http://dx.doi.org/10.12775/CLR.2026.009

Błażej Tazbir*
Bartosz Rakoczy**

THE DEVELOPMENT OF NUCLEAR LIABILITY REGIMES AND THE CONCEPT OF NUCLEAR DAMAGE IN INTERNATIONAL AND POLISH LAW

Abstract

This research paper explores the evolution of international and Polish nuclear liability regimes with particular emphasis on the development of the legal concept of nuclear damage. It firstly examines the establishment and evolution of the international nuclear liability regime, including the Paris and Vienna Conventions, Brussels Supplementary Convention, the 1988 Joint Protocol, the 1997 Convention on Supplementary Compensation for Nuclear Damage, and the subsequent amendments adopted in response to the shortcomings revealed by the Chernobyl nuclear accident. It then analyses the development of the Polish nuclear liability regimes, including the implementation of international nuclear liability instruments into the Polish legal order and their constitutional position within the hierarchy of legal sources. Particular attention is devoted to the statutory concept of nuclear damage under the Polish Atomic Law Act. The Article argues that although Polish legislation largely reflects the evolution of international nuclear liability standards, the domestic definition of nuclear damage incorporates additional elements concerning environmental remediation and causation that reduce its conceptual clarity.

* PhD Candidate at the Ferenc Deák Doctoral School of the Faculty of Law of the University of Miskolc, Intern at the Central European Academy of the University of Miskolc, ORCID: 0009-0005-1948-4839, e-mail: tazbir.blazej@gmail.com.

** Full Professor, Nicolaus Copernicus University in Toruń, ORCID: 0000-0002-8790-2407, e-mail: brako@umk.pl.

Keywords

nuclear law; nuclear liability; nuclear damage; Vienna Convention; Paris Convention; Polish Atomic Law; comparative law

Introduction

The twentieth century was a landmark for mankind in terms of technological development. One of the breakthroughs which substantially changed the technological and geopolitical landscape of the modern world was the discovery of nuclear fission. Nuclear fission enabled the release of vast amounts of energy from relatively small quantities of fissile material. Therefore, although the first practical applications of nuclear fission were developed for military purposes during the Second World War, it promptly found its use in the energy industry in the postwar era.[1]

Nuclear power is characterized by a high capacity factor and very low lifecycle greenhouse gas emissions. However, in case of an accident, it poses significant risks, with the potential to cause extensive harm to humans and the environment. The damage may also extend to the territory of other countries. Therefore, together with the emergence of nuclear technology, questions about the allocation of the liability for the potential damages arose relatively quickly.[2]

In response to these concerns, international organizations began to shape specific liability regimes of civil liability for nuclear damages, resulting in the drafting of international conventions with regard to this matter.[3] As these conventions were concluded in the 1960s, the exact

---

[1] U.S. Department of Energy, Office of Nuclear Energy, *The History of Nuclear Energy*, n.d., pp. 4–9, available at: https://www.energy.gov/ne/articles/history-nuclear-energy [last accessed: 21.6.2026].

[2] See i.e.: C.J. Highton, "The Legal Aspects of the Development of Atomic Energy in the United Kingdom", *Vanderbilt Law Review*, 1958, Issue 1, pp. 225–228; K. Wolff, "The Vienna International Convention on Civil Liability for Nuclear Damage", in J. Weinstein (ed.), *Nuclear liability, progress in nuclear energy*, Oxford: Pergamon Press, 1966, pp. 1–22.

[3] See: IAEA, *Civil Liability for Nuclear Damage: Official Records of the International Conference on Civil Liability for Nuclear Damage Held by the International Atomic Energy Agency*

consequences of a nuclear reactor accident were not yet known at that time. Therefore, only after the occurrence of the Chernobyl disaster did some of the solutions turn out to be insufficient, resulting in significant amendments to the conventions. Another issue was the plurality of the liability regimes that could lead to potential interpretational conflicts. This issue had to be addressed in the process of the development of the international regimes as well. In this context, it is noteworthy that, unlike the Chernobyl disaster, the Fukushima Daiichi nuclear accident of 2011 did not lead to significant developments in the international nuclear liability regime. The post-Fukushima discourse focused primarily on regional and national measures rather than on the development of global solutions.[4] One of the most significant legal developments in the aftermath of the Fukushima accident was Japan's accession to the Convention on Supplementary Compensation for Nuclear Damage (CSC).[5] Following Japan's deposit of its instrument of acceptance in January 2015, the CSC entered into force in April 2015, ending nearly eighteen years of dormancy since its adoption in 1997.[6]

The development of international nuclear liability regimes was not limited to the establishment of procedural mechanisms governing liability, jurisdiction, or financial security. An equally important aspect of this evolution concerned the gradual development of the legal concept of nuclear damage, which determines the substantive scope of compensation available to victims of a nuclear incident. While the original li-

---

in Vienna, 29 April – 19 May 1963, 1964, available at: https://www-pub.iaea.org/MTCD/Publications/PDF/Pub54web.pdf [last accessed: 21.6.2026].

[4] See i.e.: OECD NEA, *Recovery from the Nuclear Accident and Public Participation: The Fukushima Nuclear Power Plant Accident*, Law and Policy Symposium Proceedings, Hitotsubashi University 24–25 September 2016, available at: https://www.oecd-nea.org/upload/docs/application/pdf/2021-12/hitotsubashi_symposium_english_translation.pdf [last accessed: 1.7.2026].

[5] Convention on Supplementary Compensation for Nuclear Damage (1997), IAEA Doc. INFCIRC/567, 36 ILM 1473, entered into force 15 April 2015.

[6] The CSC was adopted on 12 September 1997. Pursuant to Article XX, the Convention would enter into force on the ninetieth day following the date on which at least five States with a minimum aggregate installed nuclear capacity of 400,000 units had deposited their instruments of ratification, acceptance, approval, or accession. The requirement concerning the number of States had been fulfilled earlier, however, the installed-capacity threshold was met only when Japan deposited its instrument of acceptance on 15 January 2015. Consequently, the CSC entered into force on 15 April 2015.

ability conventions adopted in the 1960s recognized only a relatively narrow range of compensable damage, subsequent amendments, particularly those adopted following the Chernobyl disaster, considerably broadened this concept by introducing new categories of recoverable loss, including environmental damage, environmental reinstatement costs, and certain forms of economic loss.

The domestic legislation of many States remains significantly influenced by international law, often incorporating into national legal systems the definitions contained in international treaties. These definitions are, in turn, frequently the result of compromises reached between States representing different legal systems and legislative traditions, which may give rise to a lack of conceptual coherence in the treaty provisions themselves.[7]

Furthermore, the concept of nuclear damage within a given national legal system is shaped, not only by the manner in which the notion of damage is understood in that system, but also by the extent to which the State concerned utilizes nuclear energy. Accordingly, the legal construction of nuclear damage may differ between States operating extensive nuclear power programmes and those using nuclear technology only on a limited scale.[8]

In this context, Poland provides a particularly interesting case study. Although it undertook an ambitious project to construct a nuclear power plant at Żarnowiec, the project was ultimately abandoned. Today, while Poland operates nuclear technology only on a limited scale through research applications and does not yet generate commercial nuclear power, it is regarded as a nuclear newcomer owing to its ongoing programme to develop its first commercial nuclear power plant.[9]

---

[7] R. Majda, *Cywilna odpowiedzialność za szkodę jądrową w polskim prawie atomowym*, Wydawnictwo Uniwersytetu Łódzkiego, 2006, p. 59.

[8] *Ibid*., p. 58.

[9] Poland's only operating nuclear facility is the "Maria" research reactor, which was constructed and commissioned in the 1970s. The reactor has a power amount of 30 MW and is used primarily for scientific research, industrial applications, and the production of medical radioisotopes. It is not used for the commercial generation of electricity or heat. Consequently, despite its experience in operating a research reactor, Poland may be regarded as a nuclear newcomer with respect to commercial nuclear power generation. See more: https://www.ncbj.gov.pl/en/maria-reactor [last accessed: 21.6.2026].

Poland implemented the broadened international standards into the Atomic Law Act;[10] however, the statutory definition of nuclear damage adopted by the Polish legislator raises a number of interpretative questions. Rather than limiting the definition to the notion of damage itself, the Act incorporates issues concerning environmental remediation and causation, thereby blurring the distinction between the concept of damage and other structural elements of civil liability. Accordingly, besides reconstructing the historical development of international and Polish nuclear liability regimes, including the process by which Poland acceded to and implemented the relevant international nuclear liability instruments, this Article examines the concept and legal character of nuclear damage under international and Polish law. As the world is once again turning towards nuclear energy, issues relating to nuclear liability are regaining practical significance.

I. The Development of an International Nuclear Liability Regime

1. The 1960 Paris Convention and the 1963 Vienna Convention

International nuclear liability law developed around two principal systems. The first of them was established by The Vienna Convention on Civil Liability for Nuclear Damage (Vienna Convention).[11] It was concluded in Vienna on 21 May 1963 and entered into force on 12 November 1977 and was later amended by the 1997 Protocol to Amend the Vienna Convention.[12] This system is also perceived as the International Atom-

---

[10] The Act of 29 November 2000 Atomic Law (Atomic Law), Dziennik Ustaw (Law Gazette) of 2001, No. 3, item 18.

[11] Vienna Convention on Civil Liability for Nuclear Damage (1963), IAEA Doc. INFCIRC/500, 1063 UNTS 266, entered into force 12 November 1977.

[12] Protocol to Amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage (1997), IAEA Doc. INFCIRC/566, 2241 UNTS 302, entered into force 4 October 2003 (1997 Protocol to Amend the Vienna Convention).

ic Energy Agency (IAEA) system,[13] as the Vienna Convention was concluded under the auspices of this institution.

The other system was formed by the state members of the Organization for European-Economic Cooperation (OEEC) before its transformation into the Organization for Economic Co-operation and Development (OECD). This system emerged in the form of the Paris Convention of 29 July 1960 on Third Party Liability in the Field of Nuclear Energy (Paris Convention).[14]

The conventions have numerous similarities. The operator's liability is founded on the rule of absolute liability. The exonerations do not differ significantly, and the operator has an obligation to be covered by insurance or other financial security. Both conventions channel liability to the operator and allow direct action against the insurer or financial guarantor based on national law. The amount of the operator's liability is limited by the fixed minimum amounts of compensation for the damages. The values of fixed minimum compensation in the Vienna and Paris Conventions are similar, and they both seem to be inadequate.[15] In the case of the Vienna Convention, the minimum compensation is US $5 million for any one nuclear incident.[16] Meanwhile, the Paris Convention in its unamended form set this limit to 5 million European Monetary Agreement units of account.[17] Given the magnitude and nature

---

[13] T. Stojek, "Ewolucja zasad odpowiedzialności cywilnej za szkodę jądrową w prawie polskim", in T. Stojek (ed.), *Rozwój szczególnego reżimu odpowiedzialności cywilnej za szkodę jądrową i jego wpływ na koncepcje*, Wrocław: University of Wrocław, 2010, pp. 34–51, available at: https://www.bibliotekacyfrowa.pl/dlibra/publication/30181/edition/35855?language=en [last accessed: 31.3.2026].

[14] Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960, 956 UNTS 251, entered into force 1 April 1968. In the following years the Paris Convention was amended three times: by the Additional Protocol of 28 January 1964, by the Protocol of 16 November 1982 and by the Protocol of 12 February 2004.

[15] J. Łopuski, *Liability for nuclear damage – an international perspective: reflections on the revision of Vienna Convention*, National Atomic Energy Agency, 1993, p. 10; J. Schwartz, "Nuclear third party liability and compensation for nuclear damage and insurance", in K. Sexton-Nick, S. Burns (eds.), *Principles and Practice of International Nuclear Law*, OECD Publishing, 2022, p. 418; https://doi.org/10.1787/58b25dca-en.

[16] Article V of the Vienna Convention.

[17] Article 7(b) of the Paris Convention. The unit of account referred to in the original text was that of the European Monetary Agreement (EMA) (Paris, 5 August 1955, in force from 27 December 1958), concluded within the OEEC – subsequently the OECD – and

of the damage caused by a nuclear disaster, it is evident that the limitations established by the conventions were indeed insufficient. Another similarity is time limits.[18] As an example, it may serve as a fact that, according to both conventions, if the action is not brought within ten years from the day of the nuclear incident, the rights of compensation will be extinguished.[19] Moreover, both conventions provide almost identical rules on jurisdictions and use similar definitions. What is common for them is that they tend to fail to provide sufficient and comprehensive definitions of nuclear damage.[20]

The two Conventions were constructed on the same conceptual basis, as the crucial rules are identical for both of them. Both are based on the "four central pillars", which are the absolute liability of the operator of a nuclear installation, exclusive liability channelling, limitations of liability in terms of amount and time, and the establishment of exclusive jurisdiction by Installation State courts.[21]

Despite these similarities, there are significant differences between the two conventions. Whereas both conventions set the operator's minimum liability for nuclear damage, only the Paris Convention contained primarily a norm regulating also the maximum liability. The Vienna Convention did not provide any limitation for Member States in this

---

operative until the end of 1972. See: *European Monetary Agreement*, Historical Archives of the European Union, n.d., available at: https://archives.eui.eu/en/isaar/50 [last accessed: 1.9.2026]. The EMA succeeded the European Payments Union, established on 19 September 1950, and took over its unit of account, defined by a gold content equal to that of the US dollar of the time; on the EPU and its monetary arrangements see: I. Maes, I. Pasotti, "The European Payments Union and the origins of Triffin's regional approach towards international monetary integration", *NBB working paper*, 2016, Number 301, pp. 14–15. available at: https://www.econstor.eu/bitstream/10419/173757/1/wp301en.pdf [last accessed: 31.3.2026]; *Towards a single currency: a brief history of EMU*, Eur-Lex, Summaries of EU legislation, 2011, available at: https://eur-lex.europa.eu/EN/legal-content/summary/towards-a-single-currency-a-brief-history-of-emu.html [last accessed: 1.7.2026]. Within the Paris Convention itself, the EMA unit of account was replaced by the Special Drawing Right as defined by the International Monetary Fund under the Protocol of 16 November 1982, and by amounts expressed in euro under the Protocol of 12 February 2004.

[18] Łopuski, *Liability*, p. 10.

[19] See: Article VI of the Vienna Convention, Article 8 of the Paris Convention.

[20] Łopuski, *Liability*, p. 10.

[21] G. Kecskés, "The Concepts of State Responsibility and Liability in Nuclear Law", *Acta Juridica Hungarica*, 2008, Issue 2, p. 244; https://doi.org/10.1556/ajur.49.2008.2.4.

regard. It is noteworthy that the maximum limit of compensation in the amount of 15 million EMA units of account, provided by the Paris Convention,[22] seems even more inadequate than the minimum liability amounts fixed by both conventions. It is questionable whether such a maximum should have been set, considering the lack of awareness at the time of the conclusion of the Paris Convention about all the potential consequences of a nuclear incident.

The first notable difference between the two conventions primarily lies in their geographical scope.[23] The Paris Convention was adopted within the OEEC to provide uniform rules on third party liability for Western European Countries, which can be derived from the "exposé des motifs" of the convention.[24] The consequence of such an approach was a restricted scope of application of the convention. The Paris Convention could not be applied if the nuclear incident occurred in the territory of non-contracting States or if the damage was suffered in such territory, unless the legislation of the Contracting Party in whose territory the nuclear installation of the operator liable is situated, provided otherwise.[25] Therefore, since the Paris Convention established a legal regime only for the specific group of countries, it could not be perceived as a tool serving for international unification of the issue of nuclear liability.

The aim of the Vienna Convention differed significantly. As it is highlighted in the explanatory memorandum, the Contracting Parties 'believed that a convention on civil liability for nuclear damage would also contribute to the development of friendly relations among nations, irrespective of their differing constitutional and social systems'. Moreover, the authentic languages of the Convention were English, French, Spanish, and Russian and among the signatories, there were countries occupying entirely distinct geographical locations, such as Argentina, Cuba, Egypt, Philippines, and Yugoslavia. Therefore, it should be considered that the incentive of the Vienna Convention was to establish

---

[22] See: Article 7(b) of the Paris Convention.

[23] B. Kia, S.R. Pishrobat, M. Musazadeh, "Analysis of Principles of Nuclear Damage Compensation in International Conventions and Customary Law", *Interdisciplinary Studies in Society, Law and Politics*, 2025, Number 2, pp. 160–165; https://doi.org/10.61838/kman.isslp.4.2.14.

[24] Łopuski, *Liability*, p. 10.

[25] Article 2 of the Paris Convention.

a system of international principles setting the common nuclear liability rules ensuring the required minimum protection of victims. Contrary to the Paris Convention, the Vienna Convention does not limit its scope of application only to nuclear incidents or nuclear damage which occurred on the territory of the Contracting States.[26]

Another difference between the conventions could be derived from the comparison of Art. 10 of the Paris Convention and Article VII of the Vienna Convention relating to compulsory insurance or other financial security. The breach between the rules set by the conventions regarding this matter concerned the engagement of public funds of the installation state. According to the Vienna Convention, 'the Installation State shall ensure the payment of claims for compensation for nuclear damage which have been established by the operator by providing the necessary funds (…)'. Thus, following the Vienna Convention provisions, the installation state functioned as a guarantor of the operator. On the other hand, any similar provision could not be found in the Paris Convention.

An important distinction between the two conventions lies in their definition of nuclear damage. The Vienna Convention defines nuclear damage in Article I(1)(k) as:

(i) loss of life, any personal injury or any loss of, or damage to, property which arises out of or results from the radioactive properties or a combination of radioactive properties with toxic, explosive, or other hazardous properties of nuclear fuel or radioactive products or waste in, or of nuclear material coming from, originating in, or sent to, a nuclear installation;
(ii) any other loss or damage so arising or resulting if and to the extent that the law of the competent court so provides;
(iii) and if the law of the Installation State so provides, loss of life, any personal injury or any loss of, or damage to, property which arises out of or results from other ionizing radiation emitted by any other source of radiation inside a nuclear installation.

The definition provided in the original text of the Vienna Convention is rather limited. It does not recognize damage to the environment,

[26] Łopuski, *Liability*, p. 11.

economic losses resulting from that damage, or the cost of environmental reinstatement. Pure economic losses are also generally excluded.

Interestingly, the notion of nuclear damage has not been explicitly defined in the original text of the Paris Convention.[27] According to M. Tetley:

> Defined or not, nuclear damage under the old arrangements was largely limited to damage to or loss of life of any person and damage to or loss of any property. There was some flexibility in the interpretation of the concept, particularly in the case of the undefined Paris Convention and, for example, with the UK's precedent based legal system, some direct economic damage was considered to constitute nuclear property damage. But in broad terms, the compensation offered was quite narrowly defined.[28]

The revisions to both conventions, which will be described in the following subchapters, widened significantly the scope of nuclear damage.

In the context of analysing the definition of nuclear damage contained in both conventions and its legal nature, attention should be drawn to one further similarity that has not yet been discussed. Both conventions extend the concept of nuclear damage in a specific way to encompass damage caused jointly by a nuclear incident and a non-nuclear incident. Where it is not reasonably possible to determine which part of the damage was caused by the nuclear incident and which part was caused by another incident, all of the damage is considered to have resulted from the nuclear incident.[29] This presumption of the nuclear origin of the damage is intended to facilitate the identification of the person liable for compensation.[30]

---

[27] The definition was introduced only by the Protocol of 12 February 2004 amending the Convention, which added a new sub-paragraph (vii) to art 1(a); see 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 (adopted 12 February 2004, entered into force 1 January 2022), S I.B, https://www.oecd-nea.org/jcms/pl_20361/2004-protocol-to-amend-the-paris-convention [last accessed: 1.9.2026].

[28] M. Tetley, "Revised Paris and Vienna Nuclear Liability Conventions – Challenges for Nuclear Insurers", *Nuclear Law Bulletin*, 2006, Issue 1, p. 29.

[29] Article IV(4) of the Vienna Convention, Article 3(b) of the Paris Convention as amended by the Additional Protocol of 28 January 1964.

[30] Majda, *Cywilna odpowiedzialność*, p. 58.

Despite similarities in the most significant regulations between the conventions and differences indicating partially more advanced solutions in the matter of civil liability for nuclear damage, the Vienna Convention received a lack of interest and the rather modest participation of State members.[31]

Multiple factors could contribute to this situation. First, the minimum liability limits could not be found satisfactory, especially for the countries which were already the contracting states of the Paris Convention, considering the fact that these limits were virtually the same. Moreover, the Vienna Convention did not introduce any similar provision to Article 7(e) of the Paris Convention, which allowed Contracting Parties to make the transit of nuclear substances through their territories. This possibility is subject to the condition that the maximum liability of the foreign nuclear operator be increased to the maximum amount applicable to operators within the territories concerned if the Contracting Party considers the existing liability limit insufficient to cover the risks of a nuclear incident during the transit of nuclear substances. Another reason for the general reluctance to adhere to the Vienna Convention could be the slow progress of its ratification. Although only five ratifications were required, its entry into force took fourteen years. Ultimately, the Contracting States of the Paris Convention were notified of potential conflicts that could occur after ratifying simultaneously the Vienna Convention. These conflicts were addressed during the 1968 IAEA/NEA Monaco Symposium on Third-Party Liability and Insurance in the Field of Maritime Carriage of Nuclear Substance.[32]

2. The 1963 Brussels Supplementary Convention and Amending Protocols

The minimum liability amounts set by both conventions were very soon found inadequate by the international community. In the case of the Paris Convention, it resulted in the adoption of the Convention of

---

[31] O. von Busekist, "A Bridge Between two Conventions on Civil Liability for Nuclear Damage: the Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention", *Nuclear Law Bulletin*, 1989, Number 43, p. 11.

[32] *Ibid.*, pp. 11–12.

31 January 1963 Supplementary to the Paris Convention of 29 July 1960 (Brussels Supplementary Convention or BSC),[33] providing additional compensation in a three-tier system. This system also included compensation from public funds, which was a *novum* from the perspective of the liability system created by the Paris Convention.[34] In 1964 and 1982, two protocols were adopted to revise the Paris Convention and the BSC. The "currency" determining the value of liability amount to date – the EMA unit of account – was replaced by Special Drawing Rights (SDRs).[35] Moreover, the amounts payable under the three-tier system were raised by a factor of 2.5. After the changes provided by the BSC, and the 1964 and 1982 Protocols, compensation was first paid by the operators up to their liability limit as defined by national law. In the second tier, compensation was provided by the Installation State up to a limit of 175 million SDRs. Finally, any remaining amount, if necessary, was contributed by all the States Parties up to a limit of 300 million SDRs, according to a formula based on each state's gross national product and total thermal nuclear power capacity.

In 2004 another Protocol was introduced, which resulted in adding the definition of nuclear damage to the Paris Convention. According to the Article 1(a)(vii) in its amended version:

> "Nuclear damage" means,
> 1. loss of life or personal injury;
> 2. loss of or damage to property;
> and each of the following to the extent determined by the law of the competent court,

---

[33] Convention Supplementary to the Convention on Third Party Liability in the Field of Nuclear Energy, concluded at Brussels on 31 January 1963, 1041 UNTS 358, entered into force 4 December 1974.

[34] L. de La Fayette, "Towards a new regime of state responsibility for nuclear activities", *Nuclear Law Bulletin*, 1992, Number 50, p. 10.

[35] The Special Drawing Right (SDR), which serves as the unit of account in the BSC, is defined by the International Monetary Fund (IMF). This unit is based on a basket of five major international currencies: the US Dollar, the euro, the Chinese renminbi, the Japanese yen and the British pound sterling. The SDR's currency value is calculated daily, and the composition of the valuation basket is reviewed and adjusted every five years. See more at: https://www.imf.org/en/About/Factsheets/Sheets/2023/special-drawing-rights-sdr [last accessed: 31.3.2026].

3. economic loss arising from loss or damage referred to in sub-paragraph 1 or 2 above insofar as not included in those sub-paragraphs, if incurred by a person entitled to claim in respect of such loss or damage;
4. the costs of measures of reinstatement of impaired environment, unless such impairment is insignificant, if such measures are actually taken or to be taken, and insofar as not included in sub-paragraph 2 above;
5. loss of income deriving from a direct economic interest in any use or enjoyment of the environment, incurred as a result of a significant impairment of that environment, and insofar as not included in sub-paragraph 2 above;
6. the costs of preventive measures, and further loss or damage caused by such measures, in the case of sub-paragraphs 1 to 5 above, to the extent that the loss or damage arises out of or results from ionizing radiation emitted by any source of radiation inside a nuclear installation, or emitted from nuclear fuel or radioactive products or waste in, or of nuclear substances coming from, originating in, or sent to, a nuclear installation, whether so arising from the radioactive properties of such matter, or from a combination of radioactive properties with toxic, explosive, or other hazardous properties of such matter.

The definition of nuclear damage introduced by the 2004 Protocol is significantly broader than that contained in the original text of the Paris Convention. It largely corresponds to the definition adopted by the 1997 Protocol to Amend the Vienna Convention, with only minor linguistic differences that do not affect its substantive meaning. A detailed analysis of this definition is provided in the chapter devoted to the 1997 Protocol to Amend the Vienna Convention. Since the two provisions are substantively equivalent, the conclusions drawn from that analysis are equally applicable to the amended Paris Convention.

The 2004 Protocol also amended the financial provisions of the Paris Convention by replacing the former monetary unit with the euro and substantially increasing the minimum liability amount. Under the revised Convention, the operator's liability must amount to at least €700 million for each nuclear incident.

3. The 1988 Joint Protocol to the Application of the Vienna Convention and the Paris Convention

As was outlined earlier, the Paris Convention and the Vienna Convention were formed to entirely separate nuclear liability systems. If a nuclear incident were to occur in a state that was a party to the Paris Convention, victims in those states would receive benefits as outlined by the convention. Similarly, victims in states that were parties to the Vienna Convention would be entitled to benefits under that convention if a nuclear incident happened in one of its Contracting Parties. However, neither the Paris Convention nor the Vienna Convention was applicable to nuclear damage occurring in the territory of a Contracting State to the other convention. As previously noted, the proposal of adherence of the Parties to one convention to the other convention never gained recognition owing to the potential conflicting obligations that could arise after the simultaneous ratification of both conventions.[36]

Nevertheless, during the 1970s and early 1980s, several attempts were made to find ways to link the two conventions. This effort was driven by the growing international trade in nuclear materials, which raised ongoing concerns. These concerns focused on enhancing protection for victims and addressing the interests of nuclear operators and their suppliers.[37]

However, for the idea of harmonizing the convention to become a reality, a pivotal moment in the history of the peaceful use of nuclear energy had to occur. It was only after the Chernobyl accident in 1986 that the gaps between the conventions became evident, and the Contracting Parties gained the impulse to create a formal connection between the two instruments. The Chernobyl accident made the entire nuclear community acutely aware of the need to effectively protect victims of nuclear incidents, especially given the potentially harmful impact such incidents can have on neighbouring countries. Consequently, there has

---

[36] von Busekist, *A Bridge*, pp. 11–12.

[37] J. Schwartz, "International Nuclear Third Party Liability Law: the Response to Chernobyl", in *International Nuclear Law in the Post-Chernobyl Period*, OECD Publishing, 2006, p. 44, available at: https://www.oecd-nea.org/upload/docs/application/pdf/2019-12/nea6146-iaea-chernobyl.pdf [last accessed: 31.3.2026].

been a rapid increase in the demand among nations to expand the geographical scope of nuclear liability conventions.

As a result, in September 1986, experts from both OECD/NEA and IAEA decided that the most efficient solution to bridge the gaps between conventions would be the introduction of the joint protocol uniting the conventions. For this purpose, in October 1987, a joint Working Group of Governmental Experts from both organizations was established. The outcome of its work was the establishment of the Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention (Joint Protocol).[38]

The Joint Protocol, similar to both conventions, is based on the absolute liability of the operator. Its main purpose is to ensure that the benefits of one convention are extended to the Contracting States of another one. Thus, the "bridge" between the two conventions is created. The Joint Protocol also eliminates issues deriving from the differences between the two nuclear liability regimes. This is ensured by the exclusive application of only one of the two conventions to the single nuclear incident, according to the rules established in Article II and Article III of the Joint Protocol. Consequently, the Parties that are signatories to both the Paris Convention and the Joint Protocol are no longer considered non-member States with respect to the Vienna Convention. Instead, they are recognized as Contracting Parties under the Vienna Convention. This mutual recognition occurs whenever the relevant provisions of either the Paris Convention or the Vienna Convention come into play. Furthermore, in the event of an incident, both Parties involved have the right to claim compensation, provided that the affected States are also Parties to the Joint Protocol. This ensures a unified approach to liability and compensation among the Parties, enhancing cooperation and legal consistency in addressing incidents that fall under the scope of these agreements.[39]

---

[38] Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention (1988), IAEA Doc. INFCIRC/402, 1672 UNTS 293, entered into force 27 April 1992. On the drafting history of the Joint Protocol see: Schwartz, *International*, pp. 44–45.

[39] Kecskés, *The Concepts*, pp. 245–246; Schwartz, *International*, pp. 44–45.

4. The 1997 Protocol to Amend the Vienna Convention

After the conclusion of the 1988 Joint Protocol, the international community raised the issue of adjusting the Vienna and Paris Conventions to the modern standards of nuclear liability. The international fora addressing the need for revision have focused particularly on the Vienna Convention, as it has not been revised since its adoption, unlike the Paris Convention. In 1989, the IAEA Board of Governors established an open-ended Working Group whose aim was to develop solutions complementing and strengthening the existing liability regime. A year later, by decision of the same body, the Working Group was replaced by the open-ended Standing Committee on Liability for Nuclear Damage, which received a comprehensive mandate to revise the regime of international liability for nuclear damage, with a focus on international civil liability, international State liability, and the relationship between international civil and State liability.[40]

The negotiations within the Standing Committee lasted for eight years and resulted in the adoption of two treaties in 1997. The first of them was the 1997 Protocol to Amend the Vienna Convention, and the second was the CSC.[41]

The adoption of the 1997 Protocol to Amend the Vienna Convention brought significant changes in the Vienna Convention, among which three major milestones have been distinguished by J. Schwartz (see below).[42]

More Money Available to Compensate Victims: the minimum amount of liability was increased from US $5 million to 300 million SDR. The operator may contribute as little as 150 million SDRs, but in such a case, the Installation State is required to provide an additional, equal amount. Contracting Parties may set the minimum liability amount as low as 5 million SDRs if it is justified by the lower risk activities related to the nuclear installations, such as the transport of nuclear substances or ac-

---

[40] V. Lamm, "The Protocol amending the 1963 Vienna Convention", *Nuclear Law Bulletin*, 1998, Number 61, p. 8; Kecskés, *The Concepts*, pp. 246–247.

[41] Lamm, *The Protocol*, p. 9.

[42] Schwartz, *International*, pp. 47–48.

tivities within a research reactor.[43] However, if the incurred nuclear damage exceeds that lower amount, the Installation State must ensure that public funds cover the difference up to 300 million SDRs. Moreover, the Contracting States are enabled to impose unlimited liability on their nuclear operators. The financial security limits have to be in line with liability amounts, and where unlimited liability is imposed, the financial security requirement for operators is fixed at 300 million SDRs.[44]

More People Entitled to Compensation: the Vienna Convention remains silent about its scope of application. After its adoption, it was viewed as applying only to the Contracting States and on or over the high seas. The 1997 Protocol to Amend the Vienna Convention significantly extended the geographical scope of the Vienna Convention. The textual interpretation of Article III para. 1 of this act leads to the conclusion that the Vienna Convention will be applied to the nuclear damage wherever it is suffered. However, the Protocol provides for certain exceptions to this general rule, allowing the Installation State, through legislation and under specific conditions, to exclude the application of the Convention to the territory of a non-Contracting State or to damage occurring in a maritime zone established by such a State under international maritime law (para. 2). Any such exclusion is permitted only if the non-Contracting State has a nuclear installation on its territory or in a maritime zone and does not offer equivalent reciprocal benefits (para. 3). Moreover, the limit of submission of claims have been extended from 10 years to 30 years with priority given to those brought within 10 years, in case the funds are insufficient to cover all of the claims.[45]

More Damage to be Compensated: the Vienna Convention envisaged compensation for personal injuries, property loss, or damages, and other damages compensable under 'the law of the competent court'. Owing to the experience from the Chernobyl accident, with the adoption of the 1997 Protocol to Amend the Vienna Convention, several additional types of covered damages were introduced. The new types of distinguished damages are listed in Article 2(2) of the 1997 Protocol to Amend the Vienna Convention and overlap with those introduced in the Paris Convention after the adoption of the 2004 Protocol. They include: dam-

---

[43] *Ibid*., p. 47.

[44] *Ibid*.

[45] *Ibid*., pp. 47–48.

age to the environment, economic losses resulting from that damage and the cost of environmental reinstatement, other economic losses consequent upon personal injury or property damage, the cost of preventive measures taken to minimize damage and any losses suffered as a result thereof, as well as other types of loss or damage recoverable under a Contracting Party's civil liability law. Although the definition of a nuclear damage has been significantly extended, much discretion to the Installation State has been left, as the newly recognized categories of nuclear damage are compensable only to the extent determined by the law of a competent court.[46]

According to D.E.J Currie:

> Economic loss arising from loss of life, any personal injury or any loss of, or damage to, property is covered, but economic loss other than that specified in the new definitions is only covered if permitted by the law of the competent court, which will usually be the Installation State. So economic loss to tourism and fisheries, for instance, which is not arising from damage to property or personal injury as such, may well not be compensated. So-called "rumor damage", or economic loss caused by an incident without necessarily being predicated on actual contamination, is no less real for the lack of contamination.[47]

To put it simply, D.E.J. Currie argues that the advancements regarding the definition of nuclear damage introduced by the 1997 Protocol to Amend the Vienna Convention are largely illusory. Victims from other States will be able to recover such damage only if the Installation State permits it.[48]

In addition, the term "nuclear incident" also covers an event which poses a grave and imminent threat of causing nuclear damage. Thus, compensation for the costs of taking preventive measures is allowed.[49]

---

[46] *Ibid.*, p. 48.

[47] D.E.J. Currie, "The Problems and Gaps in the Nuclear Liability Conventions and an Analysis of How an Actual Claim Would be Brought under the Current Existing Treaty Regime in the Event of a Nuclear Accident", *Denver Journal of International Law & Policy*, 2006, Vol. 35, Number 1, pp. 85–127.

[48] *Ibid.*, p. 111.

[49] Lamm, *The Protocol*, p. 9; Schwartz, *International*, pp. 47–48.

Despite evident shortcomings in terms of extension of the definition of nuclear damage, the adoption of the 1997 Protocol to Amend the Vienna Convention was one of the most important events regarding the development of a nuclear liability regime. There was a hope within the nuclear community that this new instrument would attract the wide support of both nuclear power-generating states and non-nuclear power-generating states, resulting in their adherence to the convention.[50]

5. The 1997 Convention on Supplementary Compensation for Nuclear Damage

As discussed above, the CSC was adopted simultaneously with the 1997 Protocol to Amend the Vienna Convention under the auspices of the IAEA. The CSC, similarly to the BSC, was designed to step back from the absolute liability of the operator and assure the availability of a meaningful amount of compensation for the nuclear damage by engaging public funds. The two-tier compensation system introduced by the CSC (with an optional third tier) is also similar to the one established by the BSC.[51] The CSC sets the first tier amount at 300 million Special Drawing Rights (SDRs). If the funds available from the liable operator fall short of this amount, the CSC mandates that the Installation State provide public funds to cover the shortfall. Should compensation claims for nuclear damage exceed 300 million SDRs, the CSC requires member countries to contribute to an international fund for the second tier of compensation. The amount of this second tier is not fixed, but varies based on the number of nuclear power plants in member countries, increasing as the number of such plants grows. Additionally, the CSC allows a member country to establish a third tier of compensation beyond the first two tiers.

The aforementioned solution serves a double purpose. On one hand, it guarantees the availability of state funds to compensate for nuclear

---

[50] Schwartz, *International*, p. 48.

[51] Kecskés, *The Concepts*, p. 248; B. McRae, "The Convention on Supplementary Compensation for Nuclear Damage: Catalyst for Global Nuclear Liability Regime", *Nuclear Law Bulletin*, 2007, Number 1, pp. 19–20; https://doi.org/10.1787/nuclear_law-2007-5k9gvsb1v6mp.

damage, benefiting the victims. On the other hand, the CSC also safeguards the operator from devastating claims.

The definition of nuclear damage is identical to that contained in the 1997 Protocol to Amend the Vienna Convention. This similarity is unsurprising, as both instruments were adopted in 1997 under the auspices of the same international organization – IAEA.

II. The Development of the Nuclear Liability Regime in Poland

1. Accession to International Conventions

Poland, although currently a member of the OECD and of the European Union, is not, for historical reasons, a Contracting State of the Paris Convention. Although Poland's political transformation is associated with 1989, when the first partly free elections were held in Poland, it actually continued for several more years. Until 1991, Poland was formally a member of the Warsaw Pact and the Council for Mutual Economic Assistance. Poland did not become a member of the OECD until 1996, while it became a member of the European Union in 2004. Therefore, the natural choice for the authorities immediately after the Chernobyl incident was to adhere to the Vienna Convention, which also associated other countries from the Council for Mutual Economic Assistance.

Poland became a Party to the Vienna Convention by accession in 1990. It was confirmed by the Government Statement of 17 May 1990 on the accession of the Republic of Poland to the Vienna Convention on Civil Liability for Nuclear Damage of 21 May 1963. This accession was officially announced in the Law Gazette of 14 September 1990 (Law Gazette of 1990, No. 63, item 370).

Another step in the development of atomic law with regard to international conventions in Poland took place in 1992 when the Joint Protocol was adopted. The Joint Protocol entered into force in Poland on 27 April 1992.

The finalization of the structuralization of the current legal status with regard to international nuclear conventions in Poland took place

with the ratification of the 1997 Protocol to Amend the Vienna Convention. Promulgation of the 1997 Protocol to Amend the Vienna Convention was made in the Law Gazette of 5 January 2011 (Law Gazette of 2011, No. 4, item 9).

2. National Legal Acts

The Polish national legal system of atomic law had its genesis in 1986 when the Polish Atomic Law Act (1986 Atomic Law)[52] was introduced. This happened just a few days before the Chernobyl disaster – on 10 April 1986, the 1986 Atomic Law had been enacted, and the Chernobyl disaster occurred on the night of 25–26 April. This was the first document in the rank of an act of Parliament, comprehensively regulating the safety of the use of ionizing radiation,[53] also containing the provisions on the issue of nuclear liability included in chapter 8 of the act. The need for this act was primarily driven by the initiation of constructing a nuclear power plant in Żarnowiec. Owing to the Chernobyl disaster, followed by the manifestations against the construction of nuclear power plant and also economic issues which occurred in the late 1980s, the project was abandoned and never finalized.[54] However, this decision has not prevented the development of nuclear law in Poland. At the end of the twentieth century, a new Atomic Law Act[55] was enacted, which was later amended several times. The 2000 Atomic Law, with the amendments, continues to be in force to this day.

---

[52] Act of 10 April 1986 Atomic Law, Dziennik Ustaw (Law Gazette) of 1986, No. 12, item 70.

[53] T.R. Nowacki, "Ewolucja Prawnego Statusu Organów Nadzorujących Bezpieczeństwo Wykorzystywania Energii Jądrowej w Polsce", *Zeszyty Prawnicze*, 2018, Volume 18, p. 129; https://doi.org/10.21697/zp.2018.18.3.05.

[54] G. Jezierski, *Kalendarium budowy elektrowni jądrowej w Żarnowcu, czyli… jak straciliśmy swoją szansę?*, 2006, available at: https://web.archive.org/web/20061001030740/http://www.gigawat.net.pl/article/articleview/667/1/60/ [last accessed: 31.3.2026].

[55] The Act of 29 November 2000 Atomic Law, Dziennik Ustaw (Law Gazette) of 2001, No. 3, item 18.

3. Relation Between International Conventions and national Legal Acts within the Polish Legal System

Considering the diversity of sources in the Polish system of nuclear liability, it is necessary to determine the relations between pieces of legislation of an international character and national legal acts. It is reasonable to determine which provisions would have priority in case of potential collision of regimes. Accordingly, situations may arise in which international law guarantees a minimum level of protection for victims, while the applicable domestic law provides a lower standard of compensation.[56] Conversely, domestic law may also provide victims with a higher level of protection than that required under international conventions, thereby placing the liable person in a less favourable legal position.[57]

Poland acceded to the Vienna Convention and the Joint Protocol before the enactment of the current 1997 Constitution of the Republic of Poland (1997 Constitution).[58] Therefore, Article 241(1) of the 1997 Constitution, should be primarily taken into account. This is an intertemporal provision stipulating that:

> international agreements hitherto ratified by the Republic of Poland on the basis of the constitutional provisions in force at the time of their ratification and announced in the Journal of Laws shall be deemed to be agreements ratified with prior consent expressed by law, and the provisions of Article 91 of the Constitution shall be applied to them, if it follows from the content of the international agreement that they concern the categories of matters listed in Article 89(1) of the Constitution.

The linguistic interpretation of the indicated provision may cause difficulties in placing the Vienna Convention and the Joint Protocol in the hierarchy of the Polish legal act's system. From the formal point of view, Poland has not ratified them, but "solely" acceded. According to Articles 14 and 15 of the 1969 Vienna Convention on the Law of

---

[56] Majda, *Cywilna odpowiedzialność*, p. 36.

[57] *Ibid*.

[58] The Constitution of the Republic of Poland of 2 April 1997, Dziennik Ustaw (Law Gazette) of 1997, No. 78, item 483.

Treaties,[59] accession and ratification constitute two separate legal mechanisms (although, according to the Polish law, provisions on ratification are applied *mutatis mutandis* to accession[60]).[61] Thus, focusing only on linguistic interpretation, the conclusion could be that the aforementioned international acts are not binding in the currently existing Polish legal framework owing to the fact they have not been ratified.

However, at the time of the adoption of the Vienna Convention and the Joint Protocol, the notion of ratification was not explicitly defined, and the procedure of ratification was not determined in the Polish legal framework, either at the constitutional or statutory level.[62] Moreover, if the linguistic interpretation of Article 241(1) of the 1997 Constitution was to be followed, the validity of other international agreements could also be denied, including the 1969 Vienna Convention on the Law of Treaties. Thus, this approach does not seem accurate, and the purposive interpretation should be used instead. Using this method leads to the conclusion that the purpose of Article 241(1) is to recognize international agreements that were in force before the 1997 Constitution as an integral part of the Polish legal system. Therefore, if Poland acceded to the convention because such was the custom at that time, and the effects of such accession were equivalent to the consequences of ratification, such agreements could be considered within the scope of "agreements previously ratified by the Republic of Poland". Through this interpretation, there should be no doubt regarding the applicability, as a ratified source of universally binding law, of the Vienna Convention and the Joint Protocol.[63]

Thus, since the purposive interpretation appears to be the most reasonable regarding the analysing case, and the Vienna Convention and

---

[59] Vienna Convention on the Law of Treaties (1969), 1155 UNTS 332, entered into force 27 January 1980.

[60] Article 17 of the Act on international agreements, Dziennik Ustaw (Law Gazette) of 2020, item 127.

[61] J. Tekielak, "Odpowiedzialność cywilna za szkody jądrowe jako szczególny reżim odpowiedzialności deliktowej w polskim porządku prawnym – aspekty konwencyjne i ustawowe", *Internetowy Przegląd Prawniczy TBSP UJ*, 2019, Number 1(45), p. 122, available at: https://ruj.uj.edu.pl/entities/publication/2bca88db-c8b1-4c6a-8e8c-b0e8950f4854 [last accessed: 31.3.2026].

[62] *Ibid*., p. 121.

[63] *Ibid*., pp. 121–122.

the Joint Protocol are relevant elements of the Polish nuclear liability legal system, it is necessary to determine their position in the hierarchy of legal acts constituting this system. The 1952 Constitution of the Polish People's Republic[64] did not stipulate the gradability of the legal sources, however, it has changed with the enactment of the 1997 Constitution.[65] Article 91(2) of the 1997 Constitution provides that a ratified international agreement takes precedence over an act if the act cannot be reconciled with the agreement and if the scope of the international agreement will cover the types of cases exhaustively listed in Article 89(1) of the 1997 Constitution. According to Article 89(1)(5), 'ratification by the Republic of Poland of an international agreement (…) requires prior consent expressed in an act, if the agreement concerns matters regulated by act or in which the Constitution requires an act'. This applies to the Vienna Convention and the Joint Protocol, as at the time of Poland's accession to these agreements, and currently, the Atomic Law was and is in force. Thus, on the basis of Article 91(2) in conjunction with Article 241(1), in the event of a contradiction between their content, the Vienna Convention and the Joint Protocol will take precedence over the Atomic Law.[66]

III. The Notion and Character of Nuclear Damage in the Polish Legal System

The issue of civil liability for nuclear damages is regulated in Chapter 12 of the Atomic Law. Contrary to the principle adopted by the legislator in the Civil Code,[67] in the Atomic Law, the legislator has decided to define the concept of nuclear damage. This concept is defined in Article 100(5) of the Atomic Law, which states that:

> For the purposes of this chapter, the terms used mean:
> nuclear damage:

---

[64] The Constitution of Polish People's Republic of 22 July 1952, Dziennik Ustaw (Law Gazette) No. 33, item 232 with amendments.

[65] Tekielak, *Odpowiedzialność*, pp. 120–121.

[66] *Ibid*., pp. 122–123.

[67] The Act of 23 April 1964 Civil Code, Dziennik Ustaw (Law Gazette) of 1964, item 1061.

a) damage to persons,
b) damage to property,
c) environmental damage seen as an injury to a common good – the costs of measures taken to restore the natural environment as a common good, to its pre-violation state, unless the violation is insignificant – to the extent that the damage arose from or results from ionizing radiation emitted by any radiation source within a nuclear facility or emitted by nuclear fuel, radioactive materials, waste, or nuclear material originating from, produced in, or introduced into the nuclear facility, provided they result from the radioactive properties of the substance or from the combination of radioactive properties with toxic, explosive, or other hazardous properties of such a substance.

The very construction of this provision is intriguing. The legislator essentially refers here to general concepts – personal damage and property damage. In this regard, it does not introduce independent normative definitions, merely relying on general concepts existing within civil law.

The distinguishing element between nuclear damage to persons and nuclear damage to property, compared to the general concepts of damage to property and damage to persons, is the manner in which these damages arise. The legislator describes it as damage that:

> arose from or resulted from ionizing radiation emitted by any radiation source within a nuclear facility or emitted by nuclear fuel, radioactive materials, waste, or nuclear material originating from, produced in, or introduced into the nuclear facility, provided they result from the radioactive properties of the substance or from the combination of radioactive properties with toxic, explosive, or other hazardous properties of such a substance.[68]

Therefore, what qualifies damage to property or personal injury as nuclear damage is not so much the affected entity, but the circumstances under which the damage occurred. This distinction marks the difference between the general concepts of civil law and the concepts of nuclear damage to property and nuclear damage to persons.

---

[68] Article 100(5) of the Atomic Law.

The issue of the concept of nuclear damage to the environment, as a common good, is presented differently. In this case, the legislator cannot actually refer to any general or commonly accepted concept of environmental damage, although such a concept does exist and has been normatively defined; however, it does not have a universal application beyond environmental protection law. Simply using the term "environmental damage" would not be sufficient. The legislator would merely refer to a concept that functions within another environmental protection act, but without much normative significance outside of that specific law.

In clarifying the concept of nuclear damage to the environment, the legislator referred to the premise of the environment as a common good. The concept of the environment as a common good had already been used by the legislator in the Environmental Protection Law Act,[69] specifically in the provisions regulating civil liability issues under that act.

However, the reference to the criterion of the environment as a common good in the Environmental Protection Law, had a somewhat different context than in the case under analysis in the Atomic Law. In the former act, the legislator referred to this criterion to address issues of active legal standing. It was rightly assumed that the State Treasury, local government entities, or environmental organizations could bring appropriate civil claims if the environment as a common good was violated, even if they were not the injured parties. It was recognized that protecting the environment as a common good requires granting these entities active legal standing.

In the case under analysis, the legislator refers to the concept of the environment as a common good, not to achieve specific procedural goals, but to define this concept itself. Thus, the reference to the concept of a common good becomes an inherent feature of the definition itself, rather than merely a normative justification for granting certain entities active legal standing.

Within the statutory definition of environmental nuclear damage, the legislator also uses the phrase: 'the costs of measures undertaken to

---

[69] The Act of 27 April 2001 Environmental Protection Law, Dziennik Ustaw (Law Gazette) of 2024, item 54.

restore the natural environment, as a common good, to its condition prior to the impairment, unless the impairment is insignificant'.[70]

Prima facie, this element may appear to constitute part of the legal definition of environmental nuclear damage itself. After all, it forms part of the statutory definition and, having regard to the principles of systematic interpretation, it would naturally be treated as such.

However, it is difficult to identify any rational grounds for considering this provision to be an element of the definition itself, notwithstanding its placement within the statutory definition of environmental nuclear damage. The legislator does not specify the normative characteristics of environmental nuclear damage; rather, the provision regulates the manner in which compensation is to be determined, or more precisely, what the compensation (i.e. the remediation of the damage) should encompass and how it should be assessed.

In essence, this part of the definition relates to the method of remedying environmental nuclear damage rather than to the definition of the damage itself. Consequently, it should not be regarded as describing the essential characteristics of environmental nuclear damage.

It should be emphasized that, pursuant to Article 100a of the Polish Atomic Law, 'Compensation for nuclear damage to the natural environment as a common good shall consist of reimbursement of the costs of measures restoring the natural environment to its condition prior to the damage, where such measures have been undertaken by the competent authorities or, pursuant to their decision, by other entities'.

In Article 100a of the Atomic Law, the legislature specifies the methods of compensating nuclear damage, including nuclear damage to the environment. In essence, the provision largely repeats part of the definition of nuclear damage to the environment. However, a comparison of these two provisions clearly demonstrates that the legislature intended them to regulate the scope and manner of compensation for nuclear damage to the environment rather than to define the concept of nuclear damage to the environment itself.

It should be noted that adopting the opposite view would lead to the conclusion that the method and scope of compensation determine what constitutes nuclear damage to the environment. Consequently,

---

[70] Article 100(5)(c) of the Atomic Law.

one would have to argue that nuclear damage to the environment consists of damage giving rise to the reimbursement of specified restoration costs. Such an interpretation is unfounded, since the method and scope of compensation are merely consequences of the occurrence of damage. Compensation can only be discussed once the damage has already occurred; it cannot be regarded as a constituent element of the concept of nuclear damage to the environment itself.

Nevertheless, the question arises as to the purpose of including this part within the very definition of nuclear damage to the environment. It appears that the legislature intended to emphasize the criterion of the environment as a common good. A comparison of the definition of nuclear damage to the environment with the methods of compensation provided for in Article 100a(3) of the Atomic Law reveals that the legislature referred to the concept of the common good only in the definition of nuclear damage to the environment itself, but did not repeat this reference in Article 100a.

Referring to the environment as a common good is indeed meaningful only within the definition itself. It does not constitute a condition determining the method or scope of compensation for damage.

The final part of the definition of nuclear damage is common to all categories of nuclear damage. It begins with the indent following point 3 of the provision.

However, this final part of the definition of nuclear damage to the environment may also be criticized with regard to its definitional value. In defining nuclear damage to the environment, the legislature attempted to define the damage itself by reference to the manner in which it is compensated, thereby confusing consequences with causes. In relation to this final part, the legislature commits the same error by attempting to define the concept of damage through the determination of its scope. It should also be emphasized that the legislature incorrectly used the phrase 'to the extent that,' since the part of the definition following the indent actually addresses a different issue, namely the causal link.

In the structure of liability for nuclear damage, establishing a causal link is crucial. This is due to the specific liability regime for nuclear damage, which justifies linking such damage with specific legal events. However, the concept of nuclear damage to the environment differs from the regulation of the causal link itself. Meanwhile, the legislator

defines nuclear damage, including nuclear environmental damage, in terms of the legal events that cause it. It is important to emphasize that the legal event causing nuclear environmental damage is defined by the legislator in Article 100, point 8 of the Atomic Law as 'any event or series of events originating from the same source, which causes nuclear damage or poses a serious and direct threat of such damage'.

This type of legislative approach causes definitional ambiguity and confusion between the individual structural elements of nuclear damage in the environment.

In defining this causal relationship, the legislator specified that nuclear damage is damage to the extent that it arises or results from ionizing radiation emitted by any radiation source within a nuclear facility or emitted by nuclear fuel, radioactive materials, waste, or nuclear material originating from, produced in, or introduced into a nuclear facility, provided it results from the radioactive properties of the substance or from a combination of its radioactive properties with toxic, explosive, or other hazardous properties of such a substance.

Even before analysing individual situations classified by the legislator as damage events, it should be noted that the legislator used the term 'damage that arose or resulted'.[71]

Thus, two situations are clearly distinguished here: the occurrence of damage as a result of specific harmful events or the resulting of such damage from specific harmful events. At first glance, this linguistic subtlety may seem insignificant, as in both cases it is about linking the effect to a specific cause, without considering whether this connection takes the form of arising or resulting.

The legislator identifies two possible situations here, which should be classified in terms of a causal relationship.

The first case of a damage event is normatively defined as ionizing radiation emitted by any radiation source within a nuclear facility or emitted by nuclear fuel. Ionizing radiation is defined in Article 3, point 33 of the Atomic Law as 'radiation consisting of directly or indirectly ionizing particles or both types of such particles or electromagnetic waves with a wavelength of up to 100 nm (nanometers)'.

---

[71] Article 100(5) of the Atomic Law.

In turn, the concept of a nuclear facility is defined in Article 100, point 1 of the Atomic Law as:

a) a nuclear reactor, except for a reactor used in maritime or air transport as a power or propulsion source, or for any other purpose,
b) a facility that uses nuclear fuel for the production of nuclear material or a facility for processing nuclear material, including a facility for reprocessing spent nuclear fuel,
c) a device in which nuclear material is stored or disposed of, except for storage related to the transport of such material.

A nuclear reactor is defined in Article 100, point 2 of the Atomic Law as 'a device containing nuclear fuel in a state in which a self-sustaining chain reaction of nuclear fission can occur without an additional neutron source'.

The concept of nuclear fuel is also defined. According to Article 100, point 3 of the Atomic Law, it means 'a material that can produce energy through a self-sustaining chain reaction of nuclear fission'.

The second group of legal events (nuclear incidents) includes ionizing radiation emitted from radioactive material, waste, or nuclear material originating from a nuclear facility, produced in it, or introduced into it, provided it results from the radioactive properties of the substance or from a combination of radioactive properties with toxic, explosive, or other hazardous properties of such a substance.

In this case, the emission of nuclear radiation should come from one of three categories – radioactive material, waste, or nuclear material.

However, to classify these three sources of emission as eligible to be considered to be nuclear damage, it is necessary to establish that they originate from a nuclear facility, as defined above, or have been introduced into it. According to Article 3, point 44 of the Atomic Law, the term radioactive material means 'material containing radioactive substances'. Radioactive substances, as stated in Article 3, point 45 of the Atomic Law, are 'substances containing one or more radioactive isotopes with such activity or concentration that they cannot be disregarded from the perspective of radiological protection'.

The concept of nuclear material is defined in Article 3, point 11 of the Atomic Law as 'ores, source materials, or special fissionable mate-

rials referred to in Article 197 of the Treaty establishing the European Atomic Energy Community'.

These substances must have radioactive properties or must combine with toxic, explosive, or other hazardous properties of such a substance.

The definition of nuclear damage is complex and, consequently, complicated. The Polish legislator, under the pretext of defining nuclear damage, also regulated issues regarding the amount of costs for its remediation and the matter of causality. These legislative overlaps have significantly obscured the definition itself. The legislator, *de lege ferenda*, should consider excluding from the definition of nuclear damage issues that go beyond the essence of what that damage is, namely, issues concerning its remediation and causality. The civil legislator separates the concept of damage itself, although it is not defined, from issues of its remediation and causality.

Conclusion

The formation of a civil liability regime for nuclear damages was a long process. Owing to the specific nature of nuclear power as a source of energy and the lack of empirical knowledge about the potential consequences of nuclear reactor accidents, the initial solutions adopted in the international agreements in the area of nuclear liability proved to be somewhat insufficient. Therefore, both the 1960 Paris and the Vienna Convention required amendments, especially with regard to the minimum amounts of liability and also the adequate system of compensation and risk sharing in order not to potentially lead the operator to bankruptcy. The breakthrough in the international liability regime was the introduction of the Joint Protocol, which constituted a "bridge" between the OECD liability system and the IAEA liability system to ensure a unified approach to liability and compensation among the Parties, enhancing cooperation and legal consistency in addressing incidents that fall under the scope of the two conventions on nuclear liability.

Simultaneously with the evolution of the international nuclear liability frameworks, individual states developed their own domestic regimes. In the case of Poland, the development began in the 1980s when the first Polish legal act concerning the peaceful use of nuclear power

was introduced. This took place in relation to the initiation of the project for the construction of a nuclear power plant in Żarnowiec, which was later abandoned.

Despite that, the Polish nuclear liability regime has been continuously developing. In 1990 and 1992, Poland, became a party to the Vienna Convention and the Joint Protocol.

The fact that Poland adopted these two conventions through accession raises potential confusion following the introduction of the 1997 Constitution regarding their position within the legal hierarchy and their binding nature. This uncertainty stems from Article 91 of the 1997 Constitution, which specifies that only ratified international agreements form part of the national legal framework and are directly applicable. To address this concern, it is necessary to resort to the purposive interpretation of Article 241(1), which leads to the conclusion that if Poland acceded to the convention because such was the custom at that time and the effects of such accession were equivalent to the consequences of ratification, such agreements could be considered within the scope of "agreements previously ratified by the Republic of Poland", and thus undoubtedly considered as legally binding and constituting part of the Polish national legal framework. With regard to the question of the position of the Vienna Convention and the Joint Protocol within the hierarchy of the Polish legal acts, according to Article 91(2) in conjunction with Article 241(1) and Article 89(1)(5) of the 1997 Constitution, they should be considered as applicable with primacy over national legal acts.

With regard to the concept of nuclear damage, it should be noted that, within the framework of the international nuclear civil liability regimes, its scope has ultimately been largely harmonized. Following the adoption of the relevant amending protocols in 2004 and 1997 respectively, an express and relatively broad definition of nuclear damage was introduced into the Paris Convention, while the existing definition under the Vienna Convention was significantly broadened. Despite the legislative efforts, this expansion appears to be rather illusory, as compensation for categories of damage other than loss of life or personal injury and loss of or damage to property depends, to an extent permitted by the law of the competent court, which will usually be the Installation State.

As demonstrated in the foregoing analysis, the Polish legislation has been shaped by the international liability regimes. Similarly to the inter-

national law, the Polish legislator has not avoided difficulties concerning the definition of nuclear damage. Under the Polish Atomic Law, this concept remains both complex and convoluted. Rather than focusing solely on the nature of nuclear damage, the legislator has included provisions addressing the costs of its remediation and issues of causality, which have obscured the core definition. *De lege ferenda*, the legislator should consider narrowing the definition to reflect only the essence of nuclear damage itself, excluding ancillary matters such as remediation and causality. In civil law, damage is typically treated as a distinct concept, separate from issues of remediation and causality, and adopting a similar approach could enhance the clarity and precision of the definition.