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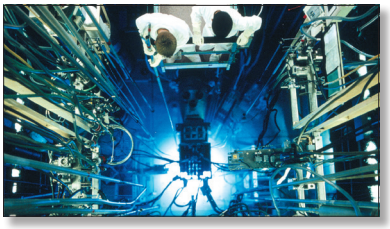

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Cover photos: View of the Osiris research reactor which produces medical radioisotopes in Saclay, France (A. Gonin, CEA); panorama of the Darlington Nuclear Generating Station in Ontario, Canada (Odinn).

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NEWS BRIEFS

Nuclear third party liability in Germany

by Christian Raetzke[*]

I. Introduction

The German system of nuclear third party liability has always been, and arguably still is, the object of considerable interest in the international nuclear law community.

This may seem surprising since Germany adheres to the Paris Convention[1] and is therefore a party to a community of 15 states all following the same principles enshrined in this Convention. In fact, when implementing the PC, Germany chose the approach ensuring the most literal adherence to the PC's principles: it adopted the PC in its entirety, thus directly transposing the PC text into binding German law, instead of enacting a national law derived from, but not literally translating, the PC.[2] At the same time, perhaps no other nation has made use of the options, choices and margins offered or abandoned by the PC to the national legislators, or kept in store by way of a reservation at signature of the Convention,[3] in such an extended manner, testing – and as has even been contended in the past: stressing – the boundaries of the PC system. Unlimited liability introduced in 1985, the highest financial security of any PC state (EUR 2.5 billion), unlimited territorial scope combined with the principle of reciprocity and liability of German operators even in the *force majeure* cases of Article 9 of the PC are probably the most interesting

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1. Convention on Third Party Liability in the Field of Nuclear Energy of 29th July 1960, as amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1982, 1519 UNTS 329 (Paris Convention or PC). All references in this paper to the PC mean this current version unless they expressly refer to the "2004 Protocol to amend the PC" or the "revised PC".
2. An example of the latter approach is the United Kingdom (UK). The Nuclear Installations Act 1965 (sections 7 et seq.) does not closely follow the wording of the PC; in many aspects, such as in terminology or in the legal construction of a nuclear incident (in the Act: "occurrence") as breach of duty, it adapts the PC to the UK legal system. By contrast, France is an example of a country which, similar to Germany, has put into effect the PC as such, only complementing it with national legislation (*loi n° 68-943 du 30 octobre 1968 relative à la responsabilité civile dans le domaine de l'énergie nucléaire* [Act No. 68-943 of 30 October 1968 on third party liability in the field of nuclear energy]; as of today, see the *Code de l'Environnement* [Environmental Code], articles L597-26 through L597-46).
3. Of the five reservations in Annex I of the PC, four were signed (among others) by Germany. Eventually, however, Germany only made use of two of them, as will be explained later on.

decisions made by Germany in this context, established in the Atomic Energy Act (*Atomgesetz*).[4]

As we will see on the following pages, these choices betray a certain tendency of the German government. Within the compromise underlying the international nuclear liability regime – enabling the nuclear industry to create and sustain an energy sector highly relevant for national electricity production on the one hand and protecting potential victims on the other – Germany has more and more shifted the balance, as far as practically possible, to the latter side. This was also motivated, and reinforced, by a drive for "normalisation" of third party nuclear liability law. Apart from the principle of legal channelling, which it finally accepted, Germany has tried to narrow the divide between normal civil tort law and nuclear liability law as far as possible.

II. The history of nuclear third party liability legislation in Germany

Many aspects of the German system, including its multi-faceted relationship with the PC, can be better understood after a brief look at the history of nuclear third party liability legislation in Germany. It begins in 1959 when the *Atomgesetz* was promulgated.[5] The *Atomgesetz* contained a dedicated chapter establishing a consistent nuclear third party liability regime that was independent of the draft PC, even though Germany participated in the negotiation of the PC and was among its original signatories in 1960. The *Atomgesetz* regime deviated from the nascent PC particularly in that it established economic instead of legal channelling of liability to the operator of a nuclear installation. Besides, the limit of liability – DEM 500 million (Deutsche Mark) (in nominal value, approximately EUR 250 million) – was way beyond the numbers contained in the 1960 PC. There was a widespread feeling, therefore, that the *Atomgesetz* fit more neatly into general tort law and offered better protection to victims than the PC. This resulted in protracted discussions, delaying German ratification of the PC well beyond its entry into force in 1968.

In 1975, Germany finally ratified the PC and the Brussels Supplementary Convention.[6] By an amendment of the same year, the *Atomgesetz* was also brought in line with the PC.[7] In so doing, the German legislature expressly aimed to comply in utmost faith with all mandatory provisions of the PC by promulgating it in its

4. *Gesetz über die friedliche Verwendung der Kernenergie und den Schutz gegen ihre Gefahren* (*Atomgesetz*) [Act on the Peaceful Utilisation of Atomic Energy and the Protection against its Hazards (Atomic Energy Act)] of 23 December 1959, newly promulgated in 1985 (*Bundesgesetzblatt* I, p. 1565), as amended. An unofficial English translation can be found on the website of the Federal Office for Radiation Protection (Bundesamt für Strahlenschutz) at: www.bfs.de/SharedDocs/Downloads/BfS/EN/hns/a1-english/A1-01-16-AtG.pdf?__blob=publicationFile&v=7.
5. *Atomgesetz*, *Bundesgesetzblatt* I, p. 814.
6. *Gesetz zu dem Übereinkommen vom 29. Juli 1960 über die Haftung gegenüber Dritten auf dem Gebiet der Kernenergie nebst Zusatzvereinbarungen …* [Act related to the Convention of 29 July 1960 on Third Party Liability in the field of nuclear energy, together with supplemental agreements …] of 8 July 1975, *Bundesgesetzblatt* 1975 II, p. 957. Convention of 31st January 1963 Supplementary to the Paris Convention of 29th July 1960, as amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1982 (1963), 1041 UNTS 358 (Brussels Supplementary Convention or BSC).
7. *Drittes Gesetz zur Änderung des Atomgesetzes* [Third Act amending the Atomic Energy Act] of 15 July 1975, *Bundesgesetzblatt* I, p. 1885.

original wording instead of recasting it as a German Act.[8] At the same time, the German legislature sought to mend the PC's perceived shortcomings by using all legitimate options to extend liability to the benefit of victims.[9] The maximum amount of liability was fixed at DEM 1 billion (in nominal value, roughly EUR 500 million); cover of the same amount was established by mandatory financial security of a maximum amount of DEM 500 million plus additional state funds provided via the so-called state indemnification. Ten years later, in 1985, a further amendment to the *Atomgesetz*[10] cancelled any limit of liability; ever since, the liability of German operators has been unlimited.

The next significant changes occurred around 2000, prompted by two developments. In 2001, Germany ratified the 1988 Joint Protocol;[11] this resulted in modifications to the *Atomgesetz* implemented by an amendment in the same year.[12] The other development was linked to the 1998 federal election that brought an antinuclear coalition to power. In the following years, a far-reaching amendment to the *Atomgesetz* cementing the phase-out of nuclear power was drafted, discussed and negotiated. It was finally adopted in 2002.[13] In this context, the maximum financial security to be provided by operators was raised to EUR 2.5 billion. This was not only a major quantitative increase (approximately tenfold); it also compelled utilities to create an entirely new solution to cope with this obligation, namely a pooling system based on a mutual agreement concluded in 2001.

8. Interestingly, the German government when signing the PC in 1960 had expressly made a reservation (reservation no. 5 in Annex I to the PC) preserving the option of implementing the PC by enacting national legislation "in accordance with the provisions of this Convention". In line with the approach eventually chosen in 1975, Germany did not make further reference to using this reservation when depositing the instrument of ratification (see *Bundesgesetzblatt* 1976 II, p. 308).
9. Government's Bill for the 1975 Amendment to the *Atomgesetz* (*Entwurf eines Dritten Gesetzes zur Änderung des Atomgesetzes*) [Draft Third Act amending the Atomic Energy Act], *Bundestagsdrucksache* 7/2183, p. 13 at no. 3 and p. 14 at no. 5; see also Pfaffelhuber, J. (1975), "*Die Gesetzentwürfe zur Übernahme der europäischen Atomhaftungs-Übereinkommen und zur Verbesserung des deutschen Atomhaftungsrechts*" [The draft legislation for the adoption of the European nuclear liability conventions and to improve the German nuclear liability law], in Lukes, R. (ed.), *Drittes Deutsches Atomrechts-Symposium* [Third German Atomic Law Symposium], Carl Heymanns Verlag, Cologne/Berlin/Bonn/Munich, 1975, pp. 213-222.
10. *Gesetz zur Änderung haftungsrechtlicher Vorschriften des Atomgesetzes (Haftungsnovelle)* [Act amending nuclear liability provisions of the Atomic Energy Act] of 22 May 1985, *Bundesgesetzblatt* I, p. 781.
11. *Bundesgesetzblatt* 2001 II, p. 786; for the corresponding Act with the consent of the Bundestag, see *Bundesgesetzblatt* 2001 II, p. 202. Joint Protocol Relating to the Application of the Vienna Convention on Civil Liability for Nuclear Damage and the Paris Convention on Third Party Liability in the Field of Nuclear Damage (1988), IAEA Doc. INFCIRC/402, 1672 UNTS 293, entered into force 27 April 1992 (Joint Protocol).
12. *Neuntes Gesetz zur Änderung des Atomgesetz*es [Ninth Act amending the Atomic Energy Act] of 5 March 2001, *Bundesgesetzblatt* I, p. 326.
13. *Gesetz zur geordneten Beendigung der Kernenergienutzung zur gewerblichen Erzeugung von Elektrizität* [Act on orderly termination of the use of nuclear energy for the commercial generation of electricity] of 22 April 2002, *Bundesgesetzblatt* I, p. 1351. For a detailed account of this Act, see Vorwerk, A. (2002), "The 2002 Amendment to the German Atomic Energy Act Concerning the Phase-Out of Nuclear Power", *Nuclear Law Bulletin*, No. 69, NEA, Paris, pp. 7-14.

Finally, in 2008 an amendment to the *Atomgesetz* was enacted that would bring it in line with the 2004 Protocol to amend the Paris Convention.[14] The 2008 amendment will become effective the day the 2004 Protocol enters into force.[15] Therefore, German nuclear liability legislation, just like the legislation in all PC states, currently sits somewhat uncomfortably between the existing situation and the changes linked to the 2004 Protocol, which will enter into force at a yet unknown time. It can be said, however, that this situation does not affect Germany to the same extent as many other countries. The reason is that the most significant features of the 2004 Protocol, namely the enhanced levels of liability and mandatory cover, the extension of territorial scope and the new heads of damage,[16] are, with minor exceptions, already implemented in German legislation even in its present state of validity. Therefore, the 2008 Amendment will not bring fundamental changes to German nuclear third party liability law.

III. The elements of German nuclear third party liability law

The law of nuclear third party liability in Germany rests on two pillars. The first and foremost is the PC, which after ratification entered into force for Germany on 30 September 1975.[17] In accordance with the German Basic Law,[18] the Parliament (*Bundestag*) had previously declared its consent by way of an Act, which in substance consists of a statement of consent plus the texts of the 1960 PC and the 1964 Additional Protocol; this was published in the Federal Law Gazette (*Bundesgesetzblatt*).[19] The Protocol of 1982 was incorporated into German law in the same way;[20] the same goes for the 2004 Protocol, which is still pending ratification.[21] The incorporation by simple transposition was possible since the PC is considered to be self-executing.[22] As a result, the PC is valid as German law and is applied directly. This means, for example, that the victim of a nuclear incident would base a claim for compensation on Article 3 and (if the nuclear incident occurred during transport) on Article 4 of the PC.

The second pillar of German nuclear third party liability law is German legislation supplementing the PC. The PC in many respects calls for, supposes or leaves a margin for national legislation. These competences can be characterised either as explicit competences assigned by the PC to the discretion or decision of the parties (e.g. fixing the amount of liability and cover) or as general and implicit competences (e.g. fleshing out the definition of the notion of "property" or defining,

14. *Gesetz zur Änderung haftungsrechtlicher Vorschriften des Atomgesetzes und zur Änderung sonstiger Rechtsvorschriften* [Act amending nuclear liability provisions of the Atomic Energy Act and amending other legislation] of 29 August 2008, *Bundesgesetzblatt* I, p. 1793 (2008 Amendment); Protocol to Amend the Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960, as amended by the Additional Protocol of 28 January 1964 and by the Protocol of 16 November 1982 (2004) (not yet in force), available at: www.oecd-nea.org/law/paris_convention.pdf (2004 Protocol to amend the PC or 2004 Protocol).
15. 2008 Amendment, *supra* note 14, Art. 5.
16. For a succinct depiction of the enhancements brought about by the 2004 Protocol, see Schwartz, J. (2010), "Liability and Compensation for Third Party Damage Resulting from a Nuclear Incident", in NEA (ed.), *International Nuclear Law: History, Evolution and Outlook, 10th Anniversary of the International School of Nuclear Law*, NEA, Paris, pp. 307-354, at pp. 332-335.
17. *Bundesgesetzblatt* 1976 II, p. 308.
18. *Grundgesetz*, Art. 59(2).
19. *Supra* note 6. The consolidated text of the PC 1960/1964 was published in *Bundesgesetzblatt* 1976 II, p. 311.
20. *Bundesgesetzblatt* 1985 II, p. 690. The 1982 Protocol was ratified by Germany in 1985 and entered into force on 7 October 1988, see *Bundesgesetzblatt* 1989 II, p. 144.
21. *Bundesgesetzblatt* 2008 II, p. 902.
22. Government's Bill for the 1975 Amendment to the *Atomgesetz*, *supra* note 9, p. 13 at no. 3.

more generally, all necessary aspects for establishing a claim for compensation).[23] Exceptionally, national legislation can also deviate from the PC based on a reservation made at signature and accepted by the other contracting parties.[24]

In German law, the provisions that have been created to supplement nuclear third party liability under the PC are found in the *Atomgesetz*, which regulates all aspects of the civilian use of nuclear energy; there is no special act on nuclear liability. Most of the provisions in the *Atomgesetz* related to nuclear liability are assembled in a dedicated chapter encompassing sections 25 to 40, but other relevant provisions can also be found in other chapters as well (e.g. sections 13-15 on insurance or other financial security).

When looking at the *Atomgesetz*, it must be taken into account that the *Atomgesetz*, including the chapter on liability, came into existence before the PC. When Germany ratified the PC in 1975, the liability chapter was amended to the extent necessary. But, the pre-existing structure of the chapter and the order of its provisions were retained, a fact that does not facilitate reading the *Atomgesetz* alongside the PC.[25] However, in terms of content, the *Atomgesetz* fully aligns with the PC. Section 25(1) of the *Atomgesetz*, the opening provision of the liability chapter, which originally established the operator's liability, was replaced in 1975 with language stating that the provisions of the *Atomgesetz* apply to the liability of the operator of a nuclear installation "in addition to the provisions of the Paris Convention", thus emphasising the complementary status of the *Atomgesetz* with respect to the PC.

The *Atomgesetz* also contains two provisions establishing nuclear third party liability outside the PC regime. Section 25a deals with nuclear-powered ships; it will not be investigated further in this article. Section 26 is a catch-all clause addressing liability for radiation-related damage outside the scope of the PC and of section 25a. Thus, it applies mainly to isotopes and activities outside the nuclear fuel cycle, as well as to nuclear fusion. This highly relevant regime will be explained at the end of this article.

Other provisions relevant for nuclear third party liability, especially on the nature and extent of compensation, may be found in more general legislation, particularly in the German Civil Code (*Bürgerliches Gesetzbuch*). This will be explained below in the section on damage and compensation.

Besides the PC and its complementary German legislation, the other international instruments to which Germany adheres need to be mentioned. Germany is a contracting party to the Brussels Supplementary Convention[26] and to the Joint Protocol,[27] as well as to the 1971 Brussels Convention relating to Civil

23. On these categories of competences of contracting parties, see Pelzer, N. (2009), "Conflicts of Laws Issues under the International Nuclear Liability Conventions", in Baur, J. F., et al. (2009), *Festschrift für Gunther Kühne zum 70. Geburtstag* [Festschrift [liber amicorum] for Gunther Kühne on the occasion of his 70th birthday], Verlag Recht und Wirtschaft, Frankfurt am Main 2009, pp. 819-842, at pp. 824-828.
24. PC, Art. 18.
25. This is also betrayed by some – probably inevitable – inconsistencies in definitions. For example, in its definitions section (section 2), the *Atomgesetz* gives a general definition of "nuclear fuel" (*Kernbrennstoffe*) that deviates from the PC definition, mainly by excluding natural uranium. However, section 2(4) of the *Atomgesetz* states that whenever the provisions of the *Atomgesetz* on liability and cover are applied, the PC definition replaces the definition in the *Atomgesetz*. Thus, the *Atomgesetz* employs two different definitions of "nuclear fuel". But since the respective field of application is well defined, there is no conflict in practice.
26. *Supra* note 6.
27. *Supra* note 11.

Liability in the Field of Maritime Carriage of Nuclear Material.[28] Two bilateral agreements concerning nuclear liability should also be pointed out. One is with Switzerland about nuclear third party liability in general, ensuring full reciprocity.[29] The other, with Russia, has a more limited scope; it exempts German suppliers from liability in the context of the provision of goods and services to Russian nuclear installations.[30]

IV. Strict liability

The PC, which is directly applicable in Germany, establishes strict liability; according to Articles 3 and 4 of the PC, liability results from the risk irrespective of fault, which is not mentioned in the PC.[31] This is a clear and simple principle and there is no provision in the *Atomgesetz* providing any further qualification. The concept of strict liability for certain hazardous activities (in German: *Gefährdungshaftung*) has been an element of German civil law since the 19th century; it was introduced for the operation of railways and was later adopted in legislation for other industrial sectors. It was also already implemented in the original 1959 version of the *Atomgesetz*.[32] An example from more recent times is the 1990 Act on Genetic Engineering.[33] Hence, the PC principle of strict liability fits well with German law.

V. Person liable: The operator of a nuclear installation

The person liable for nuclear damage according to Articles 3 and 4 of the PC is the operator of a nuclear installation. This is defined in the PC as the person designated or recognised by the competent public authority as the operator.[34] Accordingly, section 17(6) of the *Atomgesetz* obliges the licensing authority to make an express statement in any licence for the operation of a nuclear installation that the licence holder is the operator as defined by the PC.[35]

Legal channelling of liability on the operator of a nuclear installation, famously established by Article 6 of the PC, was at the outset alien to German nuclear law. The

28. Convention relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material, 974 UNTS 255, entered into force 15 July 1975; *Bundesgesetzblatt* 1975 II, p. 1026.
29. *Abkommen zwischen der Bundesrepublik Deutschland und der Schweizerischen Eidgenossenschaft über die Haftung gegenüber Dritten auf dem Gebiet der Kernenergie* [Agreement between the Federal Republic of Germany and the Swiss Confederation on Third Party Liability in the Field of Nuclear Energy] of 22 October 1986, *Bundesgesetzblatt* 1988 II, p. 598.
30. *Abkommen zwischen der Regierung der Bundesrepublik Deutschland und der Regierung der Russischen Föderation über nukleare Haftung im Zusammenhang mit Lieferungen aus der Bundesrepublik Deutschland für Kernanlagen in der Russischen Föderation* [Agreement between the Government of the Federal Republic of Germany and the Government of the Russian Federation on nuclear liability in connection with deliveries from the Federal Republic of Germany for nuclear facilities in the Russian Federation] of 23 June 1998, *Bundesgesetzblatt* 1998 II, p. 2365.
31. See NEA (1982), Revised text of the *Exposé des Motifs* of the Paris Convention, approved by the OECD Council on 16 November 1982, para. 14.
32. See Fischerhof, H. (1962), *Deutsches Atomgesetz und Strahlenschutzrecht, Kommentar* [German Atomic Energy Act and Radiation Protection Law, Commentary], 1st edition, vol. I, A. Lutzeyer, Baden-Baden/Bonn, pp. 354-356.
33. *Gesetz zur Regelung der Gentechnik (Gentechnikgesetz)* [Act regulating GMO (Genetic Engineering Act)] of 20 June 1990, *Bundesgesetzblatt* I, p. 1080, section 32.
34. PC, Art. 1(a)(vi).
35. The term used for "operator of a nuclear installation" in the German version of the PC, as well as in the *Atomgesetz*, is "*Inhaber einer Kernanlage*". The word *Inhaber* is not quite a literal translation of "operator", it rather has the meaning of "possessor" or "holder"; the choice of this word is therefore not entirely satisfactory. This view was already expressed by Fischerhof, H. (1962), *supra* note 32, p. 377.

original *Atomgesetz* of 1959 instead followed the concept of economic channelling. It stated that its liability provisions were without prejudice to other claims against the operator or other persons;[36] at the same time, the operator was obliged to include other potentially liable entities in its arrangements for insurance or other financial security.[37] In line with this, the German government at the time of signature of the PC made a reservation about "the right to provide, by national law, that persons other than the operator may continue to be liable".[38]

In the following 15 years, a protracted discussion on whether to retain economic channelling or whether to adopt the PC concept of legal channelling was one of the major factors delaying ratification of the PC by Germany.[39] Ultimately, the two main arguments in favour of the PC approach that had guided the drafters of the PC prevailed: first, legal channelling avoids complicated cross-actions to establish the person liable and second, it allows for a concentration of insurance capacity by obviating the need for all actors in the nuclear industry apart from the operators themselves to take out insurance.[40] Those experts who were not yet fully convinced were appeased by the reflection that this single issue, economic v. legal channelling, should not prevent Germany from gaining access to, and German victims from ensuring the enjoyment of, the benefits of an international liability regime.[41] When ratifying the PC in 1975, Germany did not renew its reservation[42] and abolished the contradicting wording in the *Atomgesetz*.[43] Article 6 of the PC thus became fully applicable.

There is an aspect of German nuclear law that seems to be rather alien to the nuclear legislation of other countries. The licence for a nuclear installation (for large installations such as nuclear power plants (NPPs), it is the licence under section 7 of the *Atomgesetz*) can be, depending on circumstances, held by several persons who therefore concurrently become "operators" in the meaning of the PC. For some German nuclear power plants, both the NPP site operating company and the parent company are licence holders; if a plant is jointly owned by two utilities, it may well be that there are three licence holders, namely the two utilities plus the NPP site operating company. As a consequence, liability under the PC for a single nuclear installation may be borne by several entities. In such a case, they are jointly and severally liable according to section 33(1) of the *Atomgesetz*, which in turn refers to Article 5(d) of the PC. Victims are entitled to claim compensation from one operator

36. *Atomgesetz*, *supra* note 5, section 33.
37. *Ibid*., section 15.
38. PC, Annex I, reservation no. 1.
39. On this discussion, see the two editions of the commentary by Hans Fischerhof: Pelzer, N. (1966), "*Internationale Atomhaftungskonventionen*" [International nuclear liability conventions] in Fischerhof, H. (ed.), *Deutsches Atomgesetz und Strahlenschutzrecht, Kommentar* [German Atomic Energy Act and Radiation Protection Law, Commentary], 1st edition, vol. II, Nomos, Baden-Baden, pp. 332-339; and Fischerhof, H. (1978), *Deutsches Atomgesetz und Strahlenschutzrecht, Kommentar* [German Atomic Energy Act and Radiation Protection Law, Commentary], 2nd edition, vol. I, Nomos, Baden-Baden, pp. 541-542.
40. *Exposé des Motifs*, *supra* note 31, at para. 15.
41. Pelzer, N. (1973), "*Die internationalen Atomhaftungsübereinkommen und das deutsche Recht*" [The international nuclear liability conventions and German law], in Lukes, R. (ed.), *Erstes Deutsches Atomrechts-Symposium* [First German Atomic Law Symposium], Carl Heymanns Verlag, Cologne/Berlin/Bonn/Munich, pp. 183-199, at pp. 186-188.
42. See the Government's Bill for the 1975 Amendment to the *Atomgesetz*, *supra* note 9, at p. 14.
43. Economic channelling was partly retained outside the PC regime for liability under section 26 of the *Atomgesetz*, see below.

or from several operators at their discretion as each is liable without limitation.[44] Financial security, however, has to be provided only once for any single nuclear installation.[45]

In section 25(2) of the *Atomgesetz*, Germany has made use of the option provided in Article 4(d) of the PC to enable a carrier to assume nuclear liability at the carrier's request and with the consent of an operator of a nuclear installation. The *Atomgesetz* specifies that the carrier "shall be considered operator of the nuclear installation from the time of its assumption of liability".

VI. Liability in the cases of Article 9 of the PC

The exoneration from liability established by Article 9 of the PC in certain force majeure cases (such as armed conflict or, in the current version of the PC, but not in the 2004 Protocol, a "grave natural disaster of an exceptional character") has not been adopted by Germany. Based on a reservation at signature of the Convention,[46] section 25(3) of the *Atomgesetz* states that Article 9 of the PC does not apply. Nevertheless, even in German law there are two specific aspects to liability in cases under Article 9 of the PC. First, section 25(3) of the *Atomgesetz* states that if the damage occurs in another country, the operator is only liable if the other country provides for a comparable reciprocal legislation for damage suffered in Germany. Second, section 31(1) of the *Atomgesetz*, which establishes the principle of unlimited liability, makes an exception for the cases in section 25(3) (i.e. those of Article 9 of the PC). Here, liability is limited to the maximum provided by state indemnification, which is currently EUR 2.5 billion (see section 34 of the *Atomgesetz*). This means that in those cases under Article 9 of the PC, the operator is liable, but liability is limited.

VII. Damage to be compensated

A. General

According to Article 3 of the PC, the operator is liable for "damage to or loss of life of any person" and "damage to or loss of any property". This is, as is the entire PC, valid German law. However, the definition of these heads of damage, as well as the nature, form and extent of compensation for such damage, perhaps more so than any other part of the PC, requires additional provisions in the legislation of contracting parties in order to become operable.[47]

44. Joint and several liability under Article 5(d) of the PC means that any of the liable operators may be sued for the whole amount of the damage and the total amount of compensation available is the aggregate of the sums of each of the operators concerned (*Exposé des Motifs*, *supra* note 31, para. 20). However, under the regime of unlimited liability introduced in Germany in 1985, there is no legal limit to compensation and therefore there is no aggregate.
45. Fischerhof, H. (1978), *supra* note 39, p. 415.
46. PC, Annex I, reservation no. 4.
47. See PC, Art. 11. See also the explanation given in *Exposé des Motifs*, *supra* note 31, para. 39:
> The Convention contains no detailed provisions determining the kind of damage or injury which will be compensated, but it is provided merely that damage must be to persons or property and related causally to a nuclear incident. What should be considered as damage to persons or property and the extent to which compensation will be recoverable, is, in view of the very wide divergence of legal principles and jurisprudence in the law of torts in European countries, left to be decided by the competent court in accordance with the national law applicable.

See also Pelzer, N. (2009), *supra* note 23, p. 829: "Hence, national law complements the conventions with regard to all issues which are essential and constitutive for establishing a claim of compensation".

In Germany, the *Atomgesetz* itself does not contribute much to this. It contains some provisions mainly on the compensation for loss of health or life (sections 28 to 30), but these are of rather limited significance. Thus, the Civil Code (*Bürgerliches Gesetzbuch*) comes into play. It does not contain any provision specific to nuclear third party liability; but its chapter on tort law (sections 823 et seq.) helps define the notion of damage to life or property[48] and its chapter on obligations contains the general principles of compensation applicable to any liability established by civil law (sections 249 to 253). The wording of the *Bürgerliches Gesetzbuch*, which in some instances is very succinct, is supplemented by abundant interpretations in legal literature and by an array of relevant judgments by law courts (again, not specific to nuclear liability). These rules and principles cannot be explained in detail here, though some basic elements should be mentioned.

The *Bürgerliches Gesetzbuch* establishes the principle of full compensation. Section 249(1) reads: "A person who [owes compensation for] damage[] must restore the position that would exist if the circumstance obliging him to pay damages had not occurred." This means that victims can claim full compensation for the cost of restoring their health or property; in case restoration is not possible or not sufficient, (additional) compensation in money can be claimed.

A consequential financial loss is also compensated. If a house is contaminated, the owner can claim compensation for the economic loss incurred by being deprived of the use of the house, e.g. the loss of income incurred for the time the owner could not rent the house to anyone or the cost incurred by renting another house for personal use during the time the house could not be inhabited. By contrast, a purely financial loss not resulting from damage to life or property is not compensated.

The definition of damage to property not only benefits the person having legal ownership, but also extends to other persons holding comparable rights attributed to them, e.g. the right of a tenant to have possession of the house.[49]

Another interesting feature of German tort law is the compensation for immaterial damage (*Schmerzensgeld*). Section 253(2) of the *Bürgerliches Gesetzbuch* (echoed by section 29(2) of the *Atomgesetz*) reads: "If damages are to be paid for an injury to body, health, freedom or sexual self-determination, reasonable compensation in money may also be demanded for any damage that is not pecuniary loss." In such cases, law courts establish an appropriate sum based on sums previously established for comparable injuries. By contrast, there are no punitive damages under German law.

Contrary to the law of some other PC states, the *Atomgesetz* does not contain a pre-defined priority rule for compensation, e.g. giving priority to claims for

48. Concerning the definition of damage to or loss of property, this link is not entirely straightforward, for the term used for "property" in the official German wording of the PC – *Vermögenswerte* – does not figure within the terminology of the *Bürgerliches Gesetzbuch*. However, there is broad consensus among German experts that the term *Vermögenswerte* can be equated to the term *Eigentum oder ein sonstiges Recht* in section 823 *Bürgerliches Gesetzbuch*, which roughly translates as "ownership or another [similar] right". See Pelzer, N. (1978), "*Art. 3 Pariser Übereinkommen*" [Art. 3 Paris Convention], in Fischerhof, H. (1978), *supra* note 39, pp. 834-835; Kühne, G. (1986), "*Haftung bei grenzüberschreitenden Schäden aus Kernreaktorunfällen*" [Liability for transboundary damage from nuclear reactor accidents], *Neue Juristische Wochenschrift* (NJW) 1986, pp. 2139-2146, at p. 2143 et seq.; Haedrich, H. (1986), *Atomgesetz, Kommentar* [commentary], Nomos, Baden-Baden, pp. 527-528, with additional references.

49. See previous note.

compensation of loss of life or personal injury.[50] Section 35 of the *Atomgesetz* provides that in a case where a nuclear incident occurs and compensation for damage is expected to exceed the amount available to satisfy such claims, a federal act (and provisionally an ordinance) will establish distribution guidelines and procedures.

Concerning occupational accidents and occupational diseases caused by nuclear incidents, Germany has a long-standing system of statutory accident insurance under volume VII of the Social Insurance Code (*Sozialgesetzbuch*), which also applies to the nuclear sector.[51] Under this system, the competent bodies for compensation and rehabilitation measures are the employers' accident insurance associations financed by regular contributions from employers. A right of recourse by these associations against individual employers is limited to cases of intent and gross negligence.[52]

B. The new heads of damage under the 2004 Protocol

One of the most prominent, and most challenging, features of the 2004 Protocol to amend the PC is the extension of the definition of damage to be compensated.[53] The new additional heads of damage in Article 1(a)(vii)(3) – (6) of the revised PC are, in short:

3. economic loss arising from loss or damage to life or property;

4. the costs of measures of reinstatement of impaired environment;

5. loss of income deriving from a direct economic interest in any use or enjoyment of the environment;

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

It may seem surprising that the 2008 Amendment does not introduce any wording about the new heads of damage into the *Atomgesetz*. The rationale accompanying the government's bill gives the reason by flatly stating that no provision is needed since German law already covers the PC liability scope even in its new, extended version.[54]

How does that work? Once the 2004 Protocol is ratified, the revised PC, just like the current PC, will be valid German law; this includes the new heads of damage.

50. Section 32(3) of the *Atomgesetz* contains a specific priority rule for actions in respect of loss of life or personal injury that are brought within a ten-year period after the nuclear incident with respect to such claims brought later within the overall 30-year prescription period; this is directly based on Article 8(a) of the PC where this is a condition for the extension of the prescription period by national legislation.
51. Cf. the reference in Article 6(h) of the PC to "social security, workers' compensation or occupational disease compensation systems".
52. *Sozialgesetzbuch* vol. VII, section 110.
53. On the new heads of damage, see Dussart-Desart, R. (2006), "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", in NEA, IAEA (eds.), *International Nuclear Law in the Post-Chernobyl Period, A Joint Report by the OECD Nuclear Energy Agency and the International Atomic Energy Agency*, NEA, Paris, pp. 215-241, at pp. 221-224. For the two environmental heads of damage (nos. 4 and 5), see Pelzer, N. (2010), "Deliberations on Compensation and Remediation of Nuclear Damage to the Environment", *Nuclear Law Bulletin*, No. 86, NEA, Paris, pp. 49-57.
54. Government's Bill for the 2008 Amendment to the *Atomgesetz* (*Entwurf eines Gesetzes zur Änderung haftungsrechtlicher Vorschriften des Atomgesetzes und zur Änderung sonstiger Rechtsvorschriften*) [draft law amending legal liability provisions of the Atomic Energy Act and amending other legislation], *Bundestagsdrucksache* 16/9077, p. 13, right column.

Again, the exact definition of these heads of damage will be established as far as possible under the general rules of the *Bürgerliches Gesetzbuch*.

As explained above, economic loss consequential to damage to life or property (Article 1(a)(vii)(3) of the revised PC) is clearly part of the compensation due under the *Bürgerliches Gesetzbuch*. The same goes for the cost of preventive measures (Article 1(a)(vii)(6) of the revised PC) taken by a (potential) victim. Under the general rule of section 249 of the *Bürgerliches Gesetzbuch*, compensation for measures to prevent or mitigate damage can be claimed if the (potential) victim could reasonably consider such measures to be necessary in light of an actually threatening situation.[55] Victims, however, also have a concomitant obligation to take reasonable measures to reduce or prevent damage if the victim wants to avoid losing part or all of the claim because of contributory negligence.[56] This means that both heads of damage are already now provided by German law.

The two new heads of damage linked to the environment (Article 1(a)(vii)(4) – (5) of the revised PC) are perhaps less straightforward to fit into the system of the *Bürgerliches Gesetzbuch*. Still, it is safe to say they are also broadly covered by it. In Germany, practically all parts of the environment are in some way attributed to persons by way of ownership or by a similar right (e.g. rights of use or of appropriation), such attribution giving these persons a claim for compensation under general rules.[57] The farmer clearly has a claim to compensation, both for the cost of reinstatement of the farmland to the previous condition and for consequential damage, such as loss of income. If animals in wildlife are found to be contaminated, the game tenant holding the lease of the hunting ground can claim compensation. The same applies to the holder of fishing rights.

Ultimately, it would depend on law courts to decide whether the status of "direct economic interest in the environment" would also be attributed to certain persons not having ownership or a similar right pertaining to elements of the environment, thus extending compensation under the PC somewhat beyond the limits of general civil law in these cases, or whether to keep within the system of the *Bürgerliches Gesetzbuch*, which seems possible considering that under Article 1(a)(vii) of the PC the new heads of damage are applicable "to the extent determined by the law of the competent court". Similar considerations would apply to the category of "reinstatement of impaired environment" in cases where the damage to the environment does not translate into loss for an individual person, e.g. when competent authorities take measures to redress the state of biodiversity altered by a nuclear incident. As Norbert Pelzer has demonstrated with compelling arguments, the 2004 Protocol itself has not introduced a concept of responsibility for public damage; damage and compensation under the third party civil liability regime of the PC continue to be related to individually attributed rights, not to protection of the environment as a common asset of the general public.[58] With regard to this clear concept and given the qualifiers used by the 2004 Protocol such as "direct" economic interest or "significant" impairment, the boundaries of the definitions of damage and compensation in German civil law might be somewhat expanded in individual cases, but they will not be overturned.

55. Oetker, H. (2012), *Münchener Kommentar zum Bürgerlichen Gesetzbuch* [Munich Commentary on the Civil Code], vol. 2, 6th edition, C. H. Beck, Munich, margin number 178 under section 249; for application of this principle to a nuclear incident, see Kühne, G. (1986), *supra* note 48, p. 2144.
56. Contributory negligence is addressed in section 27 of the *Atomgesetz* and section 254 of the *Bürgerliches Gesetzbuch*.
57. The term "ownership or another right" figures in section 823 of the *Bürgerliches Gesetzbuch*, see *supra* note 48.
58. Pelzer, N. (2010), *supra* note 53, pp. 53-54 and p. 56.

VIII. Limitation of claims in time

Article 8 of the PC stipulates that the right of compensation under the Convention shall be subject to prescription or extinction if an action is not brought within ten years from the date of the nuclear incident. The 2004 Protocol extends this period to 30 years but limits this to claims with respect to loss of life or personal injury. Germany has from the start established a 30-year period for all kinds of damage (section 32(1) *Atomgesetz*). Such extension is expressly allowed by Article 8(a) of the PC; additionally, the German government took care to safeguard this option by a reservation.[59] In compliance with Article 8(b) of the PC, section 32(2) of the *Atomgesetz* establishes a 20-year limit for the cases addressed there (theft, loss, etc.).

IX. Amount of liability and cover

The extent of liability and the amount and type of cover are perhaps the features of the German system that arouse the greatest interest. A cover of EUR 2.5 billion, provided by mandatory financial security plus additional state funds if needed, and unlimited liability of operators, opening the access to their entire assets for further compensation, are features that obviously ensure compensation of victims to a very high degree.

A. The principle: Unlimited liability

Nuclear third party liability as established in the 1959 *Atomgesetz* was limited.[60] The 1975 legislation implementing the PC raised the amount,[61] but retained the principle, of limitation. But in 1985, Germany took a resounding step by introducing unlimited liability. Section 31(1) of the *Atomgesetz* was reworded and now simply states: "The liability of the operator of a nuclear installation under the Paris Convention … shall be unlimited". This means that if compensation exceeds the sum made available via the mandatory financial security and, if applicable, the state indemnification and supplementary BSC funds, the operator will have to pay compensation out of its own funds until (in theory) all assets are entirely exhausted and the operator becomes insolvent.

The feasibility of introducing unlimited liability was a key topic of the discussion leading to the 1985 legislation.[62] One issue that seemed to pose an obstacle was a potential conflict with the PC. In fact, unlimited liability was difficult to reconcile with the wording of the then applicable PC or with that of the 1982 revision (which at that time was not yet in force). Proponents of unlimited liability (and the German government) arrived at an interpretation of the PC that went beyond the mere wording and implied a broader view on the overall system of the PC[63] and on its character as a treaty establishing a system of law ("*traité-loi*") that may develop over time beyond the original intentions of the drafters if this serves to fulfil the treaty's objectives.[64] The other contracting parties to the PC, if perhaps not entirely

59. PC, Annex I, reservation no. 3.
60. That limit was DEM 500 million, see section 38(1) in connection with section 36(1) of the 1959 *Atomgesetz*, *supra* note 5.
61. The limit was raised to DEM 1 billion, see section 31(1) as amended by the 1975 amendment to the *Atomgesetz*, *supra* note 7, p. 1890.
62. For this discussion, see the overview with additional references given by Haedrich, H. (1986), *supra* note 48, pp. 520-526.
63. See the Parliamentary Bill for the 1985 Amendment to the *Atomgesetz* (*Entwurf eines Gesetzes zur Änderung des Atomgesetzes*) [draft act amending the Atomic Energy Act], *Bundestagsdrucksache* 10/2200, p. 5
64. Pelzer, N. (1982), *Begrenzte und unbegrenzte Haftung im deutschen Atomrecht* [Limited and unlimited liability in German nuclear law], Nomos, Baden-Baden, pp. 54-56.

convinced by these arguments, anyway accepted the introduction of unlimited liability in Germany as a *fait accompli*.[65]

The issue of compatibility with the PC now belongs to the realm of history. In the 2004 revision of the PC, the wording of Article 7 was altered precisely to clearly accommodate the existing unlimited liability regimes of Germany and Switzerland (the latter, signatory to the 1960 PC and all subsequent Protocols, had introduced unlimited liability in 1984[66]) and to allow other contracting parties to introduce unlimited liability.[67] In 2012, Finland took this step.[68] With the pending coming into force of the 2004 Protocol, Switzerland will finally become a contracting party,[69] and Germany is gradually losing its exceptional status within the PC regime.

When looking at the discussion in Germany leading to the introduction of unlimited liability in 1985, it appears that the arguments that finally prevailed are still valid today.[70] Already at that time it was felt that the nuclear industry had grown to maturity and that it was time to do away with a privilege patently alien to general tort law. In this context, it was convincingly demonstrated that there is no inevitable connection between strict liability and a limitation of liability.[71] The operators in turn were prepared to accept unlimited liability. For large nuclear installations such as nuclear power plants, section 7 of the *Atomgesetz* establishes a very exacting safety threshold by requiring "the precaution against damage which is necessary in the light of the state of the art in science and technology". According to the interpretation given to this requirement by the Federal Constitutional Court (*Bundesverfassungsgericht*) in a landmark ruling in 1978, this means that harmful events must be "practically excluded" and "beyond the limits of cognitive capacities of man".[72] Operators felt – and still feel – it would be inconsistent to assert with full confidence that their installations, for which they have obtained a licence under

65. Pelzer, N. (2007), "The NEA Nuclear Law Committee – from the viewpoint of a Committee Member", Colloquium on the Past, Present and Future of the Nuclear Law Committee, NEA/SEN/NLC(2007)2, pp. 41-48, at p. 46.
66. Section 3 of the Swiss Nuclear Liability Act (*Kernenergiehaftpflichtgesetz*) of 18 March 1983, *Amtliche Sammlung* [Official compilation] 1983, p. 1886, effective from 1 January 1984.
67. Final Act of the Conference on the Revision of the Paris Convention and of the Brussels Supplementary Convention, Paris, 12 February 2004, Annex IV (Explanatory Report), para. 23 (Article 7 reworded "to clarify the situation and to adjust Article 7 to developments in national legislation"); more explicitly Dussart-Desart, R. (2006), *supra* note 53, p. 227.
68. See the summary account of the Temporary Amendment to the Nuclear Liability Act (2011) in *Nuclear Law Bulletin*, No. 87, NEA, Paris, p. 97.
69. Switzerland ratified the 2004 Protocol in 2009; this will become effective upon entry into force of the 2004 Protocol. See NEA (2015), "Paris Convention on Third Party Nuclear Liability: Latest status of ratifications or accessions", www.oecd-nea.org/law/paris-convention-ratification.html (accessed 29 March 2016).
70. For two eloquent and convincing pleas in favour of unlimited liability from recent times, see Pelzer, N. (2010), "Compensation for Large-scale and Catastrophic Nuclear Damage", in Nótári, T. and G. Török (eds.), *Prudentia Iuris Gentium Potestate, Ünnepi tanulmányok Lamm Vanda tiszteletére* [liber amicorum for Vanda Lamm], MTA Jogtudományi Intézete, Budapest, pp. 341-357, at pp. 348-349; and Dussart-Desart, R. (2014), "What Can the Victims of a Nuclear Incident Expect from the Initiative of European Commission Related to Nuclear Liability?", in Raetzke, C. (ed.), *Nuclear Law in the EU and Beyond*, Proceedings of the AIDN/INLA Regional Conference 2013 in Leipzig, Nomos, Baden-Baden, pp. 287-308, at p. 294.
71. Pelzer, N. (1982), *supra* note 64, pp. 34-36.
72. Decision of 8 August 1978, BVerfGE 49, 89, at p. 143; for the safety requirement of section 7 *Atomgesetz* as interpreted in this and other judgements, see Raetzke, C. (2013), "Nuclear law and environmental law in the licensing of nuclear installations", *Nuclear Law Bulletin*, No. 92, NEA, Paris, pp. 55-88, at p. 59 (with note 17).

these preconditions, pose only a theoretical risk, but at the same time to ask for limitation of liability.[73]

And finally, and quite obviously, unlimited liability of the operator is a benefit to victims. Even though the funds of the operator cannot be as unlimited as the operator's liability, they can provide additional compensation.

In this context, it is essential that even though many German NPPs are actually operated by subsidiary companies, liability nevertheless extends to the large parent company utilities who are the actual owners of the NPPs. This is achieved by two means.[74] First, as mentioned earlier, licences for a number of German nuclear power plants are held both by the NPP site operator subsidiary company and by the parent company or parent companies. In these cases the parent company or parent companies, as licensees, are by definition "operators" of the nuclear installation and therefore directly liable under the PC. The second way is the installation of profit and loss transfer agreements between the NPP site operator subsidiary companies and their parent companies. As a result, the parent company is obliged to provide its NPP site operator subsidiary with the financial means necessary to comply with its obligations, including those under nuclear third party liability. Such profit and loss transfer agreements are not mentioned in the liability provisions of the *Atomgesetz*, but they were implemented decades ago by the utilities in accordance with the regulatory authorities. When the utilities in 2001 installed the system of mutual guarantees to provide the mandatory financial cover for nuclear liability (see below), it became an issue of common interest of the industry itself that an NPP site operator subsidiary company stricken by a nuclear incident can avail itself of the assets of its parent company before it is entitled to trigger the system of mutual guarantees due to lack of funds. Accordingly, the 2001 Solidarity Agreement made it an obligation to maintain (and, if necessary, establish) these profit and loss transfer agreements.[75]

B. Liability for damage outside Germany

Section 25(4) of the *Atomgesetz* plainly states: "The operator of a nuclear installation shall be liable, irrespective of the location of damage occurrence. Article 2 of the Paris Convention shall not apply." With this, the German legislature made maximum use of the option given by the PC to extend the territorial application beyond the limits specified in Article 2 of the PC. In fact, the German provision even goes beyond the enlarged territorial scope of the 2004 Protocol. If a German operator is liable under German law, the operator is liable for damage wherever suffered (provided German law applies).

This does not automatically mean, however, that the person having suffered damage outside Germany can benefit from unlimited liability of the German operator. Section 31(1), the provision introducing unlimited liability, is conditioned for damage suffered outside Germany by paragraph 2 of the same section. Paragraph 2 is mainly based on the principle of reciprocity. Broadly speaking, the liability of a German operator for damage suffered in a foreign country is limited to

73. The author was in-house lawyer to the large German utility E.ON Kernkraft from 1999 to 2011.
74. For both instruments, see Hohlefelder, W. (1985), "*Das neue Nuklearhaftungsrecht*" [The new nuclear liability law], *Atomwirtschaft*, pp. 252-256, at p. 255; Haedrich, H. (1986), *supra* note 48, pp. 521-522.
75. 2001 Solidarity Agreement, section 1(7), see *infra* note 91.

the amount of liability that the legislation of that other state would afford to German victims under the same scenario.[76]

Section 31(2) in its current version has three clauses dealing with three different types of states in which the damage occurs. Sentence 1 offers full reciprocity to states that have introduced unlimited liability for nuclear damage, including for damage suffered in Germany. With regard to states in the vicinity of Germany, this would apply to Austria only. Switzerland also enjoys full reciprocity but by virtue of the 1986 bilateral agreement.[77] Finland in 2012 introduced unlimited liability but only for domestic damage; for damage outside Finland, liability is limited to SDR[78] 600 million.[79] Hence, Finland falls into the next category.

Sentence 2 applies to states that limit nuclear liability, that is, the vast majority of states in Europe. In these cases, the German operator is liable up to the amount established by the other state's legislation for nuclear liability damage in Germany. In establishing the limit of liability, the provision expressly includes any supplementary funds made available by virtue of an international convention; this obviously aims at the BSC.[80] This means that the liability of a German operator for damage suffered in a BSC state is limited to at least SDR 300 million (in the future, under the revised BSC[81] 2004 this sum will increase to EUR 1.5 billion).

Sentence 3 finally addresses damage suffered in a state without any nuclear installation (as defined in the PC). In such a case, the reciprocity principle is not applied, which makes sense since such states as a rule do not have any nuclear liability legislation. Instead, the provision sets a firm liability limit of the German operator by referring to the maximum amount under the BSC (SDR 300 million). Once the 2008 amendment to the *Atomgesetz* comes into force, this will be replaced by unlimited liability.

The principle of reciprocity undeniably has a logic to it – liability of the German operator is offered to the victim in another state only to the same extent as victims in Germany would benefit from the liability of an operator of that state under their domestic legislation. This corresponds to the old principle of Roman law *do ut des*. Even so, it was contested by other PC contracting parties when Germany introduced unlimited liability in 1985. Apart from the general question of whether unlimited liability was at all possible under the PC (see above), the corollary argument (and the

76. For a detailed analysis of section 31(2) of the *Atomgesetz* and the reciprocity principle, see Raetzke, C. (2016), "*Haftung deutscher Betreiber für Auslandsschäden: Das Gegenseitigkeitsprinzip des § 31 Abs. 2 Atomgesetz*" [Liability of the German operator for damage abroad: The reciprocity principle of § 31 para. 2 Atomic Energy Act], in Raetzke, C., U. Feldmann and A. Frank (eds.), *Aus der Werkstatt des Nuklearrechts (News from the front lines of nuclear law)*, Proceedings of the 14th Regional Conference of the German Branch of INLA, Nomos, Baden-Baden, 2016 (forthcoming).
77. *Supra* note 29.
78. The SDR (Special Drawing Right) is a reserve asset defined and maintained by the International Monetary Fund. The value of the SDR is defined by a weighted currency basket of four major currencies: the euro, the US dollar, the British pound and the Japanese yen. For more detailed discussion on the SDR, see International Monetary Fund (2016), "Special Drawing Rights (SDR)", www.imf.org/external/np/exr/facts/sdr.HTM. As of 21 June 2016, SDR 1 equals approximately USD 1.42 and EUR 1.25. (For current value of SDR, see IMF, "SDR Valuation", www.imf.org/external/np/fin/data/rms_sdrv.aspx.).
79. Temporary Amendment to the Nuclear Liability Act (2011), *supra* note 68.
80. Germany is not a party to the Convention on Supplementary Compensation (1997), IAEA Doc. INFCIRC/567, 36 ILM 1473, entered into force 15 April 2015 (CSC).
81. Protocol to amend 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 and by the Protocol of 16 November 1982 (2004) (not yet in force), available at: www.oecd-nea.org/law/brussels_supplementary_convention.pdf (2004 Protocol to amend the BSC).

argument that was perhaps more relevant for the other states in practice) was that under the non-discrimination rule of Article 14 of the PC, the benefit of unlimited liability, if at all introduced, should have been extended to victims in all PC states. However, the German government rightly argued that the application of the *do ut des* principle is at the basis of the non-discrimination principle itself and that other parties cannot claim to receive more than they in return give to Germany.[82] In any event, the German reciprocity clause, much as unlimited liability, was more or less accepted as a *fait accompli* by the other PC states.[83] Again, as with the question of unlimited liability, the 2004 Protocol resolved the issue. By way of a modification of Article 15(b) of the PC, it allows contracting parties to introduce conditions (of any kind)[84] derogating from the provisions of the PC (including the non-discrimination principle) provided the minimum liability limits prescribed by the PC are met. Under the revised PC, the German reciprocity clause is perfectly permissible.[85] What is more, it will lose its "discriminatory" effect to the extent other states in turn introduce unlimited liability.

The reciprocity clause of section 31(2) of the *Atomgesetz* by its very mechanism currently leads to limitation of liability of the German operator for damage in most other countries since most other countries have limited liability. Still, it is interesting to note that in most cases, in practice, the German operator would have to assume a more extensive liability than the counterparts in those countries. First, as explained above, the third tier of the BSC is factored into the liability limit. Second, if we suppose a nuclear incident in a nuclear installation of a neighbouring country with limited liability that results in radiation spreading to Germany, victims in Germany will only benefit from a share of the overall liability of the foreign operator, depending on their quota of damage suffered in relation to the damage incurred in the accident state. In the reverse case, the German operator is liable for damage in the other country up to the total sum established by legislation in that country (plus the BSC amounts), independent of the (unlimited) compensation owed in parallel to victims in Germany. This is obviously exacerbated when more than one other country is affected; in such a case, the liability limits (if any) of the German operator for damage suffered in the given countries are accumulated.[86] This underlines that the aim of the reciprocity clause is not to protect the German operators, but to achieve equity between states.

82. Feldmann, F.-J. (1986), "Reciprocity within the Framework of Nuclear Civil Liability Law", in Pelzer, N. (ed.), *Status, Prospects and Possibilities of International Harmonization in the Field of Nuclear Energy Law: Proceedings of the Seventh International Conference NUCLEAR INTER JURA '85*, Nomos, Baden-Baden, 1986, pp. 311-319, at p. 318.
83. Pelzer, N. (1998), "*Atomhaftungsrecht*" [Nuclear liability law], in Rengeling, H.W. (ed.), *Handbuch zum europäischen und deutschen Umweltrecht* [Handbook on European and German environmental law], vol. II, *Besonderes Umweltrecht* [Special environmental law], Carl Heymanns Verlag, Cologne/Berlin/Munich, pp. 420-445, at p. 432.
84. In the current version of the PC, Article 15(b) of the PC is restricted to compensation involving public funds and would thus seem not to apply to compensation provided under the unlimited liability of the operator.
85. Dussart-Desart, R. (2005), "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", *Nuclear Law Bulletin*, No. 75, NEA, Paris, pp. 7-33. At p. 29, Roland Dussart-Desart comes to the unequivocal conclusion: "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."
86. A more detailed analysis including a number of case studies for illustration is provided by Raetzke, C. (2016), *supra* note 76.

C. Cover of liability: Overview

In the German system, cover of nuclear third party liability to the amount of EUR 2.5 billion is provided by two elements: the operator's mandatory insurance or other financial security, the amount of which is established in a flexible system but hits the ceiling of EUR 2.5 billion for NPPs, and, if needed, an additional state indemnification filling the gap to EUR 2.5 billion. On top of this, the international funds of the BSC come into play if applicable. Finally, if the nuclear incident occurs outside Germany and the law of another state is applicable, a state compensation comes into play to supplement any shortcomings in the compensation offered by the other state for damage suffered in Germany up to EUR 2.5 billion.

D. Insurance or other financial security: Amount

The operator of a nuclear installation is required to provide and maintain financial security to cover its liability obligations (*Deckungsvorsorge*). This principle is established in section 13 of the *Atomgesetz*; a specific Ordinance, the Nuclear Financial Security Ordinance (*Atomrechtliche Deckungsvorsorge-Verordnung*),[87] contains more details. The requirement to provide and maintain financial security obviously coincides with Article 10 of the PC; however, the financial security under section 13 of the *Atomgesetz* – a provision in existence since 1959 – is not limited to nuclear installations and activities under the PC. It is also relevant for less hazardous nuclear installations and activities under the liability regime of section 26 of the *Atomgesetz* (see below).

The system is rather flexible. The amount of cover to be provided is constituted individually for each nuclear installation or activity. Section 13(3) of the *Atomgesetz*, in the version introduced in 2002, establishes a ceiling of EUR 2.5 billion and otherwise contains some general language that the amount shall be determined in conjunction with the hazard. Depending on the kind of installation or activity concerned, the Nuclear Financial Security Ordinance prescribes a system of calculations based on the installed capacity of reactors (section 9 of the Ordinance), on the mass of fissionable material involved (Annex 1) or on the activity of non-fissionable radioactive substances (Annex 2). Suffice it to say that reactors with a thermal capacity of more than approximately 300 MW – that is, all commercial reactors in Germany – reach the upper limit of EUR 2.5 billion. For reactors in the decommissioning phase, section 12 of the Ordinance allows for lower sums once spent fuel and radioactive waste have been removed from the NPP. For transports, section 8(6) of the Ordinance stipulates an indicative upper limit of EUR 35 million, which may in exceptional cases be increased to twice this sum. For storage of radioactive substances, the cap is EUR 350 million (section 8(7)). In light of the minimum levels introduced by the 2004 Protocol – EUR 70 million for low risk nuclear installations and EUR 80 million for transport of nuclear material (Article 10(a) in combination with Article 7(b) of the revised PC) – the 2008 amendment added a clause to section 13 of the *Atomgesetz* ensuring these minimum levels are observed.[88] The Ordinance has yet to be adapted accordingly.

In line with Article 10 of the PC, cover can be provided both by insurance or by another financial security. Some prerequisites for both modes are contained in sections 2 and 3 of the Ordinance. It is worthwhile noting that in Germany there is no direct action against the insurer (see section 14(1) of the *Atomgesetz*).

87. *Atomrechtliche Deckungsvorsorge-Verordnung* [Nuclear Financial Security Ordinance] of 25 January 1977, *Bundesgesetzblatt* I, p. 220, as amended. An unofficial English translation can be found on the website of the Federal Office for Radiation Protection (*Bundesamt für Strahlenschutz*) at www.bfs.de/SharedDocs/Downloads/BfS/EN/hns/a1-english/A1-01-16-AtDeckV.pdf?__blob=publicationFile&v=4.
88. 2008 Amendment, Art. 1(7), *supra* note 14.

In the licensing process for the nuclear installation or nuclear activity, the regulatory authority will determine the amount of cover; this amount will be laid down in the relevant nuclear licence (e.g. the operating licence of a nuclear power plant) or, as the case may be, in a separate licence. In the German federal system, licensing of nuclear installations and activities is mostly the responsibility of the regulators of the individual states (*Länder*) who are competent, *inter alia*, to license nuclear power plants; the Federal Office for Radiation Protection (*Bundesamt für Strahlenschutz*) is, broadly speaking, the competent authority for the licensing of storage and transport of fissionable material.[89] The determined financial security is reviewed every two years, or less if circumstances change (section 13(1) of the *Atomgesetz*). The licensee is obliged to procure and to demonstrate the required financial security. If the licensee fails to do so within a reasonable period of time, the licence shall be withdrawn (section 17(4) of the *Atomgesetz*).

E. Providing the operator's financial security: Insurance and Solidarity Agreement

For nuclear facilities other than nuclear power plants and for the transport of nuclear material, insurance is the normal way to demonstrate the legally required cover. As is generally the case in nuclear energy countries, the insurance sector has created a national pool for this purpose, the *Deutsche Kernreaktor-Versicherungsgemeinschaft* (DKVG) founded in 1957.

For the German nuclear power plants, an additional pooling system has been in place since 2002. Until then, the mandatory financial security for nuclear power plants of DEM 500 million (approximately EUR 256 million) was provided by insurance. When this amount was raised tenfold to EUR 2.5 billion in 2002, a sum far beyond the capacity offered by the insurance market, operators responded by creating a new two-tiered system. The original layer of insurance was retained as a first tier of cover. The second tier of approximately EUR 2.244 billion,[90] raising the total financial security to the required sum of EUR 2.5 billion, is provided by way of an agreement between the four big utilities (combined, these utilities own and operate all German nuclear power plants): the so-called Solidarity Agreement (*Solidarvereinbarung*).[91] It was concluded in August 2001 after its draft had been

89. For an overview of the distribution of regulatory and licensing competences in Germany, see Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2014), Convention on Nuclear Safety, Report by the Government of the Federal Republic of Germany for the Sixth Review Meeting in March/April 2014, pp. 46-54, available at: www.bmub.bund.de/en/service/publications/downloads/details/artikel/convention-on-nuclear-safety.

90. The exact numbers are EUR 255 645 000 for the insurance tier and EUR 2 244 355 000 for the second tier provided by the Solidarity Agreement.

91. *Solidarvereinbarung zwischen Energie Baden-Württemberg AG, E.ON Energie AG, Hamburgische Electricitäts-Werke AG und RWE AG* [Solidarity agreement between Energie Baden-Württemberg AG, E.ON Energie AG, Hamburgische Electricitäts-Werke AG and RWE AG] of 11 July/27 July/21 August/28 August 2001, reproduced in Posser, H., M. Schmans and C. Müller-Dehn (2003), *Atomgesetz, Kommentar zur Novelle 2002* [Atomic Energy Act, commentary on the amendment in 2002], p. 342. There seems to be no version available on the internet and no English version in existence. For an explanation of the function of the *Solidarvereinbarung*, see two texts by its author: Schmans, M. (2003), in Posser, H. et al. (2003), id. at pp. 230-232; Schmans, M. (2003), "*Deckung der nuklearen Haftpflicht durch Betreibermittel in Deutschland*" [Cover of nuclear liability through funds of the operators in Germany] in Pelzer, N., *Brennpunkte des Atomenergierechts* / Nuclear Law Problems in Focus, *Tagungsbericht der AIDN/INLA-Regionaltagung in Wiesbaden 2002* [Proceedings of the AIDN/INLA Regional Conference in Wiesbaden 2002], Nomos, Baden-Baden, pp. 163-168. An explanation of the *Solidarvereinbarung* in the English language is given by Pelzer, N. (2007), "International Pooling of Operators' Funds: An Option to Increase the Amount of Financial Security to Cover Nuclear Liability?", *Nuclear Law Bulletin*, No. 79, NEA, Paris, pp. 37-55, at pp. 43-45; and, very succinctly, by Vorwerk, A. (2002), *supra* note 13, p. 14.

endorsed by the federal regulator.[92] It entered into force in 2002 together with the amendment to the *Atomgesetz*.

The Solidarity Agreement establishes a system of mutual guarantees. The sum of EUR 2.244 billion is divided among the four partners in proportion to their respective share in the thermal capacity of the 20 nuclear power plants existing at that time in Germany. Since many plants are in co-ownership, this makes for a complicated calculation (contained in an appendix to the Solidarity Agreement, subject to updates if necessary). Each of the four partners commits to provide the liable operator with its share of the sum, in part or in full, if a nuclear incident occurs and to the extent the liable operator (including its parent company, if applicable) does not have funds equal to EUR 2.244 billion. Contributions are only due when a nuclear incident occurs; there are no premiums and there is no advance collection and accumulation of funds. Hence, the pooling is retrospective in nature.

In order to demonstrate the existence and effectiveness of this second tier of financial security of EUR 2.244 billion, each of the four utilities obtains an annual certification (in the context of the annual statement of account) of a certified public accountant that the relevant sum is available in the balance sheet and can be provided in liquid funds within one year. The relevant sum for each utility is its share in the EUR 2.244 billion overall scheme, multiplied by two (in order to cover multiple events) and adding 5% on top for the cost of claims management. To give an example, the sum certified for E.ON (which has a share of approximately 40% of the German nuclear thermal capacity) in 2002 was about EUR 1.9 billion.[93] The utilities provide their competent Länder regulators with copies of the certificates of all four utilities, thus demonstrating that the sum of EUR 2.244 billion is available at any time.

In the event of a nuclear incident triggering claims for compensation, the German insurance pool would commence with the claims management. If the overall compensation due exceeds the insurance tier of approximately EUR 256 million, a claims management system established by the four partners of the Solidarity Agreement would take over. This system relies on human resources, offices and IT systems of the four partners normally employed across the whole range of their activities, but which would immediately be re-allocated to claims handling in the event of a nuclear incident. Procedures and manuals for this are in place. Staff and technology are kept prepared through regular training and updating. There are also contracts with external service providers to put facilities such as call centres at the disposal of the system at short notice.

The German two-tier system of insurance and retrospective operators' pooling for nuclear power plants has obvious advantages. It makes it possible to raise the amount of the financial security to a level that is by far the most significant in any European country. Worldwide, the German system is second only to the Price-Anderson system in the United States (US); though the German system goes even further than the US system because in Germany, unlimited liability would make available additional funding from the assets of the liable operator. Professional handling of claims is warranted by the interplay of the insurers, who are well

92. As explained above, licensing and supervision of most nuclear installations, including nuclear power plants, is in the remit of the *Länder* authorities; however, the Federal Ministry of the Environment exerts directive authority over the *Länder* regulators. In a letter of 8 June 2001 addressed to the utilities, the Federal Ministry endorsed the Solidarity Agreement as a means of providing the required financial cover and committed to instruct the *Länder* regulators accordingly; the letter is reproduced in Posser, H. et al. (2003), *supra* note 91, p. 360.

93. See the certification template in Posser, H., et al. (2003), *supra* note 91, p. 356.

equipped and experienced to perform claims handling, and the operators' sophisticated claims management system. State funds (via the state indemnification under section 34 of the *Atomgesetz*; see below) do not have to come into play to supplement any exclusions from the cover provided by the Solidarity Agreement; there are none. The operators, in their turn, only have to pay the premiums for the first tier provided by insurance; the second and main tier provided by the Solidarity Agreement does not entail any payments unless a nuclear incident actually occurs and the liable partner is unable to provide money up to the statutory limit. Quite obviously, this financial security is not for free; the commitment appears in the four companies' annual reports and may be seen as a burden affecting credit ratings and share price. Besides, the companies have to bear the cost associated with maintaining the claims management system. Still, the concept achieves high amounts of cover without stifling the industry.

Despite these advantages, it would seem difficult to spread this system across borders and to take it as a blueprint for regional or international pooling.[94] Among the four German operators there is a high degree of co-operation and of mutual trust. A number of German NPPs are owned jointly by two utilities. In safety issues, the utilities are united in a long-standing co-operation; for example, in the national nuclear society *Kerntechnische Gesellschaft* (KTG). All German NPPs still active in 2011 were designed and constructed by the same supplier, so that the utilities are knowledgeable about the reactors operated by their peers. Finally, all NPPs operate in the same economy, under the same legislation and regulations and with the same overall approach to safety culture.[95] All these favourable factors combined to create an environment that made the Solidarity Agreement possible. For any regional solution of operator pooling (such as within the EU), comparable prerequisites would have to be achieved in advance.

F. State indemnification

Section 34 of the *Atomgesetz* provides for supplementary state funds. The Federation has to indemnify the operator for compensation claims "as far as these are not covered by the financial security or as far as they cannot be provided by it". The maximum amount of this state indemnification (*Freistellungsverpflichtung*) is EUR 2.5 billion; accordingly, the actual indemnity claim in an individual case is EUR 2.5 billion minus the amount delivered by the operator's financial security. In other words, the state indemnification raises the compensation available after a nuclear incident to the sum of EUR 2.5 billion by filling any gaps that may arise. It achieves this by providing the liable operator with a claim for indemnification against the Federation; a victim does not have a claim against the Federation.

The state indemnification was provided in the *Atomgesetz* from the start and only partly overlaps with obligations under the PC and the BSC. It seems essential to distinguish two functions.

First, the state indemnification fills gaps in the mandatory financial security (insurance) actually provided, caused e.g. by exclusion clauses in the insurance contract (such as claims beyond ten years), by insolvency of the insurer or by non-compliance of the operator (e.g. the insurance contract has expired).[96] In this respect, it fulfils a role not expressly mentioned in the 1960/82 PC but now enshrined

94. The recommendation made by Pelzer, N. (2007), *supra* note 91, to reconsider international pooling of operators' funds is largely based on the German system.
95. The importance of unified market conditions, legislation and safety levels is acknowledged by Norbert Pelzer, *ibid.* pp. 51-52.
96. If a gap in cover is due to the operator's non-compliance, section 37 of the *Atomgesetz* gives the Federation a right of recourse against the operator.

in Article 10(c) of the revised PC. For nuclear power plants, this function has become less significant since the Solidary Agreement has no exclusion clauses and availability of means is certified annually.

Second, the state indemnification raises the amount of total cover by providing for additional compensation (if needed) beyond the mandatory financial security. In the 1959 *Atomgesetz*, the indemnification, with the limit set at DEM 500 million,[97] was seen as an important factor to enable the fledgling nuclear industry to develop despite the very limited capacities on the insurance market.[98] From the ratification of the PC in 1975, when it was set at DEM 1 billion, the state indemnification had a vital role in bridging the gap between mandatory financial security (with a maximum of DEM 500 million) and liability (DEM 1 billion) and thus ensuring congruence of liability and cover under the PC.[99] With the introduction of unlimited liability in 1985, the concept of congruence lost its meaning. In 2002, the state indemnification and the maximum mandatory financial security, relevant for nuclear power plants, were both fixed at the same amount of EUR 2.5 billion. Since then, the state indemnification's function of increasing cover is only relevant for other, less hazardous nuclear installations and for nuclear transports; this relevance is, however, rather theoretical, given the limited potential for damage involved. In this role of increasing cover, the state indemnification fulfils (in part) the function of public funds under the second tier of the BSC (BSC, Article 3(b)(ii)) but goes well beyond the amounts established even in the 2004 Protocol to amend the BSC (i.e. from the operator's liability to EUR 1.2 billion).

G. Brussels Supplementary Convention

Germany ratified the BSC in 1975; it entered into force for Germany on 1 January 1976.[100] As the BSC establishes obligations of public international law between its contracting parties to supply additional compensation, but does not affect the private law relationship between the operator and the victim,[101] there is no provision in the *Atomgesetz* directly implementing the BSC or substantially referring to it; its existence is only reflected in some marginal references.[102]

At the time of ratification and some years after, a major issue with the BSC for Germany, and in the course of time also for other countries that raised their liability and cover amounts, was the effect of high national limits of liability and cover exceeding the level of the second tier of the BSC, namely SDR 175 million, and even that of the third tier of altogether SDR 300 million, on the three-tier system of the BSC.[103] This created doubts and uncertainties as to the triggering of the third tier of

97. Section 36 of the 1959 *Atomgesetz* (*supra* note 5).
98. Government's Bill for the 1959 *Atomgesetz* (*Entwurf eines Gesetzes über die friedliche Verwendung der Kernenergie und den Schutz gegen ihre Gefahren* [*Atomgesetz*]) [draft Act on the peaceful use of nuclear energy and the protection against its hazards (Atomic Energy Act)], *Bundestagsdrucksache* 3/759, p. 39, under § 37.
99. See Pelzer, N. (1982), *supra* note 64, p. 39, and Haedrich, H. (1986), *supra* note 48, p. 390.
100. *Bundesgesetzblatt* 1976 II, p. 308.
101. Government's Bill for the 1975 Amendment to the *Atomgesetz*, *supra* note 9, p. 13 under no. 2.
102. See, for example, the indirect reference to "additional compensation on the basis of international conventions" in section 31(2), second sentence, of the *Atomgesetz* where, as explained above, the third tier of the BSC is one of the elements defining the extent of liability of a German operator for damage in another country. In the third sentence, there is a direct reference to the "maximum amount as specified in the Brussels Supplementary Convention". See also sections 4a(3) and (4) of the *Atomgesetz*, which deal with financial cover for transboundary carriage.
103. For the three tiers, see BSC, Art. 3(b).

SDR 125 million provided by contributions of all parties.[104] This led to the so-called deferment solution established by a Recommendation of the OECD Council of 26 November 1992.[105] According to this scheme, the obligation of contracting parties to contribute under the third tier is not diminished or obliterated if the amount of insurance or other financial security provided by national legislation is higher than SDR 175 million; however, in such cases the third tier is deferred, meaning the funds are to be mobilised only when the compensation to be paid after a nuclear incident exceeds the amount of cover. For Germany, this means that the third tier under the BSC would currently come into play when overall compensation exceeds the threshold of EUR 2.5 billion.

In line with the general approach of the 2004 Protocols to amend the PC and BSC to accept the decision of the parties to establish high or even unlimited liability and high mandatory cover, Article 9(c) of the revised BSC relinquishes the deferment solution and instead obliges the parties to make available the funds under the third tier once the amount of compensation reaches the total of the first and second tiers, irrespective of whether funds are still available from cover or liability of the operator. This new solution was devised to avoid penalising states that impose high limits of operator financial security; it was deemed more equitable to mobilise the international tier at the same time for all contracting parties.[106] This means that once the 2004 Protocol to amend the BSC enters into force, the third tier will be mobilised after a nuclear incident in Germany when compensation reaches the threshold of EUR 1.2 billion, regardless of the fact that funds under mandatory financial security and state indemnification (EUR 2.5 billion) plus additional assets of the operator under unlimited liability would still be available.

H. Compensation according to section 38 of the Atomgesetz

Section 38 of the *Atomgesetz* is an interesting provision complementing the system of cover. Under section 38, the Federation affords compensation (*Ausgleich*) to persons having suffered damage in Germany in the wake of a nuclear incident in specified cases where these victims cannot, under the rule of a foreign legislation, obtain the same amount of compensation they would be entitled to under German law. The idea of what could be called a "statutory deficit guarantee"[107] is that victims in Germany should benefit from the same cover, regardless of whether German or a foreign law is applicable. Accordingly, this compensation is limited to the maximum amount specified for the state indemnification under section 34 of the *Atomgesetz*, i.e. EUR 2.5 billion.

There are two circumstances specified in section 38. The first one (in paragraph 1) applies when the courts of another state being party to the PC or to the Vienna Convention[108] and the Joint Protocol are competent[109] and when application of the *lex fori* in certain aspects results in a person having suffered damage in Germany receiving no compensation at all or a compensation that falls short of that

104. According to Article 9(c) of the BSC, no contracting party is obliged to make available public funds under the third tier as long as any funds under the first tier remain available.
105. Recommendation of the Council on the Application of the Brussels Supplementary Convention, in the Field of Nuclear Liability, C(92)166/FINAL, 27 November 1992, available at: www.oecd-nea.org/law/docs/c92-166-en.pdf. For a short note on this, see Pelzer, N. (2007), *supra* note 65, p. 45; for greater detail (in German) see, Pelzer, N. (1998), *supra* note 83, at pp. 439-440.
106. Final Act of the 2004 Conference, *supra* note 67, Annex IV, para. 55.
107. In German: "*Eine Art gesetzliche Ausfallbürgschaft*". Fischerhof, H. (1978), *supra* note 39, p. 716.
108. Vienna Convention on Civil Liability for Nuclear Damage (1963), IAEA Doc. INFCIRC/500, 1063 UNTS 266, entered into force 12 November 1977 (Vienna Convention).
109. See PC, Art. 13; Vienna Convention, Art. XI; Joint Protocol, Art. IV.

which German law would provide. Relevant cases are, for example, that the foreign law, contrary to German law, has adopted the exoneration in Article 9 of the PC for damage due to events such as an armed conflict. Another case (perhaps the most relevant) is that the compensation available under the law of the foreign state is below EUR 2.5 billion.

The second paragraph features more general language and affords victims a claim against the Federation if the compensation available under a foreign law falls substantially short of the compensation under German law or if prosecution in the state in whose territory the harmful event originated has no prospect of success. This is one of the few provisions in German third party nuclear liability law that has seen real application when it was triggered as a result of the 1986 Chernobyl accident. The compensation awarded by the Federation for Chernobyl-related damage suffered in Germany as of mid-2010 amounted to approximately EUR 238 million.[110]

IX. Jurisdiction and applicable law

As of today, German law does not contain a specific provision on the competent courts to hear cases arising under the PC regime. General provisions on jurisdiction according to type and amount of the claim and regional competence of courts apply,[111] which means that after a nuclear incident several law courts may be competent. In line with the single court principle contained in Article 13(h) of the revised PC, the 2008 Amendment to the *Atomgesetz*, once in force, will introduce a new section 40a to the *Atomgesetz* establishing exclusive competence of the regional court (*Landgericht*) in whose circuit the nuclear incident occurred.

Section 40 of the *Atomgesetz* offers a conflict of law rule. It applies when a German law court is the competent body under Article 13 of the PC to adjudicate a compensation claim filed against an operator of a nuclear installation in another PC country. The general principle, according to section 40(1), is that the court shall apply German law. Section 40(2) enumerates seven specific exceptions for which the law of the installation state is relevant; this applies, for example, to the determination of the operator of the nuclear installation, or of the limit (if any) of liability.

X. Liability for radiation-related damage below the PC threshold

The PC, by way of its definitions, such as "nuclear installation", "nuclear incident" or "nuclear material", limits its application – very broadly speaking – to installations and transports linked to the production of nuclear energy. This was done deliberately. As the *Exposé de Motifs* sets forth, the convention:

> provides an exceptional *régime* and its scope is limited to risks of an exceptional character for which common law rules and practice are not suitable. Whenever risks, even those associated with nuclear activities, can properly be dealt with through existing legal processes, they are left outside the scope of the Convention.[112]

110. See the statement of the federal government in *Bundestagsdrucksache* 17/2682 of 27 July 2010, p. 3. This sum comprises not only compensation for damage awarded pursuant to section 38 of the *Atomgesetz* but also additional payments for specified economic losses based on two "equity guidelines" issued in 1986.
111. Act on the Constitution of the Courts (*Gerichtsverfassungsgesetz*), sections 23 and 71; Code of Civil Procedure (*Zivilprozessordnung*), sections 12-37.
112. *Exposé des Motifs*, *supra* note 31, para. 7.

Therefore, it is left to the parties to the PC to regulate the liability for less hazardous nuclear activities, such as the handling of radioactive sources for medical, research or industrial purposes or those steps of the nuclear fuel cycle that involve natural or depleted uranium.[113] In practice, many states leave these activities to the realm of application of general tort law. With section 26 of the *Atomgesetz*, German law features a catch-all clause on liability for radiation-related damage not covered by section 25 (meaning the liability under the PC) and section 25a (liability for nuclear-powered ships); it expressly includes nuclear fusion.[114] The regime installed by section 26 takes a middle position between the PC system and normal German tort law.

Liability under section 26 of the *Atomgesetz* is unlimited, as the provision does not mention any limitation. The person generally liable is the possessor of the radioactive substances.[115] Under German civil law, the possessor (*Besitzer*) is the person having actual control of an object;[116] this position is distinct from legal ownership (*Eigentum*). In the case of transport of radioactive material, the possessor is replaced as the liable person by the dispatcher (*Absender*).[117] Contrary to the PC regime, the liability under section 26 of the *Atomgesetz* does not exclude the liability of other persons or the liability of the possessor/dispatcher under other laws.[118] This means that a victim can pursue parallel claims under section 26 of the *Atomgesetz* and under other legal regimes such as the general tort law of the *Bürgerliches Gesetzbuch* or liability provisions of environmental laws.

Seen from the victim's perspective, an advantage of the regime under section 26 of the *Atomgesetz* is that it establishes a semi-strict liability. Contrary to normal tort law, the victim does not have to prove fault (intent or negligence) on the part of the possessor. The latter, however, can escape liability by meeting a (very challenging) burden of proof, specified in the norm, that – shortly speaking – every reasonable precaution has been taken.[119] Thus shifting the burden of proof, section 26 of the *Atomgesetz* again takes a middle of the road approach between the PC with its strict liability and normal tort law.

Finally, if the relevant installation or activity requires a licence, the provisions on mandatory financial security (section 13 of the *Atomgesetz* and the Nuclear Financial Security Ordinance, see above) apply in the same manner as for activities under the PC. Obviously, the Ordinance, unfettered by PC limits, establishes lower limits for financial security for these less hazardous activities. Section 4(2) of the Ordinance obliges the person liable to include certain other persons (employees or contract partners) in the financial security, thus providing for an element of economic channelling. There is no additional state cover for liability under section 26 of the *Atomgesetz*; section 34 of the *Atomgesetz* provides for state indemnification only under the PC regime.

113. For the exclusion of activities around natural and depleted uranium from the scope of the PC, see *ibid.*, para. 9.
114. *Atomgesetz*, section 26(2).
115. *Ibid.*, section 26(1).
116. *Bürgerliches Gesetzbuch*, sections 854 et seq.
117. *Atomgesetz*, section 26(6).
118. *Ibid.*, section 26(7).
119. *Ibid.*, section 26(1), second sentence. The specific wording is: "There shall be no liability to pay compensation if the damage was caused by an incident which neither the possessor nor the persons acting on behalf of the possessor … could have avoided by taking every reasonable precaution and which is neither due to a defective condition of the protective devices nor to a failure in their function".

XI. Summary and conclusion

Germany has, to a large extent, used its options and margins under the PC to establish a national system in full compliance with the convention but with marked characteristics. Some of the more significant decisions established by the *Atomgesetz* can be summarised as follows:

Amount of the operator's liability	Unlimited for damage occurring in Germany; reciprocity for damage outside Germany	Section 31(1) – (2)
Amount of the operator's financial security	Established individually, up to EUR 2.5 billion	Section 13(1) – (3)
Additional state indemnification to supplement financial security	Filling up the cover (if needed) to the amount of EUR 2.5 billion	Section 34
Limitation of compensation claims in time	30 years for all heads of damage	Section 32(1)
Territorial application of the PC / *Atomgesetz* regime	Unlimited (damage wherever suffered)	Section 25(4)
Force majeure cases of Article 9 of the PC	No exoneration, but liability limited to EUR 2.5 billion; specific reciprocity for damage outside Germany	Section 25(3) and Section 31(1)
Nuclear liability outside the PC (e.g. radioactive sources, nuclear fusion)	Specific liability regime	Section 26

As mentioned in the introduction, these choices generally betray a tendency to give the greatest possible benefit to victims, and in parallel to achieve a "normalisation" of the nuclear liability regime, without stifling the industry. It does not seem entirely presumptuous to claim that with this general approach, nuclear third party legislation in Germany has been at the vanguard of developments and trends in the international community, such as the push for substantial increases in the amounts of liability and cover. Indeed, many enhancements introduced by the 2004 Protocol to amend the PC have been anticipated by German law. It remains to be seen whether unlimited liability, currently restricted to a small number of countries, will eventually become the rule as well.

Looking ahead, the last German nuclear power plants will be shut down in 2022.[120] This does not put an end to the history of third party nuclear liability in Germany. Even when the reactors are eventually released from the PC regime, many other nuclear installations will remain for decades to come. This is most obviously true for facilities devoted to storage and disposal of high-level radioactive waste and spent fuel. Germany will continue to play its role – a role which, given the international tendencies mentioned above, will hopefully more and more lose its extraordinary and sometimes challenging character.

120. Due to shutdown dates established by legislation passed in 2011 after the Fukushima Daiichi nuclear power plant accident; see Mann, T. (2014), "The legal status of nuclear power in Germany", *Nuclear Law Bulletin*, No. 94, NEA, Paris, pp. 43-75, at p. 43 and p. 47.

Towards nuclear disarmament: State of affairs in the international legal framework

by Sylvain Fanielle[*]

Since the dawn of the nuclear era, nuclear disarmament has been one of the highest priorities of the international community in ensuring global peace and security. Accordingly, numerous multilateral and bilateral political initiatives have been launched to fulfil this objective in a comprehensive manner. Many of these political efforts have resulted in the negotiation and adoption of legal instruments, which currently comprise the international legal framework on nuclear disarmament. Despite numerous achievements, this framework appears to be at a turning point. As a matter of fact, recent political and diplomatic tensions have reminded the international community that the far-reaching objective of global nuclear disarmament is under continuous pressure. In this context, is the international legal framework on nuclear disarmament effective?

This article addresses both development and effectiveness of the international legal framework on nuclear disarmament. It first describes the position of nuclear disarmament within the United Nations (UN) machinery and the related political challenges. It then focuses on the Nuclear Non-Proliferation Treaty (NPT),[1] with a particular focus on the interpretation and legal requirements associated with Article VI. Finally, it provides an overview of the Nuclear-Weapon-Free Zones (NWFZs) and their role in the international denuclearisation dynamics.

1. UN nuclear disarmament machinery – Between achievements and doubts

Due to its interdisciplinary nature, guaranteeing a consistent, clear and accurate terminology in all areas of international nuclear law is of paramount importance.[2] In fact, for this article, it is essential to distinguish the terms "arms control", "non-proliferation" and "disarmament", which, while interlinked, are often misperceived as interchangeable. Nuclear arms control is defined as "any agreement among several powers to regulate some aspects of their military capability or potential."[3] Despite the fact that they exist at a multilateral level, these agreements are most commonly found at a bilateral level, for example with the treaties regulating nuclear stockpiles and their strategic implications between the

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1. Treaty on the Non-Proliferation of Nuclear Weapons (1968), IAEA Doc. INFCIRC/140, 729 UNTS 169, entered into force 5 March 1970 (NPT).
2. Stoiber, C. et al. (2003), *Handbook on Nuclear Law*, International Atomic Energy Agency (IAEA), Vienna, preface.
3. Bowie, R. R. (1960), "Basic Requirements of Arms Control", *Daedalus*, Vol. 89, No. 4, MIT Press, Cambridge, pp. 708-722.

United States and the Russian Federation. Nuclear non-proliferation is understood as "efforts to limit the proliferation of nuclear weapons and nuclear-weapons-related technology", which *de facto* embodies all bilateral, regional and multilateral political and legal initiatives.[4] Finally, nuclear disarmament consists of "multilateral or unilateral reduction of nuclear weapons, aiming at a gradual elimination of all existing arsenals so as to achieve a nuclear-weapons-free world".[5]

1.1. Historical developments

Since its inception, the United Nations has considered the achievement of global nuclear disarmament as a crucial priority. In fact, in the aftermath of the bombings of Hiroshima and Nagasaki, the first resolution of the UN General Assembly (UNGA) in 1946 emphasised the necessity of working towards "the elimination from national armaments of atomic weapons".[6] This resolution was recommended after the first debates held in the UNGA First Committee, addressing challenges related to disarmament, security and threats to peace.

To specifically bring forward the nuclear disarmament objective, the UNGA held three special sessions on disarmament (SSOD), respectively in 1978, 1982 and 1988. Despite numerous states' commitments, only the first session resulted in the adoption of a Final Document containing provisions related to the realisation of nuclear disarmament. The document expressed that "the accumulation of weapons, particularly nuclear weapons, ... constitutes much more a threat than a protection for the future of mankind" while "[t]he ending of the arms race and the achievement of real disarmament are tasks of primary importance and urgency."[7] The main consequence of the successive SSODs was the adoption of the first concrete steps towards the establishment of an institutional framework, which addresses nuclear, biological, chemical and conventional weapons disarmament.[8] Indeed, the UN Disarmament Commission – created in 1952 with the purpose of making recommendations on various issues related to disarmament – was reorganised to include all UN member states. Furthermore, the UNGA First Committee became responsible for producing and submitting resolutions on disarmament to the General Assembly. Finally, the Committee on Disarmament (nowadays known as the Conference on Disarmament) was established and succeeded various smaller multilateral fora such as the Ten-Nation Committee on Disarmament (1960), the Eighteen-Nation Committee on Disarmament (1962-1968) and the Conference of the Committee on Disarmament (1969-1978). Notwithstanding the fact that the Conference on Disarmament is officially not a UN body, it maintains a special working and institutional relationship with the UN.

1.2. Revitalising the Conference on Disarmament

Based in Geneva, the Conference on Disarmament is the sole multilateral disarmament negotiating forum of the international community. Since its inception

4. Defrancia, C. (2012), "Enforcing the Nuclear Nonproliferation Regime: the Legality of Preventive Measures", *Vanderbilt Journal of Transnational Law*, Vol. 45, Vanderbilt Law School, Nashville, pp. 705-783.
5. Jankowitsch-Prevor, O. (2008), "International Norms against Nuclear Weapons, an Overview: Treaties, Conventions, Agreements and 'Initiatives' Regarding Non-proliferation of Nuclear Weapons, Disarmament and Arms Control", in G. Janssens-Maenhout (ed.), *Nuclear Safeguards and Non-Proliferation*, ESARDA, Ispra, pp. 67-79.
6. "Establishment of a Commission to Deal with the Problems Raised by the Discovery of Atomic Energy", GA Res. 1, UN GAOR, 1st Sess., UN Doc. A/RES/1 (1946).
7. "Final Document of the Tenth Special Session of the General Assembly", GA Final Document, UN GAOR, 10th Special Sess., UN Doc. A/S-1041 (1978).
8. UNIDIR (2010), *Disarmament Machinery: A Fresh Approach*, UNIDIR, Geneva, p. 16.

and following the Final Document of the 1st SSOD, the Conference on Disarmament rapidly focused its work on issues related to nuclear disarmament, with a specific attention on the following four core matters: nuclear weapons test ban; cessation of the nuclear arms race; fissile material cut-off treaty (FMCT); and negative security assurances.[9] Despite its legitimacy and its substantial achievements, such as the successful negotiations of the Comprehensive Test-Ban Treaty[10] and the Chemical Weapons Convention, the Conference on Disarmament has been deadlocked for nearly 20 years. In fact, in spite of manifold efforts to revitalise its work (e.g. the establishment of informal working groups, organisation of high-level meetings, etc.), its participating states could not agree on a programme of work comprising the following aspects: nuclear disarmament; FMCT; prevention of an arms race in outer space; and negative security assurances.

There are numerous explanations for this continuous stalemate. For example, the rules of procedure of the Conference on Disarmament prescribes that the latter "shall conduct its work and adopt [including its Programme of Work] its decisions by consensus".[11] This procedural rule can be pointed out as one important barrier to the Conference on Disarmament's revitalisation, especially when it comes to the controversial nature of the approaches to nuclear disarmament. While they do not refute the objective of a nuclear-weapon-free world, many of the 64 member states of the Conference on Disarmament often have different perspectives and methods on how to achieve this goal, which makes difficult the adoption of decisions by consensus.

Additionally, the nuclear disarmament environment has drastically changed in the last 15 years. Indeed, regional dimensions have increasingly complicated the existing nuclear disarmament dynamics.[12] As a matter of fact, the perpetual tensions between India and Pakistan – both possessing nuclear weapons – raised concerns about the stability of the security environment in South Asia. Furthermore, the security nervousness and the multiplication of regional states pursuing a civil nuclear programme has weakened the stability in the Middle East. Actually, despite the fact that these programmes are covered by international non-proliferation instruments such as nuclear safeguards, the sensitive political and security environment in the region contributes to the retention of a general mistrust between states regarding their potential willingness to divert nuclear material and technologies from peaceful to military purposes. These new paradigms complicate the ability of the Conference on Disarmament to reach consensus on approaches to achieving nuclear disarmament, especially as the related negotiations are negatively affected by regional considerations. Similar issues can also be observed in other international fora such as the UNGA First Committee.

Considering this environment, breaking the deadlock and revitalising the nuclear disarmament negotiation process within the Conference of Disarmament appears to be a daunting task. However, while there are no effortless solutions, several actions could contribute to laying down the foundations of new positive dynamic.

9. Negative security assurances can be defined as the commitment by a nuclear-weapon state that it will not use or threaten to use nuclear weapons against states that do not possess nuclear weapons.
10. See further: Le Goff, G. and D. Rousseau (2004), "The Comprehensive Nuclear-Test-Ban Treaty Eight Years after the Opening of the Treaty for Signature: What is the Situation?", *Nuclear Law Bulletin*, No. 73, pp. 9-14.
11. "Rules of Procedure of the Conference on Disarmament", Conference on Disarmament, CD/8/Rev.9 (2003).
12. Zaleski, J. (2011), "Nuclear Disarmament in the Conference on Disarmament", *UNIDIR/Geneva Forum CD Discussion Series*, UNIDIR, Geneva, p. 14.

Qualified as a "relic of the Cold War [which] should be eliminated",[13] the consensus rule should be modified in favour of – as is the case with all UNGA's decisions – a qualified majority rule of two-thirds of the member states present and voting. To ease the entry into force of this procedural change, a distinction should be made between procedural and substantive decisions. As an example, the adoption of a Programme of Work would fall within the first category, while substantive decisions related to treaty negotiations or enlargement of the Conference on Disarmament membership, would fall under the second category. Such approach could be considered as an acceptable solution for both advocates and opponents to the change of the voting rule. Without guaranteeing the success of negotiations, this rule would at least facilitate the adoption of the Programme of Work, which would then allow member states to enter into discussions on core issues, including nuclear disarmament.

Moreover, the Conference on Disarmament membership remains a contentious issue for many member states and non-member states. With originally 40 members, the Conference on Disarmament is now composed of 65 states, divided into regional groupings. According to paragraph 32 of its rules of procedure, "[r]epresentatives of non-Member States shall have reserved seats in the conference room during plenary meetings and, if the Conference so decides [under the consensus rule], at other meetings". Therefore, non-member states are simple observers, without voting rights. Bearing in mind that the Conference on Disarmament is the sole multilateral disarmament negotiating forum established by the UN, where all states are represented, the limited amount of member states undermines its credibility and legitimacy. While the enlargement of the membership to all UN members would reinforce the difficulties associated with the use of the consensus rule (should it be still applied), expanded representation would strengthen the legitimacy, as well as the negotiating power, of the disarmament forum.

Finally, taking into account the inability of the Conference on Disarmament to fulfil its mandate, the creation of a parallel process could be a solution. Indeed, the Final Document of SSOD I mentions that "[t]he General Assembly has been and should remain the main deliberative organ of the United Nations in the field of disarmament and should make every effort to facilitate the implementation of disarmament measures".[14] Hence, the responsibility for the work mandated to the Conference on Disarmament lies within the UNGA.[15] Consequently, while one could argue that multiplying negotiation entities would not contribute in simplifying the international disarmament machinery, the UNGA could establish a parallel process – comprising four ad hoc committees – to separately discuss each core issues of the Conference on Disarmament outside its walls. Such parallel processes could appear as a pragmatic and open way of conducting negotiations on issues that have been plaguing the Conference on Disarmament for many years. The Ottawa and Oslo processes on cluster munitions and anti-personnel landmines, which were negotiated outside the Conference on Disarmament, could be seen as an influential precedent despite the fact that nuclear diplomacy has its own particularities.[16]

13. Blix Commission (2006), *Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms*, Weapons of Mass Destruction Commission, Stockholm.
14. "Final Document of the Tenth Special Session of the General Assembly", GA Final Document, UN GAOR, 10th Special Sess., UN Doc. A/S-1041 (1978).
15. Reaching Critical Will and the Lawyers Committee on Nuclear Policy (2013), "Revitalizing multilateral disarmament negotiations: an alternative approach", www.reachingcriticalwill.org/images/documents/Disarmament-fora/cd/revitalizing-disarmament-negotiations.pdf (accessed 10 November 2015).
16. *Ibid*.

2. Nuclear disarmament and the Nuclear Non-proliferation Treaty

Considered as the cornerstone of the nuclear non-proliferation regime, the Nuclear Non-proliferation Treaty is based on three mutually reinforcing pillars, namely: disarmament, non-proliferation and peaceful uses of nuclear energy.[17] This section first provides an overview of the Treaty. It then describes the developments related to its Article VI devoted to nuclear disarmament and the legal requirements associated therewith.

2.1. Overview

Since the end of the 1940s, the international community prioritised the objective of nuclear disarmament and, at the same time, the avoidance of an uncontrolled spread of nuclear technologies and weapons. While the benefits of nuclear energy for mankind became increasingly obvious, states highlighted the need to create an international verification body to ensure that nuclear material, technologies and knowledge were not to be used for military purposes. These discussions led to the establishment of the International Atomic Energy Agency (IAEA) in 1957.

However, during the 1950s and 1960s, the IAEA had difficulties in building a comprehensive and global framework for preventing the proliferation of nuclear weapons and related military programmes.[18] This can be explained by the fact that the IAEA was a newly established organisation in a context in which nuclear safeguards were traditionally implemented on a bilateral basis between the supplier and recipient states of a nuclear co-operation agreement. Additionally, the intrusive mandate of the IAEA, especially regarding the implementation of safeguards, was negatively perceived by some states in the political and security environment during the Cold War.

To further prevent the non-proliferation of nuclear weapons, the UNGA unanimously agreed upon Resolution 1665 (1961) calling upon states to conclude an international agreement under which they would commit themselves neither to use, possess nor acquire these weapons.[19] Consequently, negotiations on a nuclear non-proliferation treaty were initiated in 1965 at the Eighteen-Nation Committee on Disarmament (predecessor of the Conference on Disarmament) in Geneva. The NPT opened for signature on 1 July 1968 and entered into force on 5 March 1970.

Before going through NPT provisions per se, it is essential to make the distinction between nuclear-weapons states (NWS) and non-nuclear-weapons states (NNWS). Unlike all other non-proliferation, arms control and disarmament treaties, the NPT distinguishes two types of state parties. Article IX (3) of the NPT provides that "a nuclear-weapon state is one which has manufactured and exploded a nuclear weapon or other explosive device prior to 1 January, 1967". Hence, five states meet this criteria: China, France, Russia, the United Kingdom and the United States. Considering the definition of Article IX (3), all other states – i.e. those which have neither manufactured nor exploded a nuclear weapon or other explosive device before 1 January 1967 – are *de jure* non-nuclear-weapons states under the NPT. This distinction between two types of states complicates the case of Israel, India and

17. While the use of the term "pillar" has no legal basis in the NPT itself, the term is generally adopted when discussing the main legal commitments of the treaty.
18. Jonter, T. (2008), "Nuclear Non-proliferation – a Brief Historical background", in G. Janssens-Maenhout (ed.), *Nuclear Safeguards and Non-Proliferation*, ESARDA, Ispra, pp. 9-28.
19. "Prevention of the Wider Dissemination of Nuclear Weapons", GA Res. 16/65, UN GAOR, 16th Sess., UN Doc. A/16/65 (1961). The initial content of this resolution can be found in an Irish proposal submitted to the UNGA First Committee in 1958. Reintroduced successively in 1959 and 1960, the original proposal finally received attention in 1961.

Pakistan, which tested nuclear weapons after 1967. Qualified as *de facto* nuclear-weapons states after the announcement of the Indian test in 1974,[20] these states have no possibility, without dismantling their nuclear weapons, to join the NPT regime as non-nuclear-weapons states.

2.1.1 First pillar – Non-proliferation of nuclear weapons (Articles I, II and III)

Articles I and II clarify the mutual non-proliferation obligations for both NWS and NNWS. On the one hand, NWS agreed "not to transfer … nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices … ; … assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices". On the other hand, NNWS assented, in Article II, "not to receive … nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices … ; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices". Importantly, Article III enshrines the principle of nuclear safeguards. As stipulated in Article III (1), each NNWS has to accept safeguards and conclude an agreement with the IAEA. This safeguards agreement covers all source or special fissionable material in all peaceful nuclear activities.[21] Its purpose is to enable the IAEA inspectorate to verify that nuclear materials are not diverted to nuclear weapons or nuclear explosive devices. Furthermore, Article III (2) establishes the export control requirements by obliging all states parties not to provide source or special fissionable material, or any other related equipment or technologies, to NNWS for peaceful purposes, unless these items are subject to IAEA safeguards.

2.1.2 Second pillar – Peaceful uses of nuclear energy and nuclear co-operation (Article IV)

Article IV protects the right of all states parties to have equal access to nuclear material and technology for peaceful purposes. It stipulates that "[n]othing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Article I and II of this Treaty."

2.1.3 Third pillar – Nuclear disarmament (Article VI)

Obligations related to nuclear disarmament, as the third and last pillar of the NPT, are provided in Article VI, which states that "[e]ach of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control."

2.1.4 Other provisions

Article VIII (3) establishes the Conference "in order to review the operation of [the] Treaty with a view to assuring that the purposes of the Preamble and the provisions of the Treaty are being realised". Furthermore, it provides that states parties will meet "at intervals of five years" during the so-called Review Conferences (or RevCons). Three Preparatory Committees (or PrepComs) are organised the three years preceding the RevCon to prepare the five-year review process.

20. Michel, Q. (2007), "Critical Reflections on the Treaty on the Non-Proliferation of Nuclear Weapons", *Nuclear Law Bulletin*, No. 80, pp. 21-28.
21. Rockwood, L. (2013), *Legal Framework for IAEA Safeguards*, IAEA, Vienna, p. 5.

Article X (1) enshrines the principle of withdrawal, which can be exercised if two criteria are met. First, the state party concerned has to provide "notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance". Second, it has to include in the previously mentioned notice "a statement of the extraordinary events it regards as having jeopardized its supreme interests", which justifies its withdrawal. The Democratic People's Republic of Korea withdrawal in 2003 raised several concerns among states parties regarding the conditions of withdrawal. As a consequence, states parties discussed extensively in the 2010 and 2015 review cycles the right of withdrawal in order for it not be abused, and therefore directly jeopardise the stability of the nuclear disarmament and non-proliferation regime.

2.2. From 1995 onwards – Development of Article VI within the review process[22]

2.2.1 1995 Review Conference – Indefinite extension

After its entry into force, the duration of the NPT was meant to be 25 years. As a matter of fact, Article X (2) stipulates that "[t]wenty-five years after the entry into force of the Treaty, a conference shall be convened to decide whether the Treaty shall continue in force indefinitely, or shall be extended for an additional fixed period or periods". The 1995 Review and Extension Conference was therefore crucial as states parties had to decide the future of the Treaty. After intense negotiations, states parties consensually agreed on three decisions and one resolution to strengthen the nuclear disarmament and non-proliferation regime.

Decision 1 reinforced the NPT review process by focusing on the necessity of organising a five-year RevCon and insisted on the importance of establishing subsidiary bodies under Main Committees, which would allow states parties to further specific issues.[23] Decision 2 reaffirmed the principles and objectives associated with nuclear disarmament and non-proliferation, and included a provision calling on states to endorse the establishment of nuclear-weapons-free zones (NWFZs). Importantly, this Decision called for universal adherence to the Treaty and the necessity to pursue nuclear disarmament according to a particular Programme of Action. The latter is especially important as it is the first time in the NPT review process that states parties agreed on specific actions to pursue the fulfilment of Article VI obligations. Throughout the various elements of the Programme of Action, three actions have to be highlighted: the completion of negotiations at the Conference on Disarmament on a Comprehensive Test-Ban Treaty before 1995; immediate commencement of negotiations and early conclusion of an FMCT; and the "pursuit by the nuclear-weapon States of systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goal of eliminating those weapons, and by all States of general and complete disarmament under strict and effective international control".[24] More than two decades after the adoption of the Programme of Action, only the first action was completed in 1996 by the successful negotiations at the Conference on Disarmament of the CTBT.[25] The second action has not started yet, mainly due to the continuous stalemate of the

22. The author made the choice to study the developments of Article VI starting from the 1995 RevCon. This is explained by the fact that this Review Conference resulted in the indefinite extension of the NPT which had crucial consequences on the future of the NPT, in particular the debates surrounding its Article VI.
23. NPT/CONF/1995/32 (Part 1).
24. "General and complete disarmament", GA Res. 51/45, UN GAOR, 79th plenary meeting, UN Doc. A/RES/51/45 (1996).
25. Twenty years after its adoption, the CTBT did not enter into force yet as not all states (including China and the United States) listed in Annex II have ratified the Treaty.

Conference on Disarmament, and the completion of the third action remains highly controversial. This debate will be further developed later in this article.

Decision 3 established the indefinite extension of the Treaty, a decision that was internationally recognised as a crucial step in reinforcing and enhancing nuclear non-proliferation and disarmament.[26] Finally, a resolution on the Middle East, sponsored by Russia, the United Kingdom and the United States, was adopted and called for the creation of a NWFZ in the Middle East region.[27]

During the 1995 RevCon, a substantial number of NNWS viewed the possibility of extending the NPT indefinitely as an ideal opportunity to pressure NWS to accelerate their progress in disarmament and to reaffirm their commitment on concrete disarmament measures, including an agreement on deadlines to achieve these measures.[28] Therefore, one can argue that without the commitments by NWS to further realise the objectives associated with Article VI, the vast majority of NNWS would not have agreed on the indefinite extension of the Treaty.

2.2.2 2000 Review Conference – Reaffirmation of commitments

Throughout the 2000 review cycle, states parties expressed their willingness to preserve the achievements of the 1995 RevCon while maintaining at the same time the political momentum in realising the objectives of the Treaty, and particularly its Article VI. In this regard, the pressure was important as no conclusion was reached on nuclear disarmament aspects during the preceding PrepComs. Indeed, the tensions on how to achieve this objective became increasingly substantial.[29] On the one hand, some states parties positively welcomed the bilateral Russia/US efforts to reduce their nuclear stockpiles and encouraged France and the United Kingdom to maintain the momentum initiated by their first unilateral disarmament. On the other hand, other states parties called for a more rapid process to disarm by, for example, adopting a clear timetable for all five NWS. In such a context, the expectations at the eve of the 2000 RevCon were high and its outcome was uncertain.

After four weeks of negotiations, states parties agreed by consensus on a Final Document that mentioned the necessity to come to an agreement on "an unequivocal undertaking by the nuclear-weapon States to accomplish the total elimination of their nuclear arsenals".[30] In order to achieve this objective, states adopted a 13-point plan of "practical steps for the systematic and progressive efforts to Implement Article VI of the [NPT] and paragraphs 3 and 4(c) of the 1995 Decision on 'Principles and Objectives for Nuclear Non-Proliferation and Disarmament'", which included the following principles:

- reaffirmation of the commitment by all states parties to bring forward nuclear disarmament discussions at the Conference on Disarmament;
- insurance of the irreversibility of nuclear reductions;
- commitment by nuclear-weapons states to accomplish an elimination of their nuclear arsenals;

26. Pinel, C. (2000), "The Treaty on the Non-Proliferation of Nuclear Weapons and the Process for Its Enhanced Review on the Eve of the 2000 Review Conference", *Nuclear Law Bulletin*, No. 65, pp. 13-19.
27. *Ibid*.
28. Rockwood, L. (1995), "The Nuclear Non-Proliferation Treaty: A Permanent Commitment to Disarmament and Non-Proliferation", *Nuclear Law Bulletin*, No. 56, pp. 9-18.
29. Pinel, C. (2000), *supra* note 26, pp. 13-19.
30. NPT/CONF.2000/28 (Parts I and II).

- work towards the entry into force of arms control treaties and the conclusion of START III;
- downsize of the excess fissile material;
- reaffirmation of the ultimate objective of general and complete disarmament;
- regular report by nuclear-weapons states of their disarmament progress;
- development of verification capabilities to provide assurance and compliance with nuclear disarmament agreements.[31]

2.2.3 2005 Review Conference – The failure

During the 2005 RevCon, states parties could not agree on a Final Document. The inability to reach consensus on a positive outcome of the RevCon resulted in a reduction of confidence in the Treaty.[32] In fact, ten years after the indefinite extension, many states parties hoped to witness concrete realisation of the objectives agreed upon in 1995 and 2000.

Difficult negotiations on the adoption of the agenda of the Conference and other procedural aspects already occurred during the first week of the 2005 RevCon. This can be explained primarily by the fact that the Bush Administration was highly sceptical of the effectiveness of formal arms control and non-proliferation agreements, as well as the capacity of the related international organisations to deal with such issues.[33] Additionally, some delegations rapidly blocked the adoption of the draft agenda proposed by the President of the Conference, on the basis that it did not sufficiently reference the results of the previous RevCons and more specifically the 2000 "13 Practical Steps". The following weeks confirmed the important tensions among states parties, especially over the implementation of concrete steps towards nuclear disarmament. For the first time since the indefinite extension of the Treaty, the division between NWS and NNWS on the pursuit of specific action towards nuclear disarmament appeared to be more substantial than previously thought.

2.2.4 2010 Review Conference – New momentum

Following the inability to reach consensus on a Final Document in 2005 and US President Barak Obama's 2009 speech, many states parties hoped that the 2010 RevCon would provide an opportunity to give a new momentum towards the completion of nuclear disarmament obligations. Despite the fact that NWS believed that its content was too ambitious on the disarmament sections, a Final Document called "Conclusions and recommendations for follow-on actions" was adopted in order to further implement the Treaty.[34] Referred to as the "64-point Action Plan", this document aims at reinforcing states parties' commitments related to nuclear non-proliferation, peaceful uses of nuclear energy, the situation in the Middle East (including the importance of convening a conference in 2012 to negotiate the establishment of a weapons of mass destruction free zone in the region) and nuclear disarmament.

31. *Ibid.*
32. Tyson, R. (2005), "A Phoenix of Hope. In Reaching Critical Will News", in Reaching Critical Will (ed.), *NPT News in Review* No.21, Reaching Critical Will, New York, p. 1.
33. Sauer, T. (2006), "The Nuclear Nonproliferation Regime in Crisis", *Peace Review*, Vol. 18, Issue 3, pp. 333-340.
34. NPT/CONF.2010/50 (Vol. I).

2.2.5 *2015 Review Conference – Confirmation of the divisions*

Throughout the 2015 review cycle, the international community became increasingly sceptical of its ability to reach a positive outcome at the Review Conference that would be acceptable to all parties. This can be explained by various events that substantially endangered the stability of the NPT. Over the last five years, NWS have been reinforcing their political discourse regarding the role of nuclear arsenals in their national security and therefore logically announced plans to modernise their nuclear weapons. Additionally, further progress in bilateral arms control reductions between Russia and the United States have come to a standstill, mainly due to the revival of tensions between Washington and Moscow following the Ukrainian crisis. Furthermore, and despite the commitment expressed in the 64-point Action Plan in 2010, the convening of a Conference on the Establishment of a Middle East Weapons of Mass Destruction Free Zone (MEWMDFZ) did not occur. This is explained by the different approaches and conditions formulated by the regional powers that appeared to be drastically opposed to each other. Moreover, the division between NWS and a large part of NNWS on the best approach towards nuclear disarmament appeared to be stronger than ever in the context of the so-called "Humanitarian Initiative".

The Humanitarian Initiative was launched with a conference in Oslo in March 2013, followed in 2014 by a second and third conference in Nayarit and Vienna, respectively. The Humanitarian Initiative was a reaction by many NNWS to the perceived stalemate in the nuclear disarmament process, believing that NWS have not taken adequate steps towards a complete and general nuclear disarmament, despite numerous commitments in the context of the review conferences. Instead of focusing on deterrence among states, the Humanitarian Initiative particularly emphasises the consequences of the use of nuclear weapons on civilian populations. This new dynamic has brought various groups of participants together, including states possessing nuclear weapons, states under the nuclear umbrella and states having historically played a leadership role in disarmament and non-proliferation initiatives.[35] Following this approach, more than 125 states parties have endorsed the Austrian "humanitarian pledge", which calls on "all states parties to the NPT to renew their commitment to the urgent and full implementation of existing obligations under Article VI, and to this end, to identify and pursue effective measures to fill the legal gap for the prohibition and elimination of nuclear weapons and … to cooperate with all stakeholders to achieve this goal".[36]

Marking the 20-year anniversary of the NPT's indefinite extension, the 2015 RevCon took place in April and May at the United Nations in New York. Again, states parties were not able to overcome disagreements. Officially, Canada, the United Kingdom and the United States vetoed the adoption of the draft Final Document on the basis that its language regarding the steps in implementing the 1995 Middle East Resolution was not acceptable. But, to many in the expert community, the main area of dispute between NWS and NNWS remained the two-decades-long controversial issue of the implementation of complete and general nuclear disarmament. One has to consider, however, that the NPT is a grand bargain that imposes specific obligations on some parties while granting some rights to others.[37] Thus, as

35. Williams, H., P. Lewis and S. Aghlani (2015), *The Humanitarian Impacts of Nuclear Weapons Initiative: The 'Big Tent' in Disarmament*, Chatham House, London, p. 5.
36. "Humanitarian Pledge", available at: www.icanw.org/wp-content/uploads/2015/03/HINW14vienna_Pledge_Document.pdf (accessed 10 June 2016).
37. Meier, O. (2015), *The 2015 NPT Review Conference Failure: Implication for the Nuclear Order*, Working Paper, SWP, Berlin, p. 3.

mentioned previously, the NPT contains rights and obligations that are not distributed equally between states parties.

The different positions between states parties on the progress towards nuclear disarmament appears to be a crucial aspect explaining the inability for states parties to reach an agreement in the NPT review process, including at the 2015 RevCon. On the one hand, NWS argued at the 2015 RevCon that nuclear disarmament must be "based on the principle of increased and undiminished security for all".[38] They defend, with some NNWS allies, the so-called "step-by-step approach" which implies negotiations on a limited number of initial steps towards nuclear disarmament. France stated that the 13 Practical Steps (2000) and 64-point Action Plan (2010) have to be seen as recommendations or a road-map, implying therefore that the commitments expressed have to be perceived as long-term goals rather than specific legal obligations to adopt concrete measures.[39] Further, NWS unanimously view the previous unilateral and bilateral reductions in their nuclear arsenals as evidence of their fulfilment of their obligations under Article VI.

On the other hand, the vast majority of NNWS perceived that there is a clear lack of progress towards the achievement of a complete and general nuclear disarmament. Looking back on the outcomes of the 1995, 2000 and 2010 Review Conferences, they believe that very few commitments have been implemented. The opinion of many NNWS is that NWS are playing for time by linking efforts towards nuclear disarmament to improvements in regional and international security. Some maintain that they would never have accepted and allowed the indefinite extension in 1995 knowing that, according to them, so little progress would have been made 20 years later. In such a context, they perceive the indefinite extension as a *de facto* extension of the possession of nuclear weapons by a small group of states: NWS.[40] They consider that the NPT obligations are only going in one way – strengthening nuclear non-proliferation obligations for NNWS (e.g. safeguards, export control rules, etc.) – while NWS are not required to fulfil their successive commitments. These states, vastly supporting the Humanitarian Initiative, want to revitalise arms control and disarmament through various means, ranging from new commitments on the prohibition and elimination of nuclear weapons to the beginning of negotiations on a nuclear weapons convention that would outlaw nuclear weapons.

The NPT remains the sole multilateral treaty addressing nuclear disarmament and non-proliferation. Following the failures of 2005 and 2015, the current framework is facing continuous pressure from numerous directions. In this context, the developments towards the 2020 RevCon and its outcome remain strongly uncertain. While NWS continuously rely on their nuclear arsenals and modernise their stockpiles, the vast majority of NNWS call for the implementation of the previously adopted commitments and concrete actions from NWS towards general and complete nuclear disarmament. Additionally, some of NNWS openly call to start negotiations towards a treaty banning nuclear weapons, without consultation or co-operation with NWS. This last path could further undermine the coherence of the NPT membership as it would fracture the distinction between the two types of NPT states and therefore partially mark the failure of the Treaty. After 45 years of existence, the future of the NPT is more insecure than ever.

38. "Statement of the People's Republic of China, France, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland and the United States of America to the 2015 Treaty on the Non-Proliferation of Nuclear Weapons Review Conference" (15 April 2015), available at: http://www.un.org/en/conf/npt/2015/statement/pdf/P5_en.pdf (accessed 27 July 2016).
39. *Ibid*.
40. Dunn, L. A. (2009), "The NPT: Assessing the Past, Building the Future", *Nonproliferation Review*, Vol. 16, No. 2, Routledge, Monterey, p. 160.

2.3. Article VI – obligations, interpretation and compliance

2.3.1 International Court of Justice Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons

As previously mentioned, the NPT is to be considered as a grand bargain between NWS and NNWS. As a matter of fact, while the inalienable right to develop nuclear energy for peaceful purposes is recognised for all states parties (Article IV), NNWS accepted not to manufacture nuclear weapons (Article II) in exchange for the political and legal commitment by NWS not to assist NNWS in acquiring nuclear weapons (Article I) and to cease the nuclear arms race and accomplish the elimination of their nuclear arsenals (Article VI). This last aspect constitutes the only legal provision requiring all states parties to pursue nuclear disarmament. Indeed, Article VI provides that all states parties have "to pursue negotiations in good faith on effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control".[41] In other words, states parties have to pursue negotiations on two separate tracks: effective measures at an early date on the cessation of the nuclear arms race and disarmament and a treaty on general and complete nuclear disarmament under strict and effective international control.

The interpretation of Article VI has raised many debates between states parties and legal experts. Before analysing the legal obligations associated with Article VI, it is necessary to elaborate further on the 1996 International Court of Justice (ICJ) Advisory Opinion on the "Legality of the Threat or Use of Nuclear Weapons".[42] Worrying about the human health consequences of the large number of nuclear tests undertaken in the second half of the 20th century, the World Health Organization (WHO) requested on 3 September 1993 an advisory opinion from the ICJ on the basis of Article 96 (2) of the UN Charter. The following question was asked by WHO to the Court: "In view of the health and environmental effects, would the use of nuclear weapons by a State in war or other armed conflict be a breach of its obligations under international law?"[43] As this question did not fall within the scope of the WHO's mandate – condition required by Article 96 (2) of the UN Charter, the ICJ refused to consider the question. One year later, the UN General Assembly followed up by adopting Resolution 49/75 K requesting the ICJ to render an advisory opinion based on the following question: is the threat or use of nuclear weapons in any circumstances permitted under international law?[44]

The ICJ answered on 8 July 1996 through a comprehensive advisory opinion, which was based on various international legal sources such as the UN Charter and general principles of international humanitarian law. The Court stated that despite the fact that "the threat or use of nuclear weapons would generally be contrary to the rules of international law applicable in armed conflict", it was not able to "conclude definitively whether the threat or use of nuclear weapons would be lawful or unlawful in an extreme circumstance of self-defence, in which the very survival of a State would be at stake".[45] The Court also commented on the obligation to

41. NPT, *supra* note 1.
42. Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1. C.J. Reports 1996, p. 226 (8 July 1996).
43. Request for an advisory opinion on the Legality of the Use by a State of Nuclear Weapons in Armed Conflict, General List no. 93 (1993-1996) – transmitted to the Court under a World Health Assembly Resolution of 14 May 1993.
44. "General and Complete Disarmament", GA Res. 49/75K, UN GAOR, 49th Sess., UN Doc. A/RES/49/75K (1994).
45. Legality of the Threat or Use of Nuclear Weapons, *supra* note 42, p. 265.

disarm by observing that "international law, and with it the stability of the international order which it is intended to govern, are bound to suffer from the continuing difference of views with regard to the legal status of weapons as deadly as nuclear weapons".[46] The Court partially quoted Article VI of the NPT by mentioning unanimously that all states parties have to "pursue negotiations in good faith" with the goal of concluding "a treaty on general and complete disarmament under international control".[47] It also went further by insisting on the "twofold obligation to pursue and to conclude negotiations".[48]

The fact that the Court addressed the question of nuclear disarmament was criticised. Indeed, some experts argue that the Court's comment on nuclear disarmament has to be qualified as a simple *obiter dictum*[49] and that its reply, by interpreting Article VI, exceeded what was provided in the UN General Assembly's resolution and therefore has to be "regarded as having minimal authority or value as precedent".[50] Nevertheless, this argument has to be tempered. The UN General Assembly's request did not directly ask the Court to interpret the obligation associated with the pursuance of negotiations in good faith on nuclear disarmament.[51] The ICJ addressed nuclear disarmament as "one further aspect of the question before it".[52] The Court also observed that the aspect related to nuclear disarmament "has a relevance to many aspects of the activities and concerns of the General Assembly including those relating to the threat or use of force in international relations, the disarmament process, and the progressive development of international law".[53] Moreover, while an advisory opinion is not binding on states in a strict legal sense, it has a substantial value and moral influence[54]. The fact that the judges unanimously adopted the statement related to nuclear disarmament conferred an additional important holding to the advisory opinion. Taking into account the above-mentioned elements, one has to consider that despite the fact that it was not directly addressed to the Court, the question of nuclear disarmament was an integral part of the formal request made by the UN General Assembly.

2.3.2 *Legal obligations under Article VI*

- *Pactum de negotiando* or *pactum de contrahendo*?

Article VI's interpretation did not raise much attention during the first 25 years after the entry into force of the NPT. The 1996 ICJ Advisory Opinion, however, changed the situation. Hence, while Article VI provides that states parties "undertake[] to pursue negotiations … on a treaty on general and complete [nuclear] disarmament under strict and effective international control", the judges unanimously provided that "[t]here exists an obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and

46. *Ibid.*, p. 263.
47. *Ibid.*, p. 263.
48. *Ibid.*, p. 164.
49. Ford, C. A. (2007), "Debating Disarmament – Interpreting Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons", *Nonproliferation Review*, Vol. 14, No. 3, Routledge, Monterey, p. 402.
50. *Ibid.*
51. International Association of Lawyers Against Nuclear Arms (2009), "Good Faith Negotiations Leading to the Total Elimination of Nuclear Weapons", International Human Rights Clinic, Harvard University, Cambridge, p. 10.
52. Legality of the Threat or Use of Nuclear Weapons, *supra* note 44, p. 263.
53. *Ibid.*, p. 233.
54. Shafer, E. J. (2008), "Good Faith Negotiation, the Nuclear Disarmament Obligation of Article VI of the NPT, and Return of the International Court of Justice", slideshow presented at the International Seminar on the Abolition of Nuclear Weapons, War and Armed Forces, San Jose, 26 January.

effective international control".[55] The addition of the wording "bring to a conclusion" raised further controversy on the nature of Article VI's legal obligation. Indeed, does Article VI imply that states parties have an obligation to negotiate (*pactum de negotiando*) or to conclude (*pactum de contrahendo*) a nuclear disarmament treaty?[56]

The principles of *pactum de negotiando* and *pactum de contrahendo* are important principles of law. The first, *pactum de negotiando*, has to be understood as an obligation for states to negotiate an agreement in good faith[57] and that parties to a *pactum de negotiando* are legally compelled to employ all available means during the negotiation process, with the view of reaching a comprehensive agreement.[58] The second, *pactum de contrahendo*, exceeds the legal obligations of a *pactum de negotiando*. Indeed, it not only establishes a legal obligation for parties to a *pactum* to pursue negotiations, but it imposes an obligation on parties to reach a specific result: the conclusion of an agreement. In this context, solely pursuing negotiations in good faith is not enough to fulfil a *pactum de contrahendo*.

For the opponents to a *pactum de contrahendo*, the drafters of the NPT were fully aware of the legal nature of NPT's obligations. They argue that the non-proliferation obligations contained in Articles I and II are unambiguous as they use such terms as "undertake not to" or "undertake to accept".[59] The opponents maintain that it would be surprising that the same drafters of the Treaty meant, without obviously mentioning it, to include in Article VI a requirement to conclude a nuclear disarmament treaty. One must objectively admit that Article VI uses the term "negotiation". Putting aside the validity of such an argument, it does not exclude the possibility that Article VI is a *pactum de contrahendo*. To illustrate this point, it is necessary to start at the inception of the Nuclear Non-proliferation Treaty, – i.e. states parties' intentions during its drafting process. Indeed, as provided by Article 31(1) and (2) of the Vienna Convention on the Law of Treaties (1969), the interpretation of a treaty shall be done "in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose" and the context for this interpretation shall comprise, in addition to the text, including its preamble and annexes:

> (a) Any agreement relating to the treaty which was made between all the parties in connection with the conclusion of the treaty;
>
> (b) Any instrument which was made by one or more parties in connection with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty.[60]

The main idea that emerged from the NPT negotiations is the following: NWS accept to cease their nuclear weapons programmes; to share nuclear technology; and to give up their nuclear arsenals in a future treaty. In exchange, NNWS agree neither to acquire nor manufacture nuclear weapons. While reviewing the *travaux préparatoires*, it appears that NWS never had the willingness to be legally bound to

55. Legality of the Threat or Use of Nuclear Weapons, *supra* note 44, dispositif paragraph F.
56. Simon, D. (2004), "Article VI of the Non-Proliferation Treaty is a Pactum de Contrahendo and Has Serious Legal Obligation by Implication", *Journal of International Law and Policy*, Vol. 12, University of Pennsylvania, Philadelphia, p. 1.
57. Zhou, Y. (1984), "History of International Law – Foundations and Principles of International Law – Sources of International Law – Law of Treaties", in Max Planck Institute for Comparative Public Law and International Law (ed.), *Encyclopaedia of Public International Law*, Elsevier, Amsterdam, p. 374.
58. *Ibid.*, p. 375.
59. *Ibid.*, p. 403.
60. Vienna Convention on the Law of Treaties (1969), 1155 UNTS 332, entered into force 27 January 1980.

conclude a complete nuclear disarmament treaty.[61] The argument of experts defending this position lies in the fact that in the *travaux*, the so-called disarmament clauses were not operative legally binding clauses. They highlight that during the NPT negotiations, numerous states wanted to include a legal obligation to start nuclear arsenals reduction while ceasing proliferation.[62] However, these obligations were not added in the Treaty as a consequence of the refusal of the United States and the Soviet Union. Instead, the wording "to pursue negotiations in good faith" was inserted.

One must admit that this aspect of the negotiations supports the above-mentioned position that Article VI is a *pactum de negotiando* due to the fact that two NWS did not agree to insert a straightforward reference to a comprehensive nuclear disarmament treaty. Nevertheless, this aspect is not as clear as it seems to be. In fact, some elements are in favour of the fact that NWS considered Article VI's provision as a *pactum de contrahendo*. After reviewing the so-called "Five Nuclear Powers Express Strong Support for NPT" statement,[63] it appears that an important number of NPT states parties seem to have expected right after the negotiations of NPT that the Conference on Disarmament would start immediate negotiations that would end with a comprehensive nuclear disarmament treaty. Additionally, during the 2000 RevCon, NWS delivered a statement that reaffirmed, in their view, the necessity to conclude a "convention banning the production of fissile material for nuclear weapons or other explosive devices", which is an essential part of the overall objective of nuclear disarmament.[64] Furthermore, they compelled the Conference on Disarmament to work towards the "commencement and early conclusion of negotiations on such a treaty".[65] Despite the fact that it is also linked to the Fissile Material Cut-off Treaty, this statement makes clear that NWS did in fact believe that Article VI compels them to negotiate a convention that bans nuclear proliferation and mandates nuclear disarmament.[66] Furthermore, the *travaux préparatoires* mentioned that the "treaty should be void of any loop-holes which might permit nuclear or non-nuclear powers to proliferate, directly or indirectly, nuclear weapons in any form". This argument is strongly supported by Ambassador Shaker, negotiator of the NPT, who argues that "it was generally felt that negotiating was not an aim in itself but a means to achieve concrete results at the earliest possible date".[67]

Does Article VI of the Nuclear Non-proliferation Treaty have to be considered as *pactum de negotiando* or *pactum de contrahendo*? Considering the above-mentioned elements, the debate is far from over and both arguments are legally valid. On the one hand, some experts argue that Article VI obligations for all states parties, including NWS, can be summarised as negotiating a general and complete disarmament treaty, regardless of the outcome of these negotiations. Although legally acceptable, this argument is questionable from a moral and political point of view. Indeed, what would have been the interest of the negotiators in inserting such a provision if their objective was not to reach an agreement on the latter? On the

61. Turner, R. F. (1998), "Nuclear Weapons in the World Court: The ICJ's Advisory Opinion and Its Significance for U.S. Strategic Doctrine", in M. N. Schmitt (eds.), *The Law of Military Operations*, International Law Studies, unknown, p. 330.
62. Shaker, M. I (1980), *The Nuclear Non-Proliferation Treaty: Origin and Implementation 1959-1979 – Volume III*, Oceana Publications, London, p. 570.
63. "Statement by the delegations of France, the People's Republic of China, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland and the United States of America", NPT/ CONF. 2000/21, Annex, 1 May 2000.
64. *Ibid*.
65. *Ibid*.
66. Simon, D. (2004), *supra* note 55, p. 12.
67. Shaker, M. I (1980), *supra* note 61, p. 564.

other hand, others believe that Article VI should be interpreted as being a *pactum de contrahendo* – i.e. an obligation for states parties to successfully negotiate a nuclear disarmament treaty. Notwithstanding this ongoing debate, at least one fact that holds true for both interpretations: no real and comprehensive negotiations on a nuclear disarmament treaty, whether successful or not, have taken place yet.

- The principle of good faith

The obligation of negotiating in good faith is considered as a fundamental principle of international law. In this regard, the Vienna Convention on the Law of Treaties provides in Article 26 that "every treaty in force is binding upon the parties to it and must be performed by [states] in good faith" and in Article 31 para. 1, which stipulates that "[a] treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose". The case law of the ICJ has provided on numerous occasions additional information regarding the meaning of "good faith" in international law. For example, in the Gabcikovo-Nagymaros Project Case (1997), the Court ruled that in accordance with Article 26 of the Vienna Convention, good faith "obliges the Parties to apply [the treaty] in a reasonable way and in such a manner that its purpose can be realized".[68]

As a reminder, Article VI of the NPT provides that "each of the Parties … undertakes to pursue negotiations in good faith on effective measures" for the cessation of the nuclear arms race, nuclear disarmament and a treaty on general and complete disarmament. According to the Weapons of Mass Destruction Commission and the vast majority of NNWS, NWS have failed to comply with their obligations to conduct good faith negotiations as provided in Article VI.[69] Consequently, the Commission further points out that "the erosion of confidence in the effectiveness of the NPT to prevent horizontal proliferation has been matched by a loss of confidence in the treaty as a result of the failure of the nuclear-weapon states to fulfil their disarmament obligations".[70] This loss of confidence can be explained by a successive list of unfulfilled commitments.

At the 1995 RevCon, states parties agreed on the document named "Principles and Objective for Non-Proliferation and Disarmament", which contained a series of commitments to be fulfilled in order to move towards the objective of reducing nuclear weapons, with the conclusive goal of eliminating those weapons.[71] At the 2000 RevCon, states parties approved a "13 Practical Steps" plan to bring forward the efforts to implement Article VI. Among these steps, there was an explicit commitment by NWS to proceed to the elimination of their nuclear arsenals.[72] At the 2010 RevCon, NNWS sought a new momentum towards the commitments expressed in 1995 and 2000. Despite the fact that a Final Document containing a concrete list of actions towards nuclear disarmament was adopted, numerous NNWS criticised the lack of willingness of NWS to fulfil their obligations under Article VI. While NWS claim that the progressive reduction of their nuclear arsenals is to be considered as a realisation of their commitments under Article VI, it must be noted that, despite the successive calls for the commencement of negotiations on a fissile material treaty

68. Gabcikovo-Nagymaros Project (Hungary v. Slovakia), Jurisdiction of the court, Judgments, ICJ Reports 1997, p. 79.
69. Blix Commission (2006), *supra* note 13.
70. *Ibid.*, p. 53.
71. NPT/CONF/1995/32.
72. Burns, R. D. and P. E. Coyle (2015), *The Challenges of Nuclear Non-Proliferation*, Rowman and Littlefield, London, p. 61.

and on the conclusion of a nuclear weapons convention, no negotiations have yet taken place.[73]

2.3.3 *Compliance by nuclear-weapons states*

Since 1986, the number of nuclear weapons worldwide has decreased by 76.4%, from 69 368 to 16 368, mainly distributed among the five nuclear-weapons states.[74] [75] Russia and the United States hold around 90% of these arsenals. The main nuclear stockpiles reductions occurred between these two states, the only NWS having international verification measures in place, in the context of the bilateral Strategic Arms Reductions or the Strategic Offensive Reductions Treaties. Although some additional unilateral reductions by these states took place, the reduction by other NWS has been limited (France and the United Kingdom) or non-existent (China). Following a commitment made at the 2010 RevCon, all NWS meet on a regular basis to discuss transparency, mutual confidence and verification related to their nuclear weapons stockpiles.

Despite the reduction that took place in the last two decades, the objective of negotiating a complete and general treaty on nuclear disarmament still appears to be a far-reaching objective. Indeed, continuous modernisation plans, stated nuclear weapons doctrines and deployment practices demonstrate that the reliance by all NWS on their stockpiles is increasingly central in their national security policies. Additionally, due to recent geopolitical tensions resulting from the Ukraine crisis, it is unlikely that further unilateral, bilateral or multilateral reductions will occur in the near future.

Notwithstanding the debate on the nature of the obligation stated in Article VI and the further reduction in nuclear weapons stockpiles, no negotiation towards a general and complete disarmament treaty has taken place despite continuous commitments by NWS in the NPT review process. On the contrary, by extensively relying on nuclear weapons in their national security doctrines, one could question the compliance of NWS with Article VI's obligations, and more specifically the pursuance of negotiations in good faith on effective measures related to nuclear disarmament and a treaty on nuclear disarmament. Indeed, the relationship between NWS and their nuclear weapons is by nature incompatible with potential negotiations towards such a treaty.

Considering this environment in which negotiations towards a nuclear disarmament treaty are unlikely to happen, a political process must be launched with the sole objective of bringing forward the realisation of Article VI. For example, a new advisory opinion of the ICJ would have the benefit of clarifying the notion of good faith in the context of nuclear disarmament and clarify the conclusions of the 1996 Advisory Opinion on Legality of the Threat or Use of Nuclear Weapons.[76] Such an opinion would also possibly close the legal debate on the nature of Article VI obligation, and further explain the related nuclear disarmament obligations, as they relate to essential commitments such as the 2000 "13 Practical Steps".

73. Burroughs, J. (2010), *Reaching Nuclear Disarmament. In: Beyond Arms Control – Challenges and Choices for Nuclear Disarmament*, Reaching Critical Will, New York, p. 162.
74. Norris, R. S. and H. M. Kristensen (2010), "Global Nuclear Weapons Inventories 1945-2010", *Bulletin of Atomic Scientists*, Vol. 66, No. 4, Taylor and Francis, Chicago, p. 81.
75. SIPRI (2014), *SIPRI Yearbook 2014*, Stockholm International Peace Research Institute, Oxford University Press, Stockholm, p. 288.
76. International Association of Lawyers Against Nuclear Arms (2009), "Good Faith Negotiations Leading to the Total Elimination of Nuclear Weapons", *International Human Rights Clinic*, Harvard University, Cambridge, p. 32.

In this regard, some answers could be provided by a recent case at the ICJ. Indeed, on 24 April 2014, the Republic of the Marshall Islands filed applications in the ICJ against the *de jure* (China, France, Russia, the United Kingdom and the United States) and *de facto* (Democratic People's Republic of Korea, India, Israel and Pakistan) NWS for violation of their disarmament obligations under the NPT and other principles of customary international law. The main objective of the case was to highlight the legal obligations related to nuclear disarmament and revive the conclusions of the 1996 Advisory Opinion. The Republic of the Marshall Islands argued that states possessing nuclear weapons have been in continuous breach of NPT provisions and/or customary international law principles for as long as they have failed to either enter into, or conclude, negotiations on a nuclear disarmament treaty. In its case, the Marshall Islands focused on three aspects in particular: 1) the obligation to pursue good faith negotiations leading to nuclear disarmament by refusing to initiate multilateral negotiations; 2) the obligation to pursue negotiations in good faith on the cessation of the nuclear arms race at an early date; 3) the obligation to respect the principle of good faith by reaffirming the central role of nuclear weapons in national security policies and by modernising their arsenals.

Only three of the nine states possessing nuclear weapons (India, Pakistan and the United Kingdom) have accepted the compulsory jurisdiction of the Court. Regarding the other six states, none of them has yet accepted the jurisdiction of the Court on this matter, and China provided notification that it does not accept the ICJ's jurisdiction over its nuclear disarmament obligations. Despite the contentious nature of such legal filings and the uncertainty of their outcomes, the ICJ's interpretation and application of international law will remain influential and possibly contribute to the ongoing political and legal discussions related to the realisation of Article VI obligations.

3. Nuclear-weapon-free zones and their contribution to nuclear disarmament

In 1975, the UN General Assembly defined nuclear-weapon-free zone (NWFZ) as:

> any zone, recognized as such by the General Assembly of the United Nations, which any group of States, in the free exercise of their sovereignty, has established by virtue of a treaty or convention whereby: (a) The statute of total absence of nuclear weapons to which the zone shall be subject, including the procedure for the delimitation of the zone, is defined; (b) An international system of verification and control is established to guarantee compliance with the obligations deriving from that statute.[77]

The concept of NWFZ initially finds its origin in the UN General Assembly's Resolution 2028 (1965). Calling upon the Conference of the Eighteen-Nation Committee on Disarmament to negotiate an international treaty to prevent the proliferation of nuclear weapons, the Resolution provided that "[n]othing in [this] treaty should adversely affect the right of any group of States to conclude regional treaties in order to ensure the total absence of nuclear weapons in their respective territories".[78] The content of this resolution was realised in the establishment of the first NWFZ and the inclusion of Article VII of the NPT.

77. "Comprehensive study of the question of nuclear-weapons-free zones in all its aspects", GA Res. 3472 B, UN GAOR, 30th Sess., UN Doc. A/10027/Add.1 (1975).
78. "Non-proliferation of Nuclear Weapons", GA Res. 2028, N GAOR, 20th Sess., UN Doc. A/RES/2028 (1965).

3.1. Nuclear-weapon-free zones in unpopulated regions

To date, three treaties establishing NWFZ in unpopulated areas have been adopted. First, the Antarctic Treaty (1959), which covers the Antarctic region. Articles 1 and 5 of the Treaty prohibit "any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military manoeuvres, as well as the testing of any type of weapons" and "[a]ny nuclear explosions in Antarctica and the disposal there of radioactive waste material".[79] Second, the states parties to the Seabed Treaty (1972) agreed in Article 1 not to "emplant or emplace on the seabed and the ocean floor and in the subsoil thereof … any nuclear weapons".[80] Finally, the Outer Space (1967) and the Moon (1979) treaties both governing the activities of states in outer space, on the moon and on other celestial bodies prohibit the placement of nuclear weapons in these areas.[81]

3.2. Nuclear-weapon-free zones in populated regions

3.2.1 Tlatetolco Treaty establishing a Nuclear-Weapons-Free Zone in Latin America and the Caribbean

The Treaty of Tlatetolco (1967) established the first nuclear-weapon-free zone in a populated area three years before the entry into force of Article VII of the NPT. It stipulates that "[n]othing … affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories".[82]

The adoption of the Tlatetolco Treaty was largely influenced by the Cuban Missile Crisis (1962) and its substantial security implications in the middle of the Cold War. Entered into force on 22 April 1968, the Treaty has nowadays 33 states parties covering a large geographical area (Mexico, the Caribbean, Central America and South America).

The main obligation of the Tlatetolco Treaty is provided in its Article 1, which states that each state party commits itself to use nuclear material and facilities under its jurisdiction only for peaceful purposes.[83] Any test, use, production, acquisition, reception, storage, installation or deployment of nuclear weapons are therefore strictly prohibited. States parties further contribute to global non-proliferation by committing themselves to "negotiate multilateral or bilateral agreements with the International Atomic Energy Agency for the application of its safeguards to its nuclear activities".[84] In order for states parties to ensure that the obligations of the Treaty are respected, Article 7 established the "Agency for the Prohibition of Nuclear Weapons in Latin American and the Caribbean" (OPANAL). This international organisation is responsible for coordinating consultations on matters related to the purposes, measures and procedures associated to the implementation of the Treaty's obligations.

79. Antarctic Treaty (1959), 402 UNTS 71, entered into force 23 June 1961.
80. Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof (1971), 955 UNTS 115, entered into force 18 May 1972.
81. Treaty on the Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967), 610 UNTS 205, entered into force 10 October 1967.
82. Sanders, B. (1998), "A Short History of Nuclear Non-Proliferation", *Nuclear Law Bulletin*, No. 62, pp. 7-25.
83. Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (1967), 634 UNTS 326, entered into force 25 April 1969.
84. *Ibid*.

Two protocols are attached to the Tlatetolco Treaty. Protocol I requests states having territorial interests and jurisdiction in the newly established NWFZ (France, the Netherlands, the United Kingdom and the United States) to "apply the statute of denuclearization".[85] Protocol II is related to negative security assurance. These two protocols were ratified by all concerned states.

3.2.2 Rarotonga Treaty establishing a South Pacific Nuclear Free Zone

The Rarotonga Treaty was signed on 6 August 1985 and entered into force on 12 November 1986. The zone of application of the Treaty consists of Australia, New Zealand and the South Pacific, which regroups a total of 13 states parties.[86] The decision of the regional states to establish a NWFZ was essentially influenced by a French nuclear testing campaign in the Tuamoto Archipelago at the end of the 1960s and its resulting environmental and health effects.

As provided in Article 3, state parties to the Treaty agreed not "to manufacture or otherwise acquire, possess or have control over any nuclear explosive device … ; to seek or receive any assistance in the manufacture or acquisition of any nuclear explosive device; … to take any action to assist or encourage the manufacture or acquisition of any nuclear explosive device by any State".[87] Stationing nuclear weapons, testing nuclear device and dumping radioactive waste is also prohibited respectively in Articles 5, 6 and 7. The Treaty also enables, in its Article 5, each state party to restrict the entry of ships carrying nuclear weapons in regional seaports. Like all other nuclear-weapons-free zones treaties, the Rarotonga Treaty requires in its Article 4 that all source or special fissionable material are to be under the IAEA safeguards system.

Three protocols are attached to the Rarotonga Treaty. Protocol I, similar to the Treaty of Tlatetolco, calls states with territories in the region (France, the United Kingdom and the United States) to apply nuclear prohibitions "in respect of the territories for which [they are] internationally responsible situated within the South Pacific Nuclear Free Zone".[88] Protocol II invites all NWS to provide negative security assurance to all states parties to the nuclear-weapon-free zone. Protocol III requests all NWS not to test any nuclear weapon within the established zone. This last protocol was particularly relevant for France, the United Kingdom and the United States, which all conducted nuclear testing campaigns in the South Pacific region. While all other four nuclear-weapons states ratified the protocols, the United States has not ratified any yet, mainly due to the US-Australia military alliance.[89] The protocols were submitted in 2011 by the Obama administration to the Senate, which has not yet expressed its consent for ratification.[90]

3.2.3 Bangkok Treaty establishing the Southeast Asia Nuclear-Weapons-Free Zone

Efforts to establish a NWFZ in Southeast Asia started in the early 1970s by the Association of Southeast Asian Nations (ASEAN). Due to inherent tensions during

85. Additional Protocol I to the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean.
86. Australia, Cook Islands, Fiji, Kiribati, Nauru, New Zealand, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.
87. South Pacific Nuclear Free Zone Treaty (1985), 1445 UNTS 177, entered into force 11 December 1986 (Rarotonga Treaty).
88. Protocol I to the South Pacific Nuclear Free Zone Treaty.
89. See further: Oliver, A. (2015), "Time for A Stronger U.S.-Australia Alliance?", http://nationalinterest.org/blog/the-buzz/time-stronger-us-australia-alliance-13348 (accessed 10 June 2016).
90. Mukhatzhanova, G. and M. Pomper (2011), "Obama Seeks Senate OK for Protocols to Two Nuclear-Weapon-Free Zone Treaties", http://cns.miis.edu/stories/110506_obama_nwfz.htm (accessed 2 November 2015).

the Viet Nam War and the diplomatic conflicts between some regional countries, the conditions for the negotiations of a NWFZ were however not fulfilled. After the war and the increasing diplomatic opening of regional states, the Bangkok Treaty, with its ten states parties,[91] was signed on 15 December 1995 and entered into force on 27 March 1997.

States parties commit themselves, as stipulated in Article 3 of the Treaty, "not to, anywhere inside or outside the [Treaty] zone:

- develop, manufacture or otherwise acquire, possess or have control over nuclear weapons;
- station or transport nuclear weapons by any means; or
- test or use nuclear weapons."[92]

They also undertake not to "seek or receive any assistance …; take any action to assist or encourage" the manufacture or acquisition of any nuclear explosive device by any state; "provide source or special fissionable material, or equipment … to any non-nuclear-weapon State"; "dump at sea or discharge into the atmosphere anywhere within the Zone any radioactive material or wastes".[93]

Article 5 further provides that each state party, shall conclude or has already concluded a safeguards agreement with the IAEA on all nuclear activities. Established by Article 8, the Commission for the Southeast Asia Nuclear-Weapon-Free Zone is responsible for overseeing the implementation of the Treaty and ensuring the compliance of all states parties. Unlike other nuclear-weapon-free zones, the Bangkok Treaty stipulates in Article 14 that in case of an emergent situation related to the non-compliance of the Treaty's provisions, the Commission has the authority to submit the case to the UN General Assembly and the Security Council.

The main novelty of the Bangkok Treaty is to be found in its Article 1. Indeed, the definition of the geographical scope of the zone includes the territories of each state party and also "their respective continental shelves and Exclusive Economic Zones".[94] Taking into account this definition, the negative security assurance contained in the Protocol of the Treaty implies that each NWS commits itself not to use nuclear weapons against any state party or Protocol party within the zone of application. These two provisions were strongly opposed by the nuclear-weapons states for two reasons.[95] First, the broad definition of the zone of application of the Treaty and second, the large area covered by the Treaty which could potentially restrict the passage of aircraft and warships in the region. In addition, NWS vigorously criticised the fact that no consultation took place with the states parties regarding the provisions of both the Treaty and Protocol. The latter calls on NWS to respect the established Southeast Asia Nuclear-Weapon-Free Zone, to avoid violations of the Bangkok Treaty and to provide negative security assurance to the states parties. To date, mainly due to the above-mentioned elements, none of the NWS have ratified this Protocol.

91. Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam.
92. Treaty on the Southeast Asia Nuclear Weapon-Free Zone (1995), 1981 UNTS 129, entered into force 27 March 1997, Article 3 (Bangkok Treaty).
93. *Ibid.*, Articles 3 and 4.
94. *Ibid.*
95. Burns, R.D. and P. E. Coyle (2015), *supra* note 71, p. 122.

3.2.4 *Pelindaba Treaty establishing the African Nuclear-Weapon-Free Zone*

The first momentum towards the establishment of an African NWFZ was initiated in the 1950s, when Algeria vigorously opposed the French nuclear testing campaign in North Africa. In this regard, in 1961, the UN General Assembly adopted a resolution calling on UN member states "to consider and respect the continent of Africa as a denuclearized zone".[96] Following the adoption of this Resolution, the Organization of African Unity agreed to a Declaration on the Denuclearization of Africa in which states members of the Organization "solemnly declare[d] their readiness to undertake in an International Treaty to be concluded under the auspices of the United Nations not to manufacture or acquire control of nuclear weapons".[97] South Africa's decision to destroy its nuclear weapons programme in 1990 helped to bring the negotiations forward. These were finalised in 1996 with the signature of the Pelindaba Treaty on 11 April 1996, which entered into force on 15 July 2009. A total of 39 states are parties to this NWFZ.

As stipulated in Article 3, states parties to the African NWFZ undertake

> not to conduct research on, develop, manufacture, stockpile or otherwise acquire, possess, or have control over any nuclear explosive device by any means anywhere; … [n]ot to seek or receive any assistance in the research on, development, manufacture, stockpiling or acquisition, or possession of any nuclear explosive device; … [n]ot to take any action to assist or encourage the research on, development, manufacture, stockpiling or acquisition, or possession of any nuclear explosive device.[98]

Nuclear weapons stationing, testing, and dumping of radioactive material are also prohibited.[99] In comparison to the Treaty of Bangkok, the Pelindaba Treaty authorises contracting parties in Article 4 (2) to permit or deny the transit of foreign aircraft and ships carrying nuclear weapons in their airspace and waters. Similar to other NWFZs treaties, Article 8 on the verification of peaceful uses of nuclear energy stipulates that each state party has the obligation to conclude a comprehensive safeguards agreement with the IAEA. Finally, it establishes, as provided in Article 12, the African Commission on Nuclear Energy which is responsible for ensuring, through a system of consultation, reporting, information exchange and inspections, that all states parties' obligations are fulfilled.

Three protocols were attached to the Treaty of Pelindaba. Protocol I calls upon NWS to provide negative security assurance to the states parties to the NWFZ. Protocol II requests NWS "not to test or assist or encourage the testing of any nuclear explosive device anywhere with the African nuclear-weapon-free zone".[100] Protocol III calls on France and Spain, both having territories that are *de facto* or *de jure* situated in the established zone, to respect certain specific provisions of the Treaty as well as to ensure the application of safeguards according to Annex II of the Treaty. Protocol I and II were ratified by all NWS except the United States, which contests the fact that the zone includes Diego Garcia Island, a territory administered by the United Kingdom and used as a military base by the United States. Protocol III has been ratified only by France.

96. "Consideration of Africa as a Denuclearized Zone", GA Res. 1652, UN GAOR, 16th Sess., A/RES/1652 (1961).
97. "Denuclearization of Africa", Organization of African Unity Res. 11, Sess. 1 (1964).
98. African Nuclear Weapon-Free-Zone Treaty (1996), 35 I.L.M. 698, entered into force 15 July 2009 (Pelindaba Treaty).
99. *Ibid*.
100. Protocol II to the Pelindaba Treaty.

3.2.5 *Semipalatinsk Treaty establishing the Central Asia Nuclear-Weapon-Free Zone*

The Semipalatinsk Treaty was signed on 8 September 2006 and entered into force on 21 March 2006. Its contracting parties are five former Soviet Union Central Asian states: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. These states agreed upon obligations similar to other NWFZ treaties. These include prohibitions on: research, development, manufacture and acquisition of nuclear weapons (Article 3); nuclear testing (Article 5); and radioactive waste disposal (Article 3).[101] Contracting states undertake in Article 8 to conclude a comprehensive safeguards agreement and an Additional Protocol with the IAEA on each of their peaceful nuclear activities. Interestingly, Article 6 introduces the notion of environmental security where "[e]ach Party undertakes to assist any efforts toward the environmental rehabilitation of territories contaminated as a result of past activities related to the development, production or storage of nuclear weapons".[102] This provision, unique in comparison with other established NWFZs, was introduced by Kazakhstan which nowadays is still facing the consequences of the Soviet Union nuclear testing campaign, particularly in the region of the city of Semey.[103]

One protocol was added to the Semipalatinsk Treaty. It calls on NWS to provide negative security assurance to states parties and to commit themselves not to contribute to violations of the provisions contained in the Treaty.[104] Only France and the United Kingdom ratified the Protocol.

3.3. Impacts on nuclear disarmament and future prospects

3.3.1 *Contestations and Contributions*

In almost 50 years, five NWFZs have been created, respectively covering the South Pacific, South East Asia, African, Latin American and the Caribbean and Central Asian regions.[105] These zones are important contributors to nuclear disarmament and are universally recognised as preventing further horizontal proliferation.[106] Indeed, states parties to zones are reassured that their neighbours – with whom tensions could occur – do not possess nuclear weapons and will therefore unlikely be willing to acquire such weapons themselves.[107]

101. Treaty on a Nuclear-Weapon-Free Zone in Central Asia (2006), No. 51633, entered into force on 21 March 2009 (Semipalatinsk Treaty).
102. *Ibid*.
103. Harrell, E. and D. E. Hoffman (2013), *Plutonium Moutain: Inside the 17-Year Mission to Secure a Dangerous Legacy of Soviet Nuclear Testing*, Harvard Kennedy School Belfer Center, Cambridge, pp. 1-44.
104. Protocol to the Treaty on a Nuclear-Weapons-Free Zone in Central Asia (2006).
105. On 3 February 2000, Mongolia's Nuclear-Weapons-Free Status entered into force; after that the Mongolian Ambassador submitted the text of "Law of Mongolia on its nuclear-weapon-free status" to the United Nations Secretary General. The unilateral decision was taken by the Mongolian government in 1992. Mongolia committed itself not to develop, manufacture or otherwise acquire, possess or have control of nuclear weapons. It also pledged that it would not station or transport any of these weapons. The unilateral decision of Mongolia to become a nuclear-weapons-free state is unique. However, due to the fact that Mongolia cannot be defined as a zone per se, the present Article will not consider this matter as similar to the other NWFZs.
106. Biad, A. (1996), "Nuclear-Weapon-Free Zones: Challenges and Prospects for Non-Proliferation", *Nuclear Law Bulletin*, No. 58, pp. 9-28.
107. Goldblat, J. (2004), "Nuclear-Weapon-Free Zone Treaties: Benefits and Deficiencies", in V. Cserveny et al. (eds.), *Building a Weapons of Mass Destruction Free Zone in the Middle East – Global Non-Proliferation Regimes and Regional Experiences*, UNIDIR, Geneva, p. 74.

The main achievement of NWFZs can be summarised by the fact that, through their establishment, the entire Southern hemisphere has turned into a nuclear-weapon-free zone. Taking into account that nuclear disarmament aims at eliminating all existing arsenals to achieve a nuclear-weapon-free world, the successive NWFZs play an essential role in the fulfilment of the objectives of the international machinery towards nuclear disarmament. The nuclear-weapon-free zone treaties process can be considered as a back door route towards the elimination of nuclear weapons, especially because the multiplication of these zones progressively reduces the possibility of relying on these weapons.[108]

Additionally, the establishment of NWFZs showed that states – despite the wide variety of strategic issues and persistent political tensions – were able to find common grounds and interests to collectively commit themselves to a long-term geographical nuclear disarmament. It is worth pointing out that the process of NWFZs establishment showed that political and strategic dilemmas could be overcome. Moreover, numerous provisions of NWFZs treaties make use of the already existing disarmament and non-proliferation initiatives. For example, all NWFZs require their contracting parties to place their peaceful nuclear activities under safeguards agreements and the verification and monitoring capabilities of the IAEA. This aspect remarkably shows that the international community currently possesses the instruments and organisations capable of ensuring the compliance of states parties to NWFZs.

Finally, NWFZs created a non-proliferation and disarmament environment that goes beyond the existing obligations. Indeed, in addition to prohibiting the acquisition of nuclear weapons, they also outlaw (unlike the NPT) the stationing and testing of nuclear weapons in the established NWFZs.[109] The verification of the compliance process combined with non-proliferation obligations goes further than the requirements and procedures stipulated in the NPT.

Despite these contributions to nuclear disarmament and non-proliferation, the NWFZs contain legal aspects which, among others, weaken their status. First, none of the treaties establishing nuclear-weapon-free zones stipulates that their provisions would still be applicable in time of war. This aspect is particularly relevant as the recourse of nuclear weapons is traditionally associated with times of hostility. To ensure an indefinite application of the provisions in the NWFZ treaties, it would be particularly relevant that the NWFZ treaties explicitly state that their provisions would remain valid in times of war.

Second, only the Pelindaba Treaty bans research on nuclear weapons and other explosive devices. This is an important aspect as the pursuance of a nuclear weapons programme necessarily entitles the conduct of research (e.g. weapons design, engineering, etc.). Banning research is also essential as, due to technological advancements, it is now possible to perform nuclear weapons testing via computer simulations and therefore without conducting a physical explosion. As far as this aspect is concerned, nuclear weapons related support facilities are not banned under any NWFZ treaty. As NWFZs treaties aim at denuclearising zones, these supporting facilities should be banned in order to ensure all contracting parties that

108. Graham Jr, T. (2002), *Disarmament Sketches: Three Decades of Arms Control and International Law*, University of Washington Press, Seattle, p. 19.

109. Nuclear weapons testing is prohibited under the Partial Test-ban (1963) and the Comprehensive Test-ban Treaty (1996). The latter, which proscribes underground, atmospheric and underwater nuclear testing has not yet entered into force. Nevertheless, because of the provisions of the NWFZs treaties, the prohibitions contained in the Comprehensive Test-ban Treaty are applied in all states parties to NWFZs.

no nuclear weapons programme related activities are conducted within the established zone.

Third, NWS undertakings, through the ratification of protocols, are unverifiable. This is especially the case as these states have no obligation to report with transparency the fulfilment of their commitment. The ratification of the various protocols by NWS also remains an important challenge. Despite the fact that the five *de jure* nuclear-weapons states often expressed that they have no intention of employing nuclear weapons against NWFZs contracting parties, they did not legally commit themselves by signing or ratifying the related protocols. The United States is opposed to formally adhering to some negative security assurance protocols and challenge the NWFZs protocols containing territorial and boundaries clauses (African and Southeast Asian NWFZs).[110] [111] This can be largely explained by the fact that nuclear deterrence remains a fundamental aspect of its nuclear posture. In comparison, France, Russia and the United Kingdom have ratified the vast majority of the NWFZs protocols. China, which has the particularity to follow a "no-first use"[112] nuclear policy, pledged, with the exception of the protocol of the Bangkok Treaty, its negative security assurance to all related protocols.

It is worth noting that all above-mentioned difficulties could be surmounted through the adoption of amendments to the existing NWFZs treaties. Nevertheless, one aspect would require further efforts than legal amendments. Indeed, the credibility of the NWFZs is highly dependent on the way NWS fulfil their obligations with regard to these zones. Indeed, any deployment of nuclear weapons in the denuclearised zones would seriously endanger their existence, despite the fact that all states that have ratified the treaties fully respect their obligations. As long as nuclear weapons and their related deterrence remain a key feature in NWS's security posture, the concept of NWFZ will not be fully attainable as weapons could still be deployed.[113]

3.3.2 *A Middle East "Weapons of Mass Destruction Free Zone" (WMDFZ)?*

With the discovery of the Israeli nuclear weapons programme in the 1970s, several Arab leaders called for the establishment of a Middle East NWFZ or Middle East WMDFZ. Following a proposal by Egypt and Iran, the UN General Assembly approved in 1974 a Resolution on the establishment of a NWFZ in the region of the Middle East.[114] Currently, the General Assembly adopts on a nearly annual basis a resolution calling for the denuclearisation of the Middle East. In the context of the 1995 NPT Review and Extension Conference, states parties agreed on numerous decisions on the extension of the NPT and a resolution on a Middle Eastern zone. While this Resolution broadened the scope of the initial UN General Assembly resolution by also prohibiting weapons of mass destruction, the Resolution of 1995 reaffirmed the importance of universal adherence to the NPT and called upon all states in the region to take concrete steps towards the establishment of a WMDFZ.[115] Ways of implementing the 1995 Middle East resolution were not discussed in-depth until the

110. Burns, R. D. and P. E. Coyle (2015), *supra* note 71, pp. 128-130.
111. Regarding the protocol of the Bangkok Treaty, NWS objected in particular to Article 7, which refers to foreign ships and aircraft.
112. "No-first use" is referring to the fact that a nuclear-weapon state would not use its nuclear weapons unless first targeted and attacked by an adversary employing nuclear weapons.
113. Tabassi, L. (2009), "National Implementation and Enforcement of Nuclear-Weapon-Free Zone Treaties", *Nuclear Law Bulletin*, No. 83, pp. 29-57.
114. "Establishment of Nuclear-Weapon-Free Zone in the Region of the Middle East", GA Res. 3263, UN GAOR, 29th Sess., UN Doc. A/RES/3263/29 (1974).
115. NPT/CONF.1995/32 (Part I) Annex, Resolution on the Middle East.

2010 RevCon.[116] Hence, the 2000 NPT RevCon Final Document simply recalled the 1995 Resolution while no consensus was reached during the 2005 NPT RevCon.

At the 2010 NPT RevCon, the implementation of the 1995 Middle East resolution was a dominant issue in the discussions related to regional matters in the context of Main Committee II, which is responsible during the RevCon for debating issues related to non-proliferation, safeguards, export controls and regional issues. In order to achieve the goals and objectives associated with the Middle East WMDFZ, the Final Document, supported by the 1995 Resolution sponsors (Russia, the United Kingdom and the United States), called for the organisation of a Conference in 2012. The objective of the latter would bring together all regional states to discuss the establishment of the zone. Despite the nomination of a facilitator by the UN Secretary General to organise the conference, it did not take place for various reasons, which include the lack of willingness of some regional states to make concessions or the difficulty of finding common ground and understanding on the basis on which negotiations would be initiated. At the 2015 NPT RevCon, numerous regional states expressed their disappointment with the fact that the initial 2012 Conference did not take place. Notwithstanding numerous diplomatic efforts, no agreement was reached on the implementation of the 1995 Middle East Resolution, which resulted in the failure of the 9th NPT RevCon. Indeed, Canada, the United Kingdom and the United States rejected the draft Final Document based on the fact that the way forward to set up the Middle East WMDFZ was not based on "consensus and equality" and that the proposed document contained "unworkable conditions" and "arbitrary deadlines".[117] [118]

Taking into account the security context and the nuclear disarmament and non-proliferation challenges in the Middle East region, the establishment of a weapons of mass destruction free zone would contribute to the far-reaching goal of complete and general nuclear disarmament. However, the challenges and constraints remain substantial.

First, the progress towards the establishment of a Middle East WMDFZ does not only depend on regional states but also on outside powers that have strategic, economic and military interests in the regions.[119] These states, particularly the three sponsors of the 1995 Middle East Resolution, play a crucial role in influencing the Middle Eastern security dynamics. In this regard, these states should assume full responsibility by contributing to the improvement of regional states' threat perception. To do so, it is of paramount importance to avoid double-standards, unclear policies and short-term practices that further reinforce the conflicts in the region.

Second, the inability to make progress in negotiations towards the establishment of a Middle East WMDFZ can be explained by the proliferation and security tensions with both the Iranian and the Israeli nuclear programmes. Iran's proliferation profile has been a serious concern for the international community for more than a decade. Nevertheless, the recent EU3+3/Iran Agreement on the verification of Iranian nuclear activities gives hope that the proliferation risks have now been narrowed. This

116. Hautecouverture, B. and R. Mathiot (2011), *A Zone Free of WMD and Means of Delivery in the Middle East: An Assessment of the Multicultural Diplomatic Process*, 1972 – 2010, EU Non-Proliferation Consortium, Paris, pp. 10-17.
117. Davenport, K. (2015) "WMD-Free Middle East Proposal at a Glance. Arms Control Association", www.armscontrol.org/factsheets/mewmdfz (accessed 10 June 2016).
118. Gottemoeller, R. (2015), "Remarks at the 2015 Nuclear Nonproliferation Treaty Review Conference", New York, United Stated, 22 May.
119. Datan, M. (2010), "Nuclear futures for the Middle East: impact on the goal of a weapons of mass destruction-free zone", in Reaching Critical Will (ed.), *Beyond Arms Control – Challenges and Choices for Nuclear Disarmament*, pp. 75-77.

diplomatic outcome has to be considered as a positive sign for the region's nuclear disarmament and non-proliferation environment. Furthermore, Israel remains the sole Middle Eastern *de facto* nuclear-weapon state, outside the NPT regime. Israeli government reluctance on moving towards the establishment of a WMDFZ can be summarised by the fact that the regional security environment is not conducive to further negotiations with the Arab states. Indeed, as it witnesses a deeply hostile neighbourhood, Israel has difficulties in identifying paths to further pursue a regional WMD disarmament without a clear improvement of its security environment.[120]

In conclusion, there are tremendous challenges in potentially establishing a Middle East WMDFZ, which include the Israeli nuclear programme, the comprehensive implementation of EU3+3/Iran nuclear agreement, the Syrian conflict and the presence of non-state actors. The recent failure of the 2015 NPT RevCon additionally shows that the tensions at the diplomatic and political level related to the creation of such a zone in the Middle East are far from being resolved. As witnessed in other regions, the establishment of NWFZs could extensively contribute to the fulfilment of the objectives related to nuclear disarmament and non-proliferation.

4. Conclusion

Since the inception of the international machinery towards nuclear disarmament, numerous political and legal initiatives have been launched to bring the international community closer to "general and complete nuclear disarmament". In this context, the United Nations has played a key role in promoting nuclear disarmament through various multilateral fora such as the First Committee, the SSODs and the Conference on Disarmament. The successive establishment of nuclear-weapon-free zones, now covering the entire Southern hemisphere, constitutes a regional approach in strengthening the global nuclear non-proliferation and disarmament norms by reinforcing the international efforts. In addition, the Nuclear Non-proliferation Treaty, the sole multilateral binding instrument containing obligations on nuclear non-proliferation and disarmament, was adopted with the objective of preventing the spread of nuclear weapons and weapons technology, the promotion of co-operation in the peaceful uses of nuclear energy and achieving nuclear disarmament. With a greater number of states parties than any other arms control, disarmament and non-proliferation agreement, the Nuclear Non-proliferation Treaty was extended indefinitely in 1995. In this regard, Jayantha Dhanapala, the President of the 1995 RevCon, concluded that "only history will prove whether we have collectively given the nuclear-weapon States a virtual carte-blanche, or whether we had strengthened the NPT and made a significant and irreversible step towards nuclear disarmament".[121]

History shows that despite the achievements of the international legal and political framework on nuclear disarmament, its effectiveness is questionable. Indeed, considering the commitments expressed within the United Nations' fora and the legal pledge contained in Article VI of the NPT, no negotiation towards a nuclear disarmament treaty has taken place yet. For many non-nuclear-weapons states, the grand bargain appears to have become increasingly asymmetrical. Jaswant Singh, the former Minister of Foreign Affairs of India, wrote in 1998 that "the nuclear non-proliferation treaty (NPT) was extended indefinitely and unconditionally in 1995, perpetuating the existence of nuclear weapons in the hands of five countries busily

120. *Ibid.*, p. 79.
121. Dhanapala, J. (1996), "A Strengthened Review Process for the NPT", *Fordham International Law Journal*, Vol. 20, Issue No. 5, p. 1533.

modernizing their nuclear arsenals".[122] In fact, while important reductions in their nuclear arsenals have occurred, nuclear-weapons states did not agree to commence multilateral negotiations leading to the global elimination of nuclear weapons. Neither a timeframe nor an agenda has been set up in this regard. On the contrary, many nuclear-weapons states initiated modernisation plans of their nuclear arsenals and reaffirmed the central role of their nuclear weapons in their national security policies. As a consequence, an increasing number of states call for the beginning of negotiations of a treaty banning nuclear weapons, with or without the participation of NWS.

To conclude, the international legal framework applicable to denuclearisation and nuclear disarmament has shown its effectiveness on several occasions. However, it seems that due to the recent geopolitical context and the absence of initiative from nuclear-weapons states to take concrete steps towards the commencement of negotiations towards a nuclear disarmament treaty, the effectiveness of the regime is increasingly at stake. Although the entire international community appears to be in unanimous agreement on the end goal of a total elimination of nuclear weapons, the path in reaching this objective is more uncertain than ever. The constant divisions between and within nuclear-weapons states and non-nuclear-weapons states might lead to a fragmentation of the international legal and political framework, which could irreversibly damage its stability.

122. Singh, J. (1998), "Against Nuclear Apartheid", *Foreign Affairs*, Vol. 77, No. 5, Tampa, p. 32.

The application of the Espoo Convention on Environmental Impact Assessment in a Transboundary Context to nuclear energy-related activities[1]

Introduction

The Convention on Environmental Impact Assessment in a Transboundary Context sets out the obligations to assess the environmental impact of certain activities at an early stage of decision making. It also lays down the general obligation for parties to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across national borders. The Espoo Convention was adopted in 1991 and entered into force on 10 September 1997. There are currently 45 states party to the Espoo Convention,[2] including 23 countries that are also members of the Organisation for Economic Co-operation and Development (OECD) Nuclear Energy Agency (NEA).[3] It should be noted that the European Union (EU) is also a party to the Espoo Convention[4] and has transposed the provisions related to the environmental impact assessment (EIA) procedure in its legislation,[5] thus imposing the Espoo Convention principles on all EU member states.

1. During its June 2015 meeting, the Nuclear Law Committee welcomed a presentation from the United Nations (UN) Economic Commission for Europe (UNECE) representative on the "Espoo Convention initiative to issue good practice recommendations to support the application of the Convention to nuclear energy-related activities". To prepare the Nuclear Law Committee delegates for the presentation, the NEA Secretariat prepared a brief background note on the application of the Espoo Convention on Environmental Impact Assessment in a Transboundary Context (1991), 1989 UNTS 310, entered into force 10 September 1997 (Espoo Convention), to nuclear energy-related activities. This article is based on the background note and is intended to provide basic information on the relevant provisions of the Espoo Convention, applicable to nuclear energy-related activities.
2. An up-to-date list of the parties to the Espoo Convention can be consulted at: United Nations (2016), "Treaty Collection", https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-4&chapter=27&lang=en.
3. These countries are: Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.
4. Espoo Convention, *supra* note 1, Articles 16 and 17(a).
5. Council Directive of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (85/337/EEC), *Official Journal of the European Communities* (OJC) L 175/40 (5 July 1985) (1985 EIA Directive). The EU EIA procedure has been in force since 1985 and applies to a wide range of defined public and private projects. It was amended three times: in 1997, in 2003 and in 2009. Among other changes made by the first amendment, Council Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, OJC L 73/5 (14 March 1997), brought the 1985 EIA Directive in line with the Espoo Convention. The initial 1985 EIA Directive and its three amendments have been codified by Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011, on the assessment of the effects of certain public and private projects on the environment (codification), *Official Journal of the European Union* (OJ), L 26/1 (28 January 2012), which has been amended in by Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, OJ L 124/1 (25 April 2014).

A first amendment to the Espoo Convention entered into force on 26 August 2014 and a second one has been adopted by the Meeting of Parties to the Espoo Convention (hereafter the "MOP") on 4 June 2004 but has not yet entered into force.[6]

The purpose of the Espoo Convention is to enhance international co-operation and allow environmentally sound decisions to be made, paying careful attention to minimising significant adverse impacts, particularly in a transboundary context. In order to do so, the Espoo Convention requires that an EIA be carried out for certain types of activities planned by a party (hereafter the "party of origin"), which are likely to have a significant environmental impact within an area under the jurisdiction of another party (hereafter the "affected party"). The Espoo Convention specifies what must be considered at an early stage of the decision making and it lays down the obligation for countries to notify and consult each other and the public. It also requires that all comments received from the public and authorities, as well as the findings from the assessment, are taken into account when the final decision is made for the planned activity.

In addition, the Protocol on Strategic Environmental Assessment[7] was adopted in Kiev in 2003. It entered into force in 2010 and currently has 29 parties (including the EU), 15 of which are NEA member countries.[8] The SEA Protocol requires that a strategic environmental assessment (SEA) be carried out for certain plans, programmes and possibly policies and legislation that are likely to have significant environmental, including health, effects. Hence, parties to the SEA Protocol must integrate environmental assessments into their development of plans and programmes at the earliest stages, irrespective of whether these plans or programmes are likely to have an impact on the territory of another state.

Appendix I to the Espoo Convention lists the proposed activities which, pursuant to Article 2 of the Convention, fall within its scope of application. These proposed activities include the following nuclear energy-related activities:

> 2. … nuclear reactors (except research installations for the production and conversion of fissionable and fertile materials, whose maximum power does not exceed 1 kilowatt continuous thermal load).
>
> 3. Installations solely designed for the production or enrichment of nuclear fuels, for the reprocessing of irradiated nuclear fuels or for the storage, disposal and processing of radioactive waste.

Following the entry into force of the second amendment to the Espoo Convention, the list of proposed nuclear activities falling within the scope of application of the Convention will be the following:

> 2. …
> (b) Nuclear power stations and other nuclear reactors, including the dismantling or decommissioning of such power stations or reactors[9] (except

6. An up-do-date status of the second amendment to the Espoo Convention can be consulted at: United Nations (2016), "Treaty Collection", https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-4-c&chapter=27&lang=en.
7. Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (2003), 2685 UNTS 140, entered into force 11 July 2010 (SEA Protocol).
8. These countries are: Austria, Czech Republic, Denmark, Finland, Germany, Hungary, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain and Sweden.
9. The second amendment to the Espoo Convention contains the following footnote in the text "For the purposes of this Convention, nuclear power stations and other nuclear reactors cease to be such an installation when all nuclear fuel and other radioactively contaminated elements have been removed permanently from the installation site."

research installations for the production and conversion of fissionable and fertile materials, whose maximum power does not exceed 1 kilowatt continuous thermal load).

3. (a) Installation for the reprocessing of irradiated nuclear fuel;

(b) Installations designed:

- For the production or enrichment of nuclear fuel;

- For the processing of irradiated nuclear fuel or high-level radioactive waste;

- For the final disposal of irradiated nuclear fuel;

- Solely for the final disposal of radioactive waste; or

- Solely for the storage (planned for more than 10 years) of irradiated nuclear fuels or radioactive waste in a different site than the production site.[10]

Pursuant to Article 1 of the Espoo Convention, any major change to an activity listed under Appendix I of the Convention also falls within its scope of application. Identical provisions are found in Annex I to the SEA Protocol, which lists projects for which each party to the SEA Protocol shall ensure that an SEA is carried out at the plan or programme level.

A review mechanism: The Implementation Committee

In order to review compliance by the parties with their obligations under the Espoo Convention and in view of assisting them fully in meeting their commitments under the Convention, the MOP established the Implementation Committee in February 2001.[11] With the entry into force of the SEA Protocol, the Committee's mandate was extended to review compliance under the Protocol as well.[12]

The Implementation Committee consists of eight members, representing parties both to the Espoo Convention and the SEA Protocol, who are elected by the MOP. In

10. United Nations Economic and Social Council (2004), "Report of the Third Meeting held in Cavtat, Croatia from 1 to 4 June 2004 at the invitation of the Government of Croatia", ECE/MP.EIA/6, Annex VII, Decision III/7: Second Amendment to the Espoo Convention (13 September). This list of activities is identical to that provided in Annex I to the 1985 EIA Directive.
11. United Nations Economic and Social Council (2001), "Report of the Second Meeting held in Sofia from 26 to 27 February 2001 at the invitation of the Government of Bulgaria", ECE/MP.EIA/4, Annex IV (7 August); see also United Nations Economic and Social Council (2004), "Report of the Third Meeting held in Cavtat, Croatia from 1 to 4 June 2004 at the invitation of the Government of Croatia", ECE/MP.EIA/6, Annex II (13 September).
12. United Nations Economic and Social Council (2011), "Report of the Meeting of the Parties to the Convention serving as the Meeting of the Parties to the Protocol on its First Session", Geneva, 20-23 June 2011, ECE/MP.EIA/SEA/2, Joint Decision V/6-I/6 (16 August). According to Article 14 of the SEA Protocol, the MOP also serves as the Meeting of the Parties to the Protocol. Since the entry into force of the Protocol, the MOP and Meeting of the Parties to the Convention serving as the Meeting of the Parties to the Protocol (MOP/MOP) have been held in joint sessions, where items relating to Espoo Convention matters only are discussed alongside items relating to SEA Protocol matters only or joint SEA Protocol and Espoo Convention matters. Consequently, the MOP adopts decisions relating to the Espoo Convention only, the MOP/MOP adopts decisions relating to the Protocol only, or the MOP and the MOP/MOP adopt joint decisions relating to the Convention and the Protocol (such as the work plan or the budget). Joint decisions bear double symbols (e.g. Joint Decision V/6-I/6).

case a member represents a party to only one of the two instruments, additional members must be nominated as alternates. In its current composition, the Committee has eleven members, with three members nominated for SEA Protocol matters only. The Committee elects its own Chair and two Vice-Chairs. Members serve for two terms (inter-sessional periods, i.e. the three-year periods between two consecutive sessions of the MOP) and may be re-elected once. The Committee adopts its own procedural rules, which are subject to revision based on practice and experience.

The Implementation Committee reviews parties' compliance: (a) on the basis of submissions (party-to-party submission or self-referrals) or (b) based on Committee initiatives. Committee initiatives are launched in two ways: (i) based on information obtained from other sources (most often from non-governmental organisations (NGOs)) followed by correspondence with the party concerned to gather further information and (ii) as a result of specific compliance issues arising from the periodic reviews of the implementation of the Espoo Convention, followed by correspondence with the party concerned to define whether the Committee should further examine the matter. Until today, the Implementation Committee has considered and concluded its consideration of five submissions by parties and five Committee initiatives. Two out of five submissions by parties concerned nuclear energy-related activities.

In 2012, following a submission by Azerbaijan with respect to the planned construction of a nuclear reactor in Armenia, the Implementation Committee found that the latter had not complied with its obligations under Article 3, paragraph 1, of the Espoo Convention to notify Azerbaijan as early as possible and no later than when informing its own public.[13] In 2014, following a submission by Lithuania with respect to the planned building of a nuclear power plant at Ostrovets, Belarus, the Committee found that Belarus had not complied with its obligations under the Espoo Convention, notably because it had not provided equivalent opportunities for public participation in the affected party and had not furnished the affected party with the final EIA documentation for the purpose of public participation.[14]

The Implementation Committee has over the years received information from different sources alleging non-compliance by parties with their obligations under the Espoo Convention in relation to the carrying out of nuclear energy-related activities. In one instance, the information gathering case was closed, further to the submission by Lithuania, which raised concerns about Belarus' compliance with the Espoo Convention.[15] In two other instances, the Committee decided to open a Committee initiative.

On the basis of information provided in 2011 by a Ukrainian NGO regarding the planned lifetime extension of two nuclear reactors at the Rivne nuclear power plant in Ukraine, the Implementation Committee started to gather information from other parties and stakeholders, which in 2013 led to the opening of a Committee Initiative. Having considered the case, the Implementation Committee found in 2014 that the lifetime extension of reactors 1 and 2 of the Rivne nuclear power plant after the initial licence had expired, even in the absence of any works, was to be considered

13. United Nations Economic and Social Council (2012), "Report of the Implementation Committee on its twenty-sixth session", Geneva, 26-28 November 2012, ECE/MP.EIA/IC/2012/6, Annex I, "Findings and recommendations further to a submission by Azerbaijan regarding Armenia (EIA/IC/S/3)" (19 December).
14. United Nations Economic and Social Council (2013), "Report of the Implementation Committee on its twenty-seventh session", Geneva, 12-14 March 2013, ECE/MP.EIA/IC/2013/2, Annex, "Findings and recommendations further to a submission by Lithuania regarding Belarus (EIA/IC/S/4)" (15 April).
15. See case EIA/IC/S/4 above.

as a proposed activity under Article 1, paragraph (v) and was consequently subject to the provisions of the Espoo Convention. On that basis, Ukraine had failed to comply with the provisions of the Convention.[16]

On the basis of information provided in 2013 by a German member of the Parliament and the Irish NGO Friends of the Irish Environment regarding the planned construction of the Hinkley Point C nuclear power plant by the United Kingdom, the Implementation Committee started to gather information from other parties and stakeholders, which in 2014 led to the opening of a Committee Initiative. The main issue of this Committee Initiative concerned the likelihood of a significant adverse transboundary environmental impact that might be caused by the activity at Hinkley Point C, more specifically in case of major accidents, beyond design basis accidents or disasters. The Committee held an open discussion with the United Kingdom at its 33rd session (17-19 March 2015).[17] At its 35th session, the Committee adopted its findings and recommendations, concluding that the United Kingdom had been in non-compliance with its obligations under Articles 2 and 3 of the Espoo Convention. The Committee recalled its previously expressed opinion that even a low likelihood of a significant adverse transboundary impact should trigger the obligation to notify affected parties in accordance with Article 3. The Committee further noted that:

> for certain activities, in particular nuclear energy-related activities, while the chance of a major accident, accident beyond design basis or disaster occurring is very low, the likelihood of a significant adverse transboundary impact of such an accident can be very high. Therefore, … on the basis of the principle of prevention, when considering the affected Parties for the purpose of notification, the Party of origin should be exceptionally prospective and inclusive …[18]

On 7 May 2014, the Implementation Committee received information from the NGO Greenpeace Netherlands concerning the lifetime extension of the Borssele nuclear power plant in the Netherlands.[19] The Implementation Committee has since exchanged information with the Netherlands, Belgium and Germany and is still considering the issue; it has not yet decided to open a Committee Initiative.

Lastly, the Committee received information from the German federal states of North Rhine-Westfalia and Rhineland-Palatinate regarding the lifetime extension of the Doel and Tihange nuclear power plants in Belgium. The Committee is expected to consider that information for the first time at its 36th session to be held in Geneva, from 5 to 7 September 2016.

After the Committee has concluded consideration of a case, its findings and recommendations are forwarded to the MOP. The MOP then makes a final decision

16. United Nations Economic and Social Council (2014), "Report of the Implementation Committee on its thirtieth session", Geneva, 25-27 February 2014, ECE/MP.EIA/IC/2014/2, Annex, "Findings and recommendations further to a Committee initiative concerning Ukraine (EIA/IC/CI/4)" (14 August).
17. United Nations Economic and Social Council (2015), "Report of the Implementation Committee on its thirty-third session", Geneva, 17-19 March 2015, ECE/MP.EIA/IC/2015/2 (20 May).
18. United Nations Economic and Social Council (2016), "Report of the Implementation Committee on its thirty-fifth session (Advance copy)", Geneva, 15-17 March 2016, ECE/MP.EIA/IC/2016/2, Annex, "Findings and recommendations further to a Committee initiative concerning the United Kingdom of Great Britain and Ireland (EIA/IC/CI/5)" (April).
19. For more information on this matter (EIA/IC/INFO/15), see supra notes 17 and 18.

and mandates the Committee to follow up with its recommendations.[20] The next MOP will be held in June 2017 in Minsk, Belarus.

Good practice recommendations

For the last five years, the parties have led several initiatives related to nuclear energy to foster implementation of the Espoo Convention. In 2011, at the request of the Working Group on EIA and SEA, the Espoo Convention secretariat prepared a background note on the application of the Espoo Convention to nuclear energy-related activities[21] for consideration by the MOP at its fifth session in June 2011. This note reflected the diverse and sometimes conflicting views expressed by the parties to the Espoo Convention on its application to nuclear energy-related activities and sought to encourage debate on key issues during the panel discussion on nuclear energy-related projects that was held in the framework of the MOP. In 2013, in the context of the third meeting of the Working Group on EIA and SEA, a workshop was organised by Austria, Finland and Sweden on the impacts of nuclear energy-related activities.[22] The workshop participants reached the conclusion, notably, that "nuclear energy activities implied special challenges due to, e.g., the potentially wide scope of severe impacts, great public concern and national interests" and that "there was a major benefit in having an open discussion and sharing experiences, which showed the diversity of different practices in applying the Convention to such activities and facilitated learning from each other".[23]

At its sixth meeting (2-5 June 2014), the MOP adopted Decision VI/7 on the application of the Espoo Convention to nuclear energy-related activities.[24] This decision proposes the elaboration of good practice recommendations to support the application of the Convention to nuclear energy-related activities. According to the decision, the recommendations are expected to build on the aforementioned background note and to be presented to the next MOP in 2017. This decision invites parties and non-parties, as well as other stakeholders, to provide examples of practical experience for inclusion in these recommendations. An editorial group composed of representatives of Austria, Belarus, Finland, France, Germany, the Netherlands, Poland, the European Commission and the European ECO Forum was established to oversee the development of the draft recommendations, with the support of an external consultant: the Environment Agency Austria. The terms of

20. For the most recent decisions of the parties, please see United Nations Economic and Social Council (2014), "Report of the Meeting of the Parties to the Convention on its sixth session and of the Meeting of the Parties to the Convention serving as the Meeting of the Parties to the Protocol on its second session", Addendum: Decisions adopted by the Meeting of the Parties to the Convention, Geneva, 2-5 June 2014, ECE/MP.EIA/20/Add.1—EC/MP.EIA/SEA/4/Add.1 (15 July).
21. United Nations Economic and Social Council (2011), "Background note on the application of the Convention to nuclear energy-related activities: Note by the secretariat", Geneva, 20-23 June 2011, ECE/MP.EIA/2011/5 (2 April).
22. United Nations Economic and Social Council (2013), "Report of the Working Group on Environmental Impact Assessment and Strategic Environmental Assessment on its third meeting", Geneva, 11-15 November, ECE/MP.EIA/WG.2/2013/7 (20 December).
23. United Nations Economic and Social Council (2014), "Report of the Meeting of the Parties to the Convention on its sixth session and of the Meeting of the Parties to the Convention serving as the Meeting of the Parties to the Protocol on its second session", Addendum: Decisions adopted by the Meeting of the Parties to the Convention, Geneva, 2-5 June 2014, ECE/MP.EIA/20/Add.1—EC/MP.EIA/SEA/4/Add.1 (15 July).
24. See *supra* note 15.

reference for drafting these recommendations[25] have been discussed and revised by the Working Group on EIA and SEA at its fourth meeting held on 26-28 May 2015. On that occasion, the Working Group also agreed that the relevant MOP decisions and the opinions of the Implementation Committee should be considered as the main sources for the preparation of the document, and, as appropriate, existing relevant nuclear safety instruments, such as the International Atomic Energy Agency (IAEA) standards and the standards set in the Treaty establishing the European Atomic Energy Community (Euratom Treaty). Most recently, the Working Group considered progress in the preparation of the good practice recommendations at its fifth meeting held on 11-15 April 2016.[26] Such progress included the gathering of information from the national focal points and other stakeholders on the related practice of their countries as parties of origin and/or affected parties by means of a detailed questionnaire agreed by the editorial group and circulated by the secretariat to the Espoo Convention. The editorial group is continuing its activities with a view to presenting the good practice recommendations to the MOP in June 2017.

25. United Nations Economic and Social Council (2015), "Working Group on Environmental Impact Assessment and Strategic Environmental Assessment, Good practice recommendations on the application of the Convention to nuclear energy-related activities: Terms of reference drafted by the secretariat, in consultation with the Bureau", Geneva, 26-28 May 2015, ECE/MP.EIA/WG.2/2015/3 (16 March).
26. United Nations Economic and Social Council (2016), "Report of the Working Group on Environmental Impact Assessment and Strategic Environmental Assessment on its fifth meeting (Advance copy)", Geneva, 11-15 April 2016, ECE/MP.EIA/WG.2/2016/2, pp. 13-14 (18 May).

Case law

Canada

Decision of the Canadian Federal Court of Appeal dismissing an appeal related to an environmental assessment of a project to refurbish and extend the life of an Ontario nuclear power plant[1]

By decision dated 13 April 2016, the Canadian Federal Court of Appeal decided that there was no reviewable error made in an environmental assessment (EA) conducted by the "Responsible Authorities", the Canadian Nuclear Safety Commission (CNSC) and the Department of Fisheries and Oceans (DFO), for a nuclear project. The EA had concluded that the refurbishment and continued operation of the Darlington Nuclear Generating Station was not likely to cause significant adverse environmental effects.

Background

The Darlington nuclear power plant, owned and operated by publicly-owned utility company Ontario Power Generation Inc. (OPG), is made up of four CANDU reactors and has been in operation since 1993. In April of 2011, OPG submitted a project description to the CNSC, the nuclear regulatory body that licenses all nuclear activities in Canada, in which it described its plans for the refurbishment and continued operation of the four reactors at Darlington. OPG indicated that the refurbishment was part of the anticipated life-cycle of the reactors, and would involve inspecting and servicing reactor components, replacing fuel channel assemblies and feeder pipes in the reactors, refueling the reactors and returning them to full operation for an additional 30 years. The refurbishment and continued operation would produce additional waste, including spent fuel, and the project description included the construction of additional storage capacity at the Darlington Waste Management Facility (DWMF). Other wastes would be dealt with in accordance with OPG's existing waste management practices.

Under Canadian law, the activities outlined in the refurbishment project required a licensing decision by the CNSC under the Canadian Nuclear Safety and Control Act (NSCA),[2] authorisation from DFO under the Fisheries Act[3] and an EA under the Canadian Environmental Assessment Act 1992 (CEAA 1992).[4] Both the CNSC and DFO were "Responsible Authorities" to conduct the EA, with the CNSC taking the lead on the assessment.

1. Greenpeace Canada et al. v. Attorney General of Canada and Ontario Power Generation Inc., 2016 FCA 114.
2. S.C. 1997, c. 9.
3. R.S.C. 1985, c. F-14.
4. Under the Canadian Environmental Assessment Act 1992 that was in force in 2011, OPG's application under the Nuclear Safety and Control Act and the request for an authorisation under the Fisheries Act triggered the need to conduct a screening level EA. By virtue of an order issued by the Minister of Environment under subsection 124(2) of the new Canadian Environmental Assessment Act, 2012, S.C. 2012, c. 19, s. 52 [CEAA 2012], OPG's refurbishment project continued to be governed by the CEAA 1992 despite the repeal of this legislation in 2012.

In March 2013, and after a public hearing on the proposed EA screening report, the CNSC issued its decision on the EA.[5] It is this decision that was the subject of an application for judicial review and this appeal. The CNSC concluded that the refurbishment and continued operation of Darlington were not likely to cause significant adverse environmental effects when the mitigation measures identified in the EA screening report were taken into account. It decided that it would proceed to consider the matter for licensing under the NSCA.

The federal court application for judicial review

Four non-governmental organisations (NGOs) – Greenpeace Canada, the Canadian Environmental Law Association, Lake Ontario Waterkeeper and Northwatch – that had participated in the EA review and hearing process applied to the Federal Court of Canada for judicial review of the EA decision. In the application, the NGOs argued that the CNSC had failed to assess the matters it was required to assess under the CEAA 1992 and, in particular, had erred by excluding from the scope of the EA low-probability severe nuclear accidents. They submitted that a portion of the assessment that was required to be done had been improperly deferred by the CNSC to the licensing process and that it was a failure to not include permanent storage of the fuel waste as part of the project.

By decision dated 25 November 2014, the Federal Court per Phelan J. dismissed the application for judicial review.[6] In finding that the standard of review that applied to the EA decision was reasonableness, the Court found the decision to meet that standard. The Court found that there was no reviewable error, and that the selection of the "one in a million per year" probability for a severe accident as a threshold below which accidents would be out of scope for the EA was reasonable. The Court awarded costs against the NGOs.

In late 2014, the NGOs filed an appeal of that decision to the Federal Court of Appeal. Meanwhile, after a two-part licensing hearing that took place in August and November of 2015, the CNSC made its licensing decision to renew the Darlington operating licence and to authorise the refurbishment of the reactors. This decision-making under the NSCA was reliant upon the validity of the EA that had been done, which had been upheld by the Federal Court.

The appeal decision

On appeal, the NGOs claimed that the Federal Court erred in rejecting their application for judicial review because the CNSC unreasonably excluded severe low-probability nuclear accidents from the scope of the assessment and unreasonably failed to give adequate consideration to the long-term management of nuclear fuel waste that the refurbished Darlington facility would generate. They also argued that the Court had erred in awarding costs against them without hearing from them on this issue.

(a) Standard of review

Finding that its job on appeal required it to "assess whether a decision is justified, transparent and intelligible, and whether the result reached is defensible on the facts and the law", the Federal Court of Appeal found that considerable deference was owed to the CNSC:

> Where, as here, the issues at play involve detailed factual findings and discretionary decisions within the heartland of the tribunal's expertise, the

5. For the decision, see online: http://nuclearsafety.gc.ca/eng/the-commission/pdf/2012-12-03-Decision-DarlingtonEA-e-Edocs4105509-final.pdf.
6. 2014 FC 1124.

> reasonableness standard requires that considerable deference be given to the tribunal's determinations. This is particularly so when the issues under review concern nuclear safety and the tribunal is the nuclear safety regulator. In short, the CNSC is much better placed than a reviewing court to factually assess and determine what types of possible accidents are likely to occur at a nuclear power plant and how to conduct the assessment of the environmental impacts of potential accidents. It is therefore inappropriate for a reviewing court to second-guess these determinations through a detailed re-examination of the evidence as the appellants would have us do in the instant case.[7]

(b) Exclusion of severe low-probability accidents

The NGOs argued both that the threshold of one in a million per year severe accident was too low and that the CNSC had not respected that threshold in making its EA decision. Respecting the reasonableness of the threshold itself, the Court found:

> as concerns the allegation that the selection of the probability threshold of one in a million per year is not stringent enough, there is no basis to disturb the RAs' [Responsible Authorities'] selection of this threshold. As was noted in OPG v. Greenpeace at paragraph 70 … , CEAA 1992 does not require that all accidents, no matter how improbable, be taken into account in an EA or the process would be interminable.[8]

The Court found that this threshold was the "accepted norm applied in these sorts of assessments, as the CNSC explained in its decision". Respecting the argument that there were factual errors in how the CNSC had applied this threshold, the Court found that it was not the role of the Court to engage in a "microscopic re-assessment of the evidence", and that this would be "highly inappropriate in the face of scientific evidence as complex as that reviewed by the CNSC in the present case".[9] It found no reviewable error in how the CNSC had addressed this issue.

(c) Long-term management of fuel waste

Whereas the appellants had argued that it was unreasonable in an EA for the life extension of a reactor facility to exclude from the assessment the off-site, long-term management of the fuel waste, the Court found the matter to have been treated reasonably. The NGOs submitted on appeal, as they had submitted to the CNSC in the EA hearing, and before the Federal Court, that the EA had to consider the impact of the absence of a comprehensive plan for the permanent storage of nuclear fuel waste in Canada.[10]

The Court found that the CNSC had reasonably broadened the scope of the project to be considered respecting this issue by including the possibility of ongoing long-term on-site storage of spent fuel at the facility. Requiring this contingency plan ensured that adequate provision was made to store the spent fuel on-site for a longer term, and the EA assessed the environmental impacts of this contingency plan.

7. *Supra* note 1, p. 60.
8. *Ibid.*, p. 74.
9. *Ibid.*, p. 70.
10. *Ibid.*, p. 8. As the Court noted in its decision, at present "[t]here is currently no comprehensive plan for the permanent storage of nuclear fuel waste in Canada. Under the Nuclear Fuel Waste Act, S.C. 2002, c. 23, the Nuclear Waste Management Organization [the NWMO] has been tasked with developing and implementing a long term management strategy for Canada's nuclear fuel waste. The NWMO is still in the process of developing this strategy, which is contemplated to provide for long term storage of such waste at a site other than the Darlington Facility."

The Court found that in the circumstances, it was not unreasonable for the CNSC to have excluded from the scope of the EA the permanent off-site storage of spent fuel, stating:

> Indeed, to hold otherwise would mean that OPG could not proceed to refurbish the Darlington reactors unless and until the NWMO comes up with a solution for permanent storage of nuclear waste in Canada. Forestalling the refurbishment on this basis would not be a reasonable outcome when a workable alternate solution was assessed by the CNSC and found to pose no likely environmental risk.[11]

This finding is reminiscent of the ruling made by a different panel of the same appeal court in the appeal of an EA completed in the context of an application to build new reactors at the Darlington site, where the Court also determined that the consideration of the issue of spent fuel management at the EA stage did not require consideration of off-site permanent storage.[12]

(d) The issue of costs

Before the appeal court, the NGOs had argued that the Federal Court had erred in making a costs award against them, when there had been agreement that additional submissions would be filed on this issue. The Court of Appeal agreed, finding that the lower court ought to have heard from the appellants before ruling against them respecting costs. However, in making the decision that the Federal Court should have made, upon hearing from the parties, the Court of Appeal found that an award of costs against the NGOs was appropriate. It concluded that the "mere fact that the appellants are public interest litigants does not immunise them from costs awards", which was well-established in Canadian jurisprudence, and also that there was "nothing about this case which would warrant departing from the normal rule that costs should be awarded to a successful party".[13]

Impact

From the perspective of Canadian law, this decision brings a certain clarity to Canadian nuclear law and to the way Courts ought to treat decisions of the nuclear regulator. That is, one notes the deference that was shown by the Court to the scientific decisions made by the CSNC, in recognition of its specialised expertise and role. The issues that arose in this case were treated by the reviewing Court as "detailed factual findings and discretionary decisions within the heartland of the tribunal's expertise", and this was "particularly so" as the issues "concern[ed] nuclear safety and the tribunal is the nuclear safety regulator". This is a robust endorsement of the CNSC's ability to evaluate the potential environmental effects of a nuclear project at the EA stage and of the expertise that it brings to this task.

Issues related to finding long-term solutions for nuclear fuel waste, and the potential for catastrophic accidents and how to guard against them, are central to nuclear regulation in any nuclear energy state. In this decision, when read alongside the "new build" decision of the same Court, one sees that the Court finds no legal basis to "hold up" nuclear projects over these issues, so long as the issues have been adequately and properly addressed in a project-specific manner. As the Court in this case found:

11. *Supra* note 1, p. 68.
12. Canada et al. v. Greenpeace Canada et al., 2015 FCA 186, summarised in NEA (2015), "Decision of the Canadian Federal Court of Appeal overturning a decision to send back for reconsideration an environmental assessment of a proposed new nuclear power plant in Ontario", *Nuclear Law Bulletin,* No. 96, NEA, Paris, pp. 63-66.
13. *Supra* note 1, p. 79.

> The joint review panel in OPG v. Greenpeace, like the RAs in the present case, determined that the severity of accidents it would consider as part of the assessment were those with a frequency of occurrence greater than one in a million per year. Both the joint review panel in OPG v. Greenpeace and the RAs in the present case also assessed the environmental impact of OPG's plans for on-site storage of spent nuclear fuel and did not assess the impact of the absence of a plan for off-site long-term management of nuclear fuel waste. There, like here, the appellants argued that the decisions to exclude severe low-probability nuclear accidents and to exclude long-term off-site management of nuclear waste from the scope of the assessment were unreasonable. In OPG v. Greenpeace, this Court disagreed and unanimously concluded that the joint review panel's treatment of both issues was reasonable.
>
> I believe that similar conclusions should be reached in this case … [14]

Thus, in Canada, the current jurisprudence tells us that for the EA of a nuclear project, there must be a full and adequate assessment of the project proponent's plan for long-term waste management, but that this does not require there to be a permanent waste facility in existence. Here, the Court found that it would be unreasonable to forestall the Darlington refurbishment until the NWMO came up with a permanent solution for all Canadian nuclear waste storage, when the "workable alternative solution" of storing the Darlington spent fuel at Darlington, in the eventuality that the NWMO did not find a solution before 2055, was assessed for its environmental impact as part of the EA.

Similarly, this jurisprudence tells us that the CNSC's choice as to what types of accidents should be assessed must be respected if it is reasonable and that it would not be reasonable to assess the potential impact of all accidents, however improbable, "or the process would be interminable". The threshold of one in a million probability used here was found to be reasonable.

Conclusion

At present, at the appellate court level in Canada, one sees a consistent message of deference to the Canadian nuclear regulator, the CNSC, in its EA decision-making. In this matter, the deadline for the appellants to file an application for leave to appeal to the Supreme Court of Canada is 13 June 2016. If leave were to be sought and granted, there would be consideration of these issues from the highest court in Canada.

Meanwhile, the Supreme Court of Canada decided on 28 April 2016 not to grant the leave to appeal that was sought by Greenpeace Canada, Lake Ontario Waterkeeper, Northwatch and the Canadian Environmental Law Association with respect to the EA and the site preparation licence for the proposed Darlington new build matter noted above.[15] With leave to appeal having been denied, the Federal Court of Appeal decision that upheld the EA decision-making by the CNSC is the final decision for this matter.

14. *Ibid.*, pp. 4-5.
15. *Supra* note 12. See Canada (Attorney General) et al. v. Greenpeace Canada et al., leave to appeal to Supreme Court of Canada refused, case number 36711.

Poland

Decision of the Masovian Voivod[16] *of 28 December 2015 concerning the legality of the resolution on holding a local referendum in the Commune of Różan regarding a new radioactive waste repository (2015)*[17]

On 3 July 2015, the Masovian *Voivod* annulled a resolution[18] adopted on 27 May 2015 by the Municipal Council of Różan to hold a local referendum regarding the siting of a new radioactive waste repository in the commune of Różan. While this decision was not questioned by the Municipal Council (and therefore became a final decision), on 23 November 2015 the Municipal Council adopted a new, but very similar resolution[19] on holding an identical referendum in the commune, hoping that this time its legality would not be questioned by the Masovian *Voivod*. In this second attempt, the Municipal Council managed to avoid some of the same procedural mistakes that caused the first resolution to be invalid, but at the same time it made other procedural mistakes. Again, the Municipal Council was unsuccessful and the *Voivod* ultimately concluded that the resolution violated several provisions of Polish law. As a result, the second resolution was also annulled.

Resolution of the Municipal Council of Różan

On 23 November 2015, the Municipal Council of Różan adopted a resolution with the following referendum question: "Do you support the siting of a radioactive waste repository in Różan? Yes/No". The intended referendum was scheduled for 28 February 2016. After the resolution was adopted, it was delivered to the Masovian *Voivod*, acting as a supervisory authority, on 27 November 2015. After requiring additional information, the Masovian *Voivod* on 22 December 2015 initiated *ex officio* proceedings to verify the resolution's legality.

Decision of the Masovian Voivod

The *Voivod* annulled the resolution in a 28 December 2015 decision.

In making its decision, the *Voivod* determined there were three procedural violations. First, the Municipal Council violated Article 18 of the Local Referendum Act (LRA),[20] which provides that the Municipal Council may adopt a resolution on holding a local referendum within 30 days after the referendum petition was delivered to the mayor. In this instance, the referendum petition was delivered to the mayor on 23 October 2015, and thus the deadline for adopting the resolution was 22 November 2015. However, the Municipal Council adopted it the next day, on 23 November 2015. By missing the deadline, the *Voivod* concluded that Article 18 of the LRA was seriously infringed upon.

Second, the *Voivod* concluded that the Municipal Council violated Article 21, section 1 of the LRA. Under this Article, a referendum should be held on a public holiday, not later than 50 days from the publication date of the resolution in the Official Journal of the Masovian *Voivodship*. The mayor, however, failed to deliver the resolution for publication. As a result, because the resolution was not published in

16. The *Voivod* is a centrally appointed governor of a *Voivodship* (province) in Poland.
17. For more background information on this issue, please see *Nuclear Law Bulletin*, No. 96, NEA, Paris, pp. 72-75.
18. Resolution No. X/60/2015 on holding the referendum regarding siting of the new radioactive waste repository in the Commune of Różan (unpublished).
19. Resolution No. XV/92/2015 on holding the referendum regarding siting of the new radioactive waste repository in the Commune of Różan (unpublished).
20. Local Referendum Act (LRA) of 15 September 2000, *Journal of Laws* of 2013, item 206, with amendments.

the Official Journal, it was not possible to determine the deadline for holding the referendum or to verify the legality of the adopted resolution.

Third, and lastly, the *Voivod* noted that there were minor procedural mistakes made by the Municipal Council. According to the *Voivod*, the Council indicated an incorrect legal basis for the adopted resolution. This was an insignificant violation of item 121, section 1, in connection with item 143 of the Regulation of the Council of Ministers of 20 June 2002 on the "Principles of the legislative techniques".[21]

Regarding the substantive objections, the *Voivod* noted that the adopted resolution was inconsistent with Article 17, section 1 of the LRA. Based on this provision, the Municipal Council may adopt a resolution on holding a local referendum only if the following conditions are cumulatively met: first, all relevant legal requirements must be met and second, the referendum must not lead to unlawful results. The *Voivod* found that the second requirement was not met because the referendum question ("Do you support the siting of a radioactive waste repository in Różan? Yes/No") would lead to unlawful results. It was determined that in the aftermath of the intended referendum, the Municipal Council may be obliged to introduce changes to Commune documents (such as the local spatial development plan) that would significantly limit the exclusive rights of the Municipal Council to determine the Commune's spatial policy. This would violate Article 18, section 2, clause 5 of the Local Self-Government Act,[22] according to which, spatial development planning belongs to the exclusive competence of the municipal council at the commune level. Therefore, radioactive repository siting cannot be the subject of local referendum at all.

The *Voivod* referred to a Supreme Administrative Court judgment,[23] which in a similar case found a petition to hold a referendum on a prohibition to site a wind farm on their commune's territory to be invalid as "it touches upon the municipal council right to define commune spatial policy, exceeding the scope of the local referendum". The conclusion is that a local referendum cannot be used as a tool to prohibit the siting of a specific type of construction investment on the commune territory (such as a radioactive waste repository or a wind farm) because the municipal council has exclusive competence in this field.

The *Voivod* also referred to Article 170 of the Polish Constitution, which states that "members of a self-governing community may decide, by means of a referendum, matters concerning their community". However, if the members of the commune vote in favour of the referendum question (i.e. acceptance of siting a repository in the commune), it would form a part of the commune development policy and would therefore be inconsistent with Article 2, section 1 of the LRA.

According to Article 92, section 1 of the LSGA, annulment of the resolution by the *Voivod* has a suspensive effect. The Municipal Council has a right to appeal to the relevant *voivodship* administrative court within 30 days of the day on which the ruling is delivered. Exercising its rights, the Municipal Council challenged the *Voivod*'s decision on 27 January 2016.

21. *Journal of Laws* of 2002, No. 100, item 908. In the doctrine of law, it is questionable whether principles of the legislative techniques contained in this regulation are applicable to the local law acts. This is because the Constitution does not define clearly the relation between regulations and the local law acts. Besides the regulation in question was issued by the Prime Minister and so principally it is binding for Council of Ministers only and not for local self-government units, such as the Municipal Council.
22. Local Self-Government Act (LSGA) of 8 March 1990, *Journal of Laws* of 2013, item 594, with amendments.
23. Judgment of the Supreme Administrative Court of 20 March 2014 (II OSK 344/14).

In light of the last two negative decisions of the *Voivod* in this matter based on sound legal (both procedural and material) grounds, the likelihood that the Municipal Council will win the case is not particularly high.

United States

Commission authorises issuance of construction permit for the SHINE Medical Isotope Facility in Janesville, Wisconsin

On 15 December 2015, the US Nuclear Regulatory Commission (NRC) held an evidentiary hearing to consider SHINE Medical Technologies, Inc.'s application for the construction of a first-of-a-kind medical radioisotope production facility in Janesville, Wisconsin.[24]

SHINE filed its two-part application to build the radioisotope production facility in 2013.[25] The facility will primarily produce molybdenum-99 (^{99}Mo), which decays to technetium-99m (^{99m}Tc), a radioisotope used in medical diagnostic procedures.[26] The proposed SHINE facility would include an "Irradiation Facility", where the ^{99}Mo would be generated, and a "Radioisotope Production Facility", where ^{99}Mo would be extracted, purified and packaged.[27] Molybdenum-99 has not been commercially produced in the United States since 1989.[28]

The Commission considered whether the staff's safety and environmental review of the application, including the analysis of the environmental impacts of the facility, pursuant to the US National Environmental Policy Act (NEPA), was sufficient to support the findings the NRC must make to approve the construction permit.[29] As part of its review, the Commission took into account seismic and flooding hazards and worked in co-operation with the US Department of Energy and the US Fish and Wildlife Service in analysing the potential environmental impacts of the SHINE facility.[30] The Commission concluded that the staff's review was sufficient to support NRC regulations for safety and environmental issues and authorised the issuance of the construction permit on 25 February 2016.[31] The issuance of the construction permit does not include the approval of the facility design; SHINE is expected to apply for an operating license, which will include the final detailed design, in the near term.[32]

Commission authorises issuance of combined licences for the South Texas Project site in Matagorda County, Texas

On 19 November 2015, the NRC held an evidentiary hearing to consider the NRC staff's review of Nuclear Innovation North America's (NINA) application to construct and operate two new nuclear reactors at the South Texas Project site in Matagorda County, Texas.[33] After reviewing the staff's safety and environmental findings, the

24. NRC (2016), "In the Matter of SHINE Medical Technologies, Inc. (Medical Radioisotope Production Facility)", 25 February 2016, available at: http://pbadupws.nrc.gov/docs/ML1605/ML16056A094.pdf.
25. *Ibid.*, p. 2.
26. *Ibid.*
27. *Ibid.*, pp. 12-15.
28. NRC (2016), "NRC to Issue Construction Permit for SHINE Medical Isotope Facility", 25 February 2016, available at: http://pbadupws.nrc.gov/docs/ML1605/ML16056A148.pdf.
29. NRC, *supra* note 24, p. 46.
30. *Ibid.*, pp. 34-35, 39-42.
31. *Ibid.*
32. See *ibid.*, pp. 11-12.
33. NRC (2016), "In the Matter of Nuclear Innovation North America LLC (South Texas Project Units 3 and 4)", 9 February 2016, available at: www.nrc.gov/docs/ML1604/ML16040A174.pdf.

Commission authorised the issuance of the combined licences for the construction and operation of South Texas Project Units 3 and 4 on 9 February 2016.[34]

NINA currently has two units already operating at the South Texas site; Unit 1 began operating in 1988 and Unit 2 began operating in 1989.[35] The combined licence application for two Advanced Boiling Water Reactors was submitted in September 2007.[36] The Commission reviewed the staff's Final Environmental Impact Statement (FEIS) and found that the requirements of the National Environmental Policy Act (NEPA) and applicable regulations of Title 10 of the Code of Federal Regulations (10 CFR) Part 51 had been satisfied with respect to the combined licence application.[37] The Commission also concluded that the staff's safety findings were adequate to support NRC and Atomic Energy Act of 1954, as amended (AEA) regulations for combined licences.[38]

While the Commission has authorised the combined licences for NINA's South Texas Project site, the staff will impose conditions on the licence.[39] These conditions include mitigation strategies, spent fuel instrumentation requirements and emergency preparedness plans per the NRC's post-Fukushima requirements.[40]

34. *Ibid.*, p. 57.
35. *Ibid.*, p. 2.
36. *Ibid.*
37. *Ibid.*, p. 56.
38. *Ibid.*, p. 51.
39. NRC (2016), "NRC to Issue South Texas Project New Reactor Licenses, Following Conclusion of Mandatory Hearing", 9 February 2016, available at: www.nrc.gov/docs/ML1604/ML16040A192.pdf.
40. NRC, *supra* note 33, p. 36.

National legislative and regulatory activities

France

General legislation, regulations and instruments

Nuclear Safety Authority (ASN) Resolution No. 2015-DC-0523 of 29 September 2015 establishing a classification for basic nuclear installations according to the risks and disadvantages they present with regard to the interests mentioned in Article L. 593-1 of the French Environmental Code

With a view to enhancing the effectiveness of the control it exercises over basic nuclear installations [*installations nucléaires de base*] (INBs), the French Nuclear Safety Authority (ASN) considers that such control must be proportionate to the scale of the risks and disadvantages of INBs with regard to the interests mentioned in Article L. 593-1 of the French Environmental Code (namely public security, health and safety, protection of nature and the environment).

Under this decision, the ASN sets out the technical criteria for the classification of INBs into three categories, in descending order of importance of the risks and disadvantages.

On the basis of these criteria, the ASN must henceforth publish an annual list of INBs by category.

Ordinance No. 2016-128 of 10 February 2016 pertaining to various provisions on nuclear material[1]

Issued pursuant to the authorisations granted to the French government under Law No. 2015-992 of 17 August 2015 on the energy transition for green growth, this ordinance amends the "nuclear" provisions governing France's Environmental Code, Public Health Code, Labour Code and Defence Code. It comprises four chapters:

- Chapter I: responsible and safe management of spent fuel and radioactive waste;
- Chapter II: nuclear safety, transparency and basic nuclear installations;
- Chapter III: nuclear activities under the public health code; and
- Chapter IV: proportionate control and sanction of provisions relating to the protection of nuclear materials.

In particular, the ordinance broadens the ASN's field of competence in the area of nuclear activities and protection against malicious acts, and significantly strengthens the provisions of the aforementioned codes relating to control and sanctions, at both the administrative and the criminal level.

Note that the provisions of Chapter III, which fully rewrite the provisions of the Public Health Code relative to nuclear activities (Articles L. 1333-1 et seq.), will enter into force on a date that will be specified in a decree issued through the *Conseil d'État*, and no later than 1 July 2017.

1. *Journal officiel "Lois et Décrets"* [Official Journal of Laws and Decrees] (J.O.L. et D.), JORF n° 0035 of 11 February 2016, text no. 8.

Ministerial Order of 15 January 2016 regarding the objective cost of the implementation of long-term management solutions for long-lived medium and high-level radioactive waste[2]

French Nuclear Safety Authority Opinion No. 2015-AV-0227 of 10 February 2015 regarding the evaluation of the reference cost of the Cigéo project for the deep geological storage of radioactive waste

The Ministerial Order of 15 January 2016 establishes an evaluation of the cost of the storage of long-lived medium and high-level radioactive waste in a deep geological repository, as part of the "Cigéo" project, at EUR 25 billion over a period of 140 years as of 2016.

In accordance with the opinion of the ASN, it makes provisions for a mechanism to regularly update the reference cost, at least during the project's key development phases.

On 10 February 2015, the ASN issued an opinion (published in January 2016) on the evaluation of the reference cost of the Cigéo project by the French National Radioactive Waste Management Agency (ANDRA).

Given that the previous evaluation of the project dated back to 2005, ANDRA's decision was viewed favourably by the ASN, which observed that the technical file containing the documented and substantiated cost figures was a "significant improvement" on the 2005 file. The ASN also highlighted the importance in this evaluation of co-operation between ANDRA and the producers of nuclear waste, while insisting on the importance of establishing a framework for said co-operation. Nevertheless, given that some of the assumptions made by ANDRA seem overly optimistic and significantly affect the overall figures, the ASN suggested that a more prudent account be taken of the "opportunities", which tend to reduce the cost of the project. Lastly, the ASN considered that the reference cost should be updated regularly, at least during the project's key development phases.

Nuclear trade (including non-proliferation)

Act No. 2016-113 of 5 February 2016 implementing the Additional Protocol to the Agreement between France, the European Atomic Energy Community and the International Atomic Energy Agency regarding the application of safeguards in France, signed in Vienna on 22 September 1998[3]

The Additional Protocol to the Agreement on Safeguards of 22 September 1998 with the European Atomic Energy Community and the International Atomic Energy Agency (IAEA) supplements the measures set out in the safeguards agreement providing for verification by the IAEA of declared nuclear material accountancy.

The Act of 5 February 2016 establishes the implementing provisions for the additional protocol, which imposes new obligations on operators in the nuclear sector, especially in terms of declarations.

In addition, it organises and governs the conduct of international verifications in France and provides for criminal sanctions in the event of a failure to provide information referred to in the Act or a refusal by an operator to comply with an international IAEA verification authorised by the national court.

2. J.O.L. et D., JORF n° 0014 of 17 January 2016, text no. 3.
3. J.O.L. et D., JORF n° 0031 of 6 February 2016, text no. 1.

International co-operation

Decree No. 2015-1122 of 7 September 2015 publishing the Co-operation Agreement between the Government of the French Republic and the Government of the United Mexican States for the Development of Peaceful Uses of Nuclear Energy (together constituting an agreement by exchange of notes verbales *signed in Mexico City on 29 September and 16 October 2014, repealing the nuclear co-operation agreement of 2 March 1979), signed in Mexico City on 30 July 2014*[4]

Under this agreement, France and the United Mexican States indicate their willingness to develop technical and scientific co-operation in the field of peaceful uses of nuclear energy, in accordance with the principles provided for in their respective legislations and nuclear policies, and in compliance with international commitments concerning the non-proliferation of nuclear weapons.

This co-operation may cover in particular:

- the use of nuclear energy for electricity production, including the design, construction, operation and decommissioning of nuclear facilities;
- the training of human resources in the field of peaceful uses of nuclear energy;
- the management of spent nuclear fuel and radioactive waste, including the design, construction and operation of storage facilities or repositories for radioactive waste in Mexico;
- nuclear technological safety, radiological safety, safety culture and environmental protection;
- nuclear security; and
- prevention and response to emergencies related to radiological or nuclear accidents.

This Agreement shall remain in force for a period of 20 years after the date of its entry into force on 1 August 2015.

India

Licensing and regulatory infrastructure

The Atomic Energy (Amendment) Act, 2015

The definition of "Government company" under Section 2(1)(bb) of the Atomic Energy Act, 1962 was amended.[5] According to the amendment:

(bb) "Government company" means a company in which—

(i) not less than fifty-one per cent. of the paid-up share capital is held by the Central Government; or

(ii) the whole of the paid-up share capital is held by one or more of the companies specified in sub-clause *(i)* and which, by its articles of

4. J.O.L. et D., JORF n° 0208 of 9 September 2015, text no. 1.
5. The Atomic Energy (Amendment) Act, 2015 received the assent of the President on 31 December 2015 and was published in Official Gazette on 1 January 2016. The full text of the Amendment has been reproduced in this edition of the *Nuclear Law Bulletin* and can be found in Chapter 6 ("Documents and Legal Texts").

association, empowers the Central Government to constitute and reconstitute its Board of Directors.

The amendment also added two additional sub-sections to Section 14 of the Atomic Energy Act, 1962 to make it mandatory that "No licence … shall be granted to a person other than a Department of the Central Government or any authority or an institution or a corporation established by the Central Government or a Government Company" and "Any license granted … shall stand cancelled in case the licensee ceases to be a Government company and, notwithstanding anything contained in any other law for the time being in force, all assets thereof shall vest in the Central Government free from any liability".

Liability and compensation

Nuclear Liability Fund Rules, 2015

The Central Government has notified the Nuclear Liability Fund Rules, 2015 in exercise of its powers under Section 7(2) of the Civil Liability for Nuclear Damage Act, 2010.[6] The Nuclear Liability Fund is established by the Central Government and is comprised of the levy collected from operators of nuclear installations.[7] The operator must pay the levy on a quarterly basis for every unit of electricity sold to its customers until the total amount reaches INR 2 000 crores and the levy shall be resumed in the event of any withdrawals to ensure that the Fund balance remains at INR 2 000 crores at any given time.[8] In case there is a delay in payment by the operator, the operator will be charged on a daily basis an interest calculated at the rate of 18% per annum.[9] The Fund shall be managed in accordance with the rules and instructions relating to the management of Public Accounts of the Central Government and for payment out of the Fund, the Central Government shall ascertain the payment to be made and obtain the Parliament's approval for making such a payment.[10]

Ireland

Nuclear safety and radiological protection (including nuclear emergency planning)

European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2015, Statutory Instrument (S.I.) No. 386 of 2015

These above named regulations amend the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003) and the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009). The purpose of the 2015 Amendment is to give effect to the requirements of

6. The Nuclear Liability Fund Rules, 2015 came into force on the date of publication in the Official Gazette (8 December 2015). The full text of the Fund Rules has been reproduced in this edition of the *Nuclear Law Bulletin* and can be found in Chapter 6 ("Documents and Legal Texts").
7. Fund Rules, *supra* note 6, Rules 3(1) and (2). The Rules provide that the operator shall pay to the Fund a levy at the rate of INR 0.05 (five paise) or a levy at such rate between INR 0.05 to 0.10 (five paise to ten paise) for every unit of electricity sold to its customers. *Ibid*., Rule 3(3).
8. *Ibid*., Rules 3(3) – (5).
9. *Ibid*., Rule 5.
10. *Ibid*., Rule 4.

Directive 2013/39/EU,[11] Commission Decision 2013/480/EU[12] and Commission Implementing Decision (EU) 2015/495.[13]

The 2015 Amendment revises the environmental quality standards for a number of priority substances, adds 12 new substances to the original list and includes additional environmental quality standards for biological quality elements. The Regulations also provide for the establishment of a watch list to monitor concentrations of emerging pollutants and other substances of concern in the aquatic environment, to be updated every 24 months.

Of note, the 2009 Regulations are amended in Schedule 1 by the deletion of "The Radiological Protection Institute of Ireland" in the list of relevant public authorities.

European Union (Drinking Water) Regulations 2014, S.I. No. 122 of 2014

The above named Drinking Water Regulations were enacted to prescribe applicable quality standards and related supervision and enforcement procedures in relation to supplies of drinking water, including requirements for sampling frequency, methods of analysis, the provision of information to consumers and related matters. The Regulations update the European Communities (Drinking Water) (No. 2) Regulations, which are duly revoked.

Transport of radioactive material

European Union (Transport of Dangerous Goods by Rail) (Amendment) Regulations 2015, S.I. No. 360 of 2015

The purpose of this Amendment is to transpose Commission Directive 2014/103/EU,[14] in so far as it relates to transport of dangerous goods by rail, into national law through amendment of the European Communities (Transport of Dangerous Goods by Rail) Regulations 2010 (as amended by S.I. No. 201 of 2013).

Of note, the 2010 Regulations are amended by substituting the Environmental Protection Agency as the competent authority for the purposes of Regulation 4(1)(c), rather than the Radiological Protection Institute of Ireland.

European Communities (Carriage of Dangerous Goods by Road and Use of Transportable Pressure Equipment) (Amendment) (No. 2) Regulations 2015, S.I No. 288 of 2015

Amendment No. 2 transposes into Irish law Commission Directive 2014/103/EU,[15] adapting for the third time the Annexes to Directive 2008/68/EC[16] to scientific and technical progress (insofar as that Directive relates to the transport of dangerous

11. Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy, *Official Journal of the European Union* (OJ) L 226 (24 August 2013).
12. Commission Decision 2013/480/EU of 20 September 2013 establishing, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, the values of the Member State monitoring system classifications as a result of the intercalibration exercise and repealing Decision 2008/915/EC, OJ L 266 (8 November 2013).
13. Commission Implementing Decision (EU) 2015/495 of 20 March 2015 establishing a watch list of substances for Union-wide monitoring in the field of water policy pursuant to Directive 2008/105/EC of the European Parliament and of the Council, OJ L 78 (24 March 2015).
14. Commission Directive 2014/103/EU of 21 November 2014 adapting for the third time the Annexes to Directive 2008/68/EC of the European Parliament and of the Council on the inland transport of dangerous goods to scientific and technical progress, OJ L 335/14 (22 November 2014).
15. *Ibid.*
16. Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods, OJ L 260 (30 September 2008).

goods by road). Commission Directive 2014/103/EU gives effect to the changes to the European Agreement Concerning the International Carriage of Dangerous Goods by Road that came into force on 1 January 2015.

Amendment No. 2 also gives further effect to Directive 2008/68/EC[17] and amends for the third time the European Communities (Carriage of Dangerous Goods by Road and Use of Transportable Pressure Equipment) Regulations 2011 (S.I. No. 349 of 2011).

Nuclear trade (including non-proliferation)

Nuclear Test Ban Act 2008 (Commencement) Order 2015, S.I. No. 134 of 2015

On 30 March 2015, the Minister for Environment, Community and Local Government signed into law the above Commencement Order. This Order brings into operation, with effect from 2 April 2015, the Nuclear Test Ban Act 2008. This Act provides the legislation needed to enable Ireland to implement its obligations under the Comprehensive Nuclear Test-Ban Treaty.[18]

Lithuania

Licensing and regulatory infrastructure

On 29 January 2016, the Head of the State Nuclear Power Safety Inspectorate (VATESI) approved a new version of the requirements for the management systems of licensees: Nuclear Safety Requirements BSR-1.4.1-2016 "Management System".[19] The most significant changes are:

- broadened scope of application: these requirements are now mandatory for persons with a licence for the shipment of nuclear fuel cycle materials, nuclear materials and fissile materials and for the acquisition, possession and usage of nuclear materials and fissile materials in quantities established in Annex 1 of the Law on Nuclear Safety;
- introduction of requirements for security culture; and
- transposition of the safety reference levels for existing reactors, issued by the Western European Nuclear Regulators Association (WENRA) on 30 May 2014.

Along with these requirements, the amendments of ten other Nuclear Safety Requirements were adopted to harmonise the older legislation with the new requirements. The requirements and associated amendments come into force on 1 May 2016.

Nuclear safety and radiological protection (including nuclear emergency planning)

On 29 January 2016, the Head of VATESI approved a new version of requirements for inspections: Nuclear Safety Requirements BSR-1.1.3-2016 "Inspections Conducted by

17. *Ibid.*
18. Comprehensive Nuclear-Test-Ban Treaty (1996) (not yet entered into force), available at: www.ctbto.org/fileadmin/content/treaty/treaty_text.pdf (Nuclear Test Ban Treaty).
19. Order No. 22.3-13 (2016) of the Head of VATESI, "On the Amendment of the Order No. 22.3-56, 21st of June, 2010, of the Head of State Nuclear Power Safety Inspectorate on the Approval of Nuclear Safety Requirements BSR-1.4.1-2010 'Management System Requirements'", available (in Lithuanian) at: www.e-tar.lt/portal/lt/legalAct/1845c0d0c68611e583a295d9366c7ab3.

the State Nuclear Power Safety Inspectorate."[20] The requirements come into force on 1 May 2016. The most significant changes are:

- replacement of the existing classification of inspections with the following: regular inspections (carried out according to the schedules or other aspects of ordinary activities carried out by an economic entity), technical inspections (participation in technical checks of nuclear facilities' structures, systems and components or equipment carried out by an economic entity) and special inspections (other inspections, aimed at inspecting the specific aspects of safety or responding to the existing unexpected, unplanned, unusual situations, occurred unusual event or obtained specific information);
- introduction of streamlined procedures for inspecting suppliers of licensees and permit holders;
- the right of licensees or temporary permit holders to declare the compliance of their nuclear energy activities with sources of ionising radiation with the legal acts regulating radiological protection by submitting the declaration of compliance with the established radiological protection requirements. The submittal of the declaration results in the possibility to decrease the number of inspections of the aforementioned activities;
- revision and amendment of the procedures and forms, taking into account the existing practice, for more comprehensible and transparent requirements;
- the application of a graded approach to inspection activities for the various facilities and activities was highlighted; and
- updates to the principles for determining of periodicity of regular inspections.

Radioactive waste management

On 30 November 2015, the Head of VATESI approved new requirements for decommissioning of nuclear facilities: Nuclear Safety Requirements BSR-1.5.1-2015 "Decommissioning of Nuclear Facilities".[21] The requirements come into force on 1 May 2016. The new requirements include the following main changes as compared to previous legislation:

- the list of definitions was significantly updated (see e.g. decommissioning project, surrogate radionuclides, background radiation);
- the provisions for performing various radiological surveys during decommissioning of nuclear facility were clarified (see e.g. Characterization, Scoping, Final status, Verification radiological surveys);
- the requirements were harmonised with the IAEA's General Safety Requirements Part 6 "Decommissioning of Facilities" and WENRA's safety reference levels for the decommissioning of nuclear facilities;

20. Order No. 22.3-24 (2016) of the Head of VATESI "On the Amendment of Order No. 22.3-82, 25th of August, 2011, of the Head of State Nuclear Power Safety Inspectorate on the Approval of Nuclear Safety Requirements BSR-1.1.3-2011 'Inspections Conducted by the State Nuclear Power Safety Inspectorate'", available (in Lithuanian) at: www.e-tar.lt/portal/lt/legalAct/5f74ac60c68511e583a295d9366c7ab3.
21. Order No. 22.3-216 (2015) of the Head of VATESI, "On the Approval of Nuclear Safety Requirements BSR-1.5.1-2015 'Decommissioning of Nuclear Facilities'", available (in Lithuanian) at: www.e-tar.lt/portal/lt/legalAct/10df96e0983711e5a6f4e928c954d72b.

- the requirements for decommissioning projects, safety analysis and justification of decommissioning of nuclear facilities were laid out in more detail; and
- based on experience gained during the Ignalina nuclear power plant's dismantling and decontamination activities, the requirements for dismantling and decontamination activities; removal of structures, systems and components; and other preparatory actions for decommissioning during the period of transition between permanent shutdown and the issuing of the license for decommissioning were streamlined.

Luxembourg

Nuclear safety and radiological protection (including nuclear emergency planning)

Decree of 16 December 2015

The Decree of 16 December 2015 amending the Decree of 7 October 2002 on the quality of water intended for human consumption and the Decree of 14 December 2000 concerning the protection of the population against the dangers arising from ionising radiation[22] transposed Council Directive 2013/51/Euratom[23] into the laws of Luxembourg.

Slovak Republic

International co-operation

Details about international agreements concluded by the Slovak Republic

The Slovak Republic has not signed, ratified, acceded to or terminated any treaty in the field of nuclear energy since the last edition of the *Nuclear Law Bulletin*, No. 96.

General legislation, regulations and instruments

As of 1 March 2016, six amendments to the existing Nuclear Regulatory Authority of the Slovak Republic (NRA) regulations entered into force. These amendments are largely based on the outcomes of the International Regulatory Review Service (IRRS) mission of the International Atomic Energy Agency (IAEA) to the NRA, which was held in 2012, and on new requirements and recommendations formulated by the IAEA and the Western European Nuclear Regulators Association (WENRA).

Regulation No. 101/2016 Coll. amending Regulation No. 30/2012 Coll., laying down details of requirements for the handling of nuclear materials, radioactive waste and spent nuclear fuel

The amended regulation reflects on the "Waste and Spent Fuel Storage Safety Reference Levels" prepared by the Working Group on Waste and Decommissioning (WGWD) of WENRA. The aforementioned amendment incorporates the enhanced requirements as defined by the WENRA WGWD for storage of spent nuclear fuel, thus improving the existing national safety reference levels.

22. *Journal Officiel du Grand-Duché de Luxembourg*, A – N° 261, p. 6268 (29 December 2015), available (in French) at: www.legilux.public.lu/leg/a/archives/2015/0261/a261.pdf.
23. Council Directive 2013/51/EURATOM of 22 October 2013 laying down requirements for the protection of the health of the general public with regard to radioactive substances in water intended for human consumption, OJ L 296 (7 October 2013).

Regulation No. 102/2016 Coll. amending Regulation 58/2006 Coll., laying down details on the scope, contents and means of preparation of nuclear installation documentation necessary for individual decisions

The amendment harmonises the Slovak legal regulation with the requirements of the recommended structure of decommissioning documentation applicable in the respective phases of the life-cycle of a nuclear installation as defined by the actual IAEA recommendation on "Standard Format and Content for Safety Related Decommissioning Documents" (SRS No. 45). Hence, the regulation specifies further standards for the reference report on the:

- decommissioning method;
- preliminary plan for the management of radioactive waste and spent nuclear fuel (including their transport);
- preliminary conceptual plan for decommissioning;
- plan for the management of radioactive waste and spent nuclear fuel (including their transport);
- conceptual plan for the decommissioning of a nuclear installation from operation;
- decommissioning stage plan;
- decommissioning concept during the period after the end of the permitted decommissioning stage;
- plan for the management and transport of radioactive waste; and
- plan for the management of conventional waste from decommissioning.

Furthermore, the amendment replaces the original terms "beyond design basis accident", "selected beyond design basis accident" and "selected heavy accident" with the term "accident in design extension conditions". This adjustment in terminology aligns with the recommended terminology of the IAEA and WENRA.

Regulation No. 103/2016 Coll. amending Regulation No. 430/2011 Coll. on nuclear safety requirements

The regulation as amended incorporates the relevant provisions of the IAEA Safety Standards No. SSR-2/1 ("Safety of Nuclear Power Plants: Design") into the Slovak legal order. It amends the original terminology (e.g. "emergency conditions", "accident in design extension conditions") to conform to the terminology used by the IAEA and WENRA. The categorisation of the status of a nuclear installation considered in the nuclear facility's design is introduced by this amendment when it distinguishes its normal operation, abnormal operation and emergency conditions. Furthermore, it extends the definition of severe accident by including the condition of nuclear fuel meltdown that shall not necessarily be restricted to the active zone of a nuclear installation. By adoption of this amendment, the Slovak Republic implements one of the suggestions (S 10) proposed by the IRRS mission of the IAEA.

Regulation No. 104/2016 Coll. amending Regulation No. 431/2011 Coll. on a quality management system

This amendment improves the existing quality management system by specifying the requirements for ensuring computer system and network security and those for assessment and approval processes and procedures for operative changes to technical documentation of selected facilities during the construction and commissioning of nuclear installations. The amended regulation also reflects on

changing terminology by replacing the term "selected beyond design basis accident" with the term "accident in design extension conditions without serious damage to nuclear fuel".

Regulation No. 105/2016 Coll. amending Regulation No. 57/2006 Coll., laying down details of requirements for the transport of radioactive materials

This amendment improves the protection of personnel participating in the transport of radioactive material, as well as the general public and the environment, against the possibility of internal contamination (ingestion or inhalation of radionuclides) in the case of leakage of highly dispersible radioactive material from a consignment during the transport.

The regulation now specifies the content of the plan for the provision of physical protection and introduces the requirement to prepare the emergency plan addressing possible incidents during the transport that are related to the breach of the physical protection of transported radioactive material due to the unauthorised activity or sabotage. The need to implement such measures into the legal order of the Slovak Republic stems from the IAEA's "Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5)".

The new legal regime on the transport of nuclear material introduced by the aforementioned amendment extends the list of entities responsible for the transport of the consignment by including the originator, owner, shipper, or any other natural or legal person participating in the transport. Hence, the amendment adjusts the legal requirements to those stated by the Atomic Act in line with the relevant provisions of Council Directive 2006/117/EURATOM[24] and the Convention concerning International Carriage by Rail (COTIF) and its Regulation concerning the International Carriage of Dangerous Goods by Rail (RID).

Regulation No. 106/2016 Coll. amending Regulation No. 33/2012 Coll. on the regular, comprehensive and systematic evaluation of the nuclear safety of nuclear installations

This amendment implements the IAEA Specific Safety Guide (SSG-25) on "Periodic Safety Review for Nuclear Power Plants" and the "Report: WENRA Safety Reference Levels for Existing Reactors" prepared by the Reactor Harmonisation Working Group (RHWG) of WENRA. The amended regulation states that the periodic safety review shall demonstrate that the required level of nuclear safety is ensured until the next periodic evaluation, which shall be based on an overall evaluation of the safety of the nuclear installation. It modifies the requirements for the periodic review by adding and specifying the conditions for the deterministic safety analyses, probabilistic safety evaluations and unintentional internal and external threats to nuclear installations to the list of areas under review. The amendment also explicitly introduces the term "safety culture" into the text of the regulation.

24. Council Directive 2006/117/EURATOM of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel, OJ L 337 (5 December 2006).

Spain

Radioactive materials (including physical protection)

Royal Decree 1086/2015, of 4 December, amending Royal Decree 1308/2011, of 26 September, on the physical protection of facilities, nuclear materials and radioactive sources (published in the Official State Gazette of 18 December 2015)[25]

Royal Decree 1308/2011, of 26 September 2011, on the physical protection of facilities, nuclear materials and radioactive sources (Official State Gazette of 7 October 2011), incorporated into Spanish legislation the commitments accepted by Spain on physical protection matters, particularly the Amendment to the Convention on the Physical Protection of Nuclear Materials[26] (approved in July 2005), the International Convention for the Suppression of Acts of Nuclear Terrorism[27] (ratified in January 2007) and United Nations Security Council Resolution 1540[28] on non-proliferation of nuclear, chemical and biological weapons. It repealed the former Royal Decree 158/1995, of 3 February 1995, on the physical protection of nuclear materials.

Its most important contribution was the enhancement of the previous physical protection system in Spain, defining the concepts that are used in the physical protection systems for nuclear facilities and materials. It reinforced the regulation of protection measures for these materials and above all addressed the prevention of sabotage of facilities, the protection of significant radioactive sources, the management of illicit trafficking events, the limitation of powers between authorities and the protection of physical protection information.

One of the obligations introduced by Royal Decree 1308/2011 was the establishment by the competent authorities of the Design Basis Threat (DBT) to be applied in order to design the physical protection systems of facilities and materials within the scope of the Royal Decree. To comply with this legal requirement, the DBT for Spanish nuclear power plants (NPP) and the Centralised Temporary Storage for High Level Radioactive Waste and Spent Fuel (CTS) was defined and it highlighted the need for establishing on-site response teams formed by public law enforcement agents (Civil Guards) in the NPP.

To that end, the most relevant amendment introduced by Royal Decree 1086/2015 is the presence of Civil Guards in the aforementioned facilities. This Royal Decree defines the term “Site Response Team”, its main responsibilities and the co-ordination to be carried out with the rest of actors involved in the physical protections systems of the NPPs.

The cost associated with this newly integrated security model for NPPs will be paid by operators pursuant to a fee that has been fixed by Law 34/2015, of 21 September 2015, amending Law 58/2003 (General Tax Law).

Moreover, Royal Decree 1086/2015 establishes the integration of the Operator Specific Protection Plans (introduced by Royal Decree 704/2011, of 20 May 2011, approving the Regulation on the Protection of Critical Infrastructures) into the existing Physical Protection Plans under Royal Decree 1308/2011.

25. Available (in Spanish) at: www.boe.es/boe/dias/2015/12/18/pdfs/BOE-A-2015-13784.pdf.
26. Amendment to the Convention on the Physical Protection of Nuclear Material (2005), IAEA Doc. GOC/INF/2005/10-GC(49)/INF/6, entered into force on 8 May 2016, pp. 3-11.
27. International Convention for the Suppression of Acts of Nuclear Terrorism (2005), 2445 UNTS 137, entered into force 7 July 2007 (Nuclear Terrorism Convention).
28. United Nations Security Council Resolution (UNSCR) 1540 (2004), S/RES/1540 (2004).

Finally, this Royal Decree also takes into account revision 5 of INFCIRC/225 "Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities" that provides cyber security recommendations, among others.

Radioactive waste management

Ministerial Order IET/458/2015, of 11 March, regulating allocations to municipalities in the vicinity of nuclear facilities from the Fund for the financing of activities included in the General Radioactive Waste Plan[29]

Since 1989, ENRESA (the public company responsible for the management of spent fuel and radioactive waste and for the decommissioning of nuclear facilities) is authorised to allocate funds to municipalities in the vicinity of nuclear facilities, particularly centralised facilities conceived for the storage of radioactive waste, and nuclear power plants storing spent fuel generated by them or in the process of decommissioning. These funds are charged to the "Fund for the financing of activities included in the General Radioactive Waste Plan", managed by ENRESA, according to Law 54/1997. The allocations have been regulated by several Ministerial Orders throughout the years.

The amount of the funds to be allocated in each municipality depends on the category of the facility and is calculated according to a formula that takes into account the distance between the municipality and the facility, as well as its inhabitants. The funds allocated annually consist of a fixed term and of a variable term, depending on the increase of the spent fuel stored the prior year or on the amount of radioactive waste received the prior year in the facility, as the case may be.

Ministerial Order IET/458/2015 of 11 March 2015 revises the regulation of these allocations and repeals the former Ministerial Order of 13 July 1998 which governed those allocations since 1998. Apart from the amendment of some criteria involved in the allocation of the existing funds, the most relevant amendment introduced by the Ministerial Order is the creation of a new type of funds, which do not replace the existing funds, and must be dedicated to the financing of local development projects in order to promote the establishment of alternative economies other than those associated with the nuclear facilities.

On an annual basis, each municipality can make a request for these new funds by presenting investment projects to be undertaken during the coming year(s), and that must be approved by the Director-General for Energy Policy and Mines of the Ministry of Industry, Energy and Tourism (MINETUR). The projects are evaluated by an Assessment Commission formed by representatives from the MINETUR, ENRESA and the municipalities, prior to the approval of the MINETUR. ENRESA is the entity responsible for paying the funds and monitoring the projects.

United States

Licensing and regulatory infrastructure

Commission approves final procedures for hearings on inspections, tests, analyses, and acceptance criteria (ITAAC) for combined licenses

ITAAC are verification requirements included in the combined license process in Title 10 of the Code of Federal Regulations (10 CFR) Part 52.[30] Pursuant to the Atomic

29. Available (in Spanish) at: www.boe.es/boe/dias/2015/03/17/pdfs/BOE-A-2015-2872.pdf.
30. NRC (2015), "Final Procedures for Hearings on Conformance with the Acceptance Criteria in Combined Licenses", 20 January, available at: www.nrc.gov/docs/ML1434/ML14343A747.pdf.

Energy Act of 1954, as amended (AEA), the US Nuclear Regulatory Commission (NRC) is required to make a predictive finding that a nuclear facility will be constructed and operated in accordance with the AEA and NRC rules and regulations.[31] The ITAAC are included in a combined license to verify prior to operation that the facility has been constructed and will be operated in accordance with these requirements.[32] Per the AEA, a combined license facility cannot start operation until the NRC finds that the acceptance criteria in the ITAAC are met.[33] Section 189a.(1)(B) of the AEA provides that the public has an opportunity to request a hearing on the licensee's conformance with the ITAAC acceptance criteria.[34] NRC regulations previously did not address detailed procedures for ITAAC hearings.[35] The Commission, on 1 April 2016, approved final procedures for hearings on ITAAC acceptance criteria.[36]

Hearing requests "shall show, prima facie, that one or more of the acceptance criteria in the combined license have not been, or will not be met, and the specific operational consequences of nonconformance that would be contrary to providing reasonable assurance of adequate protection of the public health and safety."[37] A petitioner may put forth a "claim of incompleteness" to indicate that a licensee's ITAAC notification is incomplete and that such incompleteness prevents the petitioner from making the necessary prima facie showing.[38] These claims are not considered "contentions", as the prima facie requirement for the contention has not been satisfied, but claims of incompleteness could result in the petitioner receiving the information necessary to make the required prima facie showing.[39] Under 10 CFR 2.310(j) and the approved final procedures, the Commission retains the ability to designate procedures for ITAAC hearings on a case-specific basis.[40]

Congress intended that ITAAC hearings not delay plant operation unnecessarily.[41] Major features of the final procedures for hearings on ITAAC criteria include requirements for the NRC to publish the notice of intended operation up to 105 days earlier than the AEA requires to provide additional assurance that the hearing will be completed prior to operation.[42] The final procedures will also require that the NRC complete ITAAC hearings much faster than other hearings and will include 60 days for hearing requests, 25 days for answers to hearing requests and up to 125 days for the NRC to render a decision on the hearing request, complete pre-hearing activities, hold the hearing and issue an initial decision.[43] Finally, the final procedures include a process for allowing interim operation pending the completion of a hearing should the hearing decision not be issued before operation is scheduled to begin.[44]

31. *Ibid.*, p. 2.
32. *Ibid.*
33. *Ibid.*
34. *Ibid.*
35. *Ibid.*
36. NRC (2016), "Staff Requirements – SECY-15-0010 – Final Procedures for Hearings on Conformance with the Acceptance Criteria in Combined Licenses", 1 April.
37. US Atomic Energy Act of 1954 § 189a(1)(B)(ii), 42 USC § 2239 (1983).
38. NRC, *supra* note 30, at 3.
39. *Ibid.*
40. NRC, *supra* note 36, p. 1.
41. NRC, *supra* note 30, p. 4.
42. *Ibid.*, p. 9.
43. *Ibid.*, p. 3.
44. *Ibid.*, pp. 3-4.

Intergovernmental organisation activities

European Atomic Energy Community

Adopted legally binding instruments

Council Regulation 2016/52/Euratom of 15 January 2016 laying down maximum permitted levels of radioactive contamination of food and feed following a nuclear accident or any other case of radiological emergency, and repealing Regulation (Euratom) No. 3954/87 and Commission Regulations (Euratom) No. 944/89 and (Euratom) No. 770/90[1]

The Council adopted on 15 January 2016 a new regulation laying down maximum permitted levels of radioactive contamination of food and feed that may be placed on the market following a nuclear accident or any other case of radiological emergency that is likely to lead to or has led to significant radioactive contamination of food and feed, and the procedures to render these maximum permitted levels applicable.

This new regulation achieves the consolidation of the existing legislation in the field and implements the new "comitology" system laid down in Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011.[2] The hierarchy of norms introduced by the Lisbon Treaty also applies to the Euratom Treaty. Article 106a of the Euratom Treaty refers to Article 291 of the Treaty on the Functioning of the European Union. Therefore, the comitology system may now be used for Euratom law.[3] Therefore, Article 5 of the new Regulation provides that the Commission shall be assisted by the Standing Committee on Plants, Animals, Food and Feed established by Article 58(1) of Regulation (EC) No 178/2002. That committee shall be a committee within the meaning of Regulation (EU) No 182/2011, i.e. a committee composed of representatives of the member states.

Furthermore, the new regulation provides more flexible tools allowing specific reactions to any nuclear accident or radiological emergency in the European Union (EU), in the vicinity of the EU or in a remote country. It also lays down the procedure to adopt or subsequently amend implementing regulations laying down the applicable maximum permitted levels.

The regulation entered into force on 8 February 2016.

1. *Official Journal of the European Union* (OJ) L 13 (20 January 2016), pp. 2-11.
2. Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for the control by Member States of the Commission's exercise of implementing powers, OJ L 55 (28 February 2011), pp. 13-18.
3. See Södersten, A. (2014), *Euratom at the Crossroads*, Thesis submitted for assessment with a view to obtaining the degree of Doctor of Laws of the European University Institute, Florence, 17 November 2014, p. 61.

Non-legally binding instruments

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank on the State of the Energy Union 2015[4]

The Communication on the "state of the Energy Union" shows progress made since the Energy Union Framework Strategy[5] was adopted to bring about the transition to a low-carbon, secure and competitive economy.

The European Commission's "Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy" aims at creating a new momentum to bring about the transition to a low-carbon, secure and competitive economy. To keep this momentum, the first State of the Energy Union looks at progress made and identifies specific issues that require specific political attention in 2016, a key year for the implementation of the Energy Union. Indeed, 2016 will be a year of delivery, in which the strategic vision set out in the Energy Union Strategy will be translated in EU-level legislative initiatives, more coherence in the Union's commitment with external partners, and further development and implementation of the Energy Union.

One of the main objectives set out in the Communication is the decarbonisation of the economy. The Energy Union Strategy aims at moving further away from an economy driven by fossil fuels. The Communication explains that in 2015 progress was made in three fields that lie at the heart of this transition: emissions trading, renewables, and further investments in low-carbon technologies and energy efficiency.

The Communication further explains that new perspectives have been opened up by the nuclear agreement with Iran and that domestic production of fossil fuels has been diminishing.

Another initiative with implications on nuclear energy, the "Horizon 2020" Framework programme, is crucial to support the research and innovation objectives of the Energy Union. In the period 2014-2015 its financial contribution to support energy research amounted to more than EUR 9 billion.

Report from the Commission to the Council and the European Parliament on the implementation of Council Directive 2009/71/EURATOM of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations[6]

The Nuclear Safety Directive implementation report has been published as a document related to the Communication on the State of the Energy Union. The report, based on a review of national reports, explains that there is, in general, a good level of compliance with the 2009 Nuclear Safety Directive. The Commission's report explains, *inter alia*, that the national reports demonstrate that national arrangements to achieve a high level of safety are in place in the EU as regards the legal framework and regulatory authority. However, in some cases it is not certain that such authorities are adequately staffed and funded. Co-operation among member states should be encouraged in order to ensure an effective use of existing resources, for instance in the case of long-term operation of nuclear power plants or new build licensing procedures. Such co-operation would be particularly beneficial

4. COM(2015)572.
5. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, "A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy", COM(2015) 80 final (25 February 2015).
6. COM(2015)573.

for smaller regulatory authorities. Overall, there are differences from country to country regarding the identification and management of safety issues.

International relations

Initiation of the signature process by the European Atomic Energy Community of the extension of the Generation IV International Forum (GIF) Framework Agreement

The Generation IV International Forum (GIF) is a co-operative international endeavour that was set up to carry out the research and development needed to establish the feasibility and performance capabilities of the next generation nuclear energy systems. The goals adopted by GIF provided the basis for identifying and selecting six nuclear energy systems for further development. The selected systems are based on a variety of reactor, energy conversion and fuel cycle technologies. Their designs include thermal and fast neutron spectra cores, closed and open fuel cycles. The reactors range in size from small to very large. Depending on their respective degree of technical maturity, the first generation IV systems are expected to be deployed commercially around 2030-2040.

The Generation IV International Forum has thirteen members that are signatories of its founding document, the GIF Charter. This Charter had first been signed by the initial signatories in 2001 and was then modified in 2011, when the initial ten-year duration period was replaced by an unlimited one. The Charter bears no provision for financial exchanges or special budgetary allocations between the parties.

The Euratom Community is a signatory of the Generation IV International Forum.

In order to implement the Charter, the parties to GIF agreed upon the conclusion of a legally binding framework agreement setting out the conditions for the co-operation and for subsequent system and project arrangements, called the "Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems" (hereinafter "the Framework Agreement"). The Euratom Community has also acceded to this Framework Agreement. The European Commission Joint Research Centre was nominated "Implementing Agent" in accordance with Article III.2 of the Framework Agreement.

The Framework Agreement for GIF expired on 28 February 2015 and has been extended for another ten years by most of the signatories. The Euratom Community, represented by the Joint Research Centre (JRC), has initiated the process of its accession to the new framework agreement. The Council of the EU has approved the Euratom Community's accession on 12 February 2016.

Subsequently, a Commission decision empowering an appropriate person to sign the framework agreement on behalf of the Euratom Community will be submitted to the College of Commissioners. The process should be completed in the first trimester of 2016.

International Atomic Energy Agency (IAEA)

Convention on Nuclear Safety (CNS)

A Turnover Meeting was held in Vienna on 1 March 2016 where the officers of the Convention on Nuclear Safety[7] Sixth Review Meeting shared with the officers elected for the CNS Seventh Review Meeting their experience and feedback on the preparation and conduct of the previous review meetings.

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention)

The contracting parties to the Joint Convention[8] decided at their Fifth Review Meeting, held in May 2015, to organise a topical meeting on the challenges and responsibilities relating to the multinational radioactive waste disposal facilities to take place from 5 to 7 September 2016, at the IAEA headquarters in Vienna. The topical meeting will include sessions on, *inter alia*, the current status of the initiatives for multinational radioactive waste disposal, the roles and responsibilities in the context of multinational disposal, as well as a session addressing the liability and financial issues of such facilities.

Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (Early Notification and Assistance Conventions)

The Eighth Meeting of the Representatives of the Competent Authorities identified under the Early Notification[9] and the Assistance Conventions[10] took place at the IAEA headquarters, from 6 to 10 June 2016. The objective of the meeting was to facilitate the exchange of information and experience in the area of emergency preparedness and response (EPR) and co-operation among the competent authorities. The meeting consisted of eight technical sessions relating to, *inter alia*, safety standards in EPR, information exchange and international assistance in an emergency, improvements in EPR after the Fukushima Daiichi nuclear power plant accident and assessment and prognosis in an emergency. A number of side events were also held.

Code of Conduct on the Safety and Security of Radioactive Sources (Code of Conduct)

An Open-Ended Meeting of Technical and Legal Experts for Sharing Information on States' Implementation of the Code of Conduct on the Safety and Security of Radioactive Sources and its Supplementary Guidance on the Import and Export of Radioactive Sources was held in Vienna, Austria, from 30 May to 3 June 2016. The meeting was attended by approximately 190 participants from 103 states. It served as a forum for the exchange of information on national implementation of the Code of Conduct and its additional Guidance. It included plenary sessions devoted to, *inter alia*, the international and regional initiatives related to safety and security of radioactive sources, synergies between the Code of Conduct and the Joint

7. Convention on Nuclear Safety (1994), IAEA Doc. INFCIRC/449, 1963 UNTS 293, entered into force 24 October 1996 (CNS).
8. Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997), IAEA Doc. INFCIRC/546, 2153 UNTS 357, entered into force 18 June 2001 (Joint Convention).
9. Convention on Early Notification of a Nuclear Accident (1986), IAEA Doc. INFCIRC/335, 1439 UNTS 276, entered into force 27 October 1986 (Early Notification Convention).
10. Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1986), IAEA Doc. INFCIRC/336, 1457 UNTS 134, entered into force 26 February 1987 (Assistance Convention).

Convention and ongoing and new initiatives to assist states in the implementation of the safety and security principles of the Code. The meeting also provided the opportunity for participants to share, through the voluntary submission of national presentations, their national experience and challenges regarding the implementation of the Code of Conduct and its additional Guidance.

Amendment to the Convention on the Physical Protection of Nuclear Material (ACPPNM)

The Amendment to the Convention on the Physical Protection of Nuclear Material[11] entered into force on 8 May 2016. Pursuant to Article 20.2 of the ACPPNM:

> the amendment shall enter into force for each State Party that deposits its instrument of ratification, acceptance or approval of the amendment on the thirtieth day after the date on which two thirds of the States Parties have deposited their instruments of ratification, acceptance or approval with the depositary. Thereafter, the amendment shall enter into force for any other State Party on the day on which that State Party deposits its instrument of ratification, acceptance or approval of the amendment.

Following ratification by Uruguay and Nicaragua, on 8 April 2016, the conditions for the entry into force of the ACPPNM were met. The Amendment is, however, still not in force for the remaining 50 states parties to the Convention on the Physical Protection of Nuclear Material[12] that still have to ratify it, and the IAEA Secretariat will accordingly direct its efforts now towards "universalisation" of the Amendment.

The first Technical Meeting of the Points of Contact and Central Authorities of States Parties to the CPPNM was held at the IAEA headquarters in Vienna, from 14 to 16 December 2015. It gathered over 100 participants from more than 70 member states. The meeting provided the first important opportunity for an exchange of national experiences regarding the implementation of the CPPNM, among others.

Workshop on Civil Liability for Nuclear Damage

The Fifth Workshop on Civil Liability for Nuclear Damage was held in Vienna on 23 May 2016. Fifty-four diplomats and experts from 35 member states attended the workshop and were provided with an overview of the international legal instruments on civil liability for nuclear damage adopted under IAEA auspices and an explanation of the principles of nuclear liability and their continuing relevance. The workshop also included a roundtable discussion on topical issues of nuclear liability, moderated by legal experts from the IAEA and the International Expert Group on Nuclear Liability (INLEX). It covered the Convention on Supplementary Compensation for Nuclear Damage,[13] civil liability for nuclear damage from the perspective of coastal states, the role of insurance and the IAEA's legislative assistance programme available to member states.

International Expert Group on Nuclear Liability (INLEX)

The 16th INLEX Meeting took place in Vienna, from 25 to 27 May 2016. The group discussed the issue of the coverage of radioactive sources by existing international conventions, other than nuclear liability conventions, and of the availability of insurance for damage caused by radioactive sources. In that context, it reiterated its

11. Amendment to the Convention on the Physical Protection of Nuclear Material (2005), IAEA Doc. INFIRC/274/Rev.1/Mod.1, entered into force 8 May 2016 (ACPPNM).
12. Convention on the Physical Protection of Nuclear Material, (1980), IAEA Doc. INFCIRC/274/Rev.1, 1456 UNTS 125, entered into force 8 February 1987 (CPPNM).
13. Convention on Supplementary Compensation for Nuclear Damage (1997), IAEA Doc. INFCIRC/567, 36 ILM 1473, entered into force 15 April 2015 (CSC).

previous recommendation that licences for at least Category 1 and 2 sources should include a requirement that the licensee take out insurance coverage or other financial security. The group also discussed the scope of application of the IAEA conventions as regards fusion installations, liability issues concerning long-term storage and disposal facilities and liability issues relating to the transport of nuclear material as well as to small and medium sized reactors.

A Sub-regional Workshop for Pacific Island States, hosted by the government of Australia through the Australian National Science and Technology Organisation (ANSTO), was held in Sydney on 15-17 March 2016. The workshop was attended by 23 senior governmental officials from 12 states from the region, both IAEA member states and non-IAEA member states. A similar workshop is being organised for Latin American countries and is scheduled to take place in November 2016 in Peru.

Finally, a number of joint IAEA/INLEX missions were conducted in order to raise awareness among policy makers on the international legal instruments relevant for achieving a global nuclear liability regime.

Legislative assistance activities

In addition to the regular legislative assistance activities conducted by the IAEA Office of Legal Affairs, a Sub-Regional Workshop on Nuclear Law for IAEA member states in the Asian and Pacific region was organised in Singapore from 13 to 17 June 2016. It addressed all aspects of nuclear law and also provided for the planning of future legislative assistance activities in participating member states based on an assessment of their needs.

OECD Nuclear Energy Agency

Five Years after the Fukushima Daiichi Accident

Following the March 2011 accident at the Fukushima Daiichi nuclear power plant, in 2013, the NEA published a report entitled *The Fukushima Daiichi Nuclear Power Plant Accident: OECD/NEA Nuclear Safety Response and Lessons Learnt,* detailing the key immediate responses of the NEA and its member countries to the accident. Among the key findings of the 2013 report was that member countries had performed focused safety reviews of their operating reactors and had determined that they were safe to continue operations while more comprehensive safety reviews were conducted. It also stressed the importance of ensuring strong safety cultures, especially in maintaining a questioning and learning attitude to continue improving the high level of safety standards and their effective implementation.

Since that time, many actions and activities have been undertaken by the NEA and its member countries to maintain and further develop the scientific, technological and legal bases for the safe use of nuclear energy. In February 2016, the OECD Nuclear Energy Agency (NEA) published a new report entitled *Five Years after the Fukushima Daiichi Accident: Nuclear Safety Improvements and Lessons Learnt*. The new, 2016 report focuses on the actions undertaken by the NEA and its member countries at the national and international levels to improve nuclear safety and to implement the lessons learnt from the March 2011 accident. It also offers a series of conclusions and identifies some of the challenges that remain. The report is available at: www.oecd-nea.org/nsd/pubs/2016/7284-five-years-fukushima.pdf.

Regulatory and Institutional Framework for Nuclear Activities

The NEA has updated, in co-ordination with the Permanent Representation of Slovenia to the OECD and with the State Office for Nuclear Safety (SÚJB) of the Czech Republic, the reports on the Regulatory and Institutional Framework for Nuclear Activities in Slovenia and in the Czech Republic, respectively. These NEA

country reports provide comprehensive information on the regulatory and institutional framework governing nuclear activities in OECD and NEA member countries. Each country profile provides a detailed review of a full range of nuclear law topics, including: mining regime; radioactive substances; nuclear installations; trade in nuclear materials and equipment; radiological protection; radioactive waste management; non-proliferation and physical protection; transport; and nuclear third party liability. These country reports are available at: www.oecd-nea.org/law/legislation/.

5th session of the International Nuclear Law Essentials (INLE)

The fifth session of the NEA International Nuclear Law Essentials (INLE) course was held on 15-19 February 2016 at the new NEA offices in Boulogne-Billancourt, France. The INLE is an intensive, one-week programme that offers participants from both the public and private sectors an in-depth look at nuclear energy from an international law perspective. This year's INLE programme brought together a diverse international group of professionals from 13 NEA member and non-member countries to learn more about the international nuclear law framework, as well as the major issues affecting the peaceful uses of nuclear energy. A total of 23 lecturers from the NEA, the International Atomic Energy Agency (IAEA), nuclear regulatory authorities and the private sector presented a series of master lectures on topics related to nuclear safety, security, non-proliferation and liability. NEA Director-General William D. Magwood, IV and Chairman Stephen G. Burns of the US Nuclear Regulatory Commission (NRC) were both among the lecturers who spoke during the week.

Nuclear Law Committee meeting

The NEA Nuclear Law Committee (NLC) met on 23-24 March 2016, bringing together over 60 experts from member countries and international organisations, including the European Commission (EC), the International Atomic Energy Agency (IAEA) and the United Nations Economic Commission for Europe (UNECE), as well as representatives from non-member countries (India and Lithuania). Participants at the meeting exchanged information on the latest national developments in nuclear law and discussed the current activities conducted under NLC auspices, such as the NEA educational and publication programmes in this area. The meeting also included discussions on stakeholder involvement and on nuclear liability, more particularly, on the Paris Convention on Third Party Liability in the Field of Nuclear Energy and the related Brussels Supplementary Convention, on the nuclear liability regime applicable to deep geologic repositories and on nuclear liability and transport. Finally, a topical session was organised to discuss national frameworks for the authorisation of long-term operation of nuclear installations and for judicial challenges to licensing decisions.

NEA publications of interest

Since *Nuclear Law Bulletin* No. 96, the NEA has published a number of reports, booklets and flyers. First, the NEA has released its 2015 Annual Report, which details a number of significant actions taken, including the revision of the management structure, the process of developing the next Strategic Plan and the assumption of Technical Secretariat duties for the International Framework for Nuclear Energy Cooperation (IFNEC). The NEA Annual Report is available at: www.oecd-nea.org/pub/activities/ar2015/ar2015.pdf.

The NEA also recently published a regulatory guidance booklet on *The Safety Culture of an Effective Nuclear Regulatory Body*. The booklet, produced by the Committee on Nuclear Regulatory Activities (CNRA), is part of a series of regulatory guidance reports, known as "green booklets", which are prepared and reviewed by

senior regulators and provide a unique resource on key nuclear regulatory issues. The booklets examine various regulatory challenges and address the major elements and contemporary issues of a nuclear safety regime. This regulatory guidance booklet describes five principles that support the safety culture of an effective nuclear regulatory body. These principles concern leadership for safety, individual responsibility and accountability, co-operation and open communication, a holistic approach, and continuous improvement, learning and self-assessment. The booklet also addresses some of the challenges to a regulatory body's safety culture that must be recognised, understood and overcome. The booklet is available at: www.oecd-nea.org/nsd/pubs/2016/7247-scrb2016.pdf.

Three documents on stakeholder involvement have also been recently published. Two are reports, one on *Fostering a Durable Relationship between a Waste Management Facility and its Host Community* and the other on *Stakeholder Involvement in Decision Making: A Short Guide to Issues, Approaches and Resources*. Both were prepared by the Forum on Stakeholder Confidence (FSC) in the context of radioactive waste management. The first report is an update of an earlier report and highlights new innovations in siting processes and in facility design – functional, cultural and physical – from different countries, which could be of added value to host communities and their sites in the short to long term. These new features are examined from the perspective of sustainability, with a focus on increasing the likelihood that people will both understand the facility and its functions, and remember over very long timescales what is located at the site. This report is available at: www.oecd-nea.org/rwm/pubs/2015/7264-fostering-durable-relationship-2015.pdf.

The second report is an update of a 2004 publication and gives examples of methods and tools for stakeholder involvement, as well as addresses issues such as: who are the stakeholders; what are the levels of stakeholder involvement; choosing an approach; and implementation and assessment. The report will assist practitioners to outline the steps and issues associated with stakeholder involvement and is enriched with experiences and extensive references to the literature. This report is available at: www.oecd-nea.org/rwm/pubs/2015/7189-stakeholder-involvement-2015.pdf.

Finally, a short flyer was also published, entitled "How can stakeholder involvement be improved?". The flyer is available at: www.oecd-nea.org/rwm/fsc/docs/a4-stakeholder_involvement.pdf.

New NEA Deputy Director-General and Chief Nuclear Officer

Dr Daniel Iracane has been appointed as the new Deputy Director-General and Chief Nuclear Officer of the NEA. Dr Iracane will support the NEA Director-General to further enhance the technical excellence of the Agency's work and strive for greater horizontal collaboration both within the NEA and with relevant elements of the OECD. He will represent the NEA and its work in international fora to ensure close co-operation with member countries and act in the Director-General's stead as needed.

New NEA offices

On 9-11 December 2015, the NEA relocated its offices from Issy-les-Moulineaux to Boulogne-Billancourt, France. The NEA's new address is 46, quai Alphonse Le Gallo, 92100 Boulogne-Billancourt. All phone numbers and fax numbers remain the same.

Multilateral agreements

In an effort to reach a wider audience, and keep the information regarding the status of multilateral agreements more up-to-date, this content is now available online at: www.oecd-nea.org/law/multilateral-agreements.

Brazil

Law No. 13,260 of 16 March 2016
(Official Gazette of 17 March 2016)[1]

To regulate the provisions of item XLIII of Article 5 of the Federal Constitution on terrorism, dealing with investigative and procedural provisions and redefining the concept of a terrorist organisation; and amends Laws No. 7,960 of 21 December 1989 and No. 12,850 of 2 August 2013.

Article 2 Terrorism is the practice by one or more individuals of the acts set forth in this article for reasons of xenophobia, discrimination, or prejudice in regard to race, colour, ethnicity and religion, when committed for the purpose of causing social or generalised terror, exposing persons, property, public peace, or public safety to danger.

§ 1 The following are acts of terrorism:

I – use or threaten to use, transport, keep, possess or bring explosives, toxic gases, poisons, biological contents, chemical, nuclear or other means capable of causing damage or promoting mass destruction.

[…]

Punishment – imprisonment of twelve to thirty years, in addition to the penalties corresponding to the threat or violence.

[…]

Article 3 To promote, constitute, join or provide assistance to, personally or through a third party, a terrorist organisation:

Punishment – imprisonment of five to eight years and a fine.

[…]

Article 5 To perform terrorist acts preparatory to the clear purpose of consummating the offence:

Punishment – corresponding to the consummated crime, reduced by a quarter to half.

[…]

Article 10 Even before the beginning of the execution of the crime of terrorism, as under Article 5 of the present law, the provisions of Article 15 of Decree-Law No. 2,848 of 7 December 1940 – Penal Code shall apply.

1. This document in an unofficial translation of the original Portuguese text.

India

The Atomic Energy (Amendment) Act, 2015

No. 5 of 2016
31st December, 2015

An Act further to amend the Atomic Energy Act, 1962.

Be it enacted by Parliament in the Sixty-sixth Year of the Republic of India as follows:—

1. *(1)* This Act may be called the Atomic Energy (Amendment) Act, 2015.

(2) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint.

2. In section 2 of the Atomic Energy Act, 1962 (hereinafter referred to as the principal Act), in sub-section *(1)*, for clause *(bb)*, the following clause shall be substituted, namely:—

'*(bb)* "Government company" means a company in which—

(i) not less than fifty-one per cent. of the paid-up share capital is held by the Central Government; or

(ii) the whole of the paid-up share capital is held by one or more of the companies specified in sub-clause *(i)* and which, by its articles of association, empowers the Central Government to constitute and reconstitute its Board of Directors;'.

3. In the principal Act, in section 14, after sub-section *(1)*, the following sub-sections shall be inserted, namely:—

"*(1A)* No licence under sub-clause *(c)* of clause *(ii)* of sub-section *(1)* shall be granted to a person other than a Department of the Central Government or any authority or an institution or a corporation established by the Central Government, or a Government company.

(1B) Any licence granted to a Government company under sub-section *(1)* shall stand cancelled in case the licensee ceases to be a Government company and, notwithstanding anything contained in any other law for the time being in force, all assets thereof shall vest in the Central Government free from any liability and the Central Government shall take such measures for safe operation of the plant and disposal of nuclear material so vested in it, as may be necessary in accordance with the provisions of section 3.".

DR G. NARAYANA RAJU,

Secretary to the Govt. of India.

Department Of Atomic Energy
Notification

Mumbai, the 8th of December, 2015

G.S.R. 1016(E).—In exercise of the powers conferred by sub-section (2) of section 7 of the Civil Liability for Nuclear Damage Act, 2010 (No. 38 of 2010), the Central Government hereby makes the following rules, namely:

1. Short title and commencement.—

(1) These rules may be called the Nuclear Liability Fund Rules, 2015.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Definitions. -

(1) In these rules, unless the context otherwise requires-

(a) "Act" means the Civil Liability for Nuclear Damage Act, 2010 (No. 38 of 2010);

(b) "levy" means the amount charged from the operator under rule 3;

(c) "Fund" means the Nuclear Liability Fund established under rule 3;

(2) Words and expressions used herein and not defined but defined in the Act shall have the meanings respectively assigned to them in the Act.

3. Establishment of Nuclear Liability Fund by Central Government.—

(1) With effect from such date as may be appointed by notification, there shall be established by the Central Government, for the purposes of these rules, a Fund to be called the Nuclear Liability Fund.

(2) The Fund shall comprise the levy collected from operators of nuclear installations.

(3) The operator shall pay to the Fund, a levy at the rate of rupees 0.05 (five paise) or a levy at such rate between rupees 0.05 to 0.10 (five paise to ten paise) for every unit of electricity sold to its customers.

(4) The levy shall be collected and paid to the Fund till the total amount reaches two thousand crore rupees, and thereafter, the process shall resume in the event of any withdrawals from the Fund so as to ensure that the Fund balance remains at two thousand crore rupees at any given time.

(5) The levy shall be payable on quarterly basis and the levy amount for every quarter of the year shall be credited to the Fund within the 15th day of the month succeeding the quarter.

4. Operation of Fund.—

(1) The Fund shall be managed in accordance with rules and instructions relating to management of Public Accounts of the Central Government for such funds.

(2) The payments made by an operator towards the Nuclear Liability Fund shall be credited into the Consolidated Fund of India and then transferred to the Public Account under the Head of Account "MH 8235 General and Other Reserve Fund" following due procedures.

(3) As and when a need for payment out of the Nuclear Liability Fund arises, the Central Government shall ascertain the payment to be made and obtain the Parliament's approval for making the payment:

5. *Payment of interest.*—In case of delay in payment by the operator, the interest at the rate of 18 per cent per annum shall be calculated and charged on daily basis on the operator.

[F. No. 4/4/1/2012-ER]

PRANAY VERMA, Jt. Secy.

Japan

Act on Subsidisation, etc. for Nuclear Damage Compensation Funds following the implementation of the Convention on Supplementary Compensation for Nuclear Damage[1]

(Act No. 133 of 28 November 2014)

Table of Contents

Chapter I. General Provisions

Article 1. Purpose

The purpose of this Act is to provide subsidisation for the funds necessary for compensating nuclear damage (referred to as "nuclear damage compensation funds" in Articles 3 and 11) and other necessary matters following the implementation of the Convention on Supplementary Compensation for Nuclear Damage (hereinafter referred to as the "Convention").

Article 2. Definitions

As used in this Act, "nuclear damage" means nuclear damage as provided in Article 2, paragraph 2 of the Act on Compensation for Nuclear Damage (Act No. 147 of 1961; hereinafter referred to as the "Compensation Act" in this Article), excluding damage caused to the equipment used at a nuclear installation (meaning a nuclear installation as provided in Article 2, paragraph 7 of the Act for the Regulation of

1. This document is an unofficial English translation of the original Japanese text.

Nuclear Source Material, Nuclear Fuel and Reactors (Act No. 166 of 1957; referred to as the "Regulation Act" in the following paragraph) which is installed within an installation or site by the nuclear operator who is liable for the damage pursuant to Article 3 of the Compensation Act).

(2) As used in this Act, "nuclear operator" means a person (excluding the State) who is or was formerly granted a permit as provided in Article 23, paragraph 1 of the Regulation Act (excluding a permit pertaining to a research and test reactor (meaning a research and test reactor as provided in the same paragraph) that is installed on a ship) or a person (excluding the State) who is or was formerly the person as specified in Article 2, paragraph 3, items (iii) to (viii) of the Compensation Act, and who is or was formerly engaged in the reactor operation, etc. (meaning reactor operation, etc., as provided in Article 2, paragraph 1 of the Compensation Act; the same shall apply hereinafter).

Chapter II. Subsidisation for Nuclear Damage Compensation Funds

Article 3.

When the amount of compensation for nuclear damage which a nuclear operator has paid and to which the nuclear operator acquired the consent of persons who have the right to claim such compensation has exceeded the amount as provided by Cabinet Order in respect of nuclear damage caused by any one incident, and when jurisdiction over actions against the nuclear operator concerning compensation for nuclear damage lies with the courts of Japan pursuant to Article XIII, paragraphs 1 to 4 of the Convention, the State shall, as provided by Cabinet Order and within the limits of its budget, subsidise the nuclear operator for part of the nuclear damage compensation funds for the nuclear damage which is listed in the following (referred to as "eligible nuclear damage" in Article 10, paragraph 1 and Article 11):

(i) Damage suffered in the territory of a Contracting Party to the Convention (referred to as "Contracting Party" in the next item); or

(ii) Damage suffered in or above the high seas (including in or above an exclusive economic zone as provided in the United Nations Convention on the Law of the Sea (referred to as the "UN Convention on the Law of the Sea" in (d)), which falls under any of the following:

(a) Damage suffered by a Contracting Party, its public body or any body equivalent thereto, a corporation or other body established pursuant to the laws and regulations of a Contracting Party, a person who is a national of a Contracting Party or who is assimilated by a Contracting Party to its own nationals pursuant to the Convention (referred to as "Contracting Party, etc." in (c));

(b) Damage suffered on board a ship flying the flag of a Contracting Party or an aircraft registered in the territory of a Contracting Party, or damage suffered by such a ship or aircraft;

(c) Damage suffered on an artificial island, installation or structure established by a Contracting Party, etc., or damage suffered by such an artificial island, installation or structure; or

(d) Damage suffered in connection with activities for the exploration or exploitation of natural resources in or above the exclusive economic zone of a Contracting Party or on the continental shelf of a Contracting Party as provided in the UN Convention on the Law of the Sea.

Chapter III. Contribution

Section 1. General contribution

Article 4. Collection of general contribution and obligation of payment

In order to cover expenses necessary for the contribution[2] that is calculated pursuant to Article IV paragraph 1(c) of the Convention, the Minister of Education, Culture, Sports, Science and Technology shall collect the general contribution from nuclear operators (limited to those who are engaged in the reactor operation, etc.; the same shall apply hereinafter in this Section) every fiscal year.

Article 5. Calculation method for the amount of general contribution

The calculation method for the amount of the general contribution of each nuclear operator shall be specified by Cabinet Order, taking into consideration the amount of the contribution[3] that is calculated for Japan pursuant to Article IV, paragraph 1(c) of the Convention, the types of activities of the reactor operation, etc., by each nuclear operator and any other circumstances.

Article 6. Decision, notification, etc. of the amount of general contribution

The Minister of Education, Culture, Sports, Science and Technology shall determine the amount of the general contribution that shall be paid by each nuclear operator according to the calculation method as provided by the Cabinet Order set forth in the preceding article, and shall notify each nuclear operator of the amount of the general contribution that shall be paid by each operator, the deadline for payment and any other necessary matters.

(2) When it is necessary in order to calculate the amount of the general contribution, the Minister of Education, Culture, Sports, Science and Technology may request nuclear operators to submit materials.

Article 7. Demand of payment of general contribution, etc.

When a nuclear operator in receipt of notification as provided in paragraph 1 of the preceding Article does not pay the general contribution by the deadline, the Minister of Education, Culture, Sports, Science and Technology shall demand the payment by serving a written demand designating the deadline.

(2) When a demand has been made pursuant to the preceding paragraph, the Minister of Education, Culture, Sports, Science and Technology may collect a late payment charge pursuant to an Ordinance of the Ministry of Education, Culture, Sports, Science and Technology. In this case, the amount of the late payment charge shall not be more than the amount calculated at a rate of 14.5% a year.

Article 8. Order of statutory liens

The statutory liens for the general contribution and for other monies collected pursuant to this Section shall be ranked next in priority to national tax and local tax.

2. This “contribution” is the contribution of Japan to the supplementary fund pursuant to the CSC.
3. This “contribution” is the contribution of Japan to the supplementary fund pursuant to the CSC.

Article 9. Collection procedure for charges

The general contribution and other charges as provided in this Section shall be collected pursuant to the same rules as national tax, unless otherwise prescribed in this Section.

Section 2. Special contribution

Article 10. Collection of special contribution and obligation of payment

In order to cover expenses necessary for the contribution[4] that is calculated pursuant to Article IV, paragraph 1(b) of the Convention, the Minister of Education, Culture, Sports, Science and Technology shall collect the special contribution from the nuclear operator when the amount of compensation for nuclear damage (in the case of eligible nuclear damage only) which said nuclear operator has paid and to which he acquired the consent of persons who have the right to claim such compensation has exceeded the amount as provided by Cabinet Order in respect of nuclear damage caused by any one incident.

(2) The nuclear operator as provided in the preceding paragraph shall pay the special contribution.

Article 11. Calculation method for the amount of special contribution

The calculation method for the amount of the special contribution of a nuclear operator as provided in paragraph 1 of the preceding Article shall be specified by Cabinet Order, taking into consideration the amount of the contribution[5] that is calculated for Japan pursuant to Article IV, paragraph 1(b) of the Convention, the amount of the nuclear damage compensation funds of the nuclear operator for the eligible nuclear damage and other circumstances.

Article 12. Application mutatis mutandis

The provisions of Articles 6 through 9 shall apply *mutatis mutandis* to the special contribution collected from a nuclear operator as provided in Article 10 paragraph 1. In this case, the term "preceding Article" in Article 6 paragraph 1 shall be deemed to be replaced with "Article 11" and the term "this Section" in Articles 8 and 9 shall be deemed to be replaced with "the next Section."

Chapter IV. Miscellaneous provisions

Article 13. Submission of reports and inspections

The Minister of Education, Culture, Sports, Science and Technology may, if it deems it necessary to ensure execution of this Act, require a nuclear operator to present any necessary reports, or allow his officials to enter the nuclear operator's office, installation or site to inspect its books, documents or other necessary objects, or to ask questions of the persons concerned.

(2) When an official enters premises pursuant to the preceding paragraph, he shall carry an identification card and present it if requested by the persons concerned.

4. This "contribution" is the contribution of Japan to the supplementary fund pursuant to the CSC.
5. This "contribution" is the contribution of Japan to the supplementary fund pursuant to the CSC.

(3) The right to conduct an inspection pursuant to paragraph 1 shall not be construed as a right to investigate a criminal offence.

Article 14. Specifications by an Ordinance of the Ministry of Education, Culture, Sports, Science and Technology

In addition to what is specified in this Act, any necessary matters for the enforcement of this Act shall be specified by an Ordinance of the Ministry of Education, Culture, Sports, Science and Technology.

Article 15. Penal provisions

A person who has failed to present a report pursuant to Article 13, paragraph (1), or has made a false report, or who has refused access to inspectors or interrupted or evaded them pursuant to the same paragraph, or who has refused to answer questions pursuant to the same paragraph or has given false answers to such a question shall be punished by a fine not exceeding three hundred thousand yen.

(2) When the representative of a legal entity, or the agent, employee or other worker of a legal entity or of a natural person has committed any one of the offences referred to in the preceding paragraph in connection with the business of the legal entity or the natural person, the legal entity or the natural person shall, in addition to punishment of the actual offender, be punishable by a fine as provided in the said paragraph.

Supplementary provisions

Date of entry into force

(1) This Act shall enter into force on the date when the Convention comes into force for Japan.

Transitional measures

(2) The provisions of Chapter II and Section 2 of Chapter III shall not apply to compensation for nuclear damage when the incident causing the nuclear damage has occurred prior to the enforcement of this Act.

News briefs

European Commission (EC) Joint Research Centre (JRC) Workshop on Promoting Detection Standards in Nuclear and Radiological Security, 30 November and 1 December 2015, Brussels

The JRC workshop provided an opportunity to present the vast amount of experience in testing detection equipment gained through the implementation of the Illicit Trafficking Radiation Detection Assessment Programme – ITRAP+10 project – to stimulate the use of the existing standards in the European Union (EU) and to identify gaps for the development of new standards.

The event enabled representatives of standardisation organisations, relevant experts and stakeholders in the field of radiation detection from science, policy and industry to exchange knowledge, experience and practices related to technical components, performance and operation procedures, as well as to evaluate the applicability of international standards (IEC and ISO) in the EU context.

International Nuclear Law Association (INLA), 22nd Nuclear Inter Jura Congress, November 2016, New Delhi, India

Every two years, the INLA organises a Congress called a "Nuclear Inter Jura" in which nuclear lawyers from around the world participate. The 22nd INLA Congress will take place in New Delhi, India, from Monday 7 to Friday 11 November 2016. The Congress will be hosted by the Nuclear Law Association, India (NLA). This is the first time that the bi-annual Nuclear Inter Jura Congress series will be held in South Asia.

Under the overarching theme of the Nuclear Inter Jura Congress "The Future of Nuclear Law: Addressing Societal, Environmental and Business Expectations", topical themes will be addressed by nuclear law experts, including on:

- the status of the treaties relating to civil liability for nuclear damage and its varying domestic implementations;
- climate change policies and its impact on the nuclear energy sector;
- nuclear finance – challenges and approaches;
- engaging industry in nuclear new build by touching on topics such as different joint venture models and contractual liability allocations;
- the scope of regional co-operation on nuclear energy;
- case studies relating to the transport of nuclear material;
- comparative discussions on radioactive waste management;
- stocktaking of key legal developments in the area of nuclear security;
- the involvement of civil society in nuclear energy projects;
- comparative discussions on nuclear safety; and

- reflections on future developments regarding radiological protection, including an international liability regime for compensation of nuclear damage due to radioactive sources.

Moreover, the first day of the five-day program will include a detailed session on India's nuclear energy program and related laws, with key representatives from the Indian nuclear establishment having confirmed their participation.

The NLA believes that the 2016 INLA Congress in New Delhi creates an excellent platform for members of the legal fraternity from across the globe, all NLA members and INLA members, to interact and share views on key contemporary developments in the nuclear legal field, while also being apprised about all facets of India's vast civil nuclear energy program and future opportunities.

All information is available on the conference website: http://2016inlacongress.in/. For any questions, please contact the NLA at: secretary@nlain.org

International Framework for Nuclear Energy Cooperation (IFNEC) and OECD Nuclear Energy Agency (NEA) International Conference on "Nuclear Energy's Role in the 21st Century: Addressing the Challenge of Financing", 11-12 May 2016, Paris, France

Over 150 leading stakeholders from more than 30 countries convened at the international conference on "Nuclear energy's role in the 21st century: Addressing the challenge of financing" to discuss the primary challenges faced by the markets and to develop implementable approaches and solutions. The conference was held on 11-12 May 2016 in Paris, France by IFNEC, in co-operation with the NEA. Participants closely examined the various challenges of nuclear financing, including financing alternatives for nuclear power projects, financial risk management, establishing confidence in future pricing and return on investment, and innovative financing solutions for investment in clean energy. Experts from China, Russia, the United Kingdom and the United States also presented their respective national approaches to financing nuclear power projects. Conference proceedings are in preparation and will be provided online.

This conference was the latest IFNEC installment of a multi-year, stakeholder-wide focus on the financial challenges faced by nuclear energy-related projects. In October 2014, IFNEC published its report on Financing Nuclear Power Projects: New and Emerging Models.

IFNEC membership includes 34 participating countries, 31 observer countries and 4 international observer organisations (the NEA, the International Atomic Energy Agency, the Generation IV International Forum and Euratom). There are currently two IFNEC working groups: the Infrastructure Development Working Group (IDWG) and the Reliable Nuclear Fuel Services Working Group (RNFSWG). Further information is available at www.ifnec.org.

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NEA PUBLICATIONS AND INFORMATION

Printed material

The NEA produces a large selection of printed material, part of which is on sale, and part of which is distributed free of charge. The full catalogue of publications is available online at www.oecd-nea.org/pub.

Internet and electronic products

In addition to basic information on the Agency and its work programme, the **NEA website** offers free downloads of hundreds of technical and policy-oriented reports.

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Feature articles in this issue include "Nuclear third party liability in Germany" and "Towards nuclear disarmament: State of affairs in the international legal framework".

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