

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 Convention¹ 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

-
- * Christian Raetzke is a lawyer specialised in nuclear law with his own law firm in Leipzig, Germany. He is chairman of the German branch of the International Nuclear Law Association (INLA).
 - 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 Atomgesetzes* [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 Convention²⁶ 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 reservation⁴² 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 property⁴⁸ 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 PC⁶³ 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 1984⁶⁶) 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 Hohlefeldt, 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 SDR⁷⁸ 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 BSC⁸¹ 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 Betreiber 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 Convention¹⁰⁸ and the Joint Protocol are competent¹⁰⁹ 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 / <i>Atomgesetz</i> regime	Unlimited (damage wherever suffered)	Section 25(4)
<i>Force majeure</i> 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.