court of the Land of Berlin (*Oberverwaltungsgericht Berlin*) stated that the possibility of a crash of an aircraft or a helicopter on a nuclear reactor has to be regarded as a residual risk (*Restrisiko*)¹⁶ because of the extremely low probability of the risk-determining event of the crash of a fast flying military jet.

In its decision of 7 October 2004, the Higher Administrative Court of the Land of Bavaria (*Bayerischer Verwaltungsgerichtshof*) dismissed the suit taken by a neighbour against the third partial construction licence for the research reactor FRM II in Munich.¹⁷ The main reasoning was as follows:

the fact that the amendment of the Atomic Energy Act of 22 April 2002 has not forbidden the licensing of research reactors shows that, in principle, such licences can be granted. The claimants had not proved a gap in the necessary protection against disruptive action by third parties or terrorist attacks. The risk-examination and the risk-evaluation by the licensing authority gave no cause for complaint. The licensing authority has prescribed precaution measures against a deliberate aircraft crash as well as precaution measures against terrorist acts from within the nuclear installation.

The Higher Administrative Court did not deal with the crash of an Airbus-380, because this type of an aircraft was not in operation at the time the licence was granted.

Nonetheless, the Supreme Court did not deny in principle that subsequent requirements (for example structural-technical measures) might be imposed on the licensee.

15. BVerwGE 81, 185, published in “*Neue Zeitschrift für Verwaltungsrecht*” (NVwZ) 89, 864 (866).

16. OVG Berlin, file reference number: OVG 2 A 2.91, decision (copy), page 36.

17. www.vgh.bayern.de (Entscheidungen/File reference number: 22 A 03.40036).

The Higher Administrative Court of the Land of Northrhine-Westphalia (*Oberverwaltungsgericht Nordrhein-Westfalen*) heard a claim that the central interim-storage facility in Ahaus had no protection against the forced crash of a large civil aircraft with a full tank.¹⁸ In its decision of 2 September 2004, the Higher Administrative Court had doubts whether the scenario of a crash of a large civil aircraft could be of any relevance for the interim storage facility in Ahaus, which in the opinion of the Court did not seem very likely as an aim for terrorist attacks. However, the Court could leave this question open as the claim against the storage licence (granted under Section 6 AtG) had been filed before 11 September 2001 and as the claimants had applied to withdraw the licence and not to oblige the licensee to take back-fitting measures.

Civil Court

In its decision of 27 October 2004, the Civil Court of First Instance in Hannover (*Landgericht Hannover*) ruled on a claim for compensation against a German tourist office concerning injuries suffered by a German tourist following the terrorist attack in front of a synagogue in Djerba on 11 April 2002. The Court rejected the claim. In its findings the Court stated that terrorist acts, which are not based on riots similar to civil war, are part of the everyday-life risk and therefore have to be tolerated by everybody.¹⁹

Several legal proceedings are still pending. Actions have been filed against the interim storage facilities on the sites of the nuclear power plants in Grafenrheinfeld, Gundremmingen and Niederaichbach. The precautionary measures against terrorist attacks play a key role in these proceedings.

Actions have also been filed against some of the nuclear power plants in Germany. The plaintiffs argue that 11 September 2001 has led to a new risk assessment and that therefore the necessary protection against disruptive action or other interference by third parties under Section 7(2)(5) AtG (i.e. measures against the forced crash of a large civil airliner with a full loaded fuel tank) is not assured.

Conclusion

The central legal question of whether a deliberate aircraft crash has to be regarded as part of everyday-risk or as an event against which the licensee is obliged by law to take precautionary measures still remains unsolved.²⁰ A broad consensus exists since 11 September 2001 between all parties involved that, despite the very high security standard of nuclear facilities in Germany, additional measures against such terrorist attacks should be taken.

18. Decisions of the Supreme Administrative Court of Northrhine-Westphalia are published on its homepage www.justiz.nrw.de/RB/nrwe; File reference number: 20 D 13/98.AK.

19. www.landgericht-hannover.niedersachsen.de/master/C6614037_N6258025_L20_DO_14800694.html (Entscheidungen/File reference number: 13 O 114/04)

20. Another disputed issue is whether the owner of a nuclear installation is entitled to compensation (according to Section 18 para 3 AtG) in cases where he is obliged by the authority to take back-fitting measures.

Normative Rule Making at the IAEA: Codes of Conduct

by Anthony Wetherall*

*“The broadening subject matter of international regulation...[...]...
requires diversified forms and levels of law-making”¹*

I. Introduction

One of the most serious challenges facing any international legal institution in the present era of globalisation is the adoption of adequate written laws that address the issues faced by the international community. The International Atomic Energy Agency (IAEA)² is the principal forum to develop international legal norms to regulate the worldwide peaceful and safe use of nuclear energy – as well as to ensure the uniformity of standards and compliance with such norms. This study is an attempt to look, in particular, at one aspect of this diversified normative spectrum, created to shape an adequate legal and regulatory framework for peaceful nuclear activities.

At the outset, it should be noted that whatever the process, a fundamental objective of any instrument of a normative nature is to bring about action of particular actors, in accordance with rules and standards, over a specified range of activity. The normative activity of the IAEA is enshrined in its Statute.³ In order to establish an efficient and effective global framework for the peaceful and safe use

* Legal Officer, Office of Legal Affairs, International Atomic Energy Agency. The author prepared this paper in his personal capacity. The opinions expressed herein do not necessarily represent the views of the International Atomic Energy Agency. This paper was originally submitted as the dissertation requirement of the University Diploma in International Nuclear Law, following the 2003 Session of the International School of Nuclear Law. The paper has been updated to reflect developments to March 2005.

1. Chinkin, C., “Normative Development in the International Legal System” in Shelton, D., *Commitment and Compliance: The Role of Non-Binding Norms in the International Legal System* (2000), p. 22.

2. Established in 1957 as an autonomous organisation as part of the UN system, the IAEA is the principal intergovernmental forum for scientific and technical co-operation in the peaceful use of nuclear technology.

3. The Statute of the IAEA sets the framework for co-operative efforts to build and strengthen an international safety and security regime. This framework includes a number of normative instruments advisory international standards, codes, and guides; binding international conventions (but it should be noted that the Statute does not mention the creation of such instruments as one of the functions of the Agency, nor does it establish any mechanisms by which the Agency might carry out such activities); international peer reviews to evaluate national operations, capabilities, and infrastructures; and an international system of emergency preparedness and response. Article III A. 6. provides that the Agency is authorised “To establish or adopt, in consultation and, where appropriate, in collaboration with the competent organs of the United Nations and with the specialized agencies concerned, standards of safety for protection of health and minimization of danger to life and property (including such standards for

of nuclear energy, the IAEA has, over the course of the last four decades, developed a vast mix of international legally binding rules and non-legally binding advisory standards and regulations of a variable nature, on a wide range of subjects related to nuclear safety. While international instruments not covered by the Vienna Convention of the Law of Treaties⁴ play an important role in international relations, this use in the nuclear context of non-binding instruments and their impact may well at first glance reflect a respect for the law and a desire to avoid entering into legal obligations when the ability to comply is uncertain.⁵

The concept of “soft law”⁶ has generated controversy in discussions concerning the sources of international law. However, it is not the purpose of this paper to discuss the actual status of soft law in international law. The thesis proposed here centres, from entirely a legal viewpoint, around one of those non-binding normative instruments – a Code of Conduct (or a Code of Practice), as prepared by working groups of experts from IAEA Member States, approved by the IAEA Board of Governors and endorsed by the IAEA General Conference⁷ – the two policy-making organs of the IAEA. By its very nature, a code is an instrument of soft law – and thus is not legally binding *per se*. Yet, such a code does represent efforts by governments to formulate certain expectations and induce certain behaviour.

This paper discusses the question of the legal effects of a code, which are in fact closely interrelated to the problems of its implementation and its overall effectiveness. In this context, the

labour conditions), and to provide for the application of these standards to its own operation as well as to the operations making use of materials, services, equipment, facilities, and information made available by the Agency or at its request or under its control or supervision; and to provide for the application of these standards, at the request of the parties, to operations under any bilateral or multilateral arrangements, or, at the request of a state, to any of that state’s activities in the field of atomic energy.”

4. The Convention was adopted on 22 May 1969 and opened for signature on 23 May 1969 by the United Nations Conference on the Law of Treaties. It entered into force on 27 January 1980, in accordance with its Article 84(1).
5. David Victor suggests that non-binding norms may be better in regulating complex environmental problems because their actual influence in changing behaviour may be better than that of treaties. Generally compliance is high with treaties because states negotiate treaties with which they can comply. The process of earning consent to binding commitments leads to commitments that are excessively modest or ambiguous and thus less effective than they could be. This is particularly the case where there is a high degree of uncertainty in goals, means or capacity or where exogenous factors may impact. States seem more willing to adopt clear and ambitious commitments when they are in non-binding form. Being clear, they are more effective. See Victor, D., *et al.* (eds), *The Implementation and Effectiveness of International Environmental Commitments* (1998).
6. The concept of “soft law”, a term whose origin is attributed to Lord McNair – who used the term for international law “formulated in terms of principles”. See comments of Georges Abi-Saab in Cassese and Wieler (eds), *Change and Stability in International Law-Making* (1988), p. 76. See also Tammes, A., ‘Soft Law’ in *Essays on International and Comparative Law in Honor of Judge Erades* (1983), 187. For the theoretical debate on the existence of soft law, compare *e.g.* Chodosh, H., “Neither Treaty nor Custom: The Emergence of Declarative International Law” (1991), 26, *Texas International Law Journal*, p. 88 with Weil, P., “Towards Relative Normativity in International Law?” (1983) 77, *American Journal of International Law*, p. 413, and Klabbbers, J., “The Redundancy of Soft Law,” (1996), 65, *Nordic Journal of International Law* p. 167.
7. Such codes are different from the codes that were issued as Safety Standards under the NUSS programme, which were completed in 1986, because they receive General Conference endorsement and political commitments from states. Under the NUSS programme (the Agency’s programme on nuclear safety standards for nuclear power plants), which began in 1974, the IAEA prepared five codes.

paper analyses the elements of an effective code in relation to its form, formulation of provisions and its implementation. The paper also presents possible structural options for a Code of Conduct.

II. Normative Development

It is without question that the international legal order for nuclear energy has recently undergone remarkable changes, with international nuclear law-making developing new procedures and rules – indeed an “infinite variety”.⁸ The relative simplicity of traditional international law has, in the nuclear field, given way to intricate forms, processes, instruments, and norms.⁹

As a consequence of the ever-evolving fields of regulation, the international order has become increasingly bureaucratized and there is thus a need to utilise various methods to express expectations of behaviour. Generally, the complexity of the system is apparent from the multiple number of actors involved in the making of, and ensuring compliance with, international norms. From a community of predominately western states, the global arena now contains more than four times the number of states that existed at the foundation of the United Nations.¹⁰ In addition, globalisation has led other communities to play vital international roles: intergovernmental organisations, non-governmental organisations, professional associations, transnational corporations, and mixed entities comprised of members of different communities. These various groups now contribute to the formation of international norms and are increasingly bound by them.

It has been commented that the IAEA’s contribution to global nuclear safety is constrained by a lack of political will on the part of its Member States to allow more meaningful and binding international interventions for nuclear safety.¹¹ Yet, in the current international system, law may well no longer be perceived as the necessary or best instrument in all cases. The traditional sources of international law, treaties, custom and general principles¹² are often criticised as being incapable of coping with the modern problem of international relations, especially in the field of nuclear regulation. Today, international legal governance is generally accomplished through complex multilateral regimes with supervisory organs established to keep an eye on implementation and compliance. As a consequence, there is an increasing recourse by states to non-legal but politically-binding normative instruments, such as Codes of Conduct.

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8. R.R. Baxter, “International Law in ‘Her Infinite Variety’”, *The International and Comparative Law Quarterly*, Vol. 29, October 1980, p. 549-566.
 9. The Impact of Globalisation on the International Legal System, Globalisation and its Challenges, University of Sydney Conference, 12-14 December 2001, Dinah Shelton, Notre Dame Law School.
 10. At the time of writing, the IAEA has 137 Member States.
 11. The Chernobyl [Chernobyl] Accident and the Future of Nuclear Energy: The Path Towards Safety and Sustainability, Harvard Ukrainian Research Institute of Harvard University, Serguei Milenin, Sergei Skokov, Elizabeth Supeno.
 12. Article 38 of the Statute of the International Court of Justice provides that “(1) The Court, whose function is to decide in accordance with international law such disputes as are submitted to it, shall apply: (a) international conventions, whether general or particular, establishing rules expressly recognised by the contesting states; (b) international custom, as evidence of a general practice accepted as law; (c) the general principles of law recognized by civilized nations; (d) subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.” (26 June 1945, chap. II, art. 38, 59 Stat. 1031, 33 U.N.T.S. 993).

Yet, the international community's paramount focus and concern must be ensuring the peaceful and safe use of nuclear energy, in this context, a complex network of national and international measures define the approach. Thus the regulation of nuclear energy, like other activities that could have potential transboundary impact, necessitates the endowment of the international community with residual responsibility – or in certain instances co-responsibility – to ensure among other things, uniformity of standards, coordination, pooling of resources and services, as well as compliance.¹³ This responsibility has resulted in variations in forms of instruments, means and standards of measurement that interact intensely and frequently, with the common purpose of regulating behaviour within a rule of law framework.¹⁴

States today, not only in the field of nuclear regulation, enter into a variety of international commitments amongst themselves but also with intergovernmental organisations such as the IAEA but also the FAO, WHO, OECD/NEA etc, some of which they have chosen to label law and others of which are frequently described as soft law, to resolve a given problem.¹⁵ International organisations¹⁶ thus have become the fora for addressing new issues and for the evolution of international law. There is, then, a close link between the growth of non-binding normative instruments and the growth of international institutions, many of which lack the power to engage in legislation or other forms of law-making – but normally adopt such norms by consensus under their auspices.

The increasing usage of such non-binding normative texts is considered, for the most part, to be a welcome creation of international negotiations and the deliberations of international collective bodies.¹⁷ In fact, almost every area of international concern has given rise to such instruments – their growth being a response to a need for standards in the increasing field of international activities.

A. *Why Non-Binding Norms?*

These non-binding normative instruments, declarations, recommendations, guidelines, resolutions, standards, memoranda[s] of understanding or in the context of this paper codes of conduct, as a category have been given various appellations, for example, soft law, quasi-law, *les*

13. Elbaradei, M., Nwogugu, E., Rame, J., "International Law and Nuclear Energy", *IAEA Bulletin*, Vol. 37, No. 3, 1995.

14. The development of complex regimes is particularly evident in international management of commons areas, such as the high seas, and in ongoing intergovernmental co-operative arrangements. For the latter, memorandums of understanding have developed into a common form of undertaking.

15. The effective regime of the Organisation for Security and Co-operation in Europe is a case in point. The Organisation is entirely based on non-binding instruments, beginning with the Helsinki Final Act, but it has been instrumental in improving human rights throughout Central and Eastern Europe.

16. Until recently, the system of norm-making at WIPO had been the traditional treaty method. However, in order to remain a viable and credible institution, tasked with the promotion and protection of intellectual property, WIPO has had to devise new and innovative forms of norm-creation that are effective, rapid, and generally accepted by the Member States. The formal rigidities and problems associated with the treaty-making process in the field of intellectual property would seem to dictate the need for a more transparent, informal, and consensual method of norm creation. In the last few years, the Secretariat of WIPO has therefore explored other means for advancing the development of international intellectual property law that could supplement the current treaty procedures. For a further discussion, see Some Comments on Rulemaking at the World Intellectual Property Organization, RD Kwakwa, *12 Duke J. of Comp. & Int'l L.* p. 179.

17. See Baxter, "International Law in Her Infinite Variety", *29 INT'L & COMP.L.Q.* 549 (1980).

normes sauvages or *para droit*. Generally, a norm may be termed soft when it either does not constitute part of a binding regime, whether of conventional or customary law or because even though it is contained in a binding instrument, it is not expressed in obligatory language.¹⁸

There are a number of reasons which determine the choice of soft law over hard law.¹⁹ It is a generally accepted theory that states adopt, accept and comply with international norms when it is in their self-interest to do so. A state's self-interest can encompass its own survival, values, economic position and domestic politics.²⁰ States often choose cautiously those obligations that they desire to make legally binding. They will often make use of a non-binding code for a variety of reasons, such as when legally-binding commitments are unwanted or unavailable – more often than not due to their simplicity and flexibility, which will govern their relations. Due to its non-binding nature, a code can be adopted more rapidly and where it fails to meet the current challenges, it can be quickly amended or replaced. Thus, a non-binding code can be said to respond to the needs of the new international system when the issue is not clearly identified but there is an urgent need to take some action.

It is generally accepted that it is easier to create normative instruments through quasi-parliamentary procedures and majority voting.²¹ Yet, it has also been commented that pragmatism and politics rather than principle usually govern the type of instrument that will be selected and the type of incentives or disincentives that may be incorporated into such an instrument, so as to encourage compliance.

Whilst compliance with a non-binding norm may not result from fear of sanction, if the instrument provides a mechanism for such action, compliance may result from the need to ensure the sustainability of the common good; failure to comply may well result in the interests of others to take responsive actions. Thus, the greater the consensus in the international community for the creation of such norms, the greater the possibility that a state will comply. With the accelerating trend towards increased openness and public engagement in deliberations on the protection of human health and the environment, the application by states of a safety regime governing the peaceful and safe use of nuclear energy demonstrates to a questioning public that the state's efforts are in line with best international safety policies and practices.

When discussing the legal nature of rules of conduct contained in a code, we find ourselves in a grey area.²² On the one hand, it is true that a code is not technically legally binding and the rules are

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18. See Paul C. Szasz in *Environmental Change and International Law: New Challenges and Dimensions*, Edith (Ed) Brown Weiss, United Nations University Press, 1992.
 19. Lipson suggests four reasons why states may opt for choosing informal agreements: (1) to avoid formal and visible pledges; (2) to avoid ratification; (3) to be able to renegotiate or modify as circumstances change; and (4) to achieve a result. As part of such informal agreements, Lipton identifies speed, simplicity, flexibility and privacy as being components. Lipson, C., "Why are Some Agreements Informal?" (1991) 45 *Int. Org.* 495.
 20. It should be noted that it has been recognised that a state's economic capacity to comply with the positive obligations contained in a non-binding instrument is crucial to it achieving compliance with such obligations.
 21. See *Perspectives on International Law*, Nandasiri Jasentuliyana, p. 134-135 (1995), Kluwer Law International.
 22. The distinction between "hard law" and "soft law" may appear blurred – treaty mechanisms are including more soft obligations, such as undertakings to endeavour to cooperate. Whereas non-binding instruments are in turn incorporating supervisory mechanisms normally found in "hard law" instruments. Both instruments may combine compliance procedures that range from soft to hard.

not rules of law; but on the other hand, it cannot be denied that such rules have practical or legal effect – a code can still have a significant impact on state action. Although the norms are not adopted as law, and are of a non-binding form, they frequently are intended to alter the behaviour of their targets – usually by containing standard minimum rules and so forth. They thus create expectations of potential behaviour and sway the attitudes of the international actors. In this context, it should be noted that regardless of the non-binding form of such instruments, all international relations are governed by the fundamental principle of good faith.²³

A code will often encompass strong political commitments or moral obligations, indeed commitments and obligations that may well be stronger than many legal obligations.²⁴ In practice, such non-obligatory and merely recommendatory texts may have as much effect as formal rules and obligations, in so far as channelling state conduct. A code enables all those to which it may be addressed to be associated with it on the basis of shared responsibility. It could thus be argued that states are more willing to adopt clear and ambitious commitments when they are in a non-binding code. This is quite simply due to the fact that where norms, which have been negotiated within an intergovernmental organisation and then included in a non-obligatory form in a treaty or in a non-binding declaratory form (such as the norms contained in a code), states are generally desirous or content to observe them – otherwise they would never have negotiated and adopted them in the first place.

It is apparent then, that a legally non-binding code can respond to the need for standards resulting from the enormous increase of activities that transcend national borders. Such standards of conduct will be resorted to whenever there is a pressing economic need for legal regulation and the efficient promulgation of norms could not be achieved, for one reason or another, via the traditional treaty-making method. They operate well because states have recourse to them and bind themselves voluntarily, thus producing factual compliance even in the absence of strict legal obligations.²⁵

A non-binding code can act as a substitute for hard law where no agreement on hard law can be achieved or when recourse to the hard law form would be ineffective (unlikely that the norms will be accepted). Being non-binding, a code is easy to revise or abandon if it proves unsuitable. It may even become a “springboard”²⁶ for legally creative action by national courts and other authorities, or by the subjects to whom it is addressed. More often than not, a non-binding instrument, such as a code, does

23. According to Kelsen, the rule of good faith is the cardinal principle of international law, placed at the top of his pyramid representing the hierarchy of norms: Hans Kelsen, *Théorie pure du droit*, Éditions de la Braconnière, Neuchâtel, Switzerland, 2nd Edition 1988, p. 177; see also the ICJ decision concerning French nuclear tests. The ICJ referred to good faith in connection with the obligation for a state to abide by a unilateral undertaking given in the form of a declaration by a high ranking political official: *Australia v. France & New Zealand v. France*, ICJ, 20 December 1974, vol. 1974, pp. 253-457.

24. Indeed, it should be noted that an unratified convention is also technically not legally binding.

25. An Action Plan can assist a code's implementation: The Agency's revised Action Plan for Safety and Security of Radioactive Sources [GOV/2003/47-GC (47)7] contains a number of actions on the Secretariat relevant to the implementation of the code – in particular to develop guidance in support of the code. In September 2001, the Board requested [which the General Conference subsequently endorsed – see GC (45)/RES/10.A] the Secretariat to develop and implement, in conjunction with IAEA Member States, an international research reactor safety enhancement plan, which included the preparation of a Code of Conduct on the Safety of Research Reactors.

26. See Baade, H.W (1980) “Legal Effects of Codes of Conduct”, In Horn (ed.), *Legal Problems of Codes of Conduct for Multi-national Enterprises*, Kluwer-Deventer, 1980, p. 9.

not stand alone – it can be linked to a treaty or other such binding instrument in some manner,²⁷ either as a precursor (it may be *pré-droit* – although this is, however, generally far from being its purpose)²⁸ or as a subsequent elaboration of technical terms or expected performance. It creates a dynamic interplay between various types of commitments. These non-binding instruments often serve to enable treaty parties to authoritatively resolve ambiguities in the text, fill in the gaps or supplement a hard law instrument with new norms.²⁹

The use of a code as a precursor to a hard law instrument is apparent with the incorporation of some of the provisions dealing with the transboundary movement of spent fuel and radioactive waste in the IAEA's Code on Transboundary Movement³⁰ into Article 27 of the IAEA's Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.³¹

In evaluating the importance of a non-binding code, account must also be taken of the various ways in which it may often quite rapidly be hardened. One route is the incorporation of an initially non-binding norm into a binding treaty which, for example, is the normal and expected course when a general framework convention is supplemented by binding protocols. Another is the creation of customary law when states, acting out of a combination of a sense of legal obligation and in response

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27. See the Regulations for the Safe Transport of Radioactive Material [1996 Edition (Revised), Safety Standards Series No. TS-R-1 (ST-1, Rev.), IAEA, Vienna (2000)]. The requirements of the regulations are incorporated into UN regulations, as well as the requirements of other international transport organisations. They are widely implemented by the IAEA Member States either by reference, direct adoption in national legislation or through compliance with modal regulations. The regulations were approved by the IAEA Board of Governors and were adopted at the Fourth General Conference in 1960, by a unanimous resolution urging that they be taken as a basis for national regulations and should be applied to international transport [GC(IV)/RES/74].
 28. In some instances, like the prior informed consent procedure, “soft law” commitments precede the conclusion of a binding treaty, but it has been commented that this seems less a deliberate policy than it does in the field.
 29. See the Convention on International Civil Aviation of 1944 (the Chicago Convention), which regulates international air transport and which is administered by the International Civil Aviation Organization (ICAO). The Convention provides, *inter alia*, for the adoption by the ICAO Council of international standards and recommended practices concerning the regulation of air navigation, which are incorporated as Annexes, into the Convention. See, Status, Prospects and Possibilities of International Harmonization of Nuclear-Law Perception from the standpoint of a worldwide international organization, Andronico A. Adede and Ha-Vinh Phuong in *International Harmonization in the Field of Nuclear Law*, Proceedings of Nuclear Inter Jura, 1985, Norbert Pelzer (ed.), 1985
 30. International concern about the possible international unauthorised movement and disposal (dumping) of radioactive waste on the territory of the IAEA's developing Member States resulted, in 1990, in the Board of Governors approving and requesting the Director General to transmit a non-binding Code of Practice to the General Conference, with the recommendation that the General Conference “adopt the Code, ensure its wide dissemination and monitor its implementation”.
 31. Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management [INFCIRC/546, IAEA, Vienna (1997)]. Article 27, sets out the international norms regarding the transboundary movement of spent fuel. Adopted on 5 September 1997 by a Diplomatic Conference convened by the IAEA.

to some pressure, adopt as their practice rules that originally were merely expressed in solemn (but nevertheless non-binding) declarations.³²

In the field of human rights, soft law usually preceded hard law in the past, helping to build consensus on the norms. Thus, the Universal Declaration of Human Rights³³ led to the two Covenants on Civil and Political and on Economic, Social, and Cultural Rights.³⁴ In the environmental field, statements of principles coming from global conferences have stimulated the conclusion of both legally binding and non-binding instruments, with peaks of regulation following the Stockholm and the Rio Conferences.³⁵ In the context of attempts to build up a New International Economic Order,³⁶ a number of codes of Conduct have been prepared by UN and non-UN organs.³⁷ They are not

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32. This discussion is beyond the context of this paper, see Paul C. Szasz in *Environmental change and international law: New challenges and dimensions*, Edith (Ed) Brown Weiss, United Nations University Press, 1992.
 33. Universal Declaration of Human Rights, 10 Dec. 1948, G.A. Res. 217A (III), U.N. Doc. A/810, at 71.
 34. The Conventions on race, women, children, and torture all were preceded by declarations. The situation has changed now that the “easy” topics on which there was widespread consensus have been completed and there are fewer treaties being concluded on the global level. Instead, the United Nations increasingly adopts declarations without subsequent treaties. At the same time, regional institutions continue to formulate legal obligations, with concomitant efforts to secure compliance, perhaps because it is easier to achieve consensus in the shared culture of regional systems and also to agree upon stronger institutions; human rights courts exist only on the regional level. Regional adoption of soft norms also has an important role. More than in the human rights field, arms control is characterised by an intertwining of hard and “soft law”, with non-binding commitments foreseen by hard law instruments, thus conferring upon the “soft law” a stronger legal nature. In some instances, “soft law” acts as a substitute for or preemptive of, hard law, as with private codes of conduct, for example, the Sullivan principles that were adopted for companies doing business in South Africa during the apartheid regime.
 35. An ecosystem approach has stimulated a strong move towards regional efforts, with the conclusion of numerous regional seas agreements, a series of agreements on the Alps, comprehensive regulation by the European Union, and major agreements elaborated within the context of the UNECE, the OAU, ASEAN, and other regional institutions. Soft law also often follows these agreements, as with the Convention on Migratory Species, acting to fill in gaps, bring in non-state actors, or allowing provisional solutions where there is scientific uncertainty about the proper course of action.
 36. See Kimminich, *Das Völkerrecht und die neue Weltwirtschaftsordnung*, 20 AVR (1982) 2 et seq.
 37. A large area of activity of intergovernmental organisations – particularly in the specialised agencies and technical fields of the United Nations – has given rise to a variety of standards of conduct, regulations, guidelines and accepted practice that do not have the formal character of binding law. They are generally adopted by international bodies under their recommendatory authority. Such texts are recommended to states or other agencies for observance in their common interest. UN Codes, such as the Restrictive Business Practices Code (1980), the International Code of Marketing of Breast-milk Substitutes (Infant Formula Code) (1981); the Transfer of Technology Code (TOT Code); and the Code of Conduct Concerning Transnational Corporations (TNC Code), to name but a few; non-UN Codes, such as the OECD Guidelines for transnational enterprises (See, OECD Declaration on International Investment and Multinational Enterprises, Guidelines for Multinational Enterprises, OECD Doc. C (76), 99; see also OECD Doc. C (76), 117 and C (79), 143; National Treatment: C (79), 118 and C (79), 144; International Investment Incentives and Disincentives: OECD Doc. C (79), 119 and 145; and Consultation Procedures, 1976, as well as the Revised Recommendation of the OECD Council concerning cooperation between Member countries on Restrictive Business Practices affecting International Trade, 1978; all published in Horn, *supra* note 5, at 451 et seq.; see also Bryde, *supra* note 5, at 77 et seq.; see also Vogelaar, *The OECD Guidelines: Their Philosophy, History, Negotiation, Form, Legal Nature, Follow-Up Procedures and Review*, in Horn, *supra* note 5, at 127 et seq.; R. Blanpain, *The OECD Guidelines and Labour Relations: Badger and Beyond*, *ibid.*, 145 et seq.). Whilst model laws and guidelines do not purport to

formulated as fully obligatory norms, nor do they postulate effective modalities of implementation; instead they aim at being applied on a voluntary basis.

It is apparent, therefore, that a non-binding code can be the first step towards the negotiation and conclusion of legally binding obligations, thus providing a basis for a treaty regime. Where non-binding norms precede a legally binding agreement, it can be said that the former helps shape the consensus that leads to a legally binding agreement. In contrast, where a prior treaty explicitly refers to subsequent elaborative instruments, the latter may acquire a legal basis.

III. Norm-making at the IAEA

As previously mentioned, the worldwide harmonisation of nuclear energy legislation is achieved through the development of various binding and non-binding international instruments i.e. bilateral and multilateral agreements, conventions, guidelines, standards, and codes of conduct or practice. The programme of the IAEA in the area of nuclear safety involves work in three basic directions: the first direction is to develop international conventions,³⁸ which contain legally binding obligations to be followed in different areas concerning the peaceful use of nuclear energy; the second direction is the development of International Safety Standards, which mean norms, regulations or recommendations established to protect health, ensure nuclear safety, and minimise danger to life and the environment. The third direction is the application of the international mechanisms, which provide for the application of such standards.

A. IAEA Conventions

The IAEA has in the past used the multilateral treaty process to create rules under its auspices.³⁹ However, for all its virtues this process has had its drawbacks. Binding international instruments

codify international law, they nonetheless, as mentioned above, are complied with by states and other entities for a range of motives. Such as the 1985 UNCITRAL Model Law on International Commercial Arbitration [U.N. Comm'n on Int'l Trade Law UNCITRAL Model Law on International Commercial Arbitration, U.N., Doc. A/40/17, Annex I, U.N. Sales No. E.95.V.18 (1995)]; and the 1985 FAO Guidelines for the Packaging and Storage of Pesticides [Food and Agriculture Org. of the U.N., Guidelines for the Packaging and Storage of Pesticides (1985)]. Accordingly, each Member State of the IAEA may determine the extent to which it will implement the provisions of a code.

38. Two of the most important conventions developed are the Convention on Nuclear Safety, which applies to power reactors, and the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management (the Joint Convention). These are in addition, of course, to the post-Chernobyl Conventions on assistance and notification in the event of a nuclear accident or radiological emergency. It should be noted, that the Convention on Nuclear Safety, while only being an "incentive" convention like the and the Joint Convention [see, respectively Preamble para. (vii) and Preamble para. (x)], is the first international instrument that legally binds its parties to ensure the safety of land based civilian nuclear power reactors.
39. e.g. Convention on Nuclear Safety; Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management; Convention on the Physical Protection of Nuclear Material; Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency; Convention on Early Notification of a Nuclear Accident; Vienna Convention on Civil Liability for Nuclear Damage; Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage; Optional Protocol Concerning the Compulsory Settlement of Disputes; Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention; Convention on Supplementary Compensation for Nuclear Damage.

generally require hard and fast commitment that many states are not prepared to undertake. There are indeed many reasons why states do not wish a restraint of their sovereignty⁴⁰ – some states are just simply reluctant to impede their lawmaking supremacy.

The formulation of a binding international instrument in the nuclear context can be a slow and costly process, involving lengthy negotiations between parties,⁴¹ and resulting more often than not in a text that is the product of compromise. Such a text also does not enter into force until the requisite number of states have adhered to it.⁴² When it does enter into force, it can then be difficult to amend or further develop in response to evolving or emerging needs. Additionally, only those states that expressly ratified or adhered to the instrument are bound by it and thus states are divided between parties and non-parties. Additionally, the process may be further delayed by the fact that both international and national domestic requirements need to be fulfilled.

In contrast, however, it should also be noted that a binding international instrument does not necessarily restrict freedom of action with regard to a particular nuclear activity, or force a change of approach or method. Rather, it goes some way to ensuring that there exists a uniform standard applicable with regard to a particular nuclear activity.

B. IAEA Safety Standards

A large part of the IAEA's statutory mandate⁴³ (in collaboration with the competent organs of the United Nations and with the specialised agencies concerned), is the establishment and the promotion of advisory international standards and guides, issued as series publications, recommended

40. Sometimes because of internal legal reasons, such as in the case of the United States of America and the need to avoid parliamentary ratification procedures. See, "The Twilight Existence of Nonbinding International Agreements," Oscar Schachter, (1977), Vol 761, *American Journal of International Law*, p. 302. The criteria employed by the State Department in deciding what constitutes an international agreement for the purpose of submission to Congress include as a primary requirement that the parties intend their undertaking to be legally binding and not for merely political or personal effect.

41. Such as the lengthy meetings of the Standing Committee on Liability for Nuclear Damage. The mandate of the Standing Committee was to: "(i) consider international liability for nuclear damage, including international civil liability, international state liability, and the relationship between international civil and state liability; (ii) keep under review problems relating to the Vienna Convention on Civil Liability for Nuclear Damage and advise States Party to that Convention on any such problems; and (iii) make the necessary substantive preparations and administrative arrangements for a revision conference to be convened in accordance with Article XXVI of the Convention on Civil Liability for Nuclear Damage"(see paragraph 6.3.A of document GOV/2427).

In contrast, it should be noted the speedy negotiation of two IAEA Conventions: the Convention on Early Notification of a Nuclear Accident [(NFCIRC/335 (1986)]; and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency [INFCIRC/336/Add.1 (1986)]. These two Conventions were opened for signature within four months of the establishment of an open-ended intergovernmental working group, following the Chernobyl accident on 26 April 1986.

42. The Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage was opened for signature at Vienna on 29 September 1997 but only entered into force on 4 October 2003, three months after the date of deposit of the fifth instrument of ratification, acceptance or approval, pursuant to Article 21.1.

43. Article III.A.6 of the Statute.

by panels of experts selected in their individual capacity to advise the IAEA Secretariat.⁴⁴ The IAEA Board of Governors approves the Safety Standards (they are not endorsed by the IAEA General Conference, unlike a code).⁴⁵ they are published with the Board's authorisation and constitute international standards for national legislation and regulations. The binding nature of the safety regulations reflected in the current international legal instruments varies. Thus, the Safety Standards are mandatory with regard to nuclear activities undertaken with IAEA assistance, but where such assistance is not provided and the state implements these standards by choice, their legal status is merely recommendatory. It has been commented that the rigour of Safety Standards and their universal implementation should be based on the principle of voluntary implementation and their status as recommendations. Nevertheless, it is recognised, that such standards, while being recommendatory in nature, have become a principal means of harmonising safety approaches.⁴⁶

C. IAEA Codes

Within the IAEA, three codes⁴⁷ have been developed: a Code of Practice on the International Transboundary Movement of Radioactive Waste; a Draft revised Code of Conduct on the Safety and Security of Radioactive Sources; and a Code of Conduct on the Safety of Research Reactors.⁴⁸

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44. The IAEA Safety Standards Series comprises of publications of a regulatory nature covering nuclear safety, radiation protection, radioactive waste management, the transport of radioactive materials, the safety of nuclear fuel cycle facilities and quality assurance. As previously mentioned, these publications are issued under the terms of the Agency's Statute, which authorises the Agency to establish standards of safety for protection against ionising radiation. The Safety Standards Series supersedes the Safety Series, in which over 200 publications were issued. Safety Standards Series publications are categorised into: (1) Safety Fundamentals (F; blue lettering), stating basic objectives, concepts and principles of safety and protection – they are the “policy” documents of the Series; (2) Safety Requirements (R; red lettering), establishing the basic requirements that must be fulfilled to ensure safety for particular activities or applications; and (3) Safety Guides (G; green lettering), *recommending actions, conditions or procedures* for complying with these safety requirements.
 45. It should be noted that only the Safety Fundamentals and Safety Requirements require the approval of the IAEA Board of Governors before publication. Safety Guides are issued under the authority of the IAEA Director General.
 46. For further comment, see Elbaradei, M., Nwogugu, E., Rame, J., “International Law and Nuclear Energy,” *IAEA Bulletin*, Vol. 37, No. 3, 1995; and *History of the International Atomic Energy Agency, The First Forty Years*, David Fischer, 1997.
 47. (1) Code of Practice on the International Transboundary Movement of Radioactive Waste. Adopted by the General Conference GC (XXXIV)/RRES/530 of 21 September 1990. Contained in Annex 1, GOV/2445, 9 May 1990. As previously mentioned, the provisions of the Code of Practice are now by and large embodied in Article 27 of the Joint Convention; (2) Draft revised Code of Conduct on the Safety and Security of Radioactive Sources GOV/2003/49-GC(47)/9, 29 July 2003; and (3) Code of Conduct on the Safety of Research Reactors, GOV/2004/4, 2 February 2004 or GC(48)/7, 19 July 2004.
 48. In March 2003, a draft Code of Conduct on the Safety of Research Reactors [GOV/2003/7] was considered by the Board, which decided that it should be circulated to all Member States for comment and that, on the basis of the responses received, the Secretariat should produce a revised version. In October 2003, a revised draft of the Code of Conduct was prepared by the Secretariat with the advice of an expert Working Group of 15 members from 11 Member States. In preparing this revised draft, the Secretariat and the expert Working Group considered the comments submitted by Member States and also statements made at the March 2003 Board. The revised draft was circulated to all Member States for comment. This revised code [GOV/2004/4, 2 February 2004] was adopted by the Board of Governors at

As mentioned above, a code by its very nature is an instrument of soft law, unlike legally binding international instruments and thus it is not legally binding *per se*. Yet, once approved by the IAEA Board of Governors and endorsed by the IAEA General Conference,⁴⁹ a code is a legal instrument of a non-binding nature, prepared at the international level, to offer guidance to states for the development and harmonisation of policies, laws and regulations.⁵⁰

One may question the need for such a code, given that there may already be norms, albeit of a soft law nature, already in existence, for example, under the IAEA Safety Standards: yet such a code stands alone and apart from other documents, such as those standards. However in this context, it should also be noted that it may well represent one of the ways in which the IAEA Safety Standards⁵¹ are encouraged to be applied by a state, nevertheless, the action required to apply the guidance in a code is still a matter for the state.⁵²

its March 2004 meeting and was endorsed by the 48th Regular Session of the General Conference held in September 2004.

49. In the context of the Code of Conduct on the Safety and Security of Radioactive Sources, the Board of Governors at its June 2003 meeting, in approving and transmitting the code to the General Conference, recommended that the “Conference adopt it and encourage its wide implementation” [GOV/2003/49-GC(47)/9, 29 July 2003]. In endorsing the objectives and principles set out in the code, the General Conference at its September 2003 session, recognised that the code was not a legally binding instrument [GC(47)/RES/7, Date: September 2003]. With regard to the Code of Conduct on the Safety of Research Reactors, adopted by the Board of Governors at its March 2004 session, the Board requested the Director General to circulate the approved Code of Conduct to all Member States and relevant international organisations and transmit it to the General Conference with a recommendation that the Conference endorse it and call for its wide application. In endorsing the guidance for the safe management of research reactors set out in the code, the General Conference in Resolution 10 [GC(48)RES/10, September 2004] welcomed the adoption by the Board and encouraged Member States to apply the guidance in the code to the management of research reactors; and requested the Secretariat to continue to assist Member States in the implementation of the code and associated safety guidance within available resources.
50. This is how the IAEA Office of Legal Affairs views a Code of Conduct. See Paragraph 6 of the Report of the Chairman (dated 16 October 2003), of the Working Group Meeting on Revision of the Draft Code of Conduct on the Safety of Research Reactors, held in Vienna, from 13 to 17 October 2003.
51. The Code of Conduct on Research Reactors [GOV/2003/7, 6 February 2003] stated that “Effective implementation of this code relies on the application through national regulations at all stages in the life of research reactors of IAEA safety standards relevant to research reactors and those relating to the legal and governmental infrastructure for nuclear, radiation, radioactive waste and transport safety.” The code, as revised [see GOV/2004/4, 2 February 2004], refers to “effective application”. The principal source documents for the code, which basically summarizes principal requirements of the Safety Standard Series, are: IAEA Safety Fundamentals: The Safety of Nuclear Installations, SS No. 110, 1993. IAEA Safety Requirements; Legal and Gov’t Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety, GS-R-2, 2000; Safety Requirements for Research Reactors, DS 272, (in preparation to replace 35-S1 and 35-S2); Code on the Safety of Nuclear Research Reactors: Design, SS No. 35-S1, 1992; Code on the Safety of Nuclear Research Reactors: Operation, SS No. 35-S2, 1992; and, Predisposal Management of Radioactive Waste, Including Decommissioning, WS-R-2, 2000.
52. The Code of Conduct on the Safety and Security of Radioactive Sources relies on and is intended to complement existing “international standards”, in its area of concern. Such standards would embody the IAEA Safety Standards.

IV. Effectiveness of a Code

It is of fundamental importance that a code is effective. Practice speaks well for the effectiveness of a code: its effectiveness is more linked to factors other than its formal legal nature, for example, its widest possible adoption, the support by all parties concerned, and the evolution of the instrument in the future.⁵³ Thus, if the effectiveness of a code is the primary objective and its legal nature is of lesser relevance, then the support of all parties concerned both with regard to its content as well as for the machinery of its implementation is required. It is safe to say, therefore, that an effective instrument will have significant impact, in the direction so desired, on the behaviour of those it concerns.⁵⁴ For the sake of effectiveness and compliance, it is more crucial that the standards therein suit the interests and concerns of the parties involved, than they be technically or legally binding. Its effectiveness therefore depends on satisfying the needs of the parties involved, either because compliance is beneficial or because non-compliance is damaging.

The drafters of a code must calculate the outcome of measures, so as to decide whether the objectives of the code will be met, i.e. that the code will be effective. In this context, the following three elements have been identified as determining the effectiveness of a Code of Conduct: (A) the formal legal character of the instrument in which it is embodied – its adoption; (B) the precise language of its provisions in identifying the behavioural results it seeks to accomplish; and (C) the machinery for its implementation and the subsequent follow-up arrangements.⁵⁵

A. *Legal form*

There are many different types of instruments that are used in international practice, but for the purpose of this paper three may be distinguished: an international multilateral convention, formally binding under international law on the sovereign states which have adopted it; a formal resolution of a policymaking organ of an international organisation (which may combine the characteristics of a declaration or recommendation);⁵⁶ and a solemn declaration, not in the form of a binding treaty, adopted by sovereign states (i.e. at an international conference). The principal difference between a convention and the other instruments, which do not possess formal binding force, is that the former imposes on states which have adopted it, a legal obligation to comply with its provisions. How far such an obligation actually limits the subsequent freedom of state action largely depends on the language of the convention, the type of obligation imposed and the relevant provisions on implementation.

53. See also Report of the Secretariat on “Transnational Corporations: Certain Modalities for Implementation of a Code of Conduct in relation to its Possible Legal Nature”, Commission on Transnational Corporations, Intergovernmental Working Group on a Code of Conduct, E/C.10/AC.2/9, 22 December 1978.

54. “...the status of a generally accepted code is such that governments may feel it appropriate to transform code provisions into national law.” p. 244, “Implementing Codes of Conduct for Multinational Enterprises”, Pieter Sanders, p. 241-248, *American Journal of Comparative Law*, Vol. 30 (1982).

55. See, Report of the Secretariat on “Transnational Corporations: Certain Modalities for Implementation of a Code of Conduct in relation to its Possible Legal Nature”, Commission on Transnational Corporations, Intergovernmental Working Group on a Code of Conduct, E/C.10/AC.2/9, 22 December 1978.

56. In the words of Professor Dupuy, resolutions, even recommendatory resolutions, are in the process of becoming something more, they may affirm “a legitimacy which anticipates the legality of tomorrow”.

It should be borne in mind that the legal form of an instrument is only one of several factors that determine the extent of its real (effective) binding force. A text in the form of an international convention may in fact bind the parties to nothing significant if its provisions are couched in optional terms, using vague and general wording or providing unlimited state discretion. On the other hand, a formally non-binding instrument may have real practical importance.⁵⁷ States usually feel compelled not to act inconsistently with instruments which they have formally accepted, even if those instruments are not technically legally binding. Thus the circumstances of a code's acceptance or adoption are also of primary importance, as they can largely determine the degree of effective respect it will receive.

There are various options available to reinforce the commitment of states to a non-binding code – these options differ significantly. In simplified terms, at one end of the spectrum, states may opt for a 'traditional' form of binding international agreement on the subject, for example in the form of a convention. At the other end of the spectrum, states may decide to opt for what is traditionally perceived as a non-binding international instrument, namely an IAEA General Conference resolution to cover the subject matter. A supporting statement by a representative of the state concerned, by way of a unilateral declaration or a political commitment, is also relevant in determining a code's impact on international law.

i. IAEA General Conference resolutions

In the UN, codes can be adopted by a resolution of the General Assembly; in the IAEA adoption can be by way of a resolution of the General Conference. Yet the question arises as to whether such a resolution has binding force (especially where there are no reservations to it), as a reflection of customary law.⁵⁸

It is not significant, as a matter of international law, though it may be important psychologically or relevant as a result of national law or some international undertaking, whether a recommendation of a policymaking organ of the IAEA, is issued. Whilst a code may not be legally binding, its adoption

57. See A.A Fatouros "The UN Code of Conduct on Transnational Corporations: A Critical Discussion of the First Drafting Phase", p. 103-105, In Horn (ed.), *Legal Problems of Codes of Conduct for Multi-national Enterprises*, Kluwer-Deventer, 1980.

58. It is noted in this context, however, that, strictly speaking, the question of the normative value of resolutions adopted by international organisations is still subject to debate. While some authors consider that such resolutions could, in certain circumstances, create rights and obligations for Member States of the organisation and could even, if adopted unanimously, be regarded as equivalent to treaties concluded in simplified form (see Oppenheim's *International Law*, Ninth Edition, Vol. 1, p. 48), others consider that "the unanimous acceptance of a resolution is [...] still not proof but merely an indication of the existence of consent. Real consent only arises when states recognise the content of a resolution as international law before, during or after voting on it by unilateral declarations, implicit acts, or by unopposed acceptance of the respective legal statements" (see "The Charter of the United Nations", a commentary, B. Simma, Second Edition, Volume 1 p. 272). According to the International Court of Justice (see *Legality of Nuclear Weapons*, Advisory Opinion, ICJ Reports (1996), paras. 70-71), "General Assembly resolutions, even if they are not binding, may sometimes have normative value. They can, in certain circumstances, provide evidence important for establishing the existence of a rule or the emergence of an *opinio juris*. To establish whether this is true of a given General Assembly resolution, it is necessary to look at its content and the conditions of its adoption; it is also necessary to see whether an *opinio juris* exists as to its normative character". Further, for the views of states, see "Unilateral Acts of States, Replies from Governments to the Questionnaire", General Assembly, International Law Commission, 52nd Session, Report of the Secretary-General, A/CN.4/5.11, 6 July 2000.

by consensus underscores a political commitment to its principles. Such a commitment may be further enhanced by an individual commitment by a state. The IAEA Board of Governors has, in the past, recommended to its Member States that certain IAEA Safety Standards (e.g. those relating to transportation) “should serve as the basis for relevant national regulations” or that certain codes “be taken into account in the formulation of national regulations or recommendations”. The Director General has also made similar recommendations in the publications setting forth the texts of certain Safety Standards, and even in Manuals promulgated on his own authority. However, it should be borne in mind as a matter of international law, these recommendations generally have no force of law. The Agency’s Statute does not place on IAEA Member States any obligation to conform to recommendations made in this regard by any Agency organ, or even to report to the Agency on the degree of such conformity or the fact of or the reason for rejection.⁵⁹

ii. *Unilateral declaration*

The term “declaration” is used for various international legal instruments. Such instruments are frequently used by states to convey a commitment on their part. Declarations are not always legally binding. “Some unilateral declarations may create rights and duties for the states, while others just explain or justify conduct, views or intentions on various matters and are more of political than legal significance.”⁶⁰ Declarations, however, can also be treaties in the generic sense with the intention to be binding under international law. It is therefore necessary to establish in each individual case whether the parties intended to create binding obligations and the circumstances of any reliance placed on a declaration by other states. Under international law, these are the key elements which need to be taken into consideration when determining whether a state is bound by a unilateral declaration.

On several occasions the International Court of Justice (ICJ) had to determine whether a specific unilateral declaration had created legal obligations for the state that submitted it. The legal position on this matter is set out by the ICJ in general terms in the 1974 Nuclear Tests Case (Australia v. France). The ICJ held:

“It is well recognized that declarations made by way of unilateral acts, concerning legal or factual situations, may have the effect of creating legal obligations. Declarations of this kind may be, and often are, very specific. When it is the intention of the state making the declaration that it should become bound according to its terms, that intention confers on the declaration the character of a legal undertaking, the state being thenceforth legally required to follow a course of conduct consistent with the declaration. An undertaking of this kind, if given publicly, and with an intent to be bound, even though not made within the context of international negotiations, is binding.”⁶¹ (emphasis added)

The ICJ on this basis concluded that various communiqués, messages and press interviews by persons speaking on behalf of the French government constituted binding legal commitments for France.

On the other hand, in the case concerning Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America) the Court “[was] unable to find anything in these

59. Compare the Constitution of the WHO (14 UNTS 185), Article 22, and the Convention on International Civil Aviation (15 UNTS 295), Article 38.

60. Oppenheim’s *International Law*, Ninth Edition, Vol. 1, Parts 2 to 4, p. 1190.

61. ICJ Rep (1974), p 253 (Australia v. France).

documents [namely, a resolution of the XVIIth Meeting of Consultation of Ministers for Foreign Affairs of the Organization of American States and a communication from the Junta of the government of Nicaragua to the Secretary-General of the Organization accompanied by a “Plan to secure peace”] from which it can be inferred that any legal undertaking was intended to exist”⁶². The communication from the Junta of the government mentioned, *inter alia*, its “firm intention to establish full observance of human rights in [the] country” and “to call the first free elections [the] country has known in this century”. In the ICJ’s view, this communication was essentially a “political pledge”.

However, in the case concerning the Frontier Dispute (Burkina Faso v. Mali), the ICJ did not find any binding character to a verbal declaration made by Mali’s head of state who stated that: “Mali extends over 1 240 000 square kilometres, and we cannot justify fighting for a scrap of territory 150 kilometres long. Even if the African Unity Mediation Commission decides objectively that the frontier line passes through Bamako, my government will comply with the decision.”⁶³

In the ICJ’s view, “there was nothing to hinder parties from manifesting an intention to accept the binding character of the conclusions of the Organization of African Unity Mediation Commission by the normal method: a formal agreement on the basis of reciprocity. Since no agreement of this kind was concluded between the parties, the Chamber finds that there are no grounds to interpret the declaration made by Mali’s head of state [...] as a unilateral act with legal implications in regard to the present case.”⁶⁴

From the above, it appears that according to the ICJ, unilateral declarations by states may have different legal implications depending on a number of factors. Decisive in this context are the originator of the unilateral declaration, the content of the unilateral declaration and, most importantly the intention by the originator of the unilateral declaration to be bound by it and the corresponding legitimate expectation of the addressee. A definitive answer under which circumstances a unilateral declaration is and which elements of a unilateral declaration make it legally binding however still cannot be found.⁶⁵

Finally, it is recalled that the form of the declaration is not decisive. In the abovementioned 1974 Nuclear Tests Case, the Court recalled that:

“With regard to the question of form, it should be observed that this is not a domain in which international law imposes any special or strict requirements. Whether a statement is made orally or in writing makes no essential difference, for such statements made in particular circumstances may create commitments in international law, which does not require that they should be couched in written form. Thus, the question of form is not decisive.”⁶⁶ (emphasis added)

62. ICJ Rep (1986), para. 261 (Nicaragua v. United States of America).

63. ICJ Rep (1986), para. 36 (Burkina Faso v. Republic of Mali).

64. ICJ Rep (1986), para. 40 (Burkina Faso v. Republic of Mali).

65. See also in this context the still ongoing work of the International Law Commission at its fifty-fourth session in 2002, as set out in its Report. [Official Records of the General Assembly, Fifty-fourth session, Supplement No. 10 (A/57/10)].

66. ICJ Rep (1974), p 253 (Australia v. France).

iii. *Political commitments*

What is meant by a political or moral commitment is rarely spelt out, beyond the implication that it does not entail legal effect or sanctions. The question of whether such commitments are generally observed is one of empirical research and not for normative analysis.⁶⁷ It has been suggested that a breach of law gives rise to legal consequences while a breach of a political norm gives rise to political consequences. However, this is a fine distinction to make, as breaches of law may give rise to consequences that may be politically motivated.

It should be noted that a political commitment of a state implies, and should give rise to, an internal legislative or administrative response. It should also be noted that a state that has made a political commitment has entered into an international pact with other states who have made the same commitment. Thus, a state may be presumed to have agreed that the matters covered are no longer exclusively within its concern. This does not, however, mean that any violation of the requirements contained within the instrument would give rise to legal consequences.⁶⁸

B. Formulation

There are a number of ways in which legal obligations may be expressed, here I cite just a few:
(a) an important element in the formulation of the text of a code, is the degree of specificity of its

67. See, "The Twilight Existence of Non-binding International Agreements", Oscar Schachter, (1977), Vol. 761, *American Journal of International Law*, p.303.

68. Further to an endorsement of a code by the IAEA General Conference, states could be encouraged to make individual political commitments concerning their implementation of the code. With regard to the Code of Conduct on Sources, the General Conference recognised that the code was not a legally binding instrument, yet it also urged each Member State to write to the Director General that it fully supported and endorsed the IAEA's efforts in this field, that it is working toward following the guidance contained in the code, and that it encouraged other countries to do the same. The Director General was requested, subject to the availability of resources, to compile, maintain and publish a list of states that have made such "political commitment[s]". Yet it also recognised that the abovementioned procedures were exceptional, having no legal force, were only intended for information and therefore did not constitute a precedent applicable to other Codes of Conduct of the Agency or of other bodies belonging to the United Nations system [see GC(47)/RES/7, September 2003]. Examples of such political commitments proposed during the drafting of the Code of Conduct on Sources include: (a) "[State] declares that it will fully implement the terms of the Code of Conduct on the Safety and Security of Radioactive Sources. Consistent with the non-legally binding status of the code, this declaration does not create any legal obligations."; (b) "[State] fully supports and endorses the IAEA's efforts to create international standards for the safety and security of radioactive sources. [State] is working toward full implementation of the IAEA Code of Conduct on the Safety and Security of Radioactive Sources and encourages other countries to do the same."; (c) "[State] affirms its determination to uphold the principles of safe and secure management of radioactive sources, as are stated in the Code of Conduct on the Safety and Security of Radioactive Sources. Consistent with the non-legally binding status of the code, this declaration does not create any legal obligations or any specific reporting system."; (d) "[State] affirms its support for the IAEA's work on the safety and security of radioactive sources, including the completion of the recently revised IAEA Code of Conduct on the Safety and Security of Radioactive Sources, which is non-legally binding in nature. [State] will implement the IAEA Code of Conduct on the Safety and Security of Radioactive Sources and urges other countries to do the same. This declaration does not create any legal obligations or any specific reporting systems.". See The Report of the Chairman of the Open-ended Meeting of Technical and Legal Experts to Review a Draft Revised Code of Conduct on the Safety and Security of Radioactive Sources, held in Vienna, from 14 to 18 July 2003 [GOV/2003/49-GC(47)/9, Annex 2].

language. The more specific the language, the more restricted is the freedom of the parties to it. The more general the language, the greater the freedom;⁶⁹ (b) a provision may be directed at a desirable outcome or result, permitting conduct that brings about such a result. A provision may direct obligations or recommendations on the substance of the conduct of a particular actor. A combination of these two approaches may be found in a set of provisions – desirable, recommendatory or obligatory, combined with a provision(s) on the particular types of conduct required leading to that result; and (c) a provision may include terms which expressly (i.e. national interest exceptions) or by implication (i.e. the mention of broad standards of conduct, any application of which involves decisions by the concerned party or by an appropriate authority), refer to decisions by the party affected or by other parties, concerning the elements of conduct required or prohibited.

The drafters of a code must establish from the outset whether the code will be binding or not. Where it is agreed that a code should be non-binding, then there should be no reason not to prepare an instrument containing highly specific text: the options of states would not be formally restricted thereby and there would be no breach of a legal obligation if in a specific instance an inappropriate rule were not complied with. Where a code is being drafted without due regard as to its legal form, then it may well end up having the worst of both worlds: a non-binding instrument with vague and general language. As mentioned above, a code can be effective only to the extent that it is widely accepted and all states adopting it are committed to it. On the other hand, the opposite danger is also present: that a code may be accepted by all, or most countries concerned, but it is a code with a vague and general text which changes little in the existing situation, where in relation to important matters, the parties concerned have reached linguistic compromises, which deprive the code of any real effect, and which lacks any provisions regarding its implementation.⁷⁰

C. Implementation

On the domestic level, non-binding international instruments often become a source of law⁷¹ even before they are compulsory internationally, by being adopted into legislation or regulations. Yet, strictly speaking many soft law instruments do not need to be implemented via domestic legislation, making them easier to adopt than conventions and be applied without delay by states.

69. Consistent with the accepted practice for codes and guides, “shall” and “should” are used to distinguish between strict requirements and desirable options respectively. While there is little legal distinction between them, the use of “should” is more in keeping with the voluntary and advisory nature of the code. However, it should be noted that if a state is to implement the provisions of a code then effectively it would be bound to ensure that its provisions were followed.

70. See A.A Fatouros, “The UN Code of Conduct on Transnational Corporations: A Critical Discussion of the First Drafting Phase”, p. 123, In Horn (ed.), *Legal Problems of Codes of Conduct for Multi-national Enterprises*, Kluwer-Deventer, 1980.

71. For example, Codex Alimentarius – jointly produced by the Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO), prescribes standards “for all principal foods” and is widely used in the international food industry. It is a noteworthy illustration of a formally binding instrument that has become effective law for numerous states worldwide on a subject of practical significance to many people. Where a state has been unable to incorporate such a code into its domestic law, it is still nevertheless influenced by its requirements. For further discussion, see “Codex standards and other Codex measures are widely used by governments and by the international food trade”, Frederic Kirgis, “Specialized Law-Making Processes”, in *The United Nations and International Law*, at 86.

The adoption⁷² of a code by states, whether as an international convention or as a General Conference resolution, will undoubtedly have an impact on the national law of adopting states. The impact of the adoption of a code by means of a convention may be stronger and more immediate, but such impact could still exist in the case of a non-binding instrument. A code's provisions may deal in various ways with the matter of its implementation and application at the national level or it may contain no provisions on the matter. Alternatively, it may include provisions which refer to the code in its entirety and which express a broad undertaking of the states adopting it, to give effect to the principles it embodies. It may also contain specific provisions, which require effect to be given in the national law and practice, or requiring that the very language of the code be enacted into national law. The code may also contain provisions which require regular or ad hoc reporting by each state concerning the application of the code.⁷³

V. Structural Options

The following part of this paper provides a non-exhaustive list of possible structural options for an IAEA Code of Conduct. These options are presented for illustrative purposes only, without any preference whatsoever, and should be read in light of the preceding parts of the paper. The options reflect both the various types of machinery for a code's implementation and the legal form (binding or non-binding) of the instrument(s) embodying it.

In considering options, there is a clear relationship between form and content. In other words, the appropriateness of a legally or non-legally binding approach will depend on the content, which in turn derives from the objectives. It could be argued that the issue of content must be discussed before the issue of form, and whilst this would make sense, the issue of form will also have implications for the more specific content. For the purpose of this part of the paper, the issue of form is discussed. The code under consideration is fully non-binding and voluntary and is issued in the form of a declaration in a resolution of the IAEA General Conference.

72. In the context of revisions to the draft Code of Conduct on the Safety of Research Reactors, due to the non-binding nature of the code, it was suggested that the term "application of the guidance in the code" should be used in place of the term "implementation of the code". See Working Group Meeting on Revision of the Draft Code of Conduct on the Safety of Research Reactors, Vienna, 13-17 October 2003, Report of the Chairman, 16 October 2003.

73. In this context, the draft Code of Conduct on the Safety of Research Reactors submitted to the Board of Governors in March 2003, contained provisions (in particular the two linked Paragraphs 8 and 42) that would require a state to prepare and submit national reports on the status of implementation of the code to the Agency for review. The Agency would then take this into account when planning its technical co-operation programmes. However, although this provision sought to encourage the code's implementation, Member States' comments at the Board indicated that many would not wish application of the code to be taken into account by the Secretariat when it was planning Agency technical co-operation programmes. "...A non-binding code should not impose restrictions on access to material, equipment and technology for peaceful purposes..." (see paragraphs 121-161, GOV/OR.1063, dated April 2003). It follows that the Conclusions from the Meeting of the Stakeholders' Group records that the provision on implementation of the code should be removed and taken up in a General Conference resolution, as was done for the Code of Conduct on the Safety and Security Sources. (see Conclusions from the Meeting of the Stakeholders' Group for the Code of Conduct on the Safety of Research Reactors, 2003-10-07). Consequently, the code as revised and submitted to the March 2004 Board and September 2004 General Conference (GC(48)), merely states that "if the state faces difficulties in application of this code, it should communicate the difficulties and any assistance it may require to the Agency." (paragraph 7, GOV/2004/4, 2 February 2004).

The code may include provisions which, *inter alia*:

- provide that the adopting states undertake to give effect to it in their national law and administrative practice, and to report regularly and on request to its application;
- entrust the Secretariat with responsibilities concerning the collection and study of state reports on the code's application, and the preparation of studies based on such state reports and from sources other than such reports;
- provide an international committee with responsibility for preparing and adopting revisions of the code;
- establish an international panel of experts charged with the elucidation of the code's provisions on the basis of their language and context, the interpretation of the code on the basis of its structure and purpose, other kinds of action in consultation with the parties concerned; to act on a non-adversary consultative basis, with respect to all general and specific issues brought before it by a concerned party;
- provide procedures for non-compulsory settlement of disputes between states (conciliation, arbitration and adjudication) concerning the application and interpretation of the code.

In favour of such an arrangement it may be argued that, for instance:

- that it will be easier to reach agreement among states with respect to a non-binding code and therefore it will be easier for it to be speedily adopted and put it in effect within a short time;
- that it will have considerable effect because its moral force will make it a guideline for state behaviour and a source of law for national courts and administrative authorities;
- that the provisions entrusting the Secretariat with administrative tasks will make compliance more likely;
- that the explicit requirement of national implementation will enhance the code's role as a source of law within states;
- that the provision on national implementation and on administrative and monitoring services, as well as the creation of the panel, will make compliance more likely;
- that provisions dealing with the code's revision makes possible future improvement. That the work of the panel will enhance the chances for significant future improvements through revision;
- that those provisions on compulsory settlement of disputes and the threat of sanctions are necessary to induce state compliance.

It may be argued against such a type of arrangement:

- that states will not accept provisions against which they have serious objections to, and even a code which is not legally binding may still not be speedily adopted;
- that states will not respect a text in which those who prepared it have signaled its limited significance, by neither giving it binding force nor any specific implementation machinery;

- that as long as the code is non-binding there is no certainty that states will institute sufficient changes in their relevant national laws and practices and provide reports, so as to allow an effective review;
- that national action alone is not sufficient for monitoring and control. That, even if states act in a manner indicated, there may be too many basic divergences in national laws and practice;
- that administrative and technical review of state action is too limited to induce adequate compliance with the code;
- that the implementation machinery is inadequate; states may have little help as to the meaning and operation of the code and that the relevant experience is studied at a level too abstract to permit effective future revision;
- that the panel's responsibilities are too limited to make it an important factor in increasing the effectiveness of the code; That the creation of a panel introduces an element of judgment about specific cases which is inappropriate in an essentially voluntary instrument and that if the code does not contain specific enough language the panel cannot function on a proper and predictable basis;
- that the non-binding character of the entire instrument undermines the effectiveness of the enhanced implementation machinery, since states remain free to avoid using the code.

The code may include legally binding provisions on implementation in a Protocol, whilst the other provisions are issued in the form of a declaration in a resolution of the IAEA General Conference. Where a code has a number of addressees, such as the Code on Research Reactors (three addressees: the state; the regulatory body; and the operating organisation) it would also be possible to separate the provisions concerning each party, in order to make them binding or not. Thus certain provisions concerning one party may be legally binding, whilst the other provisions concerning another can be issued in the form of a declaration in a resolution of the IAEA General Conference.

In favour of such an arrangement it may be argued, for instance:

- that giving binding force to the implementation provisions ensures that those provisions will be sufficiently effective and that states will give effect to the code in their national laws and practice and will otherwise comply with it;
- that the binding force of the implementation provisions will foster utilisation of the available implementation machinery by states and other parties concerned;
- that the uniform language ensures uniform application of those provisions in all countries;
- that the binding provisions addressed to a particular party will increase the code's effectiveness. If such provisions are broadly phrased, they will allow flexibility in their operation.

It may be argued against such a type of arrangement:

- that a code is a non-binding international legal instrument. Its provisions are recommendations intending to provide guidance to Member States;
- that the uniformity sought by such an agreement is too rigid and stifling for states in widely different situations. In particular, that the uniformity of national laws and practices would be neither desirable, in view of profound differences between states, nor feasible, in view of the role of national authorities in their application of the code. Instead it is

recommended that the state should implement, within the framework of its national law, those legislative, regulatory, administrative, and other measures that are appropriate for the state;

- there would inevitably be problems in attempting to give legally binding status to a text which has been negotiated precisely on the understanding that the provisions would be non-binding;
- that it would take a long time to elaborate such a text.

VI. Conclusion

The variety of soft law developments in the IAEA reveals that there are effective ways of enacting international law other than through the conventional treaty process. It has been demonstrated that the content of the norm, the legitimacy of the process by which it is adopted, the international context, and especially the institutional follow-up, seem to impact on state decisions to comply or not to comply with specific norms. However, the considerable recourse to and compliance with non-binding norms appears to represent a maturing of the international system for nuclear energy.

In theory soft law can be as effective as hard law. Whilst some scholars have formulated that the practice of international organisations, and of states within international organisations, is not the full equivalent of hard customary international law directly based on state practice – the adoption of a Code of Conduct expressly declared to be unenforceable internationally is not without substantial legal consequences.⁷⁴ Whilst they are not law, non-binding norms are effective and offer a flexible and efficient way to order responses to common problems. Thus, a non-legally mandatory code may still lay down standards and prescribe particular action required by a state. This paper has gone some way to demonstrating that such codes have been used by the IAEA as an effective norm-creating technique. They thus have an indispensable place in a modern international system.

The international system for the peaceful and safe use of nuclear energy is characterised by a mix of legally binding rules, agreements and regulations and, non-binding advisory standards and codes. This mix is constantly changing. Very important steps forward have already been made and the development of this system is a continuous process. Non-binding advisory codes and standards are gradually becoming binding commitments. Indeed, many countries are voluntarily accepting, step by step, recommendatory international regulations as a basis for their national legislation. Yet in order to assist and support this development, it is imperative that the concerned parties are actively involved in the progressive development of the system.⁷⁵

It is without question that the international instruments adopted under IAEA auspices play an important role in the adoption of norms and rules on nuclear energy. The IAEA is working to establish an efficient and effective global framework for the peaceful and safe use of nuclear energy. The enhancement of this framework can be made more effective depending on the options pursued. Yet the choice of the various options is controlled by states, who may or may not want to commit themselves to a binding instrument. Where a non-binding option is chosen, such as a code, this choice can be

74. Horn (ed.), *Legal Problems of Codes of Conduct for Multi-national Enterprises*, Kluwer-Deventer, 1980, p. 413.

75. *The Chernobyl [Chernobyl] Accident and the Future of Nuclear Energy: The Path Towards Safety and Sustainability*, Harvard Ukrainian Research Institute of Harvard University, Serguei Milenin, Sergei Skokov, Elizabeth Supeno.

reinforced, but again it depends on the options chosen regarding the instruments legal form, formulation and mechanisms for implementation. However, in practice, states having opted for a non-binding instrument have consistently sought to reinforce the instruments purely non-binding nature.

If states are ready to voluntarily undertake to comply with international norms that they formally view as recommendations, they should be afforded every opportunity to do so. It is important to facilitate the expansion by states of their norm acceptance. In the field of international co-operation, the emphasis need not be on the formal character of the commitment but rather on the degree of compliance with that commitment. Paradoxically, while legal commitments may not always be fulfilled, it is not infrequent that non-binding commitments are faithfully complied with. Experience has shown that when states explore new areas of international co-operation which have previously been regarded as within the sphere of domestic jurisdiction, a trial period is often required for states to satisfy themselves that undertaking a legal commitment is appropriate. Such trial period commitments indicate that the international community is feeling its way through an area of international co-operation.

The challenge for the IAEA is how best to make a normative framework more effective and applicable in an effort to enlarge widespread observance of the basic norms governing the safe and peaceful uses of nuclear energy, while safeguarding selectivity in the creation of new principles, standards and rules.

CASE LAW AND ADMINISTRATIVE DECISIONS

CASE LAW

France

Judgement of the Council of State on an application for annulment of the Decree of 10 January 2003 authorising Cogema to modify a major nuclear installation (2004)

In its judgement of 28 July 2004, the Council of State (*Conseil d'État* – Supreme Administrative Court) rejected an application for annulment of the Decree of 10 January 2003 authorising Cogema to modify the major nuclear installation (*installation nucléaire de base* – INB) STE 3 located at the La Hague site. This decision provides clarifications on the content of the application presented in support of a licensing request and on the possibility of allowing for licensing of future modifications to the installation by order.

On the satisfactory nature of the environmental impact review and the risk review, the applicants (Greenpeace, *Réseau Sortir du nucléaire* and the *Comité de réflexion et d'information sur la lutte anti-nucléaire* – CRILAN) claimed in particular that the two reviews submitted by the operator in support of its application to modify the installation were insufficient.

Underlining that the “environmental impact review and its non-technical summary, presented by Cogema in support of its project to modify the major nuclear installation STE 3, includes an analysis of the initial state of the site, the characteristics of the installations and the interaction between the La Hague site and its environment”,* the Council of State considered that “even though the part of the review concerned with the proposed modifications to this major nuclear installation is quite succinct, it nevertheless contains an outline of these changes”.

The Court concluded that “under such circumstances, even if each part of the review does not contain quantitative details, the applicants are not entitled to claim that the impact review is thereby sullied with inadequacies of a substantial nature”. The same conclusions were reached in regard of the risk review, judged to be sufficient in that it “describes the measures taken in order to master the risks of nuclear and non-nuclear origin, whether external or internal, and to limit the consequences of an accident” and it “presents the risks and preventive measures on a case by case basis”.

As regards the powers conferred upon ministers to authorise future modifications, Article 4 of the litigious decree provides that each new, significantly different type of materials to be treated in the installation will, at the appropriate time, be specifically licensed by a joint order of the Ministers

* All quotations from the transcript of the Council of State are unofficial translations carried out by the translator.

responsible for the environment and industry, following the examination of a special safety application presented by the operator.

The applicant associations maintained that as modifications to a major nuclear installation should in principle be licensed by decree, these provisions illegally delegated the authority to joint orders to define the adaptation of the types of materials to be treated.

The Council of State rejected this ground, considering that the decree “determines with sufficient precision the conditions under which ministers exercising the powers conferred upon them, in order to license only (...) the modification of the types of materials to be treated in the installation”, as it “specifies the annual capacity of treatment of the major nuclear installation concerned and provides detail on the nature of the waste which could be stored and treated there” and it “defines the notion of significantly different material which should be the subject of a specific licence of the ministers”.

United States

*Ruling of the US Court of Appeals for the Federal Circuit in relation to the sale of uranium enrichment services in the United States (2005)**

An opinion of the US Court of Appeals for the Federal Circuit (case 04-1209,-1210), filed on 3 March 2005, concerned the appeal against the US Court of International Trade’s March 2003 ruling in favour of European uranium enrichment companies concerning the sale of enrichment services in the US (see *Nuclear Law Bulletin* Nos. 68 and 71).¹

In past years, the US government’s trade experts have determined repeatedly that the sale and purchase of low enriched uranium (LEU) under enrichment contracts is subject to US antidumping² and countervailing duty³ laws. In its opinion filed on 3 March 2005, the Court of Appeals disagreed

* This case note was kindly provided by Ms. Sophia Angelini, Attorney Adviser at the Office of Civilian Nuclear Programs of the US Department of Energy. The author alone is responsible for the facts mentioned and opinions expressed therein.

1. Eurodif S.A., *Compagnie Générale des Matières Nucléaires* and COGEMA, Inc., and Ad Hoc Utilities Group v. United States and USEC Inc.,
2. The sale of goods or “merchandise” is covered by the antidumping duty statute. The provision of services is *not* covered. Title 19 U.S.C. 1673 (2004) provides that antidumping duties may be imposed on imported merchandise where “a class or kind of foreign merchandise is being, or is likely to be, sold in the United States at less than fair value” and imports, sales, or likely sales of that merchandise result in injury or the threat of injury to the domestic industry, or in the material retardation of the establishment of the domestic industry. In order to determine whether merchandise is being sold or is likely to be sold in the United States at less than fair value, the DOC compares the merchandise’s normal value, or the price at which the merchandise is first sold for consumption in the exporting country, to the export price or constructed export price, which represents the price of the good when sold in or for export to the United States. “The purpose underlying the antidumping laws is to prevent foreign manufacturers from injuring domestic industries by selling their products in the United States at less than “fair value”, i.e. at prices below the prices the foreign manufacturers charge for the same products in their home markets.” *Torrington Co. v. United States*, 68 F.3d 1347, 1352 (Fed.Cir. 1995).” USEC I at 1317.
3. Title 19 U.S.C. 1677(5)(D) provides that in order to be subject to a countervailing duty or subsidy, an arm of a foreign government must make a “financial contribution” to a manufacturer that can take one of four forms: 1) the direct transfer of funds, such as grants, loans, and equity infusions, or the potential direct

while confirming the position of the Department of Commerce (DOC) that USEC Inc. constitutes the domestic enrichment industry with eligibility to request a trade investigation of imported LEU.⁴ The Court of International Trade (CIT) thoroughly detailed the relevant background in *USEC Inc. v. United States*, 281 F. Supp.2d 1334 (2003) (USEC II) and *USEC Inc. v. United States*, 259 F.Supp. 2d 1310 (2003) (USEC I).

Department of Commerce

In 2000, USEC petitioned the DOC to initiate antidumping and countervailing duty investigations focusing on imports of LEU from France and other countries.⁵ In 2001, the DOC issued final determinations concluding that: 1) SWU contracts⁶ are contracts for the sale of goods, not services, and therefore subject to US antidumping and countervailing duty statutes; and 2) that foreign enrichers, not domestic utilities, were “producers” of LEU for purposes of determining sufficient industry support to initiate investigations in the first place.

Court of International Trade

The CIT disagreed with the characterisation of enrichment contracts as being for the sale of goods and found the determination that enrichers were “producers” of LEU inconsistent with prior DOC decisions.⁷ It also determined that the DOC’s decision to not apply the tolling regulation to the SWU contracts between enrichers and utilities, as well as its industry support determination, were not in accordance with law and remanded.⁸ In its remand determination, the DOC reiterated its original positions. In USEC II, the Court concluded that: 1) the DOC’s interpretation of “producer” in the context of an industry support determination was reasonable; 2) enrichment contracts were contracts for services and not for goods; 3) payment by a foreign government entity of more than adequate remuneration to a foreign enricher for enrichment services qualified as a countervailable subsidy; and that 4) the DOC’s interpretation of the word “producer” for purposes of making an export price determination was inconsistent with its previous determinations and not in accordance with law.⁹ The Court certified four specific questions to the Court of Appeals.

transfer of funds or liabilities, such as loan guarantees; 2) foregoing or not collecting revenue that is otherwise due, such as granting tax credits or deductions from taxable income; 3) providing goods or services, other than general infrastructure, or; 4) purchasing goods. A public entity can provide a subsidy if it provides goods or services to a manufacturer for less than adequate remuneration or if it buys goods from the manufacturer for more than adequate remuneration. 19 U.S.C. 1677(5)(E). The statute does not contemplate the purchase of services for more than adequate remuneration to be a subsidy. See Eurodif, *supra*.

4. USEC, *USEC Responds to Trade Ruling by U.S. Court of Appeals for the Federal Circuit*, News Release, 4 March 2005.
5. Many utilities in the United States contract to have uranium enriched by an enricher. Only one entity in the United States, USEC, enriches uranium into LEU. A variety of foreign enrichers, including Eurodif, CGMN and COGEMA compete with USEC and also enrich the uranium of U.S. utilities. See Eurodif, *supra*.
6. SWU contracts = Separative Work Units Contracts. See note 13 *infra*.
7. USEC I, at 1324-26.
8. USEC I, at 1331.
9. USEC II, at 1334.

Issues on Appeal

I) Whether the DOC's decision to not apply its tolling regulation¹⁰ to determine whether US utilities should be considered "producers" of LEU for purposes of determining sufficient "domestic industry support" to proceed with an investigation was in accordance with law.¹¹ (The DOC determined that foreign enrichers and not domestic utilities were "producers" of LEU for purposes of determining domestic industry support.)

The Court of Appeals agreed with the Court of International Trade that sustained the DOC's interpretation of the term "producer" for purposes of an industry support determination and it affirmed the DOC's refusal to apply the tolling regulation to encompass US utilities within the definition of "producer". It also upheld the DOC's finding that USEC is the sole member of the domestic industry for purposes of satisfying the industry support requirement.¹² It reasoned that:

"Congress intended the industry support statute "to provide an opportunity for relief for an adversely affected industry and to prohibit petitions filed by persons with no stake in the result of the investigation. S. Rep. No. 249, 96th Cong., 1st Sess. 47 (1979). This view was echoed by the Court of International Trade when it noted that "[t]he language in the legislative history is broad and unqualified. It contrasts industries suffering adverse effect with those having no stake: the former have standing, the latter do not." ... Commerce interpreted having a "stake" as requiring that a company "perform some important or substantial manufacturing operation."... There is no basis to conclude that Commerce's interpretation in this context is unreasonable or not in accordance with law."

II) Whether the DOC's decision that enrichment of uranium feedstock pursuant to SWU contracts constitutes a sale of goods instead of services was supported by substantial evidence and in accordance

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10. In determining who is the producer or exporter of subject merchandise, one factor that the DOC considers is whether the merchandise is manufactured under a "tolling" or subcontracting arrangement. The tolling regulation at 19 C.F.R. 351.401(h) states that the DOC "will not consider a toller or subcontractor to be a manufacturer or producer where the toller or subcontractor does not acquire ownership, and does not control the relevant sale, of the subject merchandise or foreign like products. In this matter, the DOC determined that the enrichers were the producers for which it offered three reasons: 1) "the enrichment process is such a significant operation that it establishes the fundamental character of LEU."; 2) "the enrichers control the production process to such an extent that they cannot be considered tollers in the traditional sense under the regulation."; and 3) "utility companies do not maintain production facilities for the purpose of manufacturing subject merchandise." The DOC concluded that "the overall arrangement, even under the SWU contracts, is an arrangement for the purchase and sale of LEU." LEU from France, *66 Fed. Reg. at 65,884*. See USEC I at 1322-23.
 11. Before an antidumping and countervailing duty investigation can be initiated, a petition must meet certain industry support requirements. The general rule is that a petition is considered to be filed on behalf of an industry if: (1) the domestic producers or workers who support the petition account for at least 25% of the total production of the domestic like product, and (2) the domestic producers or workers who support the petition account for more than 50% of the production of the domestic like product produced by that portion of the industry expressing support for or opposition to the petition. "Determination of industry support" 19 U.S.C. 1673a(c)(4)(A).
 12. USEC II, at 1346.

with law.¹³ (The DOC determined that SWU contracts as well as EUP contracts are contracts for the sale of goods.)

The Court of Appeals affirmed the Court of International Trade's decision that SWU contracts constituted contracts for services and not for goods.¹⁴ It reasoned that:

“In reviewing the contracts in this case, it is clear that ownership of either the unenriched uranium or the LEU is not meant to be vested in the enricher during the relevant time periods that the uranium is being enriched. While it is correct that a utility may not receive the LEU that was enriched from the exact unenriched uranium that it delivered to the enricher, it is nevertheless true that up until the sampling and weighing of the LEU before delivery, the utility retains title to the quantity of unenriched uranium that is supplied to the enricher. The utility's title to that uranium is only extinguished upon the receipt of title in the LEU for which it contracted. Therefore, the SWU contracts in this case do not evidence any intention by the parties to vest the enrichers with ownership rights in the delivered unenriched uranium or the finished LEU. As a result, the “transfer of ownership” required for a sale under NSK¹⁵ is *not* present here.” (emphasis added)”

III) Whether the DOC's decision that payment of more than adequate remuneration for enrichment services by partially public foreign entities to foreign enrichers constitutes a countervailable subsidy is in accordance with law.¹⁶ (The DOC determined that the transaction between EDF and Eurodif was a sale of goods to a government entity for more than adequate remuneration and, therefore, subject to the countervailing duty statute.)

The Court of Appeals reversed the finding that EdF's SWU contract with Eurodif rendered Eurodif's LEU subject to the countervailing subsidy statute. (The Court of International Trade found

13. As explained in USEC I at 1314, utilities employ two types of contracts are employed for procuring LEU from uranium enrichers. One is a contract for enriched uranium product (“EUP” contract”) in which the utility simply purchases LEU from the enricher. In an EUP contract, the price paid for the LEU covers all elements of the LEU's value, including the feed uranium and the effort expended to enrich it. The second type of contract provides for the purchase of “separative work units” or “SWU” which are measurements of the amount of energy or effort required to separate a given quantity of feed uranium into LEU. Under a SWU contract, a utility purchases separative work units and delivers a quantity of feed uranium to the enricher. See *LEU from France*, 66 Fed. Reg. at 65,878, 65,884-85. Because feed uranium is fungible, the specific feed uranium provided by a utility need not be used to produce LEU for that utility. Rather, enrichers maintain inventories of feed uranium not segregated according to source or ownership. Any uranium held by the enricher may be used to produce LEU for any customer. In USEC I, all parties agreed that sales of EUP constituted sales of merchandise subject to the antidumping and countervailing duty laws.

14. USEC II, at 1339. In support of its finding the Court of Appeals repeatedly cited its decision in *Fla. Power & Light Co. v. United States*, 307 F.3d 1364 (Fed. Cir. 2002).

15. *NSK Ltd. v. United States*, 115 F.3d 965 (Fed. Cir. 1997).

16. 19 U.S.C. 1671 provides that the DOC may impose countervailing duties where it determines that a government or public entity within a country is providing a countervailable subsidy “with respect to the manufacture, production, or export of a class or kind of merchandise imported, or sold (or likely to be sold) for importation, into the United States,” and imports of that merchandise injure or threaten to injure a domestic industry. The DOC concluded that countervailing duty provisions are applicable to both EUP purchase contracts and SWU enrichment contracts. USEC II, at 1346.

reasonable the interpretation by the DOC that countervailing duty provisions were applicable to imports of LEU under both EUP and SWU contracts.¹⁷⁾ It reasoned that:

“Section 1677(5) is clear as to what constitutes a subsidy – and the purchase of a service by a foreign public entity, however related to the manufacture of a good, is not contemplated in the statute as being a subsidy. While the provision of services by a government entity to another entity for less than adequate compensation may be considered a subsidy, the plain language of 1677(5) does not allow for the purchase of services by a government entity from another entity to be considered a subsidy. Thus, to the extent that the government argues that Commerce is owed deference under *Chevron USA., Inc. v. Natural Res. Def. Council, Inc.*, 467 US 837, 842-43 (1984), we reject that argument because we find that the plain meaning of the statute is unambiguous. Furthermore, 1677(5) clearly shows that Congress was aware of the distinction between contracts for services and contracts for goods... While the Court of International Trade, the government and USEC are correct that the purpose of the subsidy statute is to defeat unfair competitive advantage, that purpose cannot exceed the metes and bounds of the subsidy statute as established by its text.”

IV) The DOC’s decision to apply a definition of “producer” in the context of export price determination different from the definition it used in the industry support determination is reasonable and in accordance with law. (The DOC determined that foreign enrichers were “producers” of LEU for purposes of determining LEU export price.)

The Court of Appeals declined to reach the issue of whether the DOC properly employed its tolling regulation in its determination of export price.

Summary

The Court of Appeals: 1) sustained the DOC’s determination that USEC’s petition had sufficient industry support to trigger antidumping and countervailing subsidy investigations; 2) affirmed that SWU contracts in this case constituted contracts for services and not for goods and that LEU produced as a result of those contracts is not subject to the antidumping statute at 19 USC. 1673; 3) reversed the Court of International Trade’s decision regarding subsidies, reversed its holding that EDF’s SWU contract with Eurodif made the LEU produced by Eurodif subject to the countervailing subsidy statute and found that overpayment for enrichment services by foreign government entities cannot constitute a countervailable subsidy; and 4) declined to review the decision regarding Commerce’s application of the tolling regulation in the context of export price determination.

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17. USEC II at 1347-50.

Decision of the US Court of Appeals for the District of Columbia Circuit concerning the Yucca Mountain repository (2004)

This decision¹⁸ involved challenges by the Nuclear Energy Institute (NEI), State of Nevada, and environmental groups to aspects of the statutory and regulatory regimes of the Environmental Protection Agency (EPA), Nuclear Regulatory Commission (NRC) and Department of Energy (DOE) governing the Yucca Mountain repository programme under the Nuclear Waste Policy Act (NWPA).¹⁹ The Court vacated the 10 000-year compliance period of the EPA rule as inconsistent with section 801(a) of the Energy Policy Act,²⁰ along with corresponding parts of the NRC and DOE rules and remanded to the EPA.

Issues on Appeal

The challenges involved:

- EPA's Part 197's 10 000-year compliance period as conflicting with the Energy Policy Act and insufficiently protective of public health and safety;
- Boundaries and size of EPA's "controlled area" as in violation of the Safe Drinking Water Act;
- EPA's definition of the term "disposal";
- NRC licensing criteria as arbitrary, capricious and contrary to law;
- Constitutionality of Congress' approval of Nevada as the nation's repository;
- DOE's Part 963 site-suitability criteria alleging that DOE's reliance on engineered rather than geologic barriers to contain radiation is unlawful;
- Site recommendations of Yucca Mountain by the Secretary of Energy and the President to Congress;
- DOE's Final Environmental Impact Statement;
- EPA's "controlled area" boundaries;
- EPA's definition of "disposal" under Part 197.

The NEI challenged the EPA's decision to add a separate ground-water standard to part 197.

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18. Nuclear Energy Institute Inc. v. Environmental Protection Agency, 373 F.3d 1251, US Court of Appeals for the District of Columbia Circuit (2004).
 19. Regulations of the EPA "Public Health and Environmental Radiation Protection Standards for Yucca Mountain" at 40 C.F.R. Part 197; 2) NRC "Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada at 10 C.F.R. Part 63; and 3) DOE "Yucca Mountain Site Suitability Guidelines" at 10 C.F.R. Part 963.
 20. Energy Policy Act of 1992, Title XIII *High-Level Radioactive Waste*, Pub. L. No.102-486, 42 U.S.C. 10101 note.

Decision

The Court rendered its decision on 9 July 2004 dismissing all challenges to actions of the secretary and president as well as challenges to the constitutionality of Congress' Resolution under the Nuclear Waste Policy Act²¹ approving the Yucca Mountain for a repository. It also rejected all challenges to the EPA and NRC rules *except* for the EPA 10 000-year "individual-protection standard" for radiation exposure at 40 C.F.R. Part 197.

The Court found that: 1) EPA's 10 000-year compliance period violated Section 801 of the Energy Policy Act because it was not "based upon and consistent with" the findings and recommendations of the National Academy of Sciences (NAS), as required by the act. The NAS had recommended that compliance with the standard be measured at the time of "peak risk" which it estimated could occur tens to hundreds of thousands of years after disposal and had expressly rejected a 10 000-year standard.²²

The Court dismissed other challenges to EPA's regulations and NRC's licensing requirements *except* to the extent that they incorporated the EPA 10 000-year compliance period. Consequently, EPA and NRC regulations were vacated *insofar* as they included the 10 000-year compliance period and remanded for EPA to *either* promulgate a new rule (a potentially lengthy process) consistent with Energy Policy Act and NAS recommendations, or return to Congress for legislative authority to deviate from the NAS report.²³

Background

As originally enacted, the NWPA charged DOE with selecting, designing and operating a repository. It required that the EPA establish *generally* applicable standards for protecting the environment from releases of radioactive materials, and directed the NRC to assume responsibility for licensing the repository. Therefore, the DOE issued *general* site-selection guidelines under the act in 1984 that it used to determine three sites, Deaf County, Texas, Hanford, Washington and Yucca Mountain, Nevada to recommend to the president for intensive investigation. The president approved each site for characterisation. In 1985, the EPA promulgated 40 C.F.R. Part 191 general health and safety standards to govern an eventual repository.²⁴ The NRC issued generic licensing standards at 10 C.F.R. Part 60. In 1987, because characterising three separate sites was costly and time-consuming, Congress amended the act to focus exclusively on Yucca Mountain, Nevada.

In 1992 through the Energy Policy Act, Congress directed DOE's sister agencies, the EPA and the NRC, to focus their regulatory attention on Yucca Mountain as well. It required that the EPA promulgate, *based on the recommendations of the NAS*, site-specific standards for Yucca Mountain, and ordered the NRC to thereafter modify its generic technical requirements and criteria to conform

21. NWPA, 42 U.S.C. 10101 et seq.

22. In its 1995 report *Technical Bases for Yucca Mountain Standards*, the NAS explained that humans may not face peak radiation risks until tens to hundreds of thousands of years after disposal, "or even farther into the future". *Id.* at 2.

23. The Court concluded that "It was Congress that required EPA to rely on NAS's expert scientific judgment and given the serious risks nuclear waste disposal poses for the health and welfare of the American people, it is up to Congress – not EPA and not this court – to authorise departures from the prevailing statutory scheme."

24. EPA revised these standards in response to *NRDC v. United States EPA*, 824 F.2d 1258 (1st Cir. 1987).

with the EPA's Yucca-specific rule.²⁵ Accordingly in 2001, the EPA issued 10 C.F.R. Part 197 establishing health and safety standards that require the DOE to limit radiation releases from the repository for 10 000 years. Shortly thereafter, the NRC issued Yucca-specific licensing standards at 10 C.F.R. Part 63 and the DOE issued new site-suitability criteria specific to Yucca Mountain. Pursuant to these criteria and the NWPA, the Secretary found Yucca Mountain suitable and recommended it to the president who later recommended the site to Congress which approved development of a repository at Yucca Mountain over Nevada's formal objection.

Legal Framework

The Energy Policy Act provided:

“[T]he [EPA] Administrator shall, based upon and consistent with the findings and recommendations of the National Academy of Sciences, promulgate, by rule, public health and safety standards for protection of the public from releases from radioactive materials stored or disposed of in the repository at the Yucca Mountain site. Such standards shall prescribe the maximum annual effective dose equivalent to individual members of the public from releases to the accessible environment from radioactive materials stored or disposed of in the repository. The standards... shall be the only such standards applicable to the Yucca Mountain site.”

The EPA promulgated 40 C.F.R. Part 197 establishing a trio of health and safety standards to govern DOE's nuclear waste disposal activities at Yucca Mountain. Together, these standards were designed to protect both individuals living near the disposal site and ground-water supplies from excessive radiation contamination:

1. the “individual-protection standard” whereby, prior to receiving an NRC licence, the DOE must show that the undisturbed Yucca Mountain disposal system will sufficiently contain radiation to protect a hypothetical person living adjacent to the site from excessive (no more than an annual committed effective dose of 15 millirem) exposure to radiation releases for 10 000 years. DOE's analysis must include all potential pathways of radionuclide transport and exposure.²⁶ The hypothetical person or “reasonably maximally exposed individual”(RMEI) would live in the “accessible environment” (outside the “controlled area”, no more than 300 square kilometres around the repository), have a diet and living style representative of the Town of Amargosa, Nevada and drink 2 litres of water a day from certain area wells.²⁷
2. the “human-intrusion standard” whereby DOE must show, *inter alia*, a reasonable expectation that the RMEI will receive no more than a specified dose of radiation even if humans drill, intentionally or otherwise, into a waste package during the 10 000-year period immediately following disposal.²⁸

25. Congress exempted Yucca Mountain from EPA's generally applicable environmental regulations at 40 C.F.R. Part 191. Waste Isolation Pilot Plant Land Withdrawal Act, section 6(a)(2)(B), Pub. L. 102-578 (1992).

26. 40 C.F.R. Part 197.20 “Individual Protection Standard.”

27. 40 C.F.R. Part 197.21 “Who is the reasonably maximally exposed individual?”.

28. 40 C.F.R. Part 197.25 “Human-Intrusion Standard”.

3. the “ground-water protection standard” whereby DOE must show, *inter alia*, that the Yucca Mountain disposal system will contain radiation sufficiently for 10 000 years to protect ground water outside the controlled area from excessive contamination.²⁹

For a disposal licence at Yucca Mountain, DOE was required to demonstrate a “reasonable expectation” (defined at 40 C.F.R Part 197.14) of compliance with each of the three protection standards.³⁰

To account for changing conditions during the 10 000 years following disposal, EPA required that DOE “vary factors related to geology, hydrology, and climate based upon cautious, but reasonable assumptions. In contrast, DOE was directed to not project changes in society, the biosphere (other than climate), human biology, or increases or decreases of human knowledge or technology, and to assume those factors as remaining constant – as they were at the time of licence submittal.³¹ As to the period beyond the first 10 000 years, the rule directed DOE to calculate the maximum radiation exposures that the RMEI will incur and include the results in its environmental impact statement as an indicator of long-term disposal system performance. However, no regulatory standard applied to the result of this part of the analysis.³²

10 000 Year Compliance Period

National Academy of Sciences Report

Section 801(a) of the Energy Policy Act required EPA to promulgate public health and safety standards for Yucca Mountain “based upon and consistent with the findings and recommendations of the National Academy of Sciences.” The NAS produced in 1995 a report entitled “Technical Bases for Yucca Mountain Standards” in which it found “no scientific basis for limiting the time period of the individual-risk standard to 10 000 years or any other value.”³³ According to NAS, “compliance assessment is feasible for most physical and geologic aspects of repository performance on the time scale of the long-term stability of the fundamental geologic regime – a time scale that is on the order of *one million years* at Yucca Mountain.”³⁴ NAS also explained that humans may not face peak radiation risks until tens to hundreds of thousands of years after disposal, “or even farther into the future.”³⁵ NAS “recommended that compliance assessment be conducted for the time when the greatest risk occurs, within the limits imposed by the long-term stability of the geologic environment.”³⁶ That said, NAS explained that “although the selection of a time period of applicability

29. 40 C.F.R. Part 197.30 “Ground-Water Protection Standard”.

30. 40 C.F.R. Part 197.13 “How is subpart B implemented?”.

31. 40 C.F.R. Part 197.15 “How must DOE take into account the changes that will occur during the next 10 000 years after disposal”.

32. 40 C.F.R. Part 197.35 “What other projections must DOE make?”.

33. *Id.* at 55.

34. *Id.* at 6.

35. *Id.* at 2.

36. *Id.* at 6.

has scientific elements, it also has policy aspects that we have not addressed,” such as the goal of establishing consistent policies for managing various kinds of long-lived hazardous materials.³⁷

Decision

While EPA expressly acknowledged NAS recommendation that the compliance period cover the time when the greatest risk of radiation exposure occurs and that NAS had found it scientifically possible to predict repository performance for approximately one million years, the EPA nevertheless concluded that such an approach was not practical for regulatory decisionmaking. The Court rejected EPA’s considerations – based on policy and technical factors that NAS did not fully address as well the experience of other EPA and international programmes that indeed use the 10 000-year standard – which led the EPA to cut off the dose-limit evaluation at 10 000 years. The Court found that while the words “based upon and consistent with” in Section 801 of the Energy Policy Act did not require EPA to “walk in lock-step”, it was unreasonable for EPA to act *inconsistently* with NAS findings and recommendations. The Court found that EPA’s 10 000-year compliance period deviated dramatically from NAS’s findings that unequivocally recommended a standard pegged to the time when radiation doses reach their peak:

“[t]he period over which this level of protection should be assessed should extend over the period of duration of hazard potential of the repository, that is, until the time at which the highest critical group risk is calculated to occur, within the limits imposed by the long-term stability of the geologic environment at Yucca Mountain, which is on the order of [one million] years”.³⁸

Conclusion

The Court concluded that while EPA had flexibility in crafting standards, it could not stretch this cover standards inconsistent with the NAS report and vacated Part 197 to the extent that it requires DOE to show compliance for *only* 10 000 years following disposal. The decision raised a *possibility* that EPA could have maintained the standard if it provided adequate policy reasons for so doing: “It would have been one thing had EPA taken the Academy’s recommendations into account and then tailored a standard that accommodated the agency’s policy concerns.” The Court upheld selection of Yucca Mountain for a repository but rejected the EPA standard on which DOE relied. The decision is now final. EPA is working to revise its radiation standard to conform with the court’s decision. DOE remains optimistic that EPA’s work on the standard will be contemporaneous with DOE’s work on the Yucca Mountain licence application and that both will be ready at the end of 2005.³⁹

37. *Id* at 56.

38. NAS Report at 67.

39. Statement of Theodore J. Garrish, Deputy Director, Office of Civilian Radioactive Waste Management, U.S. Department of Energy. Subcommittee on Energy and Air Quality, Committee on Energy and Commerce, U.S. House of Representatives. 10 March 2005.

Spent Fuel Litigation

Indiana Michigan Power Company v. United States, US Court of Appeals for the Federal Circuit (2004)

Approximately 60 suits are pending in the Court of Federal Claims for breach of contract in which the utilities seek damages.⁴⁰ In the first such case to be decided, *Indiana Michigan v. US*, case no. 98-486C (Fed. Cl. 21 May 2004), the Court of Federal Claims found that although DOE had partially breached the Standard Contract, Indiana Michigan Power Company (“IMP”) failed to establish any immediate damages from that partial breach. IMP had sought damages for up to nine years preceding the partial breach as well as damages for 40 years in the future. On appeal to the US Court of Appeals for the Federal Circuit, IMP asserted, *inter alia*, that it was required to perform a *full* rerack of its pool fuel between 1989 and 1993 only because of DOE’s impending breach in 1998. The United States’ brief filed on 18 February 2005 addresses the issues of whether the trial court: 1) correctly held that IMP’s alleged “pre-breach mitigation” costs were not recoverable because they were not caused by the government’s later partial breach of contract; and 2) correctly held that IMP’s future damages should be recovered in the future as they are incurred. Briefing by the parties is ongoing.

Exelon

DOE has resolved four of the pending SNF cases in a settlement with Exelon and its subsidiaries which collectively produce about one-fifth of the nuclear energy in the United States. Exelon has 17 operating reactors in Pennsylvania, New Jersey, and Illinois, and is the largest nuclear power company in the United States.⁴¹ Under the settlement filed on 10 August 2004 in the US Court of Federal Claims, the government will reimburse Exelon for costs associated with storage of spent fuel at its nuclear power stations pending DOE’s acceptance of spent fuel under the Standard Contract.⁴² The press has reported that Exelon will receive 80 million US dollars (USD) immediately in gross reimbursements for storage costs already incurred, with additional amounts reimbursed annually for future costs. If the repository opens by 2010 and DOE commences acceptance, gross

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40. As background, DOE entered into contracts with over 45 utilities in which, in return for payments of fees into the Nuclear Waste Fund, DOE agreed to commence disposal of spent nuclear fuel (SNF) by 31 January 1998. Because there is still no repository under the NWPA and none is anticipated until at least 2010, DOE has been unable to commence SNF disposal as required by the contracts. To date, SNF litigation has conclusively established that DOE’s obligation to commence disposal is legally binding even in the absence of a repository, *Indiana Michigan Power Co. v. Department of Energy*, 88 F.3d 1272 (D.C. Cir. 1996); that the utilities’ remedies for DOE’s failure to commence disposal are to be determined as a matter of contract law, *Northern States Power Co. v. U.S.*, 128 F.3d 754 (D.C. Cir. 1997), cert.denied, 119 Sup. Ct. 540 (1998); and that DOE cannot deny liability on the ground that its delay was unavoidable. In addition, the Court of Appeals for the Federal Circuit held that DOE is in partial breach of its contracts and that utilities are entitled to recover damages for that breach. *Maine Yankee Atomic Power Company v. U.S.*, 225 F.3d 1336 (Fed. Cir. 2000); *Northern States Power Co. v. U.S.*, 224 F.3d 1361 (Fed.Cir. 2000).
 41. Michael Bologna, *Settlement Reached Over Reimbursement of Exelon for Storage of Spent Nuclear Fuel*, *Environment Reporter*, 12 August. Available at: <http://ehscenter.bna.com/pic2/ehs.nsf/id/BNAP-63TFRE?OpenDocument>.
 42. In *Alabama Power v. U.S. Department of Energy*, 307 F.3d 1300 (11th Cir. 2002), the Court found that DOE is not authorised to spend Nuclear Waste Fund monies on settlement agreements aimed at compensating utilities for on-site storage costs resulting from breach of the Standard Contract.

reimbursements to Exelon could, reportedly, total about USD 300 million. In all cases, reimbursements would be made only after costs are incurred and only for costs resulting from DOE delays in accepting the fuel.⁴³

Waste Incidental to Reprocessing

Natural Resources Defense Council, Snake River Alliance, Confederated Tribes & Bands of the Yakama Indian Nation, Shoshone Bannock Tribes v. Abraham, 388 F. 3d 701, US Court of Appeals for the Ninth Circuit (2004)

Summary

On 5 November 2004, the US Court of Appeals for the Ninth Circuit vacated the judgment of the US District Court for the District of Idaho that in 2003 had declared DOE Order 435.1 invalid as directly conflicting with the definition of high-level radioactive waste (HLW) under the Nuclear Waste Policy Act (NWPA).⁴⁴ The Court of Appeals found that the issue was not yet ripe and remanded the case to the District Court with a direction to dismiss the action.

Background

On 9 July 1999, DOE issued Order 435.1 entitled Radioactive Waste Management which prescribes procedures for DOE and its contractors in the management of radioactive waste stored at atomic energy defence facilities.⁴⁵ The order permits DOE to classify waste from reprocessing of spent nuclear fuel as either HLW or waste incidental to reprocessing (WIR), depending upon the degree of hazard that the waste presents. Wastes determined to be WIR are not considered HLW and are managed as transuranic, mixed low-level or low-level wastes. Presently, DOE plans to dispose of HLW in a geologic repository under the NWPA; low-level and transuranic wastes will not be sent there. On 4 January 2000, the Natural Resources Defense Council, Inc., et al. (NRDC) filed a petition for review in the Court of Appeals, under the NWPA. In response, DOE argued that the order was issued pursuant to the Atomic Energy Act (AEA) rather than the NWPA and that the case should have been filed in District Court. The Court of Appeals agreed and determined in 2001 that it did not have *direct* appellate jurisdiction, and transferred the petition, together with all issues of standing, ripeness and the merits to the Idaho District Court. NRDC v. Abraham, 244 F.3d. 742, 747-48 (9th Cir. 2001).

Arguments

The NRDC claimed that the NWPA applies to defence waste and that DOE exceeded its authority by attempting, through the order, to revise the NWPA definition of HLW. The NRDC asserted that *when* the order is applied, DOE will and use it in a way that redefines HLW as WIR and thereby reduces its handling to that of mere low-level radioactive waste, allegedly in violation of the NWPA. It also alleged that DOE had relied on the WIR concept when it closed two tanks in 1997.

43. Jack Bryar, Exelon, "Federal Government Reach Agreement Over Spent Nuclear Fuel Storage Costs", *Live PowerNews*, 10 August 2004. Available at www.livepowernews.com/stories04/0816/001.htm.

44. NWPA, 42 U.S.C. 10101 *et seq.* defines high-level radioactive waste at section 2(12).

45. DOE issued the Order under authorities including the Atomic Energy Act of 1954 (AEA), 42 U.S.C. 2011 *et seq.*, and the Energy Reorganization Act (ERA), 42 U.S.C. 5801 *et seq.*

DOE argued that the AEA rather than the NWPA controls management of HLW at defence facilities (such as at Savannah River, South Carolina, Hanford Nuclear Reservation, Washington, and Idaho National Engineering and Environmental Laboratory) and that, in any event, the order was consistent with the NWPA. It advanced that since President Reagan determined, under Section 8 of the NWPA, that a defence-only repository was not required, the NWPA *allows* DOE to dispose of defence HLW at Yucca Mountain. In other words, if DOE *chooses* to dispose of defence waste at Yucca Mountain, it may – although it must pay amounts equivalent to those paid by utilities under the Standard Contract. DOE asserted that the order was not ripe for review because it had not been applied to any *specific* tank closure and that the NRDC challenge to DOE’s *anticipated* application of the order to tank wastes would not be ripe until DOE actually made tank closures in a management decision under the order.

District Court

The Court granted summary judgment to the NRDC. It reasoned that the waste at issue fell within the NWPA definition of HLW that considers both the source of the waste and, in the case of solids derived from liquid waste, its hazard. The Court concluded that liquid and solid reprocessing wastes are treated differently under the NPWA which, in its view, allows DOE to treat solids to remove fission products, thereby permitting reclassification of the waste, but does *not* offer the option of reclassification for liquid waste produced directly in reprocessing. The Court recognised that DOE could treat solid waste derived from liquid reprocessing waste and “reclassify” it as non-HLW but nonetheless determined that DOE violated the NWPA by promulgating the Order as it relates to incidental waste. The Court rejected DOE’s argument that the presidential determination that no separate repository was necessary did not trigger a DOE duty to dispose of defence waste in a NWPA repository- but only required that it allocate to the government costs associated with any disposal of defence HLW in a commercial repository that in fact occurs. “In essence, DOE contends that it can choose whether to dispose of its defence waste in Yucca Mountain or elsewhere.” The Court found that DOE does not have discretion to dispose of defence HLW somewhere other than in a repository established under the NWPA.⁴⁶

Court of Appeals

The Court rendered its decision on the issue of ripeness on 5 November 2004. As it explained, the injunctive and declaratory judgment remedies requested by the NRDC are discretionary. Courts have traditionally been reluctant to apply them to administrative determinations unless they arise in the context of a controversy “ripe” for judicial resolution. Ripeness is a doctrine designed to prevent the courts, through avoidance of premature adjudication, from entangling themselves in abstract disagreements over administrative policies, and also to protect the agencies from judicial interference until an administrative decision has been formalised and its effects felt in a concrete way by the challenging parties. The Court found that “The abstruse and abstract arguments by the parties show that this case is not presently fit for review.” The Court concluded that:

“DOE has the duty of managing that portion of the waste that has been generated by atomic energy defence activities. In Order 435.1 it has devised a way to do that; a method that NRDC claims is subject to and will violate NWPA. NRDC wants us to leap into the fray immediately. But it is too early for that. We must adopt a wait-and-see attitude rather than making assumptions about the future and about the bona fides and talents of DOE. That approach

46. NRDC et al, v. Abraham, 271 F. Supp.2d 1260 (2003).

allocates initial authority and responsibility where it belongs- the place Congress put it... Despite NRDC's anxiety, the courts must await the coming of a proper time for decision, if, in the long run, that time ever comes."

European Union

Judgement of the European Court of Justice in European Commission v. UK (2005)

On 12 April 2005, the European Court of Justice (ECJ) handed down judgement in the case of European Commission v. United Kingdom (Case-61/03), ruling that the Euratom Treaty has no jurisdiction over military installations.

The European Commission brought this case following the failure of the UK government to provide general data relating to a plan for the disposal of radioactive waste associated with the decommissioning of the Jason military research reactor at the Royal Naval College, Greenwich, which ceased operating in 1996. Article 37 of the Euratom Treaty requires EU states to inform the Commission concerning plans for the disposal of radioactive waste, such that the potential for radioactive contamination of the water, ground and air space of another EU state from implementation of the disposal project can be assessed.

By order of the Court of 28 August 2003, France was granted leave to intervene in support of the form of order sought by the United Kingdom.

The Commission submitted that Article 37 of the Euratom Treaty applies to disposal of waste from both civil and military installations. It argued that that provision aims to prevent any risk of radioactive contamination of another Member State and that, since the protection of the population against the dangers of radiation is an indivisible objective, it must be extended to all sources of danger, including those resulting from the dismantling of military installations.

The UK, supported by France, replied that Article 37 could not apply to the disposal of radioactive waste from military installations since the treaty itself only covers the civil uses of nuclear energy and the provisions of the chapter of the treaty on health and safety cannot have a scope wider than that of the provisions in other chapters of the same treaty.

The opinion issued on 2 December 2004 by Advocate General Geelhoed stated that the European Commission was entitled to exercise scrutiny over plans for the disposal of radioactive waste from military installations, because Member States should co-operate to the greatest extent possible within the limits of defence secrecy needs.

The ECJ opposed the non-binding opinion of its Advocate General, ruling that EU states are not required to inform the Commission about the decommissioning of military installations nor about activities involving radioactive waste from such installations. The Court ruled that the Euratom Treaty is linked to promoting civilian and commercial nuclear energy, and therefore interpreted the treaty as excluding all military activities. It added that the absence in the Treaty of any derogation laying down the detailed rules according to which the Member States would be authorised to rely on and protect those essential interests leads to the conclusion that activities falling within the military sphere are outside the scope of that treaty.

The Court reiterated in its conclusions that the fact that the Euratom Treaty is not applicable to uses of nuclear energy for military purposes does not by any means reduce the vital importance of the

objective of protecting the health of the public and the environment against the dangers related to the use of nuclear energy, including for military purposes. It added that insofar as the Euratom Treaty does not provide the Community with a specific instrument in order to pursue that objective, it is possible that appropriate measures may be adopted on the basis of the relevant provisions of the EC Treaty.

ADMINISTRATIVE DECISIONS

Sweden

Decision on the early shutdown of Barsebäck-2 (2005)

The Swedish government decided on 16 December 2004 to shut down the second nuclear power plant at Barsebäck on 31 May 2005. The decision was made pursuant to the 1997 Act on the Phasing-out of Nuclear Power (see *Nuclear Law Bulletin* No. 61).

The first reactor at Barsebäck was closed in 1999 through a political decision by the government following a period of negotiations between the state, owner Sydkraft and national energy company Vattenfall. Barsebäck-2, which commenced operations in 1977, was designed to operate for 40 years but will close after 28 years service. It was due to be shut down on 1 July 2002; however the Swedish parliament rescinded this date at the end of 2001 at the request of the government which expressed a desire to carry out a new revision of the Swedish energy situation before fixing the shutdown date (see *Nuclear Law Bulletin* No. 69).

The government justified its decision by referring to the energy policy decisions of 1997 and 2002, where the Swedish parliament stated that nuclear power should be replaced by environmentally-friendly forms of energy and more efficient use of electricity, all in the interest of an ecologically sustainable society. Pursuant to the Act on the Phasing-out of Nuclear Power, the government has the right to close a power plant on a date of its choice, provided that scheduled closure is in line with the objective to restructure the energy system, and provided that the ensuing loss of electric power may be counterbalanced by increased energy production or reduced energy consumption.

The municipality of Kävlinge where the Barsebäck plant is situated appealed this decision to the Supreme Administrative Court of Sweden on 19 January 2005 against the decision of the government to close Barsebäck-2. The Municipality claimed that the government, when making its decision, had not complied with its obligations pursuant to the 2003 Law on the Prevention of Accidents, the Environment Code and European Law. In particular, the government had not provided a description of the environmental consequences of the project, thereby depriving the municipality of its right to be consulted and to influence the closure proceedings. The Supreme Administrative Court dismissed the appeal on 2 March 2005 on the ground that the municipality was not a Party to the decision.

NATIONAL LEGISLATIVE AND REGULATORY ACTIVITIES

Armenia

Radiation protection

Law Amending and Supplementing the 1999 Law for the Safe Utilisation of Atomic Energy for Peaceful Purposes (2004)

This law, which was adopted on 9 November 2004 and entered into force on 15 December 2004, amends and supplements the 1999 Law for the Safe Utilisation of Atomic Energy for Peaceful Purposes (see *Nuclear Law Bulletin* Nos. 60 and 63; the text of the law is reproduced in the *Supplement* to NLB No. 65).

Chapter 1 of the law, entitled “General Provisions” has been amended in its entirety. The Preamble has been repealed and Article 1 now sets out the objectives of the law, stated to be the regulation of atomic energy use for peaceful purposes, the safety of nuclear facilities and ionising radiation sources, radiation protection, radioactive waste management, physical protection, liability and compensation for nuclear damage, and other aspects of atomic energy use relating to the protection of workers, the public and the environment and in connection with national safety interests.

Revised Article 2 attaches particular importance to compliance with requirements of international treaties ratified by Armenia, and to the safety standards of the IAEA. Revised Article 3 on basic terms contains a much broader list of definitions.

Chapter 2 of the 1999 Law on the jurisdiction of state and local authorities in the field of atomic energy utilisation remains unchanged by this Amending Act. Only one minor change is made to Chapter 3 [Article 11] adding a provision whereby posts of importance in terms of nuclear safety must be occupied by Armenian citizens.

Chapter 4 (state regulation on safety in the field of atomic energy utilisation) has been entirely amended. An exhaustive list of fields covered by state regulation is now provided in Article 15, including site selection, designing, construction, commissioning, operation and decommissioning of atomic energy utilisation objects; practices involving nuclear or radioactive materials or equipment; import and export of nuclear and radioactive materials or equipment; accounting and control of nuclear and radioactive materials or equipment; radioactive waste management; physical protection; and personnel training.

New Articles 17(1) and 17(2) also contain some new provisions. In particular, 17(1-3) specifies that representatives of state authorities as well as international organisations and foreign experts may be involved in regulatory supervision practices. Article 17(2) provides that state inspectors of the

regulatory authority shall have a technical support organisation empowered to, in particular, conduct safety expertise in the utilisation of atomic energy, which shall be financed from the state budget.

The licensing provisions under Chapter 5 have been revised and now establish time frames within which the regulatory authority shall review licence applications, and grant or refuse a licence.

A new provision [Article 19(1)] has been added to Chapter 6 of the 1999 Law on the operation of atomic energy utilisation objects. It imposes requirements on the operators of installations concerning financial provision that must be made in respect of nuclear, radiation and technical safety, fire protection, physical protection, accounting and control, implementation of improvements to safety, scientific and technical support, storage of spent nuclear fuel, and decommissioning.

A few very minor changes are made to Chapters 7, 8 and 9 of the law and Chapters 10, 11 and 12 remain entirely untouched.

Regulations on nuclear trade

Government Decree on Licensing Procedures for Import/Export of Radioactive Materials (2004)

Decree No. 1760-N, adopted on 9 December 2004, governs licensing procedures in respect of export and import of ionising radiation generators, radioactive materials and equipment containing radioactive materials. It aims to prevent illicit trafficking and to protect the public against the harmful impact of ionising radiation.

Brazil

Organisation and structure

Order Setting up a Permanent Committee on Nuclear Emergency Response (2005)

Order No. 68, establishing a Permanent Committee for Nuclear Emergency Response in the Resende municipality – COPREN/RES, was adopted on 18 February 2005 by the Ministry of Sciences and Technology and published in the Official Gazette on 23 February 2005.

The Committee is designed to assist the Commission for Co-ordination of Protection of the Brazilian Nuclear Programme (COPRON) in relation to emergency response at the *Industrias Nucleares do Brasil* nuclear fuel factory, (FCN/INB) within the framework of the Protection System for the Brazilian Nuclear Programme (SIPRON) (see *Nuclear Law Bulletin* Nos. 27, 50, 53 and 60).

The Committee is responsible in particular for:

- examining proposals to amend standards and directives governing SIPRON activities in relation to the FCN/INB;
- drafting studies and reports relating to COPRON responsibilities in respect of SIPRON activities in relation to the FCN/INB;
- drafting proposals to update legislation governing SIPRON activities in relation to the FCN/INB;

- planning and submitting to the COPRON an annual Programme for SIPRON activities in relation to the FCN/INB;
- planning and co-ordinating activities relating to physical protection at the FCN/INB;
- planning, co-ordinating and assessing emergency response exercises at the FCN/INB, carried out under SIPRON's annual programme of work; proposing and adopting measures and procedures required for the improvement of existing standards;
- drafting and co-ordinating a quality control programme in respect of nuclear emergency response at the FCN/INB;
- following up and assessing the planning and implementation of public information programmes with regard to emergency situations at the FCN/INB;
- proposing staff training programmes regarding implementation of physical protection measures and emergency response at the FCN/INB.

Radiation protection

Resolution of the CNEN on Radiation Protection (2004)

Resolution No. 27 [NN 3.01] of the National Nuclear Energy Commission (CNEN) establishing basic radiation protection standards was published in the Official Gazette and entered into force on 26 January 2005. This resolution repeals and replaces Resolution CNEN 12/88 [NE 3.01] on the same subject (see *Nuclear Law Bulletin* Nos. 43 and 58).

This resolution lays down basic standards to protect people against the dangers resulting from ionising radiation. It also establishes practical measures and specifies requirements in relation to intervention procedures.

The practical measures apply to:

- the handling, production, supply and use of sources, as well as the transport, storage and disposal of radioactive materials, including all activities involving exposure to ionising radiation;
- exposure to natural sources of radiation, control over which is deemed necessary by the CNEN.

The provisions of this resolution also apply to exposure for medical purposes and to public exposure.

Situations where intervention is necessary include:

- those resulting from emergency situations where protective measures are necessary in order to reduce or avoid exposure to radiation;
- cases resulting from continued exposure which require repair or restorative measures;
- cases resulting from exposure to residues from activities which are not subject to CNEN regulatory control.

Resolution of the CNEN Regarding Security and Radiation Protection Measures in Industrial Mining Installations (2005)

Resolution No. 28 of the National Nuclear Energy Commission (CNEN) regarding security and radiation protection measures in industrial mining installations [NN 4.01] was published in the Official Gazette on 6 January 2005 and entered into force on the same day.

It is designed to establish security and radiation protection measures applicable to industrial mining installations which handle, process and store mineral ores, raw materials, residues and waste containing natural uranium and thorium radio-nucleides. Such installations may pose risk during their operation or even following closure, through exposure of workers and the public to ionising radiation.

France

Radiation protection

Order on Training, Missions and Activities of Persons Specialised in Medical Radiation Physics (2004)

This order, adopted on 19 November 2004 and published in the Official Gazette of 28 November 2004, governs the manner in which the person specialised in medical radiation physics, mentioned in Article R.1333-60 of the Code of Public Health, will be professionally trained and will perform his/her tasks.

This specialist's role in the preparation and completion of medical acts using ionising radiation has been reinforced. As is already the case for medical nuclear radiation therapies, his/her presence is now mandatory for all acts of radiology.

Decree on the Use by the IRSN of the National Identification Index of Natural Persons (2004)

Decree No. 2004-1489 of 30 December 2004, published in the Official Journal of 31 December 2004, authorises the Institute for Radiation Protection and Nuclear Safety (*Institut de radioprotection et de sûreté nucléaire* – IRSN) to use the ID numbers from the National Identification Index of Natural Persons in a system processing personal data relating to the health monitoring of workers exposed to ionising radiation. The IRSN centralises, operates, and maintains this information, and manages individual medical record cards.

This data processing system, entitled “Information System for the Monitoring of Exposure to Ionising Radiation” (*Système d'information de la surveillance de l'exposition aux rayonnements ionisants* – SISERI), concerns all persons who are or have been professionally exposed to ionising radiation and for whom dosimetric records have been taken.

This decree repeals Decree No 96-1108 of 17 December 1996 which authorised the Office for Protection against Ionising Radiation (since merged into the IRSN) to use the National Identification Repertory for identical purposes.

Order on Individual Medical Record Cards and Individual Dosimetric Information of Workers Exposed to Ionising Radiation (2004)

This order, adopted on 30 December 2004 and published in the Official Gazette of 31 December 2004, implements Article R.231-105 of the Labour Code concerning the individual medical record card to be provided by the company doctor to each worker exposed to ionising radiation. It also explains how the workers' dosimetric results should be notified and monitored, and how the radiation protection authorities and the workers themselves can exercise their right to information.

Order on the Army Radiation Protection Service (2005)

This order, adopted on 10 January 2005 and published in the Official Gazette of 2 February 2005, repeals the Order of 9 July 1980 on Radiation Protection in Units, Services and Establishments under the Ministry of Defence (see *Nuclear Law Bulletin* Nos. 26 and 40).

It sets out the functions of the Army Radiation Protection Service (*Service de protection radiologique des armées* – SPRA) and describes the manner in which it participates in the implementation of preventive measures against ionising radiation within Ministry of Defence bodies.

Interministerial Order on the Action of the Public Authorities in the Event of an Incident Resulting in a Radiological Emergency Situation (2005)

This Order of 7 April 2005 was published in the Official Gazette on 10 April 2005. It applies to all nuclear activities and installations, including those related to defence.

The Preamble refers to the necessity of ensuring satisfactory co-ordination between public authorities and efficient information of the authorities and the public in the event of a nuclear emergency. Such co-ordination and information are considered to facilitate the application of various measures to be taken and also to avoid unjustified public concern.

The order contains provisions relating to the permanent information of the public through three main communication channels. Institutional communication is carried out through the Local Information Boards (*Commissions locales d'information* – CLI) and the Information Boards (*Commissions d'information* – CI) and relates to the impact on health and environment of nuclear activities conducted in major nuclear installations and major nuclear installations classified as secret. The public is also informed during consultations organised before the establishment of the Off-site Emergency Response Plans (*Plans particuliers d'intervention* – PPI). Finally, the General Directorate for Nuclear Safety and Radiation Protection (*Direction générale de la sûreté nucléaire et de la radioprotection* – DGSNR), the delegate for nuclear safety and radiation protection for defence-related activities and installations (*Délégué à la sûreté nucléaire et à la radioprotection pour les activités et installations intéressant la défense* – DSND) and the Institute for Radiation Protection and Nuclear Safety (*Institut de radioprotection et de sûreté nucléaire* – IRSN) contribute to the general information of the public on issues relating to nuclear safety and radiation protection.

Regarding emergency management itself, the order distinguishes between three types of notification. The initial notification relating to the event may be made by any physical person or legal entity having knowledge of such event, for example the operator, the police authorities, the emergency services, the IRSN (through its radioactivity monitoring system) or the national weather service (especially in relation to international events). There is to be an immediate notification of the state

representative (the prefect), followed by relay notification to all bodies involved in emergency management in France plus certain other competent authorities. International notification is carried out pursuant to the requirements of the 1986 Convention on Early Notification of a Nuclear Accident and Council Decision 87/600/Euratom of 14 December 1987 on Community arrangements for the early exchange of information in the event of a radiological emergency.

Once the notification has been made, the emergency is managed at two levels. At the local and departmental level, two categories of persons are concerned. The operator of a nuclear installation is required to have drawn up and implemented an On-site Emergency Response Plan (*Plan d'urgence interne* – PUI), which contains further provisions concerning his responsibilities in the case of an incident. Moreover, the prefect, upon receiving a notification, immediately informs the Ministry of the Interior, and, if need be, takes over the lead of the emergency operations and orders measures of protection.

At central level, the prime minister, assisted by the secretary-general of national defence, is responsible for ministerial coordination and announces which ministry shall take the lead in operational management of government action, depending on the nature of the accident.

The order sets out further provisions on the responsibilities of the various bodies involved in emergency management, including the Ministry of the Interior, the DGSNR, the DSND, the IRSN, Météo-France and the Atomic Energy Commission (*Commissariat à l'énergie atomique* – CEA). It also contains provisions relating to the training of persons involved in emergency management. Exercises shall be designed and organised to test response to radiological emergency situations thereby ensuring effective implementation of this interministerial order.

Italy

Organisation and structure

Decree on the Nuclear Installation Management Company SOGIN (2004)

A decree laying down a strategic and operative policy for the Nuclear Installation Management Company (*Società per la Gestione degli Impianti Nucleari* – SOGIN) was adopted on 2 December 2004 by the Minister for Productive Activities and published in the Official Journal of 15 January 2005. SOGIN is a body responsible for the management of activities related to the shut-down of nuclear power plants (see *Nuclear Law Bulletin* Nos. 66, 73 and 74). This decree stems from Article 13, paragraph 4 of Parliamentary Decree No. 79 of 16 March 1999, which implements Directive 96/92/EC of the European parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity. The new policy provisions acknowledge the urgent need to remove spent fuel from temporary repositories, as well as to ensure consistency between SOGIN's activities and the general objectives of the government in the field of radioactive waste and spent fuel management.

In connection with the above, SOGIN is required:

- to ensure treatment and conditioning, within ten years, of all radioactive waste stored at the sites under its management, thus allowing for its transfer to the national repository;
- to put into full operation its commitments under reprocessing contracts with British Nuclear Fuel Ltd;

- to evaluate the possibility of temporary export, for treatment and reprocessing purposes, of spent fuel currently stored at nuclear power stations and storage sites;
- to carry out comparative analysis of short and long-term costs in relation to safety and environmental protection needs, leading to actions necessary for the safe storage of spent fuel;
- to participate in the decommissioning of the main nuclear installations, to take place within twenty years for fuel cycle installations and in the short term for other types of installation.

SOGIN is to submit a yearly status report to the Ministry for Productive Activities. It also co-operates with that Ministry and the Ministry for the Environment on identification of the national repository, promotion of information to the public in the vicinity of nuclear installations, plans to recover the productive potential of sites, rules and procedures relating to nuclear waste and spent fuel management as well as decommissioning, and rehabilitation of former nuclear sites.

Finally, pursuant to Act No. 239/04 Restructuring the Energy Sector (see *Nuclear Law Bulletin* No. 74), SOGIN is also required to be active on foreign markets on behalf of third parties, providing consultancy and services in general relating to the above-mentioned areas.

Radioactive waste management

Ordinance on Radioactive Waste Management (2005)

This ordinance was adopted on 4 March 2005 to extend the validity of the decree adopted on 7 March 2003 which was already extended once on 7 May 2004 (see *Nuclear Law Bulletin* Nos. 73 and 74). This ordinance governs the safe storage of radioactive material at nuclear power stations and at certain nuclear sites. The validity of the decree is hereby extended until 31 December 2005.

Japan

Organisation and structure

Japan Atomic Energy Agency Law (2004)

This law establishes the title, mission, and tasks of the Japan Atomic Energy Agency, created through the merger of the two major national nuclear R&D organisations, Japan Atomic Energy Research Institute (JAERI) and Japan Nuclear Cycle Development Institute (JNC). It was promulgated on 26 November 2004 and published on 3 December 2004.

This newly-created organisation, whose provisional title in English is the Japan Atomic Energy Agency – JAEA – will be operated as an independent administrative institution, i.e. a public organisation with a certain level of autonomous decision-making authority. Such institutions are used for the efficient implementation of projects which cannot be carried out by the private sector although they need not be carried out by the government itself. The JAEA is therefore subject to the general law establishing the principles applicable to all independent administrative institutions as well as to the Japan Atomic Energy Agency Law.

Like all other independent administrative institutions, the “medium-term objective” of the JAEA shall be adopted by the minister in charge of each individual independent administrative institution, in the case of the JAEA, the Minister of Education, Culture, Sports, Science and Technology and the Minister of Economy, Trade and Industry (hereinafter referred to as “Ministers”). This medium-term objective should identify the targets to be achieved by the JAEA within a three to five-year timeframe. In accordance with this objective, the JAEA shall establish its “medium-term plan” and submit it to the Ministers for approval along with its annual programme of work. The JAEA is subject to strict evaluation by a committee set up within the Ministry of Education, Culture, Sports, Science and Technology for this purpose.

The JAEA, whose headquarters are located in Ibaraki Prefecture, shall be responsible for the following activities:

- basic research on nuclear energy;
- activities necessary to ensure the technical feasibility of nuclear fuel cycle activities (development of the fast breeder reactor and related research, development of nuclear fuel materials for the fast breeder reactor and related research, development of technology for reprocessing of nuclear fuel materials and related research and development of technology for the treatment and the disposal of high-level radioactive waste);
- dissemination of information acquired from the above activities and the promotion of its utilisation;
- encouraging the use of its facilities and equipment by those involved in the development and utilisation of nuclear energy and, more broadly, those who undertake research and development on science and technology;
- contribution to human development in the nuclear field and to improving expertise amongst nuclear scientists and engineers;
- collection, categorisation and dissemination of information concerning nuclear energy.

The president of the JAEA will be appointed by the Minister in consultation with the Atomic Energy Commission. The tenure of the president will end with the completion of the period corresponding with each medium-term objective. One vice-president and up to seven executive directors may be appointed to support the president in the completion of his/her tasks.

The JAEA is scheduled to come into existence on 1 October 2005. On that date, all the rights and obligations of both JNC and JAERI will be taken over by the JAEA, except for a portion of JAERI’s activities which will be taken over by RIKEN (a research institute in the field of science and technology) and other activities of JAERI which are not deemed necessary for the fulfilment of the objectives of the JAEA, and which are therefore transferred to the government.

Morocco

Third party liability

Act on Civil Liability for Nuclear Damage (2005)

The Act on Civil Liability for Nuclear Damage was promulgated on 7 January 2005. This act aims to ensure indemnification of damage which may be caused by certain peaceful uses of nuclear

energy pursuant to the provisions of the Vienna Convention on Civil Liability for Nuclear Damage. The text of this act is reproduced in the chapter “Texts” of this *Bulletin*.

The act is divided into six chapters. The first chapter, entitled General Provisions, sets out the objective of this act and takes up a number of the definitions contained in Article 1 of the Vienna Convention.

Chapters II and III deal respectively with the nature of liability and the exceptions to it, in similar terms to the Vienna Convention. The operator of a nuclear installation shall be solely liable for nuclear damage caused by a nuclear incident in his nuclear installation or involving nuclear material coming from or originating in his nuclear installation and occurring in certain circumstances. Specific provisions relating to the determination of liability apply where the damage occurs in the course of transport, where several operators are liable, or where nuclear damage and non-nuclear damage result from the same nuclear accident.

Pursuant to Chapter III, no liability shall attach to an operator for nuclear damage caused by a nuclear incident directly due to an act of armed conflict, hostilities, civil war or insurrection. Neither shall the operator be liable for nuclear damage to the nuclear installation itself, any other nuclear installation on the same site or to on-site property.

Chapter IV contains provisions on security for liability. The operator of a nuclear installation shall be required to have and maintain insurance or other financial security of 100 million Special Drawing Rights (SDRs). A lower amount may, under certain circumstances, be established, provided that it is not less than SDR 5 million.

Chapter V covers recourse and actions for compensation. The operator of a nuclear installation shall only have a right of recourse where this is expressly provided for by a contract in writing or where the incident results from an act or omission carried out with intent to cause damage. Priority is awarded to the compensation of loss of life and personal injury, which is subject to a 30-year limitation period. All other types of nuclear damage are subject to a 10-year limitation period.

Chapter VI sets out the applicable penalties that apply where the provisions of this act are breached.

Norway

Radiation protection

Regulations on Radiation Protection and Use of Radiation (2003)

These regulations of 21 November 2003 entered into force on 1 January 2004. They implement the Act of 12 May 2000 on Radiation Protection and Use of Radiation (see *Nuclear Law Bulletin* No. 67; the text of the act is reproduced in the Supplement to NLB No. 68).

The regulations reflect international standards in radiation protection as established in EU directives, IAEA safety standards, and recommendations from the ICRP and the ICNRP. They apply to the production, import, export, transfer, possession, installation, use, handling and disposal of radiation sources. Radioactive sources are basically regulated in two ways. Practices involving “strong” sources have to be licensed by the Norwegian Radiation Protection Authority while practices

involving weaker sources are subject to a notification requirement only, These various requirements are described in Chapter 2 of the regulations.

Chapter 3 sets out technical requirements governing ionising radiation sources, including shielding criteria, technical safety standards, requirements applicable to laboratories, as well as requirements regarding storage and labelling. Chapter 4 regulates occupational exposure to ionising radiation, establishing dose limits for workers, pregnant women and apprentices, and regulating classification and marking of the workplace. Chapter 5 contains special provisions on radioactive discharges into the environment, and on effluent and waste generated from practices using radioactive materials and sources. It requires that the “best available technology” be used to protect the environment.

Chapter 6 governs non-ionising radiation, providing that all exposure shall be kept as low as reasonably achievable. Chapter 7 deals with medical use of radiation for both diagnostic and therapeutic purposes. Patient protection is the central concern with an individual approach concerning both justification and optimisation. Requirements are set out in relation to the qualifications of all involved personnel. Further provisions concern dose measures and documentation, whether for diagnostic or therapeutic purposes, and quality assurance of equipment. Chapters 8 and 9 contain administrative provisions.

Poland

Radiation protection

Regulation on National Emergency Preparedness Plans (2005)

This regulation, adopted by the Council of Ministers on 18 January 2004, implements the requirements of Article 87 of the 2000 Atomic Energy Act (see *Nuclear Law Bulletin* Nos. 67 and 69; the text of the act is reproduced in the *Supplement* to NLB No. 68). It establishes a national emergency preparedness plan including procedures for co-operation of various authorities and services participating in the elimination of radiological emergencies and of their consequences. It also describes the principal components of regional emergency preparedness plans, indicating the elements essential for prompt response by the appropriate services.

Portugal

Organisation and structure

Decree-Law on the General Directorate for Geology and Energy (2004)

The General Directorate for Geology and Energy is a department of the Ministry of Economy and is responsible for the conception, promotion, and evaluation of policies related to energy and geological sources. Since the adoption of Decree-Law 165/2002 on 17 July 2002, it has been responsible for the licensing of nuclear fuel cycle facilities and for authorisations concerning the shipment of nuclear fuel between Portugal and other states (EU member states and others), and domestic transit. This new Decree-Law 15/2004, adopted on 14 January 2004, further clarifies the responsibilities of this Directorate.

Transport of radioactive materials

Decree-Law on the Transport of Dangerous Goods by Road (2003)

Decree-Law 267-A/2003, adopted on 27 October 2003, implements Commission Directive 2001/7/EC of 29 January 2001 and Commission Directive 2003/28/EC of 7 April 2003, both of which adapt to technical progress Council Directive 94/55/EC on the approximation of the laws of the Member States with regard to the transport of dangerous goods by road. It regroups in one single legal document all matters related to the transport of dangerous goods by road and repeals the 2000 Decree-Law on the Transport of Dangerous Goods by Road (see *Nuclear Law Bulletin* No. 70).

The decree-law defines “dangerous goods” and sets out conditions governing their transport by road. It identifies the legal entities which are responsible for the execution of the National Regulation for the Transport of Dangerous Goods by Road (published in annex) and the International European Agreement for the Transport of Dangerous Goods by Road. It also establishes an inspection regime and provides for penalties to be applied in the event of violations.

Romania

General legislation

Amendment to the Law on the Safe Conduct of Nuclear Activities (2004)

Law No. 549, published in Official Gazette Part I No. 1164 on 8 December 2004, amends Article 41 of the 1996 Law on the Safe Conduct of Nuclear Activities (see *Nuclear Law Bulletin* Nos. 59, 61 and 68; the text of the law is reproduced in the *Supplement* to NLB No. 59) in order to comply with European requirements regarding import licences and to eliminate the dual licensing requirements (by the National Commission for the Control of Nuclear Activities – CNCAN – and the Ministry of Economy and Trade) for import and export. Licences for the import and export of dual-use products and technologies are no longer granted automatically and shall be approved by the National Agency of Exports Control provided an import/export permit issued by the CNCAN is provided.

Radiation protection

Order Providing Specific Measures to Protect Individuals’ Health Against Ionising Radiations during Medical Exposure (2004)

Order No. 1334, issued on 19 October 2004 by the Minister of Health and published in Official Gazette Part I No. 1014 on 3 November 2004, provides for specific actions designed to protect individuals’ health against ionising radiation during medical exposure.

It provides that managers of units where diagnostic and interventional radiology, nuclear medicine and radiotherapy are carried out should draft their own specific regulations relating to the protection of individuals’ health against ionising radiation during medical exposure, including the following elements:

- clearly determined responsibilities divided between physicians and practitioners;
- justification for the medical exposure of persons deliberately and voluntarily assisting in the course of other persons’ medical exposure;

- written protocols and standardised techniques for each radiological practice, including criteria for patients selection, such as the patients' individual characteristics, the possibilities and limits of radiological procedures, and the existence of procedures which do not imply radiation exposure;
- documentation to be provided to justify the exposure of pregnant women and breast-feeding women, in the case of nuclear medicine;
- guarantees that patients undergoing radionuclide treatment shall receive written instructions relating to the dose limits of ionising radiation that can be received by a third party, such a family member.

Norms on Requirements to be Fulfilled by Licensed Operating Staff, Management Staff and Specific Training Staff in Nuclear Installations (2005)

Order No. 368, published in Official Gazette Part I No. 118 on 7 February 2005, implements Article 9, paragraph (3) of the Law on the Safe Conduct of Nuclear Activities and establishes Norms on requirements to be fulfilled by operating staff, management staff and specific training staff in nuclear power plants, research reactors and other types of nuclear installations in order to be granted a working permit.

Norms on Radiological Safety for Nuclear Medicine Practice (2005)

Order No. 358, published in Official Gazette Part I No. 139 on 15 February 2005, establishes norms on radiological safety for nuclear medicine practice. Such practices include the use of ionising radiation sources for therapeutic or diagnostic purposes, both in vitro and in vivo.

Regime of radioactive materials

Norms on Licensing Procedures for Nuclear Activities involving Dual-use Materials, Devices, Equipment and Data (2005)

Order No. 419, published in Official Gazette Part I No. 110 on 3 February 2005, implements the 1996 Law on the Safe Conduct of Nuclear Activities by laying down norms concerning the licensing procedures governing nuclear activities involving materials, devices, equipment and data that may be used for nuclear proliferation purposes.

Third party liability

Amendment to the 2001 Law on Civil Liability for Nuclear Damage (2004)

Law No. 470 adopted on 4 November 2004 and published in Official Gazette Part I. No. 1040 on 10 November 2004 modifies and completes the provisions of the 2001 Law on Civil Liability for Nuclear Damage (see *Nuclear Law Bulletin* No. 69, the text of this law is published in the *Supplement* to NLB 69).

The purpose of this amendment is to specify that the state shall be liable for nuclear damage which is the direct and immediate result of an act of terrorism in the nuclear field. Therefore

compensation for nuclear damage resulting from acts of terrorism shall be financed from public funds. This law repeals a July 2003 governmental Decision (Norm) that specifically included “any act of nuclear terrorism” as part of the operator’s exoneration from liability for “hostilities”.

Russian Federation

Third party liability

Law on the Ratification of the Vienna Convention on Civil Liability for Nuclear Damage (2005)

The State Duma (lower house of the Russian parliament) adopted on 2 March 2005 the Law on the Ratification of the 1963 Vienna Convention on Civil Liability for Nuclear Damage. This text was then approved by the Federation Council (upper house) on 11 March 2005 and signed by the president on 21 March 2005. By adopting this law the Russian Federation ratifies the 1963 Vienna Convention which it signed on 8 May 1996. The convention shall enter into force for the Russian Federation three months after the deposit of the instrument of ratification as provided by Article 24 of the convention.

Serbia and Montenegro

Regime of radioactive materials

Criminal Code of Montenegro (2003)

The 2003 Criminal Code of Montenegro was published in Official Gazette No. 70/2003. It contains certain provisions governing the use of nuclear substances. The code provides, under Articles 313 to 315, that anyone who unlawfully imports, transit or exports and transports radioactive materials and waste shall be liable to imprisonment for up to three years. The unlawful construction of nuclear facilities is also punished by imprisonment of six months to five years.

Under the chapter entitled “Criminal acts against general safety of people and property”, Article 327 provides that anyone who unlawfully acquires, possesses, uses, transports or transmits nuclear materials shall be liable to imprisonment for up to three years. Articles 365 and 447 specify that penalties are increased if the use or threat to use nuclear substances is made with the intent to endanger life or to cause harm to a foreign state or organisation.

Slovenia

Organisation and structure

Amendment to the Act on State Administration (2004)

In *Nuclear Law Bulletin* No. 68, it was reported that responsibility for the energy sector had been transferred from the Ministry of Economy to the Ministry of the Environment and Spatial Planning. Pursuant to the Amendment to the Act on State Administration, adopted on 10 November 2004, the energy sector has been re-transferred back to the Ministry of Economy. Since the Nuclear Safety Administration however remains under the Ministry of the Environment and Spatial Planning, any possible conflict of interest between promotion and safety is avoided and the independence of the regulatory body competent for nuclear safety is maintained.

Radiation protection

Amendment to the Act on Protection Against Ionising Radiation and Nuclear Safety (2004)

An act amending the 2002 Act on Protection against Ionising Radiation and Nuclear Safety (see *Nuclear Law Bulletin* Nos. 70 and 71) was adopted on 30 April 2004 and published in Official Gazette RS 46/2004. The objective of this amendment is to harmonise requirements concerning the supervision and control of shipments of radioactive waste with European Union legislation.

Decree on Radiation Practices (2004)

This decree was adopted on 29 April 2004 and published on 30 April 2004 (Official Gazette RS 48/2004). It transposes certain requirements of Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation which had not already been implemented in the 2002 Act on Protection against Ionising Radiation and Nuclear Safety.

Decree on Dose Limits, Radioactive Contamination and Intervention Levels (2004)

This decree was adopted on 29 April 2004 and published on 30 April 2004 (Official Gazette RS 49/2004). It determines the dose limits for exposed workers, apprentices, students, pregnant and breast-feeding women and members of the public. It also sets out the methods for measuring dose limits and the methods to be used for calculation and the use of dose constraints in radiation practice optimisation and planning. It further regulates the exposure of volunteers in medical examinations and treatment as well as in medical and bio-medical research. This decree also establishes limits governing the radioactive contamination of the air, surface or subterranean waters, the human body, surfaces in work premises, foodstuffs and other goods. Intervention levels and dose limits for emergency workers exposed during the implementation of intervention measures are also set out.

Regulation on the Use of Potassium Iodide Tablets (2004)

This regulation was adopted on 15 December 2004 and published on 30 December 2004 (Official Gazette RS 142/2004). It lays down the criteria for the distribution and preventive use of potassium iodide tablets in the event of a nuclear accident affecting national territory.

Radioactive waste management

Regulation on Shipments of Radioactive Waste into and out of the EU (2004)

This regulation was adopted on 24 May 2004 and published on 3 June 2004 (Official Gazette RS 60/2004). It transposes requirements of 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 as well as Commission Decision 93/552/Euratom establishing the standard document for the supervision and control of such shipments.

Switzerland

General legislation

Ordinance on Nuclear Energy (2004)

The new Ordinance on Nuclear Energy (*Ordonnance sur l'énergie nucléaire* – OENu), adopted on 10 December 2004, entered into force on 1 February 2005, at the same time as the new Federal Act on Nuclear Energy adopted on 21 March 2003 (see *Nuclear Law Bulletin* Nos. 71 and 72; the text of the act is reproduced in the *Supplement* to NLB No. 72) which it implements.

The OENu comprises seven chapters. The first chapter contains general provisions and lays down the definition of key terms used in the Law of 21 March 2003, some of which were not included in the Ordinance of 18 January 1984 on Definitions and Licences in the Atomic Energy Field, repealed by the OENu. This is for instance the case for “nuclear materials” which replaces the category of “nuclear fuel”.

Chapter 2 reiterates the principles relating to nuclear security and safety as set out in the Law of 21 March 2003 and specifies requirements designed to ensure their implementation. In particular, it requires that the protection of nuclear installations and materials against acts of sabotage, acts of violence or theft be ensured through a defence system comprising measures of an architectural, technical, organisational, personal and administrative nature [Article 9].

Chapter 3 deals with nuclear articles and provides that the Federal Energy Office is the competent authority for granting licences to handle nuclear materials and lays down the procedure to follow in order to obtain a licence to transport, export, import or trade in technology or nuclear materials. In particular, at the request of an applicant, the Office may consider in advance whether it could grant a licence, and under which conditions, although this procedure does not lead to delivery of a licence [Article 16]. Licences are granted for 12 months, with a possibility of extension for a further six months. Licence holders are required to inform the Principal Nuclear Safety Division (*Division principale de la sécurité des installations nucléaires* – DSN) of certain events and records in particular concerning the safe and secure transport of nuclear materials.

Chapter 4 is devoted to nuclear installations and comprises four sections, relating to the various licences to be obtained by the operator of a nuclear installation and the various operating stages of the installation. In addition to the general licence [Section 1], it is necessary to obtain a construction licence and an operating licence: Sections 2 and 3 respectively list the documentation to be provided by the applicant for this purpose. In particular, a quality control programme which describes the organisation and schedule of the project is required; as is an implementation licence, for certain structures or elements of the installation or specific operating stages that are subject to the granting of such a licence pursuant to the construction or operating licence.

Section 4 of Chapter 4 governs the operations stage and lays down the obligations of the holder of an operating licence. He/she shall in particular establish systematic maintenance programmes for security or safety-related equipment. Every ten years, the licence holder shall conduct a thorough re-assessment of the security of nuclear power plants and shall update its decommissioning or closure plans. Licence holders are required to stay abreast of scientific developments in the field and determine to what extent they could benefit the security of the installation. He/she shall submit to monitoring authorities periodic reports assessing the operating conditions of the installation and shall notify the DSN, before carrying them out, of specific activities, including the scheduled shut-down of a reactor, as well as certain events relating to safety. Section 5 contains provisions on the decommissioning

phase including documentary requirements. This section also specifies the content of the decommissioning decision, which describes in particular the importance of the decommissioning work and sets out an obligation to obtain an implementing licence for specific activities such as the conditioning of radioactive waste.

Chapter 5 comprises five sections on radioactive waste. Section 1, entitled “General provisions” lays down the principle of minimising waste, the various categories of waste and the content of the management programme to be defined by the persons in charge of waste disposal. Section 2 contains provisions relating to the release of materials and the conditioning of radioactive waste, which shall be carried out as quickly as possible. Section 3 contains rules regulating the handling of radioactive waste. It provides that the Office is the competent authority for granting the required licences and specifies the documents to be submitted with the licence application. The rules of Chapter 3 relating to the preliminary investigation, the validity of licences, record-keeping, and mandatory notifications are applicable to radioactive waste. Section 4 deals with geological studies. It specifies the documents to be provided to apply for a licence to carry out geological studies, including an investigation schedule, a geological report containing in particular a geological description of the region and an overview of geological studies which have already been undertaken in the region.

Section 5 contains specific provisions regarding deep geological disposal. It specifies documents to be provided to apply for a general licence to operate a deep geological repository in addition to the documents to be attached to an application for a general licence required for nuclear installations [Chapter 4]. It also provides that specific measures shall be taken to ensure the safety and monitoring of the repository and lays down in particular the modalities and purpose of experimental zones and test repositories which are used to study the behaviour of the stored waste, filling material and rock in which the repository will be operated, up to the end of the observation phase. Section 5 sets out obligations to be fulfilled by the owner of a deep geological repository, who shall be required to describe the measures planned to monitor the repository after disposal of the waste, and shall establish a file for long-term record-keeping on the repository.

Chapter 6 is entitled “Procedures, information and incentives”. It contains provisions relating to the time limit within which supervisory authorities shall consider licence applications or approve a project, ranging from one month, from the date on which the completed application is received to its transmission to cantons and the competent federal services, or to the publication or the opening of the public investigation; to six months, from the end of the investigation procedure to the date on which the decision is made. It also provides details on the public information obligation of the DSN as regards specific events and records relating to nuclear security.

Chapter 7 contains penal provisions and final provisions. It provides that a sanction shall be imposed on anyone who, intentionally or by negligence, does not comply with the obligation to retain documents on the basis of which licences to handle nuclear articles, or to construct and operate nuclear installations, were granted.

Ukraine

Regime of nuclear installations

Law on Questions Relating to Maintenance of Nuclear Safety (2004)

The Law on Questions Relating to Maintenance of Nuclear Safety was signed by the president of Ukraine on 24 June 2004. The law defines legal and organisational principles governing financial

provisions for the maintenance of nuclear safety during the shutdown and decommissioning of nuclear installations. It provides for the establishment of a financial reserve (special fund) for financing actions for the shutdown and decommissioning of nuclear installations. This special account shall be opened by the nuclear operator in a bank authorised by the Cabinet of Ministers of Ukraine.

Third party liability

Establishment of a Nuclear Insurance Pool (2003)

The Nuclear Insurance Pool of Ukraine was established on 19 March 2003. The members of the pool are the 21 insurance companies of Ukraine. The contract covering civil liability insurance for Energoatom was signed on 27 April 2004. The general insurance sum covers SDR 150 million. The Energoatom reinsurance contract was signed on 25 May 2004 with the Russian nuclear insurance pool which has accepted liability at a rate of SDR 40 million.

United Kingdom

Organisation and structure

Radioactive waste management

Energy Act (2004)

The 2004 Energy Act received Royal Assent on 22 July 2004. It comprises four parts with 23 schedules. Only the first part is dedicated to the civil nuclear industry.

Part 1 contains provisions designed to:

- establish the Nuclear Decommissioning Authority (“the NDA”), a new public body with the primary role of ensuring the decommissioning and cleaning-up of Britain’s civil public sector nuclear sites;
- create a new Civil Nuclear Police Authority to oversee a reconstituted nuclear constabulary;
- amend the Radioactive Substances Act 1993 (see *Nuclear Law Bulletin* No. 54) so as to allow the Environment Agency and equivalent authorities in Scotland and Northern Ireland to use a streamlined and simplified process in dealing with applications for the transfer of radioactive discharge authorisations when there is a change of operator at a nuclear site;
- extend the regulation of the security of uranium enrichment technologies and sensitive nuclear information;
- provide statutory authority for the Secretary of State to spend money to acquire British Energy Plc power stations and/or its stake in Nirex Limited. Nirex Limited is a company owned by the major nuclear industry waste producers and tasked with investigating feasibility of a deep intermediate and low level waste disposal facility.

The NDA’s principal function (under Section 3) is to be responsible for securing:

- the operating of designated nuclear installations pending commencement of their decommissioning;
- the decommissioning of those and other designated nuclear installations;
- the cleaning-up of designated nuclear sites;
- the operation of designated facilities for treating, storing, transporting or disposing of hazardous material (which includes nuclear matter and radioactive waste);
- the treatment, storage, transportation and disposal, in designated circumstances, of hazardous material; and
- the decommissioning of designated installations comprised in facilities which are being or have been used in connection with the storage, disposal or treatment of hazardous material and which are facilities for which the NDA has, or has had, operational responsibility.

Sites and facilities are designated for these purposes by means of directions given by the Secretary of State to the NDA. Such directions also give the NDA responsibility for treating, storing and disposing of nuclear matter in particular circumstances. A number of designations have been made and came into force on 1 April 2005.

The act defines “cleaning-up” (which relates to sites) and “decommissioning” (which relates to nuclear installations) to include the treatment, storage, transportation and disposal of hazardous material and of other matter that needs to be dealt with in order to make the site or installation suitable for use for other purposes, as well as the construction of buildings and other structures to be used in connection with such activities. “Hazardous material” is nuclear matter, radioactive waste and any other article which has been and remains contaminated, radioactively or chemically, as a result of nuclear activities.

Sections 11 and 12 place a duty on the NDA to prepare a strategy for carrying out its functions and to keep that strategy under review. Whenever the NDA is given a new responsibility for securing the decommissioning or cleaning-up of an installation or site, it is required to review the relevance of its strategy for that purpose and, if need be, revise its strategy accordingly.

Section 13 requires the NDA to prepare a plan for each financial year showing how it intends to carry out its functions during that year. The NDA is also required under Section 14 to produce an annual report on the discharge of its responsibilities and on the carrying out of its other functions during each financial year.

Section 15 sets out what the NDA has to do in order to discharge a responsibility it is given for securing the decommissioning of an installation or the cleaning-up of a site. The NDA has a specific duty to take all such steps as it considers appropriate for securing the implementation of its strategy and annual work plan in relation to that installation or site.

Only where a site is a “contaminated site” rather than a “principal nuclear site” is the NDA’s duty subject to directions given by ministers. The NDA is not subject to such directions in respect of the cleaning-up of a “principal nuclear site” or the decommissioning of an installation on such a site. The act defines “principal nuclear site” to include sites where a nuclear site licence is in force (granted under the Nuclear Installations Act 1965, see *Nuclear Law Bulletin* Nos. 3, 4, 15, 31, 32, 33 and 46. The text of the act as amended in 1983 is reproduced in the *Supplement* to NLB No. 33). A site is a

“contaminated site” if it is not a “principal nuclear site” but has become contaminated as a result of nuclear activities.

The position is different where the NDA has responsibility for securing the operation of an installation or for the treatment, storage, transportation or disposal of hazardous material, or for the management of any land not comprised in a site designated to be cleaned-up. In these circumstances, Section 16 places a duty on the NDA to carry out these tasks in accordance with such general and specific directions as may be given to it by ministers (as well as in accordance with its strategy and annual plan). Some of the directions made by the Secretary of State which came into force on 1 April 2005 include specific directions under this section of the act.

Section 7 gives the NDA other functions. The NDA must consider whether and to what extent it is appropriate to carry out these functions. The functions include the carrying out and promotion of research into matters relating to the NDA’s other functions.

Also under Section 7 the Secretary of State has the power to require the NDA to act on her behalf in relation to agreements to which she is a party. Ministers can also require the NDA to give advice about any of the things in which the NDA requires an expertise for carrying out its functions, and the NDA can provide general advice on its own initiative to ministers in respect of such things.

Section 9 imposes general duties on the NDA when carrying out its functions. The NDA has four overriding duties, which are:

- to have particular regard both to relevant government policy and to the regulatory framework in respect of the environment, health and safety and nuclear security;
- to promote the development of a competitive market for clean-up and other contracts;
- to ensure the availability of a skilled workforce capable of sustaining its work programmes over the long-term; and
- to secure the adoption of good practice across its sites.

Subject always to these four overriding duties, section 9 provides that the NDA also has a duty to secure value for money in its dealings with others.

Section 9 also provides that, in carrying out its functions with respect to the operation and management of designated sites, the NDA has a duty to act in the manner that it considers is most beneficial to the public.

Section 10 gives the NDA the general and specific powers it needs in order to carry out its functions. There is a broad power for the NDA to do all such things as appear to it to be likely to facilitate the carrying out of its functions or to be incidental to carrying them out. Section 10 identifies some particular powers. They include powers to make grants or loans for the benefit of socio-economic development or other activities that produce environmental benefits or for research into decommissioning and cleaning-up; and a power to enter into contracts for others to secure the things that the NDA has a function of securing (in other words, a power to subcontract). However, the NDA cannot do anything which is not required for the purpose of, or in connection with, the carrying out of its functions under the act.

Section 17 ensures that designated installations, sites and facilities are used for the purposes of the NDA. It does so by obliging any “person with control” of a designated installation, site or facility to secure that it (or any related right or interest) is not used or disposed of except for purposes which

facilitate the discharge of the NDA's responsibilities. "Person with control" is defined in Section 36(3) and includes the holder of a nuclear site licence. Except where the NDA otherwise directs, or where the NDA is charging for the work it is doing, the person with control must pay to the NDA any sums and other benefits received as a consequence of operating the site, installation or facility or the disposal of any interest or right in relation to the site, installation or facility. The main purpose of this is to ensure that where the NDA is funding the operation of an installation it also receives the income generated. The NDA is required in turn to pay the money received to the Secretary of State.

Section 18 places a duty on the person with control of a designated principal nuclear site, a nuclear installation, a facility situated in or on a principal nuclear site, or an installation comprised in an NDA facility, to prepare such plans for the discharge of the NDA's responsibilities in relation to that site, installation or facility as the NDA may direct, to submit those plans to the NDA for approval and to comply with any further directions the NDA may give in accordance with Section 18(3). The directions may only be given by the NDA for the purpose of giving effect to its strategy and annual work plans.

Section 21 gives the NDA financial responsibility for the decommissioning, operation or cleaning-up of installations and sites or related sites which, at the time the relevant designation is made under Section 3, are controlled by one of a number of specified persons. The specified persons include British Nuclear Fuels plc (BNFL).

Where Section 21 applies but the person in control of the site, installation or facility is not the NDA itself, it is provided that the NDA must ensure that the other person is not liable (and cannot become liable) to meet the costs of the discharge of the NDA's responsibilities in relation to that site, installation or facility. Therefore the NDA cannot impose charges on the person with control in such situations, and must meet the costs of that person incurred in discharging its obligations under Sections 17 and 18. Further, the NDA must make such arrangements as it sees fit for securing that the person with control is able to meet its liabilities in respect of NDA responsibilities as they fall due. However, Section 21(9) provides that the provisions of Section 21 have effect subject to the terms of any agreement between the person with control (or its parent company) and the NDA. So it is possible to apportion financial responsibility as between the NDA and the site licensee in respect of clean-up, decommissioning or operational obligations. This will not, however, limit the NDA's overall obligations to clean-up and decommission under the act.

Section 22 sets out how the NDA is to be put in funds and the arrangements for handling any income it generates. Section 22(2) enables the Secretary of State to fit the payment of grants to the requirements of the NDA so that the NDA has the funds it needs as and when required. Section 22(3) provides that the NDA must pay to the Secretary of State all sums received by it other than grants made to it by the Secretary of State.

Section 23 sets out the framework for the NDA to borrow money from the Secretary of State. This is principally to enable the NDA to support the carrying on of normal business practices which optimise the contractual arrangements which are necessary to support the decommissioning, cleaning-up and operational activity of the persons with control of designated sites, installations and facilities which it funds. The NDA is permitted to borrow from other sources, but this is subject to the approval of the Secretary of State and HM Treasury. The NDA's borrowing limit is GBP 2 000 million (which can be altered by order of the Secretary of State). The Secretary of State may guarantee the borrowing of the NDA on such terms as she thinks fit.

Section 26 provides that the NDA must keep proper accounts and accounting records and prepare a statement of accounts in respect of each accounting year.

INTERNATIONAL REGULATORY ACTIVITIES

International Atomic Energy Agency

*Guidance on the Import and Export of Radioactive Sources**

Introduction

The 48th IAEA General Conference which took place from 20 to 24 September 2004 adopted a Resolution¹ aimed at strengthening the security of radioactive sources, including approval of Guidance on import and export of high-power sources that could lead exporters to refuse shipment to countries whose safety and/or physical protection infrastructure is deemed insufficient.

The Guidance, developed by an expert group as part of the IAEA-supported Code of Conduct on the Safety and Security of Radioactive Sources (see the article by Katia Boustany in *Nuclear Law Bulletin* No. 67; the text of the code is reproduced in the chapter “Texts” of this *Bulletin*), was approved formally by the IAEA Board of Governors in mid-September 2004, just before the General Conference convened.

The Code of Conduct [IAEA/CODEOC/2004] is the only legal instrument currently available to improve control over sources worldwide. As of September 2004, 64 countries had made political commitments to adhere to the code, and more than 30 countries had signaled the IAEA director general that they intended to work toward effective import and export controls by 31 December 2005, the date proposed by the expert group for implementation of “harmonised” export regulations.

The US was pushing for a Code of Conduct on source exports and imports that would operate as “something akin to the Nuclear Suppliers Group” guidelines on exports of nuclear materials, technology and equipment, said one IAEA official. Although, unlike a convention, a code of conduct is not legally binding, adherence to it carries a political commitment.

Countries supporting the Code of Conduct and related activities, such as inventories of high-risk radioactive items or registries to track international movements of such items, are beginning to ponder whether some more binding undertaking should be pursued, perhaps in the context of developing national regulatory infrastructures, a French expert said.

* By Ann McLachlan, European Bureau Chief, Platts Nuclear Publications © 2004 McGraw-Hill Companies. Reprinted with permission. Reproduction prohibited without written permission. The original version of this article was printed under the title “IAEA states adopt Guidance for sealed source export and import” in *Nucleonics Week* of 30 September 2004.

1. GC(48)/RES/10 entitled “Measures to strengthen international cooperation in nuclear, radiation and transport safety and waste management”.

Lost sources

Source security has become a major focus of concern in recent years, especially since the September 2001 attacks in the US, which raised fears that radioactive sources could be used by terrorists as radiological dispersal devices, so-called “dirty bombs.” Although the effects of a dirty bomb – in which conventional explosives would be used to disperse radioactive material – would be much less devastating than those of a real nuclear weapon, “the psychological effects are probably very comparable,” in the judgment of Juan Eibenschutz, Director General of the National Nuclear Safety and Safeguards Commission of Mexico.

Millions of radioactive sources have been distributed worldwide over the past 50 years and hundreds of thousands are still being used, according to the IAEA, which has found that over 100 countries may have no minimum infrastructure in place to properly control such sources. The Agency is running a “model project” to help Member States strengthen their capabilities to control and regulate radioactive materials, including sources, but the IAEA says it is also concerned about the fate of sources in over 50 countries that are not members of the Agency. Even in the US and the European Union (EU), tens of sources are lost every year, and thousands more disused sources risk being lost from regulatory control, the IAEA said in a fact sheet.

Political approval via the General Conference (GC) of the resolution on “The Safety and Security of Radioactive Sources,” including the new import-export Guidance, lays another legal cornerstone for the IAEA to continue to develop guidelines and recommendations in the area, according to agency Deputy Director General for Nuclear Safety & Security Tomihiro Taniguchi.

An initial conference on safety and security of sources was held in Dijon, France in 1998, and the Agency has been implementing a GC-approved Action Plan on the subject since 2000. The Code of Conduct was part of that plan, and the first version of the code was published in 2000. It was revised following an IAEA conference in Buenos Aires later that year, partly to take into account the lessons of September 11th and partly to fill in the gaps found in the first version, including the export/import Guidance. Following a third conference devoted to the subject of radioactive source security, in Vienna in March 2003, the revised Code of Conduct was adopted by the General Conference in September of that year.

The code aims to establish in every country “an adequate system of regulatory control of radioactive sources, applicable from the stage of initial production to their final disposal, and a system for the restoration of such control if it has been lost.” This worldwide system, according to the code, is designed to “achieve and maintain a high level of safety and security of radioactive sources; prevent unauthorised access or damage to, and loss, theft or unauthorised transfer of, radioactive sources, so as to reduce the likelihood of accidental harmful exposure to such sources or the malicious use of such sources to cause harm to individuals, society or the environment; and mitigate or minimise the radiological consequences of any accident or malicious act involving a radioactive source.”

Among other things, the code encourages states to permit the re-import of disused sources for management by their original producers.

So far, the Code of Conduct and the 1979 Convention on the Physical Protection of Nuclear Material (see above and *Nuclear Law Bulletin* No. 71 on the ongoing negotiations to revise this convention) are the only international legal instruments covering nuclear security, Taniguchi said at a senior regulators’ meeting during the 2004 General Conference. Taniguchi’s division assumed responsibility for nuclear security, as well as for safety, in 2002 in the wake of the September 11th attacks and concerns they raised about nuclear installations, material and sources.

Higher status

The 2004 Resolution on “Safety and Security of Sources” was part of a package of measures considered, and adopted, by the General Conference to “Strengthen International Co-operation in Nuclear, Radiation, Transport Safety and Waste Management.” The measures included continuing support for the IAEA’s safety standards programme, for a separate Code of Conduct on the Safety of Research Reactors, and for transport safety, where for the first time a resolution was cosponsored by shipping states and coastal states (see *Nuclear Law Bulletin* No. 74 for a detailed description of the content of this resolution).

The GC also endorsed continued efforts to “protect against nuclear terrorism,” calling on states to accede to the Physical Protection Convention. A diplomatic conference to consider amendments to that convention could be called in 2005.

The source-security resolution – co-sponsored by Australia and Yemen – was taken out of the general IAEA General Conference “omnibus” resolution on strengthening safety and security, to give it higher status in keeping with the emphasis on source security at recent international meetings, officials said. One said that the US had wanted to highlight the issue – and the success of negotiations toward the measure’s adoption – in light of statements on the importance of source import-export control Guidance from the G-8 summit in Sea Island and the US-EU summit in Shannon, Ireland earlier this year. The Shannon summit resulted in an announcement that the US and the EU would put “adequate” export and import controls in place by the end of 2005 “and apply them in a harmonised and consistent manner.”

Source security, including safe disposition, control of imports and exports, and recovery of high-risk sources from insecure locations, is also one focus of the US-Russian Global Threat Reduction Initiative (GTRI), for which an “International Partners Conference” was held on 18-19 September 2004 in Vienna, just before the IAEA GC.

In his closing speech to that conference, then US Energy Secretary Spencer Abraham said that all IAEA Member States that use or hold radioactive materials must be “the responsible custodians of these materials and the facilities in which they are located. If we fail to protect and prevent these materials from falling into the hands of those who would use them for malevolent purposes, the global impact could be catastrophic.”

Abraham said that “an international plan, an international program, with international objectives and international solutions ... is the only responsible way to address what is clearly an international crisis.”

Although the 2004 GC did “note” the results of the G-8 and US-EU summits, members of the G-77 developing countries group rejected wording in the resolution that would have taken note as well of the findings of the GTRI partners’ conference, with which some of the G-77 did not agree.

Export Guidance

The Guidance on import and export of radioactive sources, as approved by the IAEA Board and the GC, codifies the recommended procedures for authorising exports of the most powerful sealed sources, identified by the IAEA staff as category 1 and category 2 in a listing established with the original Code of Conduct.

Category 1 sources are those which would be likely to cause permanent injury to a person in contact with them for more than a few minutes and would likely be fatal if contact lasted longer than that, according to the code. The IAEA list of sources in this category includes a 3-terabecquerel cobalt-60 source and an 8-Tbq iridium-192 source. Typical uses are in radiothermal generators, irradiators, and radiation teletherapy.

Category 2 sources, the code says, could cause permanent injury if handled for a short period (minutes to hours) and contact of “hours to days” could be fatal. They are typically used in industrial gamma radiography, high dose rate brachytherapy and medium dose rate brachytherapy, the code says. Their activity is generally about 100 times lower than those of category 1 and ten times higher than sources in category 3, which could still cause permanent injury if handled for more than some hours but are not explicitly covered by the export-import Guidance.

The export Guidance requires exporting states to review whether importing states have “the appropriate technical and administrative capability, resources and regulatory structure” to manage sources as the code stipulates. The document lists criteria for determining that, including whether the state has a regulatory framework covering at least Category 1 sources or whether it has told the IAEA director general that it plans to follow the code.

The Guidance does allow for export even if the criteria are not fulfilled in “exceptional circumstances,” defined as, for example, “cases of considerable health or medical need” or “cases where there is an imminent radiological hazard or security threat presented by one or more radioactive sources.” It also allows such export if the exporting facility or exporting state maintains control of a source in the importing state and brings it back after its use.

The most controversial part of the Guidance, diplomats said, is a provision that allows states to refuse export of sealed sources if “available information” indicates that the recipient has a history of clandestine or illegal procurement or use of radioactive sources. That refusal could also be based, according to the Guidance, on a determination by the exporting state that there is a “risk of diversion or malicious acts” involving the source(s). Potential recipient states, diplomats said, protested that this clause could be used to deny shipment of badly needed sources based on secret information, or as a political tool.

The largest exporter of sealed sources is Canada. Other big exporting states are France, the Russian Federation, Argentina, the Netherlands, South Africa, and the UK, IAEA officials said.

The IAEA, along with the EU and Interpol, the international police organisation, is organising another conference on source security next June in Bordeaux, France. According to Marc-Gerard Albert of the French *Commissariat à l'énergie atomique* (CEA), the meeting will address “the legacy of the past,” including the problem arising from “orphan sources” – those whose owners have ceased to exist – which he said “requires immense attention.” While reiterating political support for ongoing actions like the Code of Conduct, Albert told the IAEA senior regulators’ gathering, the Bordeaux meeting could also be a forum for decisions on the next steps to progress in controlling sources worldwide. That progress could include “more binding arrangements” for source use and trade under an international umbrella, he suggested.

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Convention on Physical Protection of Nuclear Material

Article 20(1) of the Convention on Physical Protection of Nuclear Material (CPPNM) provides that a State Party may propose amendments to the convention, which shall be circulated to other States Parties. A majority of states may then request the depositary to convene a conference to consider the proposed amendments.

On 5 July 2004, the Director General of the International Atomic Energy Agency (IAEA), depositary of this convention, circulated among all States Parties, pursuant to Article 20 CPPNM and following a request of 1 June 2004 by the government of Austria and 24 co-sponsoring states, a proposed amendment to the CPPNM. This proposal would extend the scope of the convention to cover also the physical protection of nuclear material used for peaceful purposes, in domestic use, storage and transport and the physical protection of nuclear material and nuclear facilities used for peaceful purposes against sabotage.

On 19 January 2005, a majority of States Parties to the CPPNM requested the Director General to convene a diplomatic conference to consider the proposed amendments circulated. Pursuant to Article 20, the Director General has invited the governments of all States Parties to participate in a Conference of Plenipotentiaries to consider and adopt proposed amendments to the CPPNM, which will take place at IAEA Headquarters, Vienna, from 4 to 8 July 2005.

In preparation of this conference a meeting was held from 4 to 7 April 2005, attended by 58 Parties to the convention (including Euratom). The meeting discussed, *inter alia*, the Provisional Rules of Procedure for the Diplomatic Conference, its agenda and officers.

International Expert Group on Nuclear Liability (INLEX)

The International Expert Group on Nuclear Liability (INLEX) established by the IAEA Director General in 2003, held its 4th meeting in February 2005. During the course of this meeting the Group discussed, *inter alia*, mechanisms for addressing possible gaps and ambiguities in the existing international nuclear liability regime and reached various conclusions in relation thereto. In particular, the Group recognised that, until all countries belonged to a global nuclear liability regime, there were some inevitable complexities resulting from the existence of different instruments. Various discrepancies between the existing nuclear liability regimes, including differences regarding access for non-Contracting States to the regimes established, the obligations of membership, difficulties in pursuing claims and the possible inadequacy of levels of compensation were raised.

INLEX's work is still ongoing and the group is in particular considering issues such as civil liability for nuclear damage in Asia, the Pacific and the Latin America region. The 5th meeting of INLEX is scheduled for July 2005.

European Union

Commission Regulation (Euratom) on the Application of Euratom Safeguards (2005)

Commission Regulation (Euratom) No. 302/2005 of 8 February 2005 on the Application of Euratom Safeguards is taken in implementation of Chapter VII [Articles 77 to 79] of the Euratom Treaty on safeguards which allows the Commission to verify that on the territory of Member States:

- ores, source materials and specific fissile materials are not diverted from their intended uses as declared by the users;
- provisions relating to supply and any particular safeguarding obligations assumed by the Community under an agreement concluded with a third state or an international organisation are complied with.

These regulations repeal and replace Commission Regulation (Euratom) No. 3227/76 of 19 October 1976. The 2005 Regulation therefore takes into account changes in the legal framework (enlargement of the European Community) and in the nuclear industry (increased number of installations to be taken into consideration), but also responds to new needs in terms of declaration and the opportunities offered by information technologies.

This text applies to any person or undertaking setting up or operating an installation for the production, separation, reprocessing, storage or any other use of source material or special fissile material. It describes the obligations resulting from the implementation of Articles 78 (declaration of the basic technical characteristics of installations) and 79 (nuclear material accountancy) of the Euratom Treaty.

Regarding Article 78, the regulation describes practical modalities of the declaration, the time limit within which such declaration must be made, the programme of activities of installations, and particular safeguard provisions. Regarding Article 79, the regulation establishes in particular the accounting system for materials, requirements in respect of operating and accounting records and reports, the initial book inventory, the inventory change report, the material balance report and physical inventory listing and special reports.

The regulation also contains provisions on export and import of source materials and special fissile materials, providing in particular that persons or undertakings to which it applies shall give advance notification to the Commission. Notification shall be given after the conclusion of the contractual arrangements leading to the transfer and shall reach the Commission at least eight working days before the material is to be packed for transfer.

Rules are established governing the accounting of waste as well as its processing and transfers of conditioned waste.

The regulation contains specific provisions applicable in the territories of the Nuclear-Weapon Member States. It provides that the extent to which it applies to nuclear materials, installations or parts of installations which are liable to be assigned to meet defence requirements and which are situated in these territories, shall be defined by the Commission in consultation and in agreement with the Member State concerned.

Beside standard questionnaires used for declaring certain categories of installations, a Council/Commission statement specifying that guidelines shall be adopted and published by the Commission, is annexed to the regulations. These guidelines will be used by operators as non binding orientations facilitating the implementation of the regulation.

AGREEMENTS

MULTILATERAL AGREEMENTS

International Convention for the Suppression of Acts of Nuclear Terrorism (2005)

On 4 April 2005, the General Assembly of the United Nations adopted the International Convention for the Suppression of Acts of Nuclear Terrorism. This instrument results from the work accomplished by the Ad Hoc Committee established by General Assembly Resolution 51/210 of 17 December 1996 and the Working Group of the Sixth Committee.

The convention aims at strengthening the international legal framework for the prevention and suppression of nuclear terrorism, while recognising the right of all states to develop and apply nuclear energy for peaceful purposes. It defines in its Article 2 offences which are qualified as nuclear terrorism. These include the unlawful and intentional possession of radioactive material, and the construction, possession or use of a radioactive device with the intent of causing death, injury or damage.

The convention applies to transnational acts alone and does not govern the activities of armed forces during an armed conflict. It also states that the Parties shall co-operate by taking all appropriate measures to prevent and counter preparations in their respective territories for the commission within or outside their territories of the offences set forth in Article 2 and exchanging accurate and verified information to detect, prevent, suppress and investigate these offences and to institute criminal proceedings against persons alleged to have committed those crimes.

The convention details the obligations of the state on the territory of which an offence has been committed relating, *inter alia*, to the investigation, the prosecution and the eventual extradition of the offender. Finally the Convention governs the status of the radioactive material, devices or nuclear facilities following the commission of an offence.

The convention shall be open for signature by all states from 14 September 2005 until 31 December 2006 and shall enter into force on the thirtieth day following the date of the deposit of the 22nd instrument of ratification, acceptance, approval or accession with the Secretary-General of the United Nations.

Entry into Force of the Kyoto Protocol (2005)

The Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) was adopted in December 1997 in Japan and was opened for signature for a period of one year commencing on 16 March 1998 and closing on 15 March 1999. It entered into force on 16 February 2005 following ratification by Russia on 18 November 2004. This entry into force ensues from the completion of the requirements listed in its Article 25, which establishes two sets of criteria. It provides that the Protocol shall enter into force 90 days after it has been ratified by at least

55 Parties to the UNFCCC, including developed countries and economies in transition representing at least 55% of the total 1990 carbon dioxide emissions from this group of countries.

The protocol sets deadlines for developed countries to achieve measurable reductions of greenhouse gas emissions, with penalties for those that fail to comply. Parties committed themselves to reduce their combined emissions of six greenhouse gases* during the five-year “commitment period” 2008-12 to below 1990 levels (reduction by at least 5.2%). “Flexibility mechanisms” are set up by Annex I that may be used by the Parties to the UNFCCC to meet their targets, in addition to domestic action. Industrialised countries can trade credits, and invest in emissions-reducing projects in developing countries (through Clean Developments Mechanism – CDM) or in other industrialised countries (through Joint Implementation – JI). Such credits will count towards reaching the targets of the concerned countries and will be registered with the European Union Emissions Trading Scheme which opened on 1 January 2005.

The benefit that nuclear energy brings in terms of reducing carbon dioxide emissions is not prohibited by the Kyoto Protocol. The latter does, however, incorporate conditions that effectively exclude nuclear energy as an option for implementation under two of the three “flexibility mechanisms”. This results from the decisions made at the Climate Conference (COP6bis) which took place from 16 to 27 July 2001 in Bonn.

Third Review Meeting of the Convention on Nuclear Safety (2005)

The primary objective of the 1994 Convention on Nuclear Safety is to achieve and maintain a high level of nuclear safety worldwide in the operation and regulation of nuclear power plants, through the enhancement of national measures and international co-operation. At the end of May 2005, 55 states and one regional organisation (Euratom) had ratified the convention, which entered into force on 24 October 1996.

Pursuant to Article 20 of the convention, Contracting Parties meet every three years for a review meeting in order to examine national reports presented by each Party on measures taken and in progress to implement its obligations as stipulated in Chapter 2 of the convention.

The Third Review Meeting of the Contracting Parties to the Convention was held at IAEA Headquarters, Vienna, Austria, from 11 to 22 April 2005. The meeting was attended by the 51 Contracting Parties to the convention. The President of the Review Meeting was Ms Linda J. Keen, President and Chief Executive Officer of the Canadian Nuclear Safety Commission.

A number of issues were discussed at the Review Meeting and an outcome of the meeting is available in a comprehensive Summary Report available at www-ns.iaea.org/downloads/ni/safety_convention/conv-2005.pdf. Among issues that were discussed was the possible role of the convention with regard to research reactors. It was decided to request the IAEA Director General to convene meetings with Member States to discuss how best to assure the effective application of the Code of Conduct on the Safety of Research Reactors, which was approved by the IAEA General Conference in 2004 (see *Nuclear Law Bulletin* No. 74; the text of this instrument is reproduced in the chapter Texts of this *Bulletin*). Contracting Parties also noted the positive contributions of international organisations and regulatory bodies to the development of an international safety culture. Safety initiatives in international organisations like the IAEA, as well as safety and peer review

* Carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆).

processes, helped improve overall safety culture on a facility basis. Concerns about the ageing management and maintenance and motivation of the work force were also raised as they are important to maintain the safety of nuclear power plants throughout their entire life cycle.

Generation IV International Forum (GIF) (2005)

The Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems was signed in Washington DC, USA, on 28 February 2005 by Canada, France, Japan, the United Kingdom and the United States. This agreement, for which the OECD Secretary-General is depositary, allows participating countries to move forward on joint research projects on the six reactor concepts that the GIF participants have selected for development. These are: gas-cooled fast reactor system; lead-cooled fast reactor system; molten-salt reactor system; sodium-cooled fast reactor system; supercritical-water-cooled reactor system and very-high-temperature reactor system. These advanced technologies offer the promise of advantages in the areas of economics, safety and reliability, sustainability, physical protection and proliferation resistance and could be deployed commercially by 2020-30.

The framework agreement outlines the types of collaboration envisaged and provides for the establishment of System and Project Arrangements for carrying out specific work on each nuclear energy system. Parties are required to designate implementing agents to accomplish the stated objectives.

The six other GIF members (Argentina, Brazil, Euratom, the Republic of Korea, the Republic of South Africa and Switzerland) are expected to accede to the agreement in the coming months. Pending their accession, all GIF members will continue to participate in the group's activities over the next year. The NEA serves as Technical Secretariat to the Generation IV International Forum.

Status of Conventions in the Field of Nuclear Energy

1979 Convention on the Physical Protection of Nuclear Material

Since the last update in *Nuclear Law Bulletin* No. 74, five states, namely Djibouti, Dominica, Nicaragua, Niger and Turkmenistan have become Parties to this convention. Therefore, as of 25 May 2005, there are 111 Contracting Parties to this convention.

1986 Convention on Early Notification of a Nuclear Accident

Since the last update in *Nuclear Law Bulletin* No. 73, three states, namely Angola, El Salvador and the United Republic of Tanzania have become Parties to this convention. Therefore, as of 25 May 2005, there are 95 Contracting Parties to this convention.

1994 Convention on Nuclear Safety

Since the last update in *Nuclear Law Bulletin* No. 72, India has become Party to this convention (ratification). Therefore, as of 25 May 2005, there are 56 Contracting Parties to this convention.

1996 Comprehensive Nuclear Test Ban Treaty

Since the last update in *Nuclear Law Bulletin* No. 74, two states, namely Saint Kitts and Nevis and Rwanda have become Parties to this treaty. Therefore, as of 25 May 2005, there are 121 Contracting Parties.

MOROCCO

Act No. 12-02 on Civil Liability for Nuclear Damage*

Promulgated on 7 January 2005

Chapter I

General Provisions

Section 1

This Act aims to ensure indemnification of damage caused by certain peaceful uses of nuclear energy pursuant to the provisions of the Vienna Convention on Civil Liability for Nuclear Damage.

Section 2

For the purposes of this Act:

- a) nuclear fuel means any material which is capable of producing energy by a self-sustaining chain process of nuclear fission;
- b) nuclear reactor means any structure containing nuclear fuel in such a configuration that a self-sustaining chain process of nuclear fission can occur therein without an additional source of neutrons;
- c) radioactive products or waste means any radioactive material produced in, or any material made radioactive by exposure to the radiation incidental to, the production or utilisation of nuclear fuel, but does not include radioisotopes which have reached the final stage of fabrication so as to be usable for any scientific, medical, agricultural, commercial or industrial purpose;
- d) nuclear material means:
 - nuclear fuel, other than natural uranium and depleted uranium, capable of producing energy by a self-sustaining chain process of nuclear fission outside a nuclear reactor, either alone or in combination with some other material; and
 - radioactive products or waste.
- e) nuclear installation means:

* Unofficial translation established by the OECD Secretariat.

- any nuclear reactor, including related installations necessary for its operation, other than one with which a means of sea or air transport is equipped for use as a source of power, whether for propulsion thereof or for any other purpose;
- any factory using nuclear fuel for the production of nuclear material, or any factory designed or adapted for the processing of nuclear material, including any factory for the reprocessing of irradiated nuclear fuel; and
- any facility where nuclear material is stored, other than storage incidental to the carriage of such material.

For the purpose of implementation of this Act, several nuclear installations of one operator located at the same site shall be considered as a single nuclear installation.

f) nuclear damage means:

- loss of life or any personal injury;
- any loss of, or damage to, property;

to the extent that the loss or damage arises out or results from ionising radiation emitted by any source of radiation inside a nuclear installation, or emitted from nuclear fuel or radioactive products or waste in, or of nuclear material coming from, originating in, or sent to, a nuclear installation, whether so arising from the radioactive properties of such matter, or from a combination of radioactive properties with toxic, explosive or other hazardous properties of such matter.

- g) nuclear incident means any occurrence or series of occurrences having the same origin which causes nuclear damage;
- h) operator means the person duly authorised pursuant to the regulations in force on licensing and control of nuclear installation;
- i) Special Drawing Rights (SDR) mean the unit of account defined by the International Monetary Fund and used by it for its own operations and transactions.

Chapter II

Nature of Liability

Section 3

Subject to the provisions of Chapter III of this Act, only the operator of a nuclear installation shall be liable for nuclear damage.

Section 4

The operator of a nuclear installation shall be liable for nuclear damage caused by a nuclear incident in his nuclear installation.

Section 5

The operator of a nuclear installation shall be liable for nuclear damage caused by a nuclear incident involving nuclear material coming from or originating in his nuclear installation and occurring:

- a) before liability with regard to nuclear incidents involving this material has been assumed, pursuant to the express terms of a contract in writing, by the operator of another nuclear installation;
- b) in the absence of such express terms, before the operator of another nuclear installation has taken charge of this material;
- c) where this material is intended to be used in a nuclear reactor with which a means of transport is equipped for use as a source of power, whether for propulsion thereof or for any other purpose, before the person duly authorised to operate such reactor has taken charge of the nuclear material; or
- d) where this material has been sent to a person within the territory of a State which is not a Contracting Party to the Vienna Convention, before it has been unloaded from the means of transport by which it has arrived in the territory of that non-Contracting State.

Section 6

The operator of a nuclear installation shall be liable for nuclear damage caused by a nuclear incident involving nuclear material sent to his nuclear installation and occurring:

- a) after liability with regard to nuclear incidents involving this material has been assumed by him, pursuant to the express terms of a contract in writing, from the operator of another nuclear installation;
- b) in the absence of such expressed terms, after he has taken charge of this material;
- c) where the nuclear material has, with the written consent of the operator, been sent from a person within the territory of a State which is not a Contracting Party to the Vienna Convention, only after it has been loaded on the means of transport by which it is to be carried from the territory of that State;
- d) after the operator has taken charge of the nuclear material from a person operating a nuclear reactor with which a means of transport is equipped for use as a source of power, whether for propulsion thereof or for any other purpose.

Section 7

If nuclear damage is caused by a nuclear incident occurring in a nuclear installation and involving nuclear material stored therein incidentally to the carriage of such material, the provisions of Section 4 shall not apply where another operator or person is solely liable pursuant to the provisions of Sections 5 or 6 of this Act.

Section 8

Where nuclear damage engages the liability of more than one operator of a nuclear installation, the operators involved shall, in so far as the damage attributable to each operator is not reasonably

separable, be jointly and severally liable, each of them up to the amount applicable with respect to him pursuant to Section 22 of this Act.

Section 9

Where a nuclear incident occurs in the course of carriage of nuclear material, either in one and the same means of transport, or, in the case of storage incidental to the carriage, in one and the same nuclear installation, and causes nuclear damage which engages the liability of more than one operator, the total liability shall not exceed the highest amount applicable with respect to any one of them pursuant to Section 22 of this Act.

Section 10

In neither of the cases referred to in Sections 8 and 9 shall the amount of liability of any one operator exceed the amount applicable with respect to him pursuant to Section 22 of this Act.

Section 11

Subject to the provisions of Sections 8, 9 and 10, where several nuclear installations of one and the same operator are involved in one nuclear incident, such operator shall be liable in respect of each nuclear installation involved up to the amount applicable with respect to him pursuant to Section 22 of this Act.

Section 12

Whenever both nuclear damage and damage other than nuclear damage have been caused by a nuclear incident or jointly by a nuclear incident and one or more other occurrences, such other damage shall, to the extent that it is not reasonably separable from the nuclear damage, be deemed to be nuclear damage caused by that nuclear incident.

Section 13

Liability for nuclear damage caused by a nuclear incident involving nuclear material which was stolen, lost, jettisoned or abandoned lies with the operator of the nuclear installation who was the last owner of this nuclear material.

Section 14

A carrier of nuclear material or a person handling radioactive waste may, at his request and with the consent of the operator concerned, be designated or recognised as operator in the place of that operator upon authorisation of the administrative authority and in compliance with provisions of Section 19.

In this event such carrier or person shall be considered, for all the purposes of this Act, as an operator of a nuclear installation.

Chapter III

Exceptions to Civil Liability

Section 15

No liability under this Act shall attach to an operator for nuclear damage caused by a nuclear incident directly due to an act of armed conflict, hostilities, civil war or insurrection.

Section 16

The operator of a nuclear installation shall not be liable for nuclear damage:

- a) to the nuclear installation itself or any other nuclear installation, including a nuclear installation under construction, on the site where that installation is located;
- b) to any property on that same site which is used or to be used in connection with any such installation.

Section 17

If the operator of a nuclear installation proves that the nuclear damage resulted wholly or partly either from the gross negligence of the person suffering the damage or from an act or omission of such person done with the intent to cause damage, the competent court may relieve the operator wholly or partly from his obligation to pay compensation in respect of the damage suffered by such person.

Section 18

Nothing in this Act shall affect the liability of any individual for nuclear damage for which the operator, by virtue of Sections 15 and 16 of this Act, is not liable and which that individual caused by an act or an omission done with the intent to cause damage.

Chapter IV

Security for Civil Liability

Section 19

The operator of a nuclear installation shall be required to have and maintain insurance or other financial security covering his liability up to the amount, per accident, provided in Section 22 of this Act.

Section 20

The operator of a nuclear installation shall submit for approval to the administrative authorities the conditions of financial security through insurance or other financial security.

Section 21

The operator of a nuclear installation, in order to obtain the licence for commissioning testing as provided under Section 10 of Decree No. 2-94-666 of 4 *rejab* 1415 (7 December 1994) on the licensing and control of nuclear installations, shall provide the proof of his coverage of liability for nuclear damage as provided under Section 19 of this Act.

Section 22

The amount of liability of the operator of a nuclear installation for nuclear damage caused by one single nuclear incident is set at 100 million SDRs.

However, the administrative authorities, having regard to the nature of the nuclear installation or the nuclear material involved and to the likely consequences of an accident originating therefrom, may establish a lower amount of financial security of the operator, provided that in no event shall any amount so established be less than 5 million SDRs.

This amount will be automatically indexed in percentage according to fluctuations in the value of the SDR of the International Monetary Fund between the date of entry into force of this Act and that of the nuclear incident.

Section 23

The State shall ensure the payment of claims for compensation for nuclear damage which have been established against the operator to the extent that the yield of the insurance or financial security of the operator is inadequate to satisfy such claims, but not in excess of the amount of the financial security to be provided under Section 22 of this Act.

Section 24

Where the amount of insurance or financial security of the operator is insufficient to fully compensate all nuclear damage the State may provide supplementary funds up to the amount provided under Section 22 of this Act.

Section 25

No insurer or other financial guarantor shall suspend or cancel the insurance or other financial security provided pursuant to Section 19 of this Act, without giving notice in writing of at least three months. This notice shall be sent by recorded delivery with acknowledgement of receipt to the operator of the nuclear installation whose civil liability is insured or guaranteed.

A copy of this notice in writing shall be addressed in the same time frame to the administrative authorities.

Section 26

For the implementation of this Chapter, the funds provided shall be exclusively available for compensation of nuclear damage covered by this Act and shall not include any interest or costs awarded by a court.

Section 27

The operator liable in accordance with this Act shall provide the carrier of nuclear materials with a certificate issued by or on behalf of the insurer or other financial guarantor furnishing the financial security stating the name and address of that operator and the amount, type and duration of the insurance or the financial security as well as the nuclear material in respect of which the insurance or security applies. The certificate shall include a statement by the administrative authority that the person named is an operator within the meaning of this Act.

Chapter V

Recourse and Actions for Compensation

Section 28

If a person, other than the liable operator, has paid compensation for nuclear damage, such person shall, up to the amount which he has paid, acquire by subrogation the rights under this Act of the person so compensated.

No rights shall be so acquired by any person to the extent that the operator has a right of recourse against such person under this Act.

Section 29

The operator of a nuclear installation shall have a right of recourse only:

- a) if this is expressly provided for by a contract in writing; or
- b) if the nuclear incident results from an act or omission done with intent to cause damage, against the individual who has acted or omitted to act with such intent.

Section 30

Any person who has a right of compensation for nuclear damage pursuant to this Act shall bring an action for compensation against the liable operator, or directly against the insurer or against any other person providing financial security pursuant to Section 19.

Section 31

Rights of compensation for nuclear damage under this Act shall be extinguished if an action is not brought:

- a) with respect to loss of life or personal injury (including direct genetic repercussions), thirty years from the date of the nuclear incident;
- b) with respect to any other nuclear damage, ten years from the date of the nuclear incident.

However, and provided that the periods established pursuant to sub-paragraph 1 shall not be exceeded, the prescription period shall be three years from the date on which the person suffering damage had knowledge or ought to have had knowledge of the damage and of the operator liable for the damage.

Any person who claims to have suffered nuclear damage and who has brought an action for compensation within the period applicable pursuant to this section may amend his claim to take into account any aggravation of the damage, even after the expiry of that period, provided that final judgement has not been entered.

Section 32

Payment for compensation of nuclear damage caused by a nuclear incident shall be done in the following order:

- a) priority shall be given to the compensation of any loss of life or personal injury;
- b) second, any loss or damage to property shall be compensated once the claims for the above damages are satisfied.

Section 33

The Court of First Instance of Rabat shall be the only court which has jurisdiction to examine claims for compensation of nuclear damage caused by a nuclear incident occurring in the territory of Morocco or within its exclusive economic zone and which are brought according to the provisions of this Act.

If, in implementation of the Vienna Convention, a Moroccan court has jurisdiction, such jurisdiction shall lie only with the Court of First Instance of Rabat.

Chapter VI

Penal Provisions

Section 34

If it is officially noted in a report that the operator or the carrier cannot provide proof of insurance or financial security as provided under Section 19, the administrative authorities may suspend the operation of the installation or performance of the transport until provision of the proof required.

If operation of the installation or performance of the transport has been suspended, the administrative authority may take any measures to ensure the safety of persons and property at the expense of the operator or the carrier.

Section 35

Failure to comply with the obligation to have and maintain insurance or other financial security as provided under Section 19 above shall make the offender liable to imprisonment from six months to five years or to a fine of 10 000 to 1 000 000 dirhams or to both.

Failure to furnish the certificate as provided under Section 27 above, shall make the offender liable to imprisonment from two months to one year or to a fine of 5 000 to 100 000 dirhams or to both.

In the event of subsequent offence, the maximum of these sentences will be doubled.

IAEA

Code of Conduct on the Safety of Research Reactors

As adopted by the IAEA Board of Governors, 8 March 2004

Preamble

The IAEA's Member States

Aware that research reactors provide important benefits throughout the world, including research, education, radioisotope production, fuel and materials testing and medical and industrial applications,

Aware of the importance of ensuring that the use of research reactors is safe, well regulated and environmentally sound,

Noting that the International Nuclear Safety Advisory Group (INSAG) has identified the need for action to address safety issues that may arise in research reactors and that subsequently the IAEA General Conference approved a research reactor safety enhancement plan that included the preparation of a Code of Conduct for the Safety of Research Reactors (GC(45)/RES/10),

Desiring to promote an effective nuclear safety culture,

Affirming the importance of international cooperation for the enhancement of nuclear safety,

Affirming the importance of the IAEA's safety standards relevant to research reactors that provide an extensive basis for ensuring their safety,

Noting the finalization of the work by the Open-ended Group of Legal and Technical Experts convened by the Director General to prepare a draft amendment of the Convention on the Physical Protection of Nuclear Material aimed at extending the scope of that convention to cover, inter alia, the physical protection of nuclear material and nuclear facilities, including research reactors, against sabotage,

Keeping in mind that the Convention on Nuclear Safety (1996) establishes the fundamental safety principles for achieving and maintaining a high level of nuclear safety worldwide through the enhancement of national measures and international co-operation for nuclear power reactors, but that it does not apply to research reactors, and

Taking account of the provisions of the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management, in particular those provisions that apply to spent fuel and radioactive waste arising from the operation and decommissioning of research reactors,

Decide that the following Code of Conduct should serve as guidance to States for, inter alia, the development and harmonization of policies, laws and regulations on the safety of research reactors.

I. Scope

1. This Code applies to the safety of research reactors as defined by this Code, at all stages of their lives from siting to decommissioning.
2. This Code does not apply to the physical protection of research reactors.
3. This Code does not apply to research reactors within military or defence programmes.

II. Objective

4. The objective of this Code is to achieve and maintain a high level of safety in research reactors worldwide through the enhancement of national measures and international co-operation including, where appropriate, safety related technical co-operation. This objective is achieved by proper operating conditions, the prevention of accidents and, should accidents occur, the mitigation of the radiological consequences, in order to protect workers, members of the public and the environment against radiation hazards.

III. Application of the Guidance in the Code

5. Application of this Code is accomplished through national safety regulations pertaining to all stages in the life of research reactors. In doing so, States are encouraged to make appropriate use of IAEA safety standards relevant to research reactors and those relating to the legal and governmental infrastructure for nuclear, radiation, radioactive waste and transport safety.
6. Noting that there are many different research reactor designs and power levels resulting in a wide range of hazard potential, the State should adopt a graded approach to application of the guidance in this Code commensurate with the hazard potential, while maintaining a strong nuclear safety culture.
7. If the State faces difficulties in application of this Code, it should communicate the difficulties and any assistance it may require to the Agency.

IV. Definitions

8. For the purposes of this Code:
 - a) “associated experimental facilities” means any equipment and apparatus for utilization of the neutrons and other ionising radiation produced by the research reactor that have the potential to affect its safe operation.
 - b) “extended shutdown” means the state in which the reactor has been shutdown and for which there are no approved plans and committed resources in place to resume operation or enter decommissioning.
 - c) “modification” means a deliberate change in or an addition to the existing reactor configuration, with potential safety implications, intended for the continued operation of the reactor. It may involve safety systems, or safety related items or systems, procedures, documentation or operating conditions.
 - d) “operating organization” means the organization which undertakes one or more of the siting, design, construction, commissioning, operation, modification, and decommissioning of a research reactor and is authorized (or is seeking authorization) by the regulatory body.

- e) “regulatory body” means an authority or system of authorities designated by the government of a State as having legal authority for conducting the regulatory process, including issuing authorizations, and thereby regulating nuclear, radiation, radioactive waste and transport safety.
- f) “research reactor” means a nuclear reactor used mainly for the generation and utilization of neutron flux and ionising radiation for research and other purposes, including experimental facilities associated with the reactor and storage, handling and treatment facilities for radioactive materials on the same site that are directly related to safe operation of the research reactor. Facilities commonly known as critical assemblies are included.
- g) “worker” means a person who works in a research reactor and who has recognized rights and duties in relation to occupational radiation protection, including employees of the operating organization, experimenters and other users of the research reactor.

V. Role of the State

9. The State should establish and maintain a legislative and regulatory framework to govern the safety of research reactors. The framework should place the prime responsibility for the safety of research reactors on the operating organization and should provide for:
 - a) the establishment of applicable national safety requirements and regulations;
 - b) a system of authorization for research reactors and the prohibition of the operation of a research reactor without an authorization;
 - c) a system of regulatory inspection and assessment of research reactors to ascertain compliance with applicable regulations and the terms of authorizations; and
 - d) the enforcement of applicable regulations and the terms of authorizations, including suspension, modification or revocation of the authorization.
10. The State should have a regulatory body charged with regulatory control of research reactors based on the national legal structure. The regulatory body should be able to conduct authorization, regulatory review and assessment, inspection and enforcement, and should establish safety principles, criteria, regulations and guides. The regulatory body should be effectively independent from organizations or bodies charged with promotion of nuclear technologies or with operation of research reactors. Before the State authorizes building or importing a research reactor, a functioning regulatory body should be in place. If necessary, assistance in developing the necessary human, technical and regulatory capabilities should be obtained through international cooperation.
11. The State should provide the regulatory body with the necessary authority and adequate resources to ensure that it can discharge its assigned responsibilities. No other responsibility should be assigned to the regulatory body that may jeopardize or conflict with its responsibility for regulating safety and protecting the environment from radiation hazards.
12. The State should, if it deems necessary, define how the public and other bodies are involved in the regulatory process.

13. The State should ensure that the operating organization has a system for financing the safe operation of the research reactor, for maintaining the research reactor in a safe shutdown state for extended periods if this becomes necessary, and for its decommissioning.
14. The State should establish an effective system of governmental emergency response and intervention capabilities relating to research reactors.
15. The State should make adequate legal and infrastructural arrangements for decommissioning of research reactors.
16. The State should take the appropriate steps to ensure that the safety of all operating research reactors and research reactors in extended shutdown is reviewed. When necessary in the context of this Code, the State should ensure that all reasonably practicable improvements are made to upgrade the safety of the research reactors. If such upgrading cannot be achieved, appropriate provisions should be made to shut down and then decommission the research reactors. The timing of the shut-down of the research reactors, if safety allows it, may take into account the contributions of each research reactor's utilization programme to society and the possible alternatives as well as other social, environmental and economic impacts.
17. In circumstances where a research reactor is in extended shutdown and there is no longer any effective operating organization, the State should make arrangements for the safe management of the research reactor.
18. The State should take appropriate steps to ensure that arrangements are put in place to inform neighbouring States in the vicinity of a planned research reactor, insofar as they are likely to be affected by the research reactor, and upon request, provide sufficient information to such States to enable them to evaluate and make their own assessment of the likely safety impact of the research reactor on their own territory for emergency planning and response.

VI. Role of the Regulatory Body

19. The regulatory body should:
 - a) implement a process of issuing authorizations with regard to all stages in the life of a research reactor;
 - b) undertake regulatory inspections and assessments of research reactors to ascertain compliance with applicable regulations and authorizations;
 - c) enforce the applicable regulations and the authorization, including suspension, modification or revocation of the authorization;
 - d) review and assess submissions on safety from the operating organization both prior to authorization and periodically during the life of the research reactor as appropriate, including in relation to modifications, changes in utilization and experimental activities important to safety; and
 - e) make available, as appropriate, its regulatory requirements and decisions and their basis, particularly with respect to matters under Paragraph 19(c), above.
20. The regulations and guidance established by the State or the regulatory body according to national arrangements should:
 - a) require clear arrangements for the management of safety by the operating organization, reflecting safety as the highest priority and encouraging the development of a strong nuclear safety culture in the operating organization;

Assessment and verification of safety

- b) require the operating organization to prepare and maintain a safety analysis report and to obtain an authorization for siting, construction, commissioning, operation, modifications important to safety, extended shutdown and decommissioning;
- c) require the operating organization to undertake periodic safety reviews at intervals determined by the regulatory body and to make proposals for upgrading and refurbishment arising from such reviews as necessary;

Financial and human resources

- d) require the operating organization to demonstrate that it has sufficient financial and human resources to support safe operation of the research reactor;
- e) require those personnel who operate the research reactor and for experimenters who use associated experimental facilities to be appropriately trained;

Quality assurance

- f) require the operating organization to put in place effective quality assurance programmes at the different stages of the life of the research reactor;

Human factors

- g) require the operating organization to take human factors into account throughout the life of the research reactor;

Radiation protection

- h) require that radiation doses to workers and the public, including doses from releases to the environment, be within prescribed national dose limits and be as low as reasonably achievable, social and economic factors being taken into account;
- i) provide guidance, as international consensus develops, on the protection of the environment from the harmful effects of ionising radiation;

Emergency preparedness

- j) establish criteria for intervention in emergencies, and require that adequate emergency plans be in place;

Siting

- k) establish criteria for the siting for research reactors;

Design, construction and commissioning

- l) require that the design provide for defence in depth and diversity and redundancy in safety systems, so that if failures were to occur, they would be detected and compensated for or corrected by appropriate means;
- m) require that construction be carried out in accordance with applicable codes, standards, specifications and criteria;
- n) require that a commissioning program be carried out by the operating organization to ensure that the reactor meets design requirements;

Operation, maintenance, modification and utilization

- o) require the operating organization to establish operational limits and conditions for the research reactor, with the regulatory body to assess and approve the limits and conditions and changes to them;
- p) require the operating organization to report the occurrence of events significant to safety in accordance with criteria established by the regulatory body;
- q) require the operating organization to classify modifications according to their safety significance, establish suitable internal review procedures, and keep up to date records of modifications and changes to the research reactor, including temporary modifications arising from experiments;
- r) require access for the regulatory body to the research reactor for the purposes of inspection to verify compliance with regulatory requirements, such inspections to be followed with reports provided to the operating organization for assessment and response;
- s) establish requirements for management of radioactive waste arising from the research reactor ;

Extended shutdown

- t) where necessary in national circumstances, establish criteria for the safety of research reactors in extended shutdown; and

Decommissioning

- u) establish criteria for the release from regulatory control of decommissioned research reactors.

VII. Role of the Operating Organization

21. The operating organization should establish its own policies in accordance with State requirements that give safety matters the highest priority, that promote a strong nuclear safety culture and are implemented within a management structure having clearly defined divisions of responsibility and lines of communication.

VII.A General Recommendations

Assessment and verification of safety

22. The operating organization should:
 - a) carry out a comprehensive and systematic safety assessment and prepare a safety analysis report before the construction and commissioning of a research reactor, and carry out safety reviews at appropriate intervals throughout its life, including in relation to modifications, changes in utilization and significant experimental activities and the management of ageing. The safety assessments and periodic safety reviews should include all technical, operational, personnel and administrative aspects of safety related operations. The assessments and reviews should be well documented, subsequently updated in light of operating experience and significant new safety information and reviewed under the authority of the regulatory body; and
 - b) verify by analysis, surveillance, testing and inspection that the physical state and the operation of a research reactor continues to be in accordance with its design, safety analysis, applicable national safety requirements, and operational limits and conditions for the lifetime of the research reactor.

Financial and human resources

23. The operating organization should ensure that there is an overall effective system for the financing of the safe operation of the research reactor, including for any extended shutdown state, and for decommissioning.
24. The operating organization should make available sufficient numbers of staff qualified through appropriate education and training (initial and ongoing) for all safety related activities throughout the life of the research reactor. Appropriate training should be provided for experimenters that will use associated experimental facilities.

Quality assurance

25. The operating organization should establish and implement effective quality assurance programmes with a view to providing confidence that specified requirements for all activities important to nuclear safety are satisfied throughout the life of the research reactor. Experimenters using associated experimental facilities should be required to work within the relevant quality assurance programme and with safety arrangements established by the operating organization.

Human factors

26. The operating organization should take into account the capabilities and limitations of human performance throughout the life of the research reactor for operational states and in accident conditions, also taking into account human factors relating to experiments.

Radiation protection

27. The operating organization should in all operational states keep the radiation exposure from the research reactor to the workers and members of the public as low as reasonably achievable, social and economic factors being taken into account, and should ensure that no individual incurs a radiation dose which exceeds prescribed national dose limits.
28. The operating organization should also respond to any guidance that is provided by the regulatory body in relation to the protection of the environment from the harmful effects of ionizing radiation.

Emergency preparedness

29. The operating organization should establish, and maintain by training and exercises, appropriate emergency plans in accordance with established criteria of the regulatory body, and in co-operation with other appropriate bodies, to provide an effective response to emergencies.

VII.B Safety of Research Reactors

Siting

30. The operating organization should establish, implement and maintain appropriate procedures for:
 - a) evaluating all relevant site-related factors likely to affect the safety of the research reactor over its projected lifetime;
 - b) evaluating the potential safety impact of a planned research reactor on the public and the environment; and
 - c) re-evaluating the two preceding issues at appropriate times so as to ensure the continued safety acceptability of the research reactor.

Design, construction and commissioning

31. The operating organization should ensure that:
 - a) the design and construction of the research reactor provides for several reliable levels and methods of protection (defence in depth) against the release of radioactive materials, with a view to preventing the occurrence of accidents and to mitigating their radiological consequences should they occur;
 - b) the design of the research reactor allows for reliable, stable and easily manageable operation, with specific consideration of human factors and the man-machine interface;
 - c) the construction of the research reactor is in accordance with the approved design (and any approved modifications to the design);

- d) the technologies incorporated in the design and construction of the research reactor are proven by experience, testing or analysis; and
- e) the commissioning programme demonstrates that the design objectives and performance criteria of the research reactor structures, systems and components important to safety have been achieved.

Operation, maintenance, modification and utilization

32. The operating organization should:

- a) establish and revise as necessary operational limits and conditions derived from the safety analysis, tests, commissioning programme and operational experience to identify the limiting conditions for safe operation;
- b) conduct operation, utilization, modification, maintenance, inspection and testing activities important to the safety of the research reactor in accordance with approved procedures and regulations;
- c) establish procedures for responding to anticipated operational occurrences and to accidents;
- d) make available the necessary engineering and technical support in all safety-related fields throughout the lifetime of the research reactor, including through international cooperation;
- e) report events significant to safety to the regulatory body, analyse the events and act upon the findings to improve safety in a timely manner;
- f) subject modifications to the research reactor over its lifetime to the design, construction and commissioning provisions described in this Code;
- g) assess appropriately modifications proposed to perform experiments;
- h) establish a safety review committee, as part of the operating organization, but reporting independently from the reactor management, to advise it on safety matters;
- i) subject each utilization project having safety significance, including any modification of the research reactor, new construction or experimental device, to an appropriate level of safety assessment and approval;
- j) keep the generation of radioactive waste resulting from the operation and utilization of the research reactor to the minimum practicable for the process concerned, both in activity and in volume, and ensure that there are effective arrangements for the safe management of such waste at the site of the research reactor;
- k) maintain documentation in a secure and organized manner throughout the life of the research reactor to assist in its safe operation and ultimate decommissioning. The documentation should include updated technical information and drawings of the facility and experimental devices, and records of operation and events.

VII.C Extended Shutdown

33. If unusual and compelling circumstances make it necessary for a research reactor to enter into or to continue in a state of extended shutdown, the operating organization should, as appropriate,

prepare and implement a technical preservation programme to maintain the safety of the reactor and the reactor fuel, to be approved by the regulatory body. The programme should include:

- a) arrangements for ensuring that the reactor core remains subcritical, noting that if appropriate arrangements exist for storing the fuel safely, it is preferable to unload the core;
- b) procedures and measures to disconnect, dismantle and preserve the systems that are to be taken out of operation or temporarily dismantled;
- c) modifications of the safety analysis report and the operational limits and conditions;
- d) arrangements for dealing with the fuel and radioactive waste in the research reactor;
- e) regular surveillance and periodic inspection, testing and maintenance activities to ensure that the safety performance of structures, systems and components does not degrade;
- f) revised emergency planning arrangements; and
- g) staffing requirements to undertake the tasks necessary to keep the research reactor in a safe condition and to maintain knowledge about the research reactor.

VII.D Decommissioning

34. The operating organization should ensure that siting, design, construction, operation, maintenance, and utilization of the research reactor are carried out keeping in view the ultimate decommissioning of the installation.
35. The operating organization should prepare a comprehensive decommissioning plan and assessment of environmental impact for review and approval by the regulatory body prior to commencing decommissioning activities. The elements of the plan should include:
 - a) the broad decommissioning option to be pursued and the justification for choosing that option;
 - b) the decontamination and dismantling techniques to be applied so as to minimise waste generation and airborne contamination;
 - c) arrangements for dealing with the fuel and radioactive waste arising from the research reactor;
 - d) arrangements for radiation protection during the decommissioning process; and
 - e) a description of the volumes, activities and types of waste to be generated in the decommissioning and the means proposed to manage these wastes safely.

VIII. Role of the IAEA

36. The IAEA Secretariat should:
 - a) disseminate this Code and related information widely;
 - b) assist States, upon their own request, in application of this Code;
 - c) continue to collect and disseminate information relating to the safety of research reactors, provide safety review services, develop and establish relevant technical standards and provide for the application of these standards at the request of any State by advising and assisting on all aspects of the safe management of research reactors.

UNITED NATIONS

UN Security Council Resolution 1540 (2004)

Adopted by the Security Council at its 4956th meeting, on 28 April 2004

The Security Council,

Affirming that proliferation of nuclear, chemical and biological weapons, as well as their means of delivery,* constitutes a threat to international peace and security,

Reaffirming, in this context, the Statement of its President adopted at the Council's meeting at the level of Heads of State and Government on 31 January 1992 (S/23500), including the need for all Member States to fulfil their obligations in relation to arms control and disarmament and to prevent proliferation in all its aspects of all weapons of mass destruction,

Recalling also that the Statement underlined the need for all Member States to resolve peacefully in accordance with the Charter any problems in that context threatening or disrupting the maintenance of regional and global stability,

Affirming its resolve to take appropriate and effective actions against any threat to international peace and security caused by the proliferation of nuclear, chemical and biological weapons and their means of delivery, in conformity with its primary responsibilities, as provided for in the United Nations Charter,

Affirming its support for the multilateral treaties whose aim is to eliminate or prevent the proliferation of nuclear, chemical or biological weapons and the importance for all States parties to these treaties to implement them fully in order to promote international stability,

Welcoming efforts in this context by multilateral arrangements which contribute to non-proliferation,

Affirming that prevention of proliferation of nuclear, chemical and biological weapons should not hamper international cooperation in materials, equipment and technology for peaceful purposes while goals of peaceful utilization should not be used as a cover for proliferation,

* Definitions for the purpose of this resolution only:

- Means of delivery: missiles, rockets and other unmanned systems capable of delivering nuclear, chemical, or biological weapons, that are specially designed for such use.
- Non-State actor: individual or entity, not acting under the lawful authority of any State in conducting activities which come within the scope of this resolution.
- Related materials: materials, equipment and technology covered by relevant multilateral treaties and arrangements, or included on national control lists, which could be used for the design, development, production or use of nuclear, chemical and biological weapons and their means of delivery.

Gravely concerned by the threat of terrorism and the risk that non-State actors* such as those identified in the United Nations list established and maintained by the Committee established under Security Council resolution 1267 and those to whom resolution 1373 applies, may acquire, develop, traffic in or use nuclear, chemical and biological weapons and their means of delivery,

Gravely concerned by the threat of illicit trafficking in nuclear, chemical, or biological weapons and their means of delivery, and related materials*, which adds a new dimension to the issue of proliferation of such weapons and also poses a threat to international peace and security,

Recognizing the need to enhance coordination of efforts on national, subregional, regional and international levels in order to strengthen a global response to this serious challenge and threat to international security,

Recognizing that most States have undertaken binding legal obligations under treaties to which they are parties, or have made other commitments aimed at preventing the proliferation of nuclear, chemical or biological weapons, and have taken effective measures to account for, secure and physically protect sensitive materials, such as those required by the Convention on the Physical Protection of Nuclear Material and those recommended by the IAEA Code of Conduct on the Safety and Security of Radioactive Sources,

Recognizing further the urgent need for all States to take additional effective measures to prevent the proliferation of nuclear, chemical or biological weapons and their means of delivery,

Encouraging all Member States to implement fully the disarmament treaties and agreements to which they are party,

Reaffirming the need to combat by all means, in accordance with the Charter of the United Nations, threats to international peace and security caused by terrorist acts,

Determined to facilitate henceforth an effective response to global threats in the area of non-proliferation,

Acting under Chapter VII of the Charter of the United Nations,

1. **Decides that** all States shall refrain from providing any form of support to non-State actors that attempt to develop, acquire, manufacture, possess, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery;
2. **Decides also** that all States, in accordance with their national procedures, shall adopt and enforce appropriate effective laws which prohibit any non-State actor to manufacture, acquire, possess, develop, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery, in particular for terrorist purposes, as well as attempts to engage in any of the foregoing activities, participate in them as an accomplice, assist or finance them;
3. **Decides also** that all States shall take and enforce effective measures to establish domestic controls to prevent the proliferation of nuclear, chemical, or biological weapons and their means of delivery, including by establishing appropriate controls over related materials and to this end shall:
 - a) Develop and maintain appropriate effective measures to account for and secure such items in production, use, storage or transport;

- b) Develop and maintain appropriate effective physical protection measures;
 - c) Develop and maintain appropriate effective border controls and law enforcement efforts to detect, deter, prevent and combat, including through international cooperation when necessary, the illicit trafficking and brokering in such items in accordance with their national legal authorities and legislation and consistent with international law;
 - d) Establish, develop, review and maintain appropriate effective national export and trans-shipment controls over such items, including appropriate laws and regulations to control export, transit, trans-shipment and re-export and controls on providing funds and services related to such export and trans-shipment such as financing, and transporting that would contribute to proliferation, as well as establishing end-user controls; and establishing and enforcing appropriate criminal or civil penalties for violations of such export control laws and regulations;
4. **Decides** to establish, in accordance with rule 28 of its provisional rules of procedure, for a period of no longer than two years, a Committee of the Security Council, consisting of all members of the Council, which will, calling as appropriate on other expertise, report to the Security Council for its examination, on the implementation of this resolution, and to this end calls upon States to present a first report no later than six months from the adoption of this resolution to the Committee on steps they have taken or intend to take to implement this resolution;
 5. **Decides** that none of the obligations set forth in this resolution shall be interpreted so as to conflict with or alter the rights and obligations of State Parties to the Nuclear Non-Proliferation Treaty, the Chemical Weapons Convention and the Biological and Toxin Weapons Convention or alter the responsibilities of the International Atomic Energy Agency or the Organization for the Prohibition of Chemical Weapons;
 6. **Recognizes** the utility in implementing this resolution of effective national control lists and calls upon all Member States, when necessary, to pursue at the earliest opportunity the development of such lists;
 7. **Recognizes** that some States may require assistance in implementing the provisions of this resolution within their territories and invites States in a position to do so to offer assistance as appropriate in response to specific requests to the States lacking the legal and regulatory infrastructure, implementation experience and/or resources for fulfilling the above provisions;
 8. **Calls upon** all States:
 - a) To promote the universal adoption and full implementation, and, where necessary, strengthening of multilateral treaties to which they are parties, whose aim is to prevent the proliferation of nuclear, biological or chemical weapons;
 - b) To adopt national rules and regulations, where it has not yet been done, to ensure compliance with their commitments under the key multilateral non-proliferation treaties;
 - c) To renew and fulfil their commitment to multilateral cooperation, in particular within the framework of the International Atomic Energy Agency, the Organization for the Prohibition of Chemical Weapons and the Biological and Toxin Weapons Convention, as

important means of pursuing and achieving their common objectives in the area of non-proliferation and of promoting international cooperation for peaceful purposes;

- d) To develop appropriate ways to work with and inform industry and the public regarding their obligations under such laws;
- 9. **Calls upon** all States to promote dialogue and cooperation on non-proliferation so as to address the threat posed by proliferation of nuclear, chemical, or biological weapons, and their means of delivery;
- 10. Further to counter that threat, **calls upon** all States, in accordance with their national legal authorities and legislation and consistent with international law, to take cooperative action to prevent illicit trafficking in nuclear, chemical or biological weapons, their means of delivery, and related materials;
- 11. **Expresses** its intention to monitor closely the implementation of this resolution and, at the appropriate level, to take further decisions which may be required to this end;
- 12. **Decides** to remain seized of the matter.

BIBLIOGRAPHY & NEWS BRIEFS

BIBLIOGRAPHY

Spain

Ordenamiento Jurídico Nuclear, Consejo de Seguridad Nuclear, Madrid, 2004, 710 pages

This book in the Spanish language entitled “Compendium on nuclear legislation” was published by the Nuclear Safety Council. It sets out nuclear legislation in force in Spain and is divided into seven parts, respectively dealing with general and special standards regulating the Nuclear Safety Council, regulations, Nuclear Safety Council technical standards, radiological health standards, various bodies and entities exercising responsibilities in the field of nuclear energy, other relevant provisions and international instruments.

United Kingdom

Verification Yearbook 2004 published by the Verification Research, Training and Information Centre (VERTIC), London, 2004, 232 pages

This study by the Verification Research, Training and Information Centre (VERTIC), a non-governmental organisation based in London, aims at making a valuable contribution to the further development of the concept of “verification” regarding compliance to functional international arms control and disarmament agreements. This concept is implemented in practice through increased transparency checked in an independent manner, including on-site inspections, and the ability to clarify any compliance problem.

The 2004 Yearbook is the result of intensive work over many months by VERTIC researchers and staff members and external consultants and contributors. The introduction of the 2004 Yearbook describes the state of play of verification in 2004, focusing in particular on the role of national implementation measures in ensuring full compliance with states’ treaty obligations. The 2004 Yearbook is divided into three main parts, dealing respectively with arms control and disarmament, environment and other issues, such as Iraq’s weapons of mass destruction and the monitoring of human rights treaties.

United States

Universal compliance – A Strategy for Nuclear Security, by George Perkovich, Jessica T. Mathews, Joseph Cirincione, Rose Gottemoeller, Jon B. Wolfsthal, Washington, 2005, 225 pages

This book is the final version of a report released in June 2004 for worldwide review of the question of nuclear non-proliferation. In developing their report, the authors, from the Carnegie Endowment for International Peace, started from the premise that the new strategic aim of non-proliferation policy should be to achieve universal compliance with the norms and rules of a toughened nuclear non-proliferation regime. The authors consulted with experts and officials in 21 countries across the United States, Europe, Asia, the Middle East and the former Soviet States.

After discussing the goal and implications of a strategy of Universal Compliance, the authors make policy recommendations regarding the key elements of a non-proliferation enforceable regime, including strengthening its enforcement, blocking the supply including export control, and abating the demand of nuclear materials and technology. They then apply the strategy to regional crisis such as the Iran or North Korea crisis. The book contains several tables and graphics providing information on nuclear proliferation worldwide.

NEWS BRIEFS

OECD Nuclear Energy Agency

Second International Workshop on the Indemnification of Nuclear Damage

The Second International Workshop on the Indemnification of Nuclear Damage took place on 18-20 May 2005 in Bratislava, Slovak Republic. The Workshop was co-organised by the NEA and the Nuclear Regulatory Authority of the Slovak Republic, with the co-operation of the International Atomic Energy Agency (IAEA). It attracted 108 participants from more than 27 countries, the majority of which were NEA member countries. Workshop participants examined the legal issues raised by the Vienna Convention on Civil Liability for Nuclear Damage and its interaction with the Paris Convention regime through discussions of two fictitious scenarios of nuclear accident. The first scenario involved a fire in a nuclear installation located in the Slovak Republic resulting in the release of significant amounts of radioactive materials in neighboring countries; the second involved a fire on board a ship transporting enriched uranium hexafluoride along the Danube River. Both scenarios allowed participants to evaluate the compensation mechanisms which would be implemented in countries where nuclear damage had occurred. The NEA intends to publish the proceeding of this Workshop.

International Nuclear Law Association

Nuclear Inter Jura 2005

As mentioned in the *Nuclear Law Bulletin* No. 74, the International Nuclear Law Association (INLA) will hold its 16th Congress from 9 to 14 October 2005 in Portorož, Slovenia.

Key dates for the submission of papers to be presented orally at the Conference are as below:

- 31 January 2005 – Abstract Submission (still open);
- 30 April 2005 – Second Announcement;
- 30 June 2005 – Early registration;
- 1 September 2005 – Camera-ready papers.

Further information may be obtained from the Nuclear Training Centre (ICJT), Jamova 39, SI-1000 Ljubljana. Fax: +386 1 561 2276 and on the Web site: www.icjt.org/INLA2005. The Conference programme is now available at: www.icjt.org/INLA2005/program.htm.

LIST OF CORRESPONDENTS TO THE NUCLEAR LAW BULLETIN

<i>ALBANIA</i>	Mr. F. YLLI, Director, Institute of Nuclear Physics
<i>ARGENTINA</i>	Mr. J. MARTINEZ FAVINI, Consultant, National Atomic Energy Commission Mr. M. PAEZ, Head of Department, National Atomic Energy Commission
<i>ARMENIA</i>	Mr. A. MARTIROSYAN, Armenian Nuclear Regulatory Authority
<i>AUSTRALIA</i>	Ms. M. HUXLIN, INIS Information Officer, Australian Nuclear Science and Technology Organisation
<i>AUSTRIA</i>	Mr. T. AUGUSTIN, Deputy Director for Nuclear Co-ordination, Federal Ministry of Agriculture, Forestry, Environment and Water Management
<i>BELARUS</i>	Ms. O. PIOTUKH, Department of Nuclear and Radiation Safety Regulation, Promatomnadzor
<i>BELGIUM</i>	Mr. F. MOLITOR, Engineer-Director, Technical Safety of Nuclear Installations, Ministry of Employment and Labour
<i>BRAZIL</i>	Mr. E. DAMASCENO, National Commission for Nuclear Energy Mrs. D. FISCHER, Brazilian Association of Nuclear Law
<i>CANADA</i>	Mr. J. LAVOIE, General Council and Manager, Legal Services Unit, Canadian Nuclear Safety Commission
<i>CHINA</i>	Ms. Zhaohui LI, Director of the Law Office, China National Nuclear Corporation Mr. Qunfeng WANG, Commission of Science, Technology and Industry for National Defence
<i>CROATIA</i>	Mr. I. VALCIC, Head, Department for Nuclear Safety, Ministry of Economic Affairs
<i>CZECH REPUBLIC</i>	Mr. F. SURANSKY, Director, Nuclear Energy Section, Ministry of Industry and Trade
<i>DENMARK</i>	Mrs. M. T. LUNDE, Head of Division, Ministry of Foreign Affairs
<i>EGYPT</i>	Mr. A.-M. MAREI, Assistant Lecturer, Nuclear Law Department, National Centre for Nuclear Safety, Atomic Energy Authority
<i>ESTONIA</i>	Ms. K. KOIV, Estonian Radiation Protection Centre

<i>FINLAND</i>	Mr. Y. SAHRAKORPI, Ministerial Counsellor, Energy Department, Ministry of Trade and Industry
<i>FRANCE</i>	Ms. M. LAVERGNE, Legal Adviser, Nuclear Safety Authority Ms. F. TOUITOU-DURAND, Legal Directorate, Atomic Energy Commission
<i>GERMANY</i>	Professor N. PELZER, Consultant
<i>GREECE</i>	Professor L. CAMARINOPOULOS, President, Greek Atomic Energy Commission
<i>HUNGARY</i>	Dr. L. CZOTTNER, Senior Legal Adviser, Hungary Atomic Energy Authority Professor V. LAMM, Institute for Legal Studies, Academy of Sciences
<i>ICELAND</i>	Mr. S. MAGNUSSON, Director, Icelandic Radiation Protection Institute
<i>INDIA</i>	S.D. DAVE, Judge, Circuit Court
<i>INDONESIA</i>	Mr. M. POERNOMO, Senior Officer, Nuclear Energy Control Board Mr. S. SULCHĀN, Head, Legal and Organisation Division, National Atomic Energy Commission
<i>IRELAND</i>	Ms. M. KELLY, Information Officer, Radiological Protection Institute
<i>ITALY</i>	Mr. F. NOCERA, Legal Adviser, Radioactive Waste Processing and Conditioning Department, National Agency for New Technologies, Energy and the Environment
<i>JAPAN</i>	Mr. E. TAKEUCHI, First Secretary, Japanese Delegation to the OECD Mr. T. YAMAMURA, International Cooperation and Nuclear Material Control Division, Japan Nuclear Cycle Development Institute
<i>KAZAKHSTAN</i>	Mrs. L. NOVOZHILOVA, Legal Advisor, Kazakhstan Atomic Energy Committee
<i>REPUBLIC OF KOREA</i>	Dr. K.-G. PARK, Associate Professor, Faculty of Law, Korea University
<i>LATVIA</i>	Mr. A. SALMINS, Director, Radiation Safety Centre
<i>LITHUANIA</i>	Mr. M. ABRAITIS, Chief Legal Adviser, VATESI
<i>LUXEMBOURG</i>	Dr. M. FEIDER, Radiation Protection Division, Health Directorate, Ministry of Health
<i>MACEDONIA</i>	Mr. D. NEDELKOVSKI, Radiation Protection Department, Republic Institute for Public Health

MEXICO	Mr. J. GONZALEZ ANDUIZA, Legal Affairs Department, Federal Commission on Electricity
	Mr. M. PINTO CUNILLE, Head of the Legal and International Affairs Department, National Commission on Nuclear Safety and Safeguards
MOLDOVA	Mr. I. APOSTOL, Head, Radioactive & Chemical Protection Division, Department of Civil Protection & Emergency Situations
MOROCCO	Ms. L. ZIDI, Management Assistant, National Centre of Nuclear Energy, Science and Techniques
NETHERLANDS	Dr. N. HORBACH, Director, Centre for Transboundary Damage and Compensation
	Mr. R. VAN EMDEN, Counsellor, Insurance Division, Ministry of Finance
NORWAY	Mr. S. HORNKJØL, Senior Executive Officer, Norwegian Radiation Protection Authority
POLAND	Mr. R. MAJDA, Researcher, University of Łódź
	Mr. A. SOLTAN, Director, International Relations & European Integration Department, Nuclear Atomic Energy Agency
PORTUGAL	Ms M. MONTEIRO, Legal Adviser, Nuclear and Technological Institute
ROMANIA	Mr. V. CHIRIPUS, Attorney at Law, SN Nuclearelectrica S.A.
	Mr. V. ZSOMBORI, Chairman, National Commission for the Control of Nuclear Activities
RUSSIAN FEDERATION	Professor A. I. IOYRISH, Professor of Law, Institute of State and Law, Academy of Sciences
	Professor O. SUPATAEVA, Institute of State and Law, Academy of Sciences
SLOVAK REPUBLIC	Mr. M. POSPISIL, Legal Director, Nuclear Regulatory Authority
SLOVENIA	Mr. A. ŠKRABAN, Counsellor to the Government, Slovenian Nuclear Safety Administration
SOUTH AFRICA	Mr. R. ELK, Head of Legal Department, Council for Nuclear Safety
SPAIN	Mr. J. R. MARTIN HERNANDEZ, Legal Adviser, Nuclear Safety Council
	Ms. E. MENENDEZ-MORAN, Sub-Directorate of Nuclear Energy, Ministry of Economy

<i>SWEDEN</i>	Mr. C. MARTENSSON, Chief Legal Adviser, Swedish Radiation Protection Institute
	Mr. I. PERSSON, Senior Legal Adviser, Swedish Nuclear Power Inspectorate
<i>SWITZERLAND</i>	Mr. R. TAMI, Head, Legal Service, Federal Office of Energy
<i>THAILAND</i>	Ms. N. TANTASATHIEN, Senior State Attorney, Legal Council Office
<i>TUNISIA</i>	Mr. M. CHALBI, Ministry of Education and Science, National School of Engineering
<i>TURKEY</i>	Mrs. G. ERKUL, Energy Adviser, Delegation of Turkey to the OECD
<i>UKRAINE</i>	Ms. S. PILGUN, Main Specialist, Department of Planning, Co-ordination and Development, State Nuclear Committee of Ukraine
	Mr. V. SHVYTAI, State Expert, National Security and Defense Council of Ukraine
<i>UNITED KINGDOM</i>	Mr. J. HARRIS, Legal Adviser, Department of Trade and Industry
<i>UNITED STATES</i>	Ms. S. ANGELINI, Attorney Adviser, Office of Civilian Nuclear Programs, Department of Energy
	Ms. M. NORDLINGER, Senior Attorney, Office of the General Counsel, United States Nuclear Regulatory Commission
<i>URUGUAY</i>	Professor D. PUIG, Professor of Nuclear Law, College of Law, University of Uruguay
<i>UZBEKISTAN</i>	Mr. K. YUNUSOV, Head, Inspectorate for the Supervision of Nuclear Safety and Radiation Protection, State Committee on Safety in Industry and Mining
<i>IAEA</i>	Mr. J. RAUTENBACH, Director, Office of Legal Affairs
<i>EC</i>	Mrs. B. ANDRÉS ORDAX, Directorate-General Energy and Transport
<i>WHO</i>	Ms. G. PINET, Director, Health Legislation

OECD PUBLICATIONS, 2, rue André-Pascal, 75775 PARIS CEDEX 16
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as Amended



Legal Affairs

**NUCLEAR LAW
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SUPPLEMENT TO No. 75

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NUCLEAR ENERGY AGENCY
ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where the governments of 30 democracies work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

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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 28 OECD member countries: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, the Netherlands, Norway, Portugal, Republic of Korea, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities also takes part in the work of the Agency.

The mission of the NEA is:

- to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes, as well as
- to provide authoritative assessments and to forge common understandings on key issues, as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

Specific areas of competence of the NEA include safety and regulation of nuclear activities, radioactive waste management, radiological protection, nuclear science, economic and technical analyses of the nuclear fuel cycle, nuclear law and liability, and public information. The NEA Data Bank provides nuclear data and computer program services for participating countries.

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

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**CONVENTION ON THIRD PARTY LIABILITY IN THE FIELD OF NUCLEAR ENERGY
OF 29 JULY 1960, AS AMENDED BY THE ADDITIONAL PROTOCOL
OF 28 JANUARY 1964, BY THE PROTOCOL OF 16 NOVEMBER 1982,
AND BY THE PROTOCOL OF 12 FEBRUARY 2004**

**Unofficial Consolidated Text of the Paris Convention
Incorporating the Provisions of the Three Amending Protocols Referred to Above**

The **GOVERNMENTS** of the Federal Republic of Germany, the Kingdom of Belgium, the Kingdom of Denmark, the Kingdom of Spain, the Republic of Finland, the French Republic, the Hellenic Republic, the Italian Republic, the Kingdom of Norway, the Kingdom of the Netherlands, the Portuguese Republic, the United Kingdom of Great Britain and Northern Ireland, the Republic of Slovenia, the Kingdom of Sweden, the Swiss Confederation and the Turkish Republic;*

CONSIDERING that the OECD Nuclear Energy Agency, established within the framework of the Organisation for Economic Co-operation and Development (hereinafter referred to as the “Organisation”),** is charged with encouraging the elaboration and harmonisation of legislation relating to nuclear energy in participating countries, in particular with regard to third party liability and insurance against atomic risks;

DESIROUS of ensuring adequate and equitable compensation for persons who suffer damage caused by nuclear incidents whilst taking the necessary steps to ensure that the development of the production and uses of nuclear energy for peaceful purposes is not thereby hindered;

CONVINCED of the need for unifying the basic rules applying in the various countries to the liability incurred for such damage, whilst leaving these countries free to take, on a national basis, any additional measures which they deem appropriate;

HAVE AGREED as follows:

* The designation of the Signatories is the same as that in the Protocol of 12 February 2004. It should be noted that the Republic of Austria and the Grand Duchy of Luxembourg signed the Paris Convention and its Additional Protocol of 1964 and its Protocol of 1982 but have not ratified these instruments. In addition, they have not signed the Protocol of 12 February 2004. The Republic of Slovenia acceded to the Paris Convention, as amended by the Additional Protocol of 1964 and the Protocol of 1982, with effect as of 16 October 2002 and has signed the Protocol of 12 February 2004.

** The Organisation for European Economic Co-operation and Development (OEEC) was reconstituted as the Organisation for Economic Co-operation and Development (OECD) on 30 September 1961, in accordance with the provisions of the Convention on the Organisation for Economic Co-operation and Development of 14 December 1960. In addition, following the Decision of the OECD Council dated 17 May 1972 [C(72)106(Final)], the European Nuclear Energy Agency (ENEA) is now called the OECD Nuclear Energy Agency (NEA).

Article 1

a) For the purposes of this Convention:

- i) “A nuclear incident” means any occurrence or series of occurrences having the same origin which causes nuclear damage.
- ii) “Nuclear installation” means reactors other than those comprised in any means of transport; factories for the manufacture or processing of nuclear substances; factories for the separation of isotopes of nuclear fuel; factories for the reprocessing of irradiated nuclear fuel; facilities for the storage of nuclear substances other than storage incidental to the carriage of such substances; installations for the disposal of nuclear substances; any such reactor, factory, facility or installation that is in the course of being decommissioned; and such other installations in which there are nuclear fuel or radioactive products or waste as the Steering Committee for Nuclear Energy of the Organisation (hereinafter referred to as the “Steering Committee”) shall from time to time determine; any Contracting Party may determine that two or more nuclear installations of one operator which are located on the same site shall, together with any other premises on that site where nuclear fuel or radioactive products or waste are held, be treated as a single nuclear installation.
- iii) “Nuclear fuel” means fissionable material in the form of uranium metal, alloy, or chemical compound (including natural uranium), plutonium metal, alloy, or chemical compound, and such other fissionable material as the Steering Committee shall from time to time determine.
- iv) “Radioactive products or waste” means any radioactive material produced in or made radioactive by exposure to the radiation incidental to the process of producing or utilising nuclear fuel, but does not include (1) nuclear fuel, or (2) radioisotopes outside a nuclear installation which have reached the final stage of fabrication so as to be usable for any industrial, commercial, agricultural, medical, scientific or educational purpose.
- v) “Nuclear substances” means nuclear fuel (other than natural uranium and other than depleted uranium) and radioactive products or waste.
- vi) “Operator” in relation to a nuclear installation means the person designated or recognised by the competent public authority as the operator of that installation.
- vii) “Nuclear damage” means,
 - 1. loss of life or personal injury;
 - 2. loss of or damage to property;and each of the following to the extent determined by the law of the competent court,
 - 3. economic loss arising from loss or damage referred to in sub-paragraph 1 or 2 above insofar as not included in those sub-paragraphs, if incurred by a person entitled to claim in respect of such loss or damage;

4. the costs of measures of reinstatement of impaired environment, unless such impairment is insignificant, if such measures are actually taken or to be taken, and insofar as not included in sub-paragraph 2 above;
5. loss of income deriving from a direct economic interest in any use or enjoyment of the environment, incurred as a result of a significant impairment of that environment, and insofar as not included in sub-paragraph 2 above;
6. the costs of preventive measures, and further loss or damage caused by such measures,

in the case of sub-paragraphs 1 to 5 above, to the extent that the loss or damage arises out of or results from ionising radiation emitted by any source of radiation inside a nuclear installation, or emitted from nuclear fuel or radioactive products or waste in, or of nuclear substances coming from, originating in, or sent to, a nuclear installation, whether so arising from the radioactive properties of such matter, or from a combination of radioactive properties with toxic, explosive or other hazardous properties of such matter.

- viii) “Measures of reinstatement” means any reasonable measures which have been approved by the competent authorities of the State where the measures were taken, and which aim to reinstate or restore damaged or destroyed components of the environment, or to introduce, where reasonable, the equivalent of these components into the environment. The legislation of the State where the nuclear damage is suffered shall determine who is entitled to take such measures.
 - ix) “Preventive measures” means any reasonable measures taken by any person after a nuclear incident or an event creating a grave and imminent threat of nuclear damage has occurred, to prevent or minimise nuclear damage referred to in sub-paragraphs (a)(vii) 1 to 5, subject to any approval of the competent authorities required by the law of the State where the measures were taken.
 - x) “Reasonable measures” means measures which are found under the law of the competent court to be appropriate and proportionate, having regard to all the circumstances, for example:
 1. the nature and extent of the nuclear damage incurred or, in the case of preventive measures, the nature and extent of the risk of such damage;
 2. the extent to which, at the time they are taken, such measures are likely to be effective; and
 3. relevant scientific and technical expertise.
- b) The Steering Committee may, if in its view the small extent of the risks involved so warrants, exclude any nuclear installation, nuclear fuel, or nuclear substances from the application of this Convention.

Article 2

- a) This Convention shall apply to nuclear damage suffered in the territory of, or in any maritime zones established in accordance with international law of, or, except in the territory of a non-Contracting State not mentioned under (ii) to (iv) of this paragraph, on board a ship or aircraft registered by,
- i) a Contracting Party;
 - ii) a non-Contracting State which, at the time of the nuclear incident, is a Contracting Party to the Vienna Convention on Civil Liability for Nuclear Damage of 21 May 1963 and any amendment thereto which is in force for that Party, and to the Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention of 21 September 1988, provided however, that the Contracting Party to the Paris Convention in whose territory the installation of the operator liable is situated is a Contracting Party to that Joint Protocol;
 - iii) a non-Contracting State which, at the time of the nuclear incident, has no nuclear installation in its territory or in any maritime zones established by it in accordance with international law; or
 - iv) any other non-Contracting State which, at the time of the nuclear incident, has in force nuclear liability legislation which affords equivalent reciprocal benefits, and which is based on principles identical to those of this Convention, including, *inter alia*, liability without fault of the operator liable, exclusive liability of the operator or a provision to the same effect, exclusive jurisdiction of the competent court, equal treatment of all victims of a nuclear incident, recognition and enforcement of judgements, free transfer of compensation, interests and costs.
- b) Nothing in this Article shall prevent a Contracting Party in whose territory the nuclear installation of the operator liable is situated from providing for a broader scope of application of this Convention under its legislation.

Article 3

- a) The operator of a nuclear installation shall be liable, in accordance with this Convention, for nuclear damage other than
- i) damage to the nuclear installation itself and any other nuclear installation, including a nuclear installation under construction, on the site where that installation is located; and
 - ii) damage to any property on that same site which is used or to be used in connection with any such installation,
- upon proof that such damage was caused by a nuclear incident in such installation or involving nuclear substances coming from such installation, except as otherwise provided for in Article 4.
- b) Where nuclear damage is caused jointly by a nuclear incident and by an incident other than a nuclear incident, that part of the damage which is caused by such other incident, shall, to the extent that it is not reasonably separable from the nuclear damage caused by the nuclear

incident, be considered to be nuclear damage caused by the nuclear incident. Where nuclear damage is caused jointly by a nuclear incident and by an emission of ionising radiation not covered by this Convention, nothing in this Convention shall limit or otherwise affect the liability of any person in connection with that emission of ionising radiation.

Article 4

In the case of carriage of nuclear substances, including storage incidental thereto, without prejudice to Article 2:

- a) The operator of a nuclear installation shall be liable, in accordance with this Convention, for nuclear damage upon proof that it was caused by a nuclear incident outside that installation and involving nuclear substances in the course of carriage therefrom, only if the incident occurs:
 - i) before liability with regard to nuclear incidents involving the nuclear substances has been assumed, pursuant to the express terms of a contract in writing, by the operator of another nuclear installation;
 - ii) in the absence of such express terms, before the operator of another nuclear installation has taken charge of the nuclear substances; or
 - iii) where the nuclear substances are intended to be used in a reactor comprised in a means of transport, before the person duly authorised to operate that reactor has taken charge of the nuclear substances; but
 - iv) where the nuclear substances have been sent to a person within the territory of a non-Contracting State, before they have been unloaded from the means of transport by which they have arrived in the territory of that non-Contracting State.
- b) The operator of a nuclear installation shall be liable, in accordance with this Convention, for nuclear damage upon proof that it was caused by a nuclear incident outside that installation and involving nuclear substances in the course of carriage thereto, only if the incident occurs:
 - i) after liability with regard to nuclear incidents involving the nuclear substances has been assumed by him, pursuant to the express terms of a contract in writing, from the operator of another nuclear installation;
 - ii) in the absence of such express terms, after he has taken charge of the nuclear substances; or
 - iii) after he has taken charge of the nuclear substances from a person operating a reactor comprised in a means of transport; but
 - iv) where the nuclear substances have, with the written consent of the operator, been sent from a person within the territory of a non-Contracting State, after they have been loaded on the means of transport by which they are to be carried from the territory of that State.
- c) The transfer of liability to the operator of another nuclear installation pursuant to paragraphs (a)(i) and (ii) and (b)(i) and (ii) of this Article may only take place if that operator has a direct economic interest in the nuclear substances that are in the course of carriage.

- d) The operator liable in accordance with this Convention shall provide the carrier with a certificate issued by or on behalf of the insurer or other financial guarantor furnishing the security required pursuant to Article 10. However, a Contracting Party may exclude this obligation in relation to carriage which takes place wholly within its own territory. The certificate shall state the name and address of that operator and the amount, type and duration of the security, and these statements may not be disputed by the person by whom or on whose behalf the certificate was issued. The certificate shall also indicate the nuclear substances and the carriage in respect of which the security applies and shall include a statement by the competent public authority that the person named is an operator within the meaning of this Convention.
- e) A Contracting Party may provide by legislation that, under such terms as may be contained therein and upon fulfilment of the requirements of Article 10(a), a carrier may, at his request and with the consent of an operator of a nuclear installation situated in its territory, by decision of the competent public authority, be liable in accordance with this Convention in place of that operator. In such case for all the purposes of this Convention the carrier shall be considered, in respect of nuclear incidents occurring in the course of carriage of nuclear substances, as an operator of a nuclear installation on the territory of the Contracting Party whose legislation so provides.

Article 5

- a) If the nuclear fuel or radioactive products or waste involved in a nuclear incident have been in more than one nuclear installation and are in a nuclear installation at the time nuclear damage is caused, no operator of any nuclear installation in which they have previously been shall be liable for the nuclear damage.
- b) Where, however, nuclear damage is caused by a nuclear incident occurring in a nuclear installation and involving only nuclear substances stored therein incidentally to their carriage, the operator of the nuclear installation shall not be liable where another operator or person is liable pursuant to Article 4.
- c) If the nuclear fuel or radioactive products or waste involved in a nuclear incident have been in more than one nuclear installation and are not in a nuclear installation at the time nuclear damage is caused, no operator other than the operator of the last nuclear installation in which they were before the nuclear damage was caused or an operator who has subsequently taken them in charge, or has assumed liability therefor pursuant to the express terms of a contract in writing shall be liable for the nuclear damage.
- d) If nuclear damage gives rise to liability of more than one operator in accordance with this Convention, the liability of these operators shall be joint and several, provided that where such liability arises as a result of nuclear damage caused by a nuclear incident involving nuclear substances in the course of carriage in one and the same means of transport, or, in the case of storage incidental to the carriage, in one and the same nuclear installation, the maximum total amount for which such operators shall be liable shall be the highest amount established with respect to any of them pursuant to Article 7. In no case shall any one operator be required, in respect of a nuclear incident, to pay more than the amount established with respect to him pursuant to Article 7.

Article 6

- a) The right to compensation for nuclear damage caused by a nuclear incident may be exercised only against an operator liable for the nuclear damage in accordance with this Convention, or, if a direct right of action against the insurer or other financial guarantor furnishing the security required pursuant to Article 10 is given by national law, against the insurer or other financial guarantor.
- b) Except as otherwise provided in this Article, no other person shall be liable for nuclear damage caused by a nuclear incident, but this provision shall not affect the application of any international agreement in the field of transport in force or open for signature, ratification or accession at the date of this Convention.
- c)
 - i) Nothing in this Convention shall affect the liability:
 - 1. of any individual for nuclear damage caused by a nuclear incident for which the operator, by virtue of Article 3(a) or Article 9, is not liable under this Convention and which results from an act or omission of that individual done with intent to cause damage;
 - 2. of a person duly authorised to operate a reactor comprised in a means of transport for nuclear damage caused by a nuclear incident when an operator is not liable for such damage pursuant to Article 4(a)(iii) or (b)(iii).
 - ii) The operator shall incur no liability outside this Convention for nuclear damage caused by a nuclear incident.
- d) Any person who has paid compensation in respect of nuclear damage caused by a nuclear incident under any international agreement referred to in paragraph (b) of this Article or under any legislation of a non-Contracting State shall, up to the amount which he has paid, acquire by subrogation the rights under this Convention of the person suffering nuclear damage whom he has so compensated.
- e) If the operator proves that the nuclear damage resulted wholly or partly either from the gross negligence of the person suffering the damage or from an act or omission of such person done with intent to cause damage, the competent court may, if national law so provides, relieve the operator wholly or partly from his obligation to pay compensation in respect of the damage suffered by such person.
- f) The operator shall have a right of recourse only:
 - i) if the nuclear damage caused by a nuclear incident results from an act or omission done with intent to cause nuclear damage, against the individual acting or omitting to act with such intent;
 - ii) if and to the extent that it is so provided expressly by contract.
- g) If the operator has a right of recourse to any extent pursuant to paragraph (f) of this Article against any person, that person shall not, to that extent, have a right against the operator under paragraph (d) of this Article.

- h) Where provisions of national or public health insurance, social security, workers' compensation or occupational disease compensation systems include compensation for nuclear damage caused by a nuclear incident, rights of beneficiaries of such systems and rights of recourse by virtue of such systems shall be determined by the law of the Contracting Party or by the regulations of the inter-governmental organisation which has established such systems.

Article 7

- a) Each Contracting Party shall provide under its legislation that the liability of the operator in respect of nuclear damage caused by any one nuclear incident shall not be less than 700 million euro.
- b) Notwithstanding paragraph (a) of this Article and Article 21(c), any Contracting Party may,
 - i) having regard to the nature of the nuclear installation involved and to the likely consequences of a nuclear incident originating therefrom, establish a lower amount of liability for that installation, provided that in no event shall any amount so established be less than 70 million euro; and
 - ii) having regard to the nature of the nuclear substances involved and to the likely consequences of a nuclear incident originating therefrom, establish a lower amount of liability for the carriage of nuclear substances, provided that in no event shall any amount so established be less than 80 million euro.
- c) Compensation for nuclear damage caused to the means of transport on which the nuclear substances involved were at the time of the nuclear incident shall not have the effect of reducing the liability of the operator in respect of other nuclear damage to an amount less than either 80 million euro, or any higher amount established by the legislation of a Contracting Party.
- d) The amount of liability of operators of nuclear installations in the territory of a Contracting Party established in accordance with paragraph (a) or (b) of this Article or with Article 21(c), as well as the provisions of any legislation of a Contracting Party pursuant to paragraph (c) of this Article shall apply to the liability of such operators wherever the nuclear incident occurs.
- e) A Contracting Party may subject the transit of nuclear substances through its territory to the condition that the maximum amount of liability of the foreign operator concerned be increased, if it considers that such amount does not adequately cover the risks of a nuclear incident in the course of the transit, provided that the maximum amount thus increased shall not exceed the maximum amount of liability of operators of nuclear installations situated in its territory.
- f) The provisions of paragraph (e) of this Article shall not apply:
 - i) to carriage by sea where, under international law, there is a right of entry in cases of urgent distress into the ports of such Contracting Party or a right of innocent passage through its territory; or
 - ii) to carriage by air where, by agreement or under international law, there is a right to fly over or land on the territory of such Contracting Party.

- g) In cases where the Convention is applicable to a non-Contracting State in accordance with Article 2(a)(iv), any Contracting Party may establish in respect of nuclear damage amounts of liability lower than the minimum amounts established under this Article or under Article 21(c) to the extent that such State does not afford reciprocal benefits of an equivalent amount.
- h) Any interest and costs awarded by a court in actions for compensation under this Convention shall not be considered to be compensation for the purposes of this Convention and shall be payable by the operator in addition to any sum for which he is liable in accordance with this Article.
- i) The sums mentioned in this Article may be converted into national currency in round figures.
- j) Each Contracting Party shall ensure that persons suffering damage may enforce their rights to compensation without having to bring separate proceedings according to the origin of the funds provided for such compensation.

Article 8

- a) The right of compensation under this Convention shall be subject to prescription or extinction if an action is not brought,
 - i) with respect to loss of life and personal injury, within thirty years from the date of the nuclear incident;
 - ii) with respect to other nuclear damage, within ten years from the date of the nuclear incident.
- b) National legislation may, however, establish a period longer than that set out in sub-paragraph (i) or (ii) of paragraph (a) of this Article, if measures have been taken by the Contracting Party within whose territory the nuclear installation of the operator liable is situated to cover the liability of that operator in respect of any actions for compensation begun after the expiry of the period set out in sub-paragraph (i) or (ii) of paragraph (a) of this Article and during such longer period.
- c) If, however, a longer period is established in accordance with paragraph (b) of this Article, an action for compensation brought within such period shall in no case affect the right of compensation under this Convention of any person who has brought an action against the operator,
 - i) within a thirty year period in respect of personal injury or loss of life;
 - ii) within a ten year period in respect of all other nuclear damage.
- d) National legislation may establish a period of not less than three years for the prescription or extinction of rights of compensation under the Convention, determined from the date at which the person suffering nuclear damage had knowledge, or from the date at which that person ought reasonably to have known of both the nuclear damage and the operator liable, provided that the periods established pursuant to paragraphs (a) and (b) of this Article shall not be exceeded.

- e) Where the provisions of Article 13(f)(ii) are applicable, the right of compensation shall not, however, be subject to prescription or extinction if, within the time provided for in paragraphs (a), (b) and (d) of this Article,
 - i) prior to the determination by the Tribunal referred to in Article 17, an action has been brought before any of the courts from which the Tribunal can choose; if the Tribunal determines that the competent court is a court other than that before which such action has already been brought, it may fix a date by which such action has to be brought before the competent court so determined; or
 - ii) a request has been made to a Contracting Party concerned to initiate a determination by the Tribunal of the competent court pursuant to Article 13(f)(ii) and an action is brought subsequent to such determination within such time as may be fixed by the Tribunal.
- f) Unless national law provides to the contrary, any person suffering nuclear damage caused by a nuclear incident who has brought an action for compensation within the period provided for in this Article may amend his claim in respect of any aggravation of the nuclear damage after the expiry of such period, provided that final judgement has not been entered by the competent court.

Article 9

The operator shall not be liable for nuclear damage caused by a nuclear incident directly due to an act of armed conflict, hostilities, civil war, or insurrection.

Article 10

- a) To cover the liability under this Convention, the operator shall be required to have and maintain insurance or other financial security of the amount established pursuant to Article 7(a) or 7(b) or Article 21(c) and of such type and terms as the competent public authority shall specify.
- b) Where the liability of the operator is not limited in amount, the Contracting Party within whose territory the nuclear installation of the liable operator is situated shall establish a limit upon the financial security of the operator liable, provided that any limit so established shall not be less than the amount referred to in Article 7(a) or 7(b).
- c) The Contracting Party within whose territory the nuclear installation of the liable operator is situated shall ensure the payment of claims for compensation for nuclear damage which have been established against the operator by providing the necessary funds to the extent that the insurance or other financial security is not available or sufficient to satisfy such claims, up to an amount not less than the amount referred to in Article 7(a) or Article 21(c).
- d) No insurer or other financial guarantor shall suspend or cancel the insurance or other financial security provided for in paragraph (a) or (b) of this Article without giving notice in writing of at least two months to the competent public authority or, in so far as such insurance or other financial security relates to the carriage of nuclear substances, during the period of the carriage in question.

- e) The sums provided as insurance, reinsurance, or other financial security may be drawn upon only for compensation for nuclear damage caused by a nuclear incident.

Article 11

The nature, form and extent of the compensation, within the limits of this Convention, as well as the equitable distribution thereof, shall be governed by national law.

Article 12

Compensation payable under this Convention, insurance and reinsurance premiums, sums provided as insurance, reinsurance, or other financial security required pursuant to Article 10, and interest and costs referred to in Article 7(h), shall be freely transferable between the monetary areas of the Contracting Parties.

Article 13

- a) Except as otherwise provided in this Article, jurisdiction over actions under Articles 3, 4 and 6(a) shall lie only with the courts of the Contracting Party in whose territory the nuclear incident occurred.
- b) Where a nuclear incident occurs within the area of the exclusive economic zone of a Contracting Party or, if such a zone has not been established, in an area not exceeding the limits of an exclusive economic zone were one to be established, jurisdiction over actions concerning nuclear damage from that nuclear incident shall, for the purposes of this Convention, lie only with the courts of that Party, provided that the Contracting Party concerned has notified the Secretary-General of the Organisation of such area prior to the nuclear incident. Nothing in this paragraph shall be interpreted as permitting the exercise of jurisdiction or the delimitation of a maritime zone in a manner which is contrary to the international law of the sea.
- c) Where a nuclear incident occurs outside the territory of the Contracting Parties, or where it occurs within an area in respect of which no notification has been given pursuant to paragraph (b) of this Article, or where the place of the nuclear incident cannot be determined with certainty, jurisdiction over such actions shall lie with the courts of the Contracting Party in whose territory the nuclear installation of the operator liable is situated.
- d) Where a nuclear incident occurs in an area in respect of which the circumstances of Article 17(d) apply, jurisdiction shall lie with the courts determined, at the request of a Contracting Party concerned, by the Tribunal referred to in Article 17 as being the courts of that Contracting Party which is most closely related to and affected by the consequences of the incident.
- e) The exercise of jurisdiction under this Article as well as the notification of an area made pursuant to paragraph (b) of this Article shall not create any right or obligation or set a precedent with respect to the delimitation of maritime areas between States with opposite or adjacent coasts.
- f) Where jurisdiction would lie with the courts of more than one Contracting Party by virtue of paragraph (a), (b) or (c) of this Article, jurisdiction shall lie,

- i) if the nuclear incident occurred partly outside the territory of any Contracting Party and partly in the territory of a single Contracting Party, with the courts of that Contracting Party; and
 - ii) in any other case, with the courts determined, at the request of a Contracting Party concerned, by the Tribunal referred to in Article 17 as being the courts of that Contracting Party which is most closely related to and affected by the consequences of the incident.
- g) The Contracting Party whose courts have jurisdiction shall ensure that in relation to actions for compensation of nuclear damage:
- i) any State may bring an action on behalf of persons who have suffered nuclear damage, who are nationals of that State or have their domicile or residence in its territory, and who have consented thereto; and
 - ii) any person may bring an action to enforce rights under this Convention acquired by subrogation or assignment.
- h) The Contracting Party whose courts have jurisdiction under this Convention shall ensure that only one of its courts shall be competent to rule on compensation for nuclear damage arising from any one nuclear incident, the criteria for such selection being determined by the national legislation of such Contracting Party.
- i) Judgements entered by the competent court under this Article after trial, or by default, shall, when they have become enforceable under the law applied by that court, become enforceable in the territory of any of the other Contracting Parties as soon as the formalities required by the Contracting Party concerned have been complied with. The merits of the case shall not be the subject of further proceedings. The foregoing provisions shall not apply to interim judgements.
- j) If an action is brought against a Contracting Party under this Convention, such Contracting Party may not, except in respect of measures of execution, invoke any jurisdictional immunities before the court competent in accordance with this Article.

Article 14

- a) This Convention shall be applied without any discrimination based upon nationality, domicile, or residence.
- b) “National law” and “national legislation” mean the law or the national legislation of the court having jurisdiction under this Convention over claims arising out of a nuclear incident, excluding the rules on conflict of laws relating to such claims. That law or legislation shall apply to all matters both substantive and procedural not specifically governed by this Convention.
- c) That law and legislation shall be applied without any discrimination based upon nationality, domicile, or residence.

Article 15

- a) Any Contracting Party may take such measures as it deems necessary to provide for an increase in the amount of compensation specified in this Convention.
- b) In so far as compensation for nuclear damage is in excess of the 700 million euro referred to in Article 7(a), any such measure in whatever form may be applied under conditions which may derogate from the provisions of this Convention.

Article 16

Decisions taken by the Steering Committee under Articles 1(a)(ii), 1(a)(iii) and 1(b) shall be adopted by mutual agreement of the members representing the Contracting Parties.

Article 16bis

This Convention shall not affect the rights and obligations of a Contracting Party under the general rules of public international law.

Article 17

- a) In the event of a dispute arising between two or more Contracting Parties concerning the interpretation or application of this Convention, the parties to the dispute shall consult with a view to settling the dispute by negotiation or other amicable means.
- b) Where a dispute referred to in paragraph (a) is not settled within six months from the date upon which such dispute is acknowledged to exist by any party thereto, the Contracting Parties shall meet in order to assist the parties to the dispute to reach a friendly settlement.
- c) Where no resolution to the dispute has been reached within three months of the meeting referred to in paragraph (b), the dispute shall, upon the request of any party thereto, be submitted to the European Nuclear Energy Tribunal established by the Convention of 20 December 1957 on the Establishment of a Security Control in the Field of Nuclear Energy.
- d) Disputes concerning the delimitation of maritime boundaries are outside the scope of this Convention.

Article 18

- a) Reservations to one or more of the provisions of this Convention may be made at any time prior to ratification, acceptance or approval of, or accession to, this Convention or prior to the time of notification under Article 23 in respect of any territory or territories mentioned in the notification, and shall be admissible only if the terms of these reservations have been expressly accepted by the Signatories.
- b) Such acceptance shall not be required from a Signatory which has not itself ratified, accepted or approved this Convention within a period of twelve months after the date of notification to it of such reservation by the Secretary-General of the Organisation in accordance with Article 24.

- c) Any reservation admitted in accordance with this Article may be withdrawn at any time by notification addressed to the Secretary-General of the Organisation.

Article 19

- a) This Convention shall be subject to ratification, acceptance or approval. Instruments of ratification, acceptance or approval shall be deposited with the Secretary-General of the Organisation.
- b) This Convention shall come into force upon the deposit of instruments of ratification, acceptance or approval by not less than five of the Signatories. For each Signatory ratifying, accepting or approving thereafter, this Convention shall come into force upon the deposit of its instrument of ratification, acceptance or approval.

Article 20

Amendments to this Convention shall be adopted by mutual agreement of all the Contracting Parties. They shall come into force when ratified, accepted or approved by two-thirds of the Contracting Parties. For each Contracting Party ratifying, accepting or approving thereafter, they shall come into force at the date of such ratification, acceptance or approval.

Article 21

- a) The Government of any Member or Associate country of the Organisation which is not a Signatory to this Convention may accede thereto by notification addressed to the Secretary-General of the Organisation.
- b) The Government of any other country which is not a Signatory to this Convention may accede thereto by notification addressed to the Secretary-General of the Organisation and with the unanimous assent of the Contracting Parties. Such accession shall take effect from the date of such assent.
- c) Notwithstanding Article 7(a), where a Government which is not a Signatory to this Convention accedes to this Convention after 1 January 1999, it may provide under its legislation that the liability of an operator in respect of nuclear damage caused by any one nuclear incident may be limited, for a maximum of five years from the date of the adoption of the Protocol of 12 February 2004 to amend this Convention, to a transitional amount of not less than 350 million euro in respect of a nuclear incident occurring within that period.

Article 22

- a) This Convention shall remain in effect for a period of ten years as from the date of its coming into force. Any Contracting Party may, by giving twelve months' notice to the Secretary-General of the Organisation, terminate the application of this Convention to itself at the end of the period of ten years.

- b) This Convention shall, after the period of ten years, remain in force for a period of five years for such Contracting Parties as have not terminated its application in accordance with paragraph (a) of this Article, and thereafter for successive periods of five years for such Contracting Parties as have not terminated its application at the end of one of such periods of five years by giving twelve months' notice to that effect to the Secretary-General of the Organisation.
- c) The Contracting Parties shall consult each other at the expiry of each five year period following the date upon which this Convention comes into force, upon all problems of common interest raised by the application of this Convention, and in particular, to consider whether increases in the liability and financial security amounts under this Convention are desirable.
- d) A conference shall be convened by the Secretary-General of the Organisation in order to consider revisions to this Convention after a period of five years as from the date of its coming into force or, at any other time, at the request of a Contracting Party, within six months from the date of such request.

Article 23

- a) This Convention shall apply to the metropolitan territories of the Contracting Parties.
- b) Any Signatory or Contracting Party may, at the time of signature, ratification, acceptance or approval of, or accession to, this Convention or at any later time, notify the Secretary-General of the Organisation that this Convention shall apply to those of its territories, including the territories for whose international relations it is responsible, to which this Convention is not applicable in accordance with paragraph (a) of this Article and which are mentioned in the notification. Any such notification may, in respect of any territory or territories mentioned therein, be withdrawn by giving twelve months' notice to that effect to the Secretary-General of the Organisation.
- c) Any territories of a Contracting Party, including the territories for whose international relations it is responsible, to which this Convention does not apply shall be regarded for the purposes of this Convention as being a territory of a non-Contracting State.

Article 24

The Secretary-General of the Organisation shall give notice to all Signatories and acceding Governments of the receipt of any instrument of ratification, acceptance, approval, accession or withdrawal, of any notification under Articles 13(b) and 23, of decisions of the Steering Committee under Article 1(a)(ii), 1(a)(iii) and 1(b), of the date on which this Convention comes into force, of the text of any amendment thereto and the date on which such amendment comes into force, and of any reservation made in accordance with Article 18.

Annex

The following reservations were accepted either at the time of signature of the Convention or at the time of signature of the Additional Protocol:

1. Article 6(a) and (c)(i):

Reservation by the Government of the Federal Republic of Germany, the Government of the Republic of Austria and the Government of the Hellenic Republic.

Reservation of the right to provide, by national law, that persons other than the operator may continue to be liable for damage caused by a nuclear incident on condition that these persons are fully covered in respect of their liability, including defence against unjustified actions, by insurance or other financial security obtained by the operator or out of State funds.

2. Article 6(b) and (d):

Reservation by the Government of the Republic of Austria, the Government of the Hellenic Republic, the Government of the Kingdom of Norway, the Government of the Kingdom of Sweden and the Government of the Republic of Finland.

Reservation of the right to consider their national legislation which includes provisions equivalent to those included in the international agreements referred to in Article 6(b) as being international agreements within the meaning of Articles 6(b) and (d).

3. Article 8(a):

Reservation by the Government of the Federal Republic of Germany and the Government of the Republic of Austria.

Reservation of the right to establish, in respect of nuclear incidents occurring in the Federal Republic of Germany and in the Republic of Austria respectively, a period longer than ten years if measures have been taken to cover the liability of the operator in respect of any actions for compensation begun after the expiry of the period of ten years and during such longer period.

4. Article 9:

Reservation by the Government of the Federal Republic of Germany and the Government of the Republic of Austria.

Reservation of the right to provide, in respect of nuclear incidents occurring in the Federal Republic of Germany and in the Republic of Austria respectively, that the operator shall be liable for damage caused by a nuclear incident directly due to an act of armed conflict, hostilities, civil war, insurrection or a grave natural disaster of an exceptional character.

5. Article 19:

Reservation by the Government of the Federal Republic of Germany, the Government of the Republic of Austria, and the Government of the Hellenic Republic.

Reservation of the right to consider ratification of this Convention as constituting an obligation under international law to enact national legislation on third party liability in the field of nuclear energy in accordance with the provisions of this Convention.

IN WITNESS WHEREOF, the undersigned Plenipotentiaries, duly empowered, have signed this Convention.

DONE in Paris, this 29 day of July 1960, in the English, French, German, Spanish, Italian and Dutch languages in a single copy which shall remain deposited with the Secretary-General of the Organisation for Economic Co-operation and Development by whom certified copies will be communicated to all Signatories.

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The Decisions, Recommendations and Interpretations relating to the application of the Paris Convention are set forth in a brochure published by the OECD Nuclear Energy Agency in 1990.

CONVENTION OF 31 JANUARY 1963 SUPPLEMENTARY TO THE PARIS CONVENTION OF 29 JULY 1960 ON THIRD PARTY LIABILITY IN THE FIELD OF NUCLEAR ENERGY, AS AMENDED BY THE ADDITIONAL PROTOCOL OF 28 JANUARY 1964, BY THE PROTOCOL OF 16 NOVEMBER 1982 AND BY THE PROTOCOL OF 12 FEBRUARY 2004

**Unofficial Consolidated Text of the Brussels Supplementary Convention
Incorporating the Provisions of the Three Amending Protocols Referred to Above**

THE GOVERNMENTS of the Federal Republic of Germany, the Kingdom of Belgium, the Kingdom of Denmark, the Kingdom of Spain, the Republic of Finland, the French Republic, the Italian Republic, the Kingdom of Norway, the Kingdom of the Netherlands, the United Kingdom of Great Britain and Northern Ireland, the Republic of Slovenia, the Kingdom of Sweden and the Swiss Confederation;*

BEING PARTIES to the Convention of 29 July 1960 on Third Party Liability in the Field of Nuclear Energy, concluded within the framework of the Organisation for European Economic Co-operation, now the Organisation for Economic Co-operation and Development, and as amended by the Additional Protocol concluded at Paris on 28 January 1964, by the Protocol concluded at Paris on 16 November 1982 and by the Protocol concluded at Paris on 12 February 2004 (hereinafter referred to as the “Paris Convention”);

DESIROUS of supplementing the measures provided in that Convention with a view to increasing the amount of compensation for damage which might result from the use of nuclear energy for peaceful purposes;

HAVE AGREED as follows:

Article 1

The system instituted by this Convention is supplementary to that of the Paris Convention, shall be subject to the provisions of the Paris Convention, and shall be applied in accordance with the following Articles.

* The designation of the Signatories is the same as that in the Protocol of 12 February 2004. It should be noted that the Republic of Austria and the Grand Duchy of Luxembourg signed the Brussels Supplementary Convention, its Additional Protocol of 1964 and its Protocol of 1982 but have not ratified these instruments. In addition, they have not signed the Protocol of 12 February 2004. The Republic of Slovenia acceded to the Brussels Supplementary Convention, as amended by the Additional Protocol of 1964 and the Protocol of 1982, with effect as of 5 June 2003 and has signed the Protocol of 12 February 2004.

Article 2

- a) The system of this Convention shall apply to nuclear damage for which an operator of a nuclear installation, used for peaceful purposes, situated in the territory of a Contracting Party to this Convention (hereinafter referred to as a “Contracting Party”), is liable under the Paris Convention, and which is suffered:
- i) in the territory of a Contracting Party; or
 - ii) in or above maritime areas beyond the territorial sea of a Contracting Party
 - 1. on board or by a ship flying the flag of a Contracting Party, or on board or by an aircraft registered in the territory of a Contracting Party, or on or by an artificial island, installation or structure under the jurisdiction of a Contracting Party, or
 - 2. by a national of a Contracting Party,excluding damage suffered in or above the territorial sea of a State not Party to this Convention; or
 - iii) in or above the exclusive economic zone of a Contracting Party or on the continental shelf of a Contracting Party in connection with the exploitation or the exploration of the natural resources of that exclusive economic zone or continental shelf,
- provided that the courts of a Contracting Party have jurisdiction pursuant to the Paris Convention.
- b) Any Signatory or acceding Government may, at the time of signature of or accession to this Convention or on the deposit of its instrument of ratification, acceptance or approval declare that, for the purposes of the application of paragraph (a)(ii) 2 of this Article, individuals or certain categories thereof, considered under its law as having their habitual residence in its territory, are assimilated to its own nationals.
- c) In this Article, the expression “a national of a Contracting Party” shall include a Contracting Party or any of its constituent sub-divisions, or a partnership, or any public or private body whether corporate or not, established in the territory of a Contracting Party.

Article 3

- a) Under the conditions established by this Convention, the Contracting Parties undertake that compensation in respect of nuclear damage referred to in Article 2 shall be provided up to the amount of 1 500 million euro per nuclear incident, subject to the application of Article 12bis.
- b) Such compensation shall be provided as follows:
- i) up to an amount of at least 700 million euro, out of funds provided by insurance or other financial security or out of public funds provided pursuant to Article 10(c) of the Paris Convention, such amount to be established under the legislation of the Contracting Party in whose territory the nuclear installation of the operator liable is situated, and to be distributed, up to 700 million euro, in accordance with the Paris Convention;

- ii) between the amount referred to in paragraph (b)(i) of this Article and 1 200 million euro out of public funds to be made available by the Contracting Party in whose territory the nuclear installation of the operator liable is situated;
 - iii) between 1 200 million euro and 1 500 million euro, out of public funds to be made available by the Contracting Parties according to the formula for contributions referred to in Article 12, subject to such amount being increased in accordance with the mechanism referred to in Article 12bis.
- c) For this purpose, each Contracting Party shall either:
- i) establish under its legislation that the liability of the operator shall not be less than the amount referred to in paragraph (a) of this Article, and provide that such liability shall be covered by all the funds referred to in paragraph (b) of this Article; or
 - ii) establish under its legislation the liability of the operator at an amount at least equal to that established pursuant to paragraph (b)(i) of this Article or Article 7(b) of the Paris Convention, and provide that, in excess of such amount and up to the amount referred to in paragraph (a) of this Article, the public funds referred to in paragraphs (b)(i), (ii) and (iii) of this Article shall be made available by some means other than as cover for the liability of the operator, provided that the rules of substance and procedure laid down in this Convention are not thereby affected.
- d) The obligation of the operator to pay compensation, interest or costs out of public funds made available pursuant to paragraphs (b)(ii) and (iii) and (g) of this Article shall only be enforceable against the operator as and when such funds are in fact made available.
- e) Where a State makes use of the option provided for under Article 21(c) of the Paris Convention, it may only become a Contracting Party to this Convention if it ensures that funds will be available to cover the difference between the amount for which the operator is liable and 700 million euro.
- f) The Contracting Parties, in carrying out this Convention, undertake not to make use of the right provided for in Article 15(b) of the Paris Convention to apply special conditions, other than those laid down in this Convention, in respect of compensation for nuclear damage provided out of the funds referred to in paragraph (a) of this Article.
- g) The interest and costs referred to in Article 7(h) of the Paris Convention are payable in addition to the amounts referred to in paragraph (b) of this Article, and shall be borne in so far as they are awarded in respect of compensation payable out of the funds referred to in:
- i) paragraph (b)(i) of this Article, by the operator liable;
 - ii) paragraph (b)(ii) of this Article, by the Contracting Party in whose territory the installation of the operator liable is situated to the extent of the funds made available by that Contracting Party;
 - iii) paragraph (b)(iii) of this Article, by the Contracting Parties together.
- h) The amounts mentioned in this Convention shall be converted into the national currency of the Contracting Party whose courts have jurisdiction in accordance with the value of that currency

at the date of the incident, unless another date is fixed for a given incident by agreement between the Contracting Parties.

*Article 4 (deleted)**

Article 5

Where the operator liable has a right of recourse pursuant to Article 6(f) of the Paris Convention, the Contracting Parties to this Convention shall have the same right of recourse, to the extent that public funds have been made available pursuant to Article 3(b) and (g).

Article 6

In calculating the public funds to be made available pursuant to this Convention, account shall be taken only of those rights to compensation exercised within thirty years from the date of the nuclear incident in the case of loss of life or personal injury, and ten years from the date of the nuclear incident in the case of all other nuclear damage. Such period is, moreover, extended in the cases and under the conditions laid down in Article 8(e) of the Paris Convention. Amendments made to claims after the expiry of this period, under the conditions laid down in Article 8(f) of the Paris Convention, shall also be taken into account.

Article 7

Where a Contracting Party makes use of the right provided for in Article 8(d) of the Paris Convention, the period which it establishes shall be a period of prescription of at least three years either from the date at which the person suffering damage has knowledge or from the date at which he ought reasonably to have known of both the damage and the operator liable.

Article 8

Any person who is entitled to benefit from the provisions of this Convention shall have the right to full compensation in accordance with national law for nuclear damage suffered, provided that where the amount of such damage exceeds or is likely to exceed 1 500 million euro, a Contracting Party may establish equitable criteria for apportioning the amount of compensation that is available under this Convention. Such criteria shall be applied whatever the origin of the funds and, subject to the provisions of Article 2, without discrimination based on the nationality, domicile or residence of the person suffering the damage.

Article 9

- a) The system of payment of public funds made available pursuant to this Convention shall be that of the Contracting Party whose courts have jurisdiction.

* Article 4 was deleted by the Protocol of 12 February 2004.

- b) Each Contracting Party shall ensure that persons suffering nuclear damage may enforce their rights to compensation without having to bring separate proceedings according to the origin of the funds provided for such compensation.
- c) A Contracting Party shall be required to make available the funds referred to in Article 3(b)(iii) once the amount of compensation under this Convention reaches the total of the amounts referred to in Article 3(b)(i) and (ii), irrespective of whether funds to be provided by the operator remain available or whether the liability of the operator is not limited in amount.

Article 10

- a) The Contracting Party whose courts have jurisdiction shall be required to inform the other Contracting Parties of a nuclear incident and its circumstances as soon as it appears that the nuclear damage caused by such incident exceeds, or is likely to exceed the sum of the amounts provided for under Article 3(b)(i) and (ii). The Contracting Parties shall, without delay, make all the necessary arrangements to settle the procedure for their relations in this connection.
- b) Only the Contracting Party whose courts have jurisdiction shall be entitled to request the other Contracting Parties to make available the public funds required under Article 3(b)(iii) and (g) and shall have competence to disburse such funds.
- c) Such Contracting Party shall, when the occasion arises, exercise the right of recourse provided for in Article 5 on behalf of the other Contracting Parties who have made available public funds pursuant to Article 3(b)(iii) and (g).
- d) Settlements effected in respect of the payment of compensation for nuclear damage out of the public funds referred to in Article 3(b)(ii) and (iii) in accordance with the conditions established by national legislation shall be recognised by the other Contracting Parties, and judgements entered by the competent courts in respect of such compensation shall become enforceable in the territory of the other Contracting Parties in accordance with the provisions of Article 13(i) of the Paris Convention.

Article 11

- a) If the courts having jurisdiction are those of a Contracting Party other than the Contracting Party in whose territory the nuclear installation of the operator liable is situated, the public funds required under Article 3(b)(ii) and (g) shall be made available by the first-named Contracting Party. The Contracting Party in whose territory the nuclear installation of the operator liable is situated shall reimburse to the other Contracting Party the sums paid. These two Contracting Parties shall agree on the procedure for reimbursement.
- b) If more than one Contracting Party is required to make available public funds pursuant to Article 3(b)(ii) and (g), the provisions of paragraph (a) of this Article shall apply mutatis mutandis. Reimbursement shall be based on the extent to which each operator has contributed to the nuclear incident.
- c) In adopting all legislative, regulatory or administrative provisions, after the nuclear incident has occurred, concerning the nature, form and extent of the compensation, the procedure for making available the public funds required under Article 3(b)(ii) and (g) and, if necessary, the criteria

for the apportionment of such funds, the Contracting Party whose courts have jurisdiction shall consult the Contracting Party in whose territory the nuclear installation of the operator liable is situated. It shall further take all measures necessary to enable the latter to intervene in proceedings and to participate in any settlement concerning compensation.

Article 12

- a) The formula for contributions according to which the Contracting Parties shall make available the public funds referred to in Article 3(b)(iii) shall be determined as follows:
 - i) as to 35%, on the basis of the ratio between the gross domestic product at current prices of each Contracting Party and the total of the gross domestic products at current prices of all Contracting Parties as shown by the official statistics published by the Organisation for Economic Co-operation and Development for the year preceding the year in which the nuclear incident occurs;
 - ii) as to 65%, on the basis of the ratio between the thermal power of the reactors situated in the territory of each Contracting Party and the total thermal power of the reactors situated in the territories of all the Contracting Parties. This calculation shall be made on the basis of the thermal power of the reactors shown at the date of the nuclear incident in the lists referred to in Article 13, provided that for the purposes of this calculation, a reactor shall only be taken into consideration as from the date when it first reaches criticality and a reactor shall be excluded from the calculation when all nuclear fuel has been removed permanently from the reactor core and has been stored safely in accordance with approved procedures.
- b) For the purposes of this Convention, “thermal power” means:
 - i) before the issue of a final operating licence, the planned thermal power;
 - ii) after the issue of such licence, the thermal power authorised by the competent national authorities.

Article 12bis

- a) In case of accession to this Convention, the public funds mentioned in Article 3(b)(iii) are increased by:
 - i) 35% of an amount determined by applying to the above-mentioned sum the ratio between the gross domestic product at current prices of the acceding Party and the total of the gross domestic products at current prices of all the Contracting Parties, excluding that of the acceding Party, and
 - ii) 65% of an amount determined by applying to the above-mentioned sum the ratio between the thermal power of the reactors situated in the territory of the acceding Party and the total thermal power of the reactors situated in the territories of all the Contracting Parties, excluding that of the acceding Party.

- b) The increased amount referred to in paragraph (a) shall be rounded up to the nearest amount expressed in thousands of euro.
- c) The gross domestic product of the acceding Party shall be determined in accordance with the official statistics published by the Organisation for Economic Co-operation and Development for the year preceding the year in which the accession comes into force.
- d) The thermal power of the acceding Party shall be determined in accordance with the list of nuclear installations communicated by that Government to the Belgian Government pursuant to Article 13(b), provided that for the purpose of calculating the contributions under paragraph (a)(ii) of this Article, a reactor shall only be taken into consideration as from the date when it first reaches criticality and a reactor shall be excluded from the calculation when all nuclear fuel has been removed permanently from the reactor core and has been stored safely in accordance with approved procedures.

Article 13

- a) Each Contracting Party shall ensure that all nuclear installations used for peaceful purposes situated in its territory, and falling within the definition in Article 1 of the Paris Convention, appear on a list.
- b) For this purpose, each Signatory or acceding Government shall, on the deposit of its instrument of ratification, acceptance, approval or accession, communicate to the Belgian Government full particulars of such installations.
- c) Such particulars shall indicate:
 - i) in the case of all installations not yet completed, the expected date on which the risk of a nuclear incident will exist;
 - ii) and further, in the case of reactors, the expected date on which they will first reach criticality, and also their thermal power.
- d) Each Contracting Party shall also communicate to the Belgian Government the exact date of the existence of the risk of a nuclear incident and, in the case of reactors, the date on which they first reached criticality.
- e) Each Contracting Party shall also communicate to the Belgian Government all modifications to be made to the list. Where such modifications include the addition of a nuclear installation, the communication must be made at least three months before the expected date on which the risk of a nuclear incident will exist.
- f) If a Contracting Party is of the opinion that the particulars, or any modification to be made to the list, communicated by another Contracting Party do not comply with the provisions of this Article, it may raise objections thereto only by addressing them to the Belgian Government within three months from the date on which it has received notice pursuant to paragraph (h) of this Article.
- g) If a Contracting Party is of the opinion that a communication required in accordance with this Article has not been made within the time prescribed in this Article, it may raise objections only

by addressing them to the Belgian Government within three months from the date on which it knew of the facts which, in its opinion, ought to have been communicated.

- h) The Belgian Government shall give notice as soon as possible to each Contracting Party of the communications and objections which it has received pursuant to this Article.
- i) The list referred to in this Article shall consist of all the particulars and modifications referred to in paragraphs (b), (c), (d) and (e) of this Article, it being understood that objections submitted pursuant to paragraphs (f) and (g) of this Article shall have effect retrospective to the date on which they were raised, if they are sustained.
- j) The Belgian Government shall supply any Contracting Party on demand with an up-to-date statement of the nuclear installations covered by this Convention and the details supplied in respect of them pursuant to this Article.

Article 14

- a) Except in so far as this Convention otherwise provides, each Contracting Party may exercise the powers vested in it by virtue of the Paris Convention, and any provisions made thereunder may be invoked against the other Contracting Parties in order that the public funds referred to in Article 3(b)(ii) and (iii) be made available.
- b) Any such provisions made by a Contracting Party pursuant to Article 2(b) of the Paris Convention as a result of which the public funds referred to in Article 3(b)(ii) and (iii) are required to be made available may not be invoked against any other Contracting Party unless it has consented thereto.
- c) Nothing in this Convention shall prevent a Contracting Party from making provisions outside the scope of the Paris Convention and of this Convention, provided that such provisions shall not involve any further obligation on the part of the Contracting Parties in so far as their public funds are concerned.
- d) Where all of the Contracting Parties to this Convention ratify, accept, approve or accede to any other international agreement in the field of supplementary compensation for nuclear damage, a Contracting Party to this Convention may use the funds to be provided pursuant to Article 3(b)(iii) of this Convention to satisfy any obligation it may have under such other international agreement to provide supplementary compensation for nuclear damage out of public funds.

Article 15

- a) Any Contracting Party may conclude an agreement with a State which is not a Party to this Convention concerning compensation out of public funds for damage caused by a nuclear incident. Any Contracting Party intending to conclude such an agreement shall notify the other Contracting Parties of its intention. Agreements concluded shall be notified to the Belgian Government.
- b) To the extent that the conditions for payment of compensation under any such agreement are not more favourable than those which result from the measures adopted by the Contracting Party concerned for the application of the Paris Convention and of this Convention, the amount of

damage caused by a nuclear incident covered by this Convention and for which compensation is payable by virtue of such an agreement may be taken into consideration, where the proviso to Article 8 applies, in calculating the total amount of damage caused by that incident.

- c) The provisions of paragraphs (a) and (b) of this Article shall in no case affect the obligations under Article 3(b)(ii) and (iii) of those Contracting Parties which have not given their consent to such agreement.

Article 16

- a) The Contracting Parties shall consult each other upon all problems of common interest raised by the application of this Convention and of the Paris Convention, especially Articles 20 and 22(c) of the latter Convention.
- b) They shall consult each other on the desirability of revising this Convention after a period of five years from the date of its coming into force, and at any other time upon the request of a Contracting Party.

Article 17

- a) In the event of a dispute arising between two or more Contracting Parties concerning the interpretation or application of this Convention, the parties to the dispute shall consult with a view to settling the dispute by negotiation or other amicable means.
- b) Where a dispute referred to in paragraph (a) is not settled within six months from the date upon which such dispute is acknowledged to exist by any party thereto, the Contracting Parties shall meet in order to assist the parties to the dispute to reach a friendly settlement.
- c) Where no resolution to the dispute has been reached within three months of the meeting referred to in paragraph (b), the dispute shall, upon the request of any party thereto, be submitted to the European Nuclear Energy Tribunal established by the Convention of 20 December 1957 on the Establishment of a Security Control in the Field of Nuclear Energy.
- d) Where a nuclear incident gives rise to a dispute between two or more Contracting Parties concerning the interpretation or application of the Paris Convention and of this Convention, the procedure for resolving such dispute shall be the procedure provided for under Article 17 of the Paris Convention.

Article 18

- a) Reservations to one or more of the provisions of this Convention may be made at any time prior to ratification, acceptance or approval of this Convention if the terms of these reservations have been expressly accepted by all Signatories or, at the time of accession or of the application of the provisions of Articles 21 and 24, if the terms of these reservations have been expressly accepted by all Signatories and acceding Governments.

- b) Such acceptance shall not be required from a Signatory which has not itself ratified, accepted or approved this Convention within a period of twelve months after the date of notification to it of such reservation by the Belgian Government in accordance with Article 25.
- c) Any reservation accepted in accordance with the provisions of paragraph (a) of this Article may be withdrawn at any time by notification addressed to the Belgian Government.

Article 19

No State may become or continue to be a Contracting Party to this Convention unless it is a Contracting Party to the Paris Convention.

Article 20

- a) The Annex to this Convention shall form an integral part thereof.
- b) This Convention shall be subject to ratification, acceptance or approval. Instruments of ratification, acceptance or approval shall be deposited with the Belgian Government.
- c) This Convention shall come into force three months after the deposit of the sixth instrument of ratification, acceptance or approval.
- d) For each Signatory ratifying, accepting or approving this Convention after the deposit of the sixth instrument of ratification, acceptance or approval, it shall come into force three months after the date of the deposit of its instrument of ratification, acceptance or approval.

Article 21

Amendments to this Convention shall be adopted by agreement among all the Contracting Parties. They shall come into force on the date when all Contracting Parties have ratified, accepted or approved them.

Article 22

- a) After the coming into force of this Convention, any Contracting Party to the Paris Convention which has not signed this Convention may request accession to this Convention by notification addressed to the Belgian Government.
- b) Such accession shall require the unanimous assent of the Contracting Parties.
- c) Once such assent has been given, the Contracting Party to the Paris Convention requesting accession shall deposit its instrument of accession with the Belgian Government.
- d) The accession shall take effect three months from the date of deposit of the instrument of accession.

Article 23

- a) This Convention shall remain in force until the expiry of the Paris Convention.
- b) Any Contracting Party may, by giving twelve months' notice to the Belgian Government, terminate the application of this Convention to itself after the end of the period of ten years specified in Article 22(a) of the Paris Convention. Within six months after receipt of such notice, any other Contracting Party may, by notice to the Belgian Government, terminate the application of this Convention to itself as from the date when it ceases to have effect in respect of the Contracting Party which first gave notice.
- c) The expiry of this Convention or the withdrawal of a Contracting Party shall not terminate the obligations assumed by each Contracting Party under this Convention to pay compensation for damage caused by nuclear incidents occurring before the date of such expiry or withdrawal.
- d) The Contracting Parties shall, in good time, consult each other on what measures should be taken after the expiry of this Convention or the withdrawal of one or more of the Contracting Parties, to provide compensation comparable to that accorded by this Convention for damage caused by nuclear incidents occurring after the date of such expiry or withdrawal and for which the operator of a nuclear installation in operation before such date within the territories of the Contracting Parties is liable.

Article 24

- a) This Convention shall apply to the metropolitan territories of the Contracting Parties.
- b) Any Contracting Party desiring the application of this Convention to one or more of the territories in respect of which, pursuant to Article 23 of the Paris Convention, it has given notification of application of that Convention, shall address a request to the Belgian Government.
- c) The application of this Convention to any such territory shall require the unanimous assent of the Contracting Parties.
- d) Once such assent has been given, the Contracting Party concerned shall address to the Belgian Government a notification which shall take effect as from the date of its receipt.
- e) Such notification may, as regards any territory mentioned therein, be withdrawn by the Contracting Party which has made it by giving twelve months' notice to that effect to the Belgian Government.
- f) If the Paris Convention ceases to apply to any such territory, this Convention shall also cease to apply thereto.

Article 25

The Belgian Government shall notify all Signatories and acceding Governments of the receipt of any instrument of ratification, acceptance, approval, accession or withdrawal, and shall also notify them of the date on which this Convention comes into force, the text of any amendment thereto and the date on

which such amendment comes into force, any reservations made in accordance with Article 18, any increase in the compensation to be provided under Article 3(a) as a result of the application of Article 12bis, and all notifications which it has received.

IN WITNESS WHEREOF the undersigned Plenipotentiaries, duly empowered, have signed this Convention.

DONE at Brussels, this 31 day of January 1963, in the English, Dutch, French, German, Italian and Spanish languages, the six texts being equally authoritative, in a single copy which shall be deposited with the Belgian Government by whom certified copies shall be communicated to all the other Signatories and acceding Governments.

Annex

**TO THE CONVENTION OF 31 JANUARY 1963 SUPPLEMENTARY TO THE PARIS
CONVENTION OF 29 JULY 1960 ON THIRD PARTY LIABILITY IN THE FIELD OF
NUCLEAR ENERGY, AS AMENDED BY THE ADDITIONAL PROTOCOL
OF 28 JANUARY 1964, BY THE PROTOCOL OF 16 NOVEMBER 1982
AND BY THE PROTOCOL OF 12 FEBRUARY 2004**

THE GOVERNMENTS OF THE CONTRACTING PARTIES declare that compensation for nuclear damage caused by a nuclear incident not covered by the Supplementary Convention solely by reason of the fact that the relevant nuclear installation, on account of its utilisation, is not on the list referred to in Article 13 of the Supplementary Convention (including the case where such installation which is not on the list is considered by one or more but not all of the Governments to be outside the Paris Convention):

- shall be provided without discrimination among the nationals of the Contracting Parties to the Supplementary Convention; and
- shall not be limited to less than 1 500 million euro.

In addition, if they have not already done so, they shall endeavour to make the rules for compensation of persons suffering damage caused by such incidents as similar as possible to those established in respect of nuclear incidents occurring in connection with nuclear installations covered by the Supplementary Convention.

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