The development of international conventions on nuclear damage compensation liability and where should China go?

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Abstract. The research about establishing international nuclear damage liability legal regime never stops since the draft of the Paris Convention. The current international nuclear damage liability regime can be seen as two branches: the Paris Convention system and the Vienna Convention system. In spite of the similarity between the Paris and Vienna Conventions, their existences do not provide a uniform liability regime for all countries which are parties to either convention. Thus, there is a necessity to build a bridge between the two systems. Convention on Supplementary Compensation for Nuclear Damage establishes a worldwide liability regime attracting more countries. Compared with the previous two systems, Convention on Supplementary Compensation is more open and tolerant, supplement and enhance kinds of measures to increase the amount of compensation for nuclear damage, and is also the most frontier international convention of nuclear damage liability. Becoming a party of this Convention with the USA and Japan, China can not only enjoy the benefits from the Convention, but also be pushed to establish and perfect our own nuclear liability legal system and merges into international regime. In order to join this Convention, China must make full preparations, establish nuclear damage liability legislation, increase the compensation amount of the operators and the supplement compensation of government, and strengthen the ability of managing nuclear damage accidents of the operators and national government.

1. Evolution of the International Conventions on Nuclear Damage Compensation Liability

In 1953, President Eisenhower of the United States proposed “Peaceful Use of Nuclear Energy” at the UN General Assembly[1]. This proposal laid the foundation for the establishment of the International
Atomic Energy Agency (IAEA) in 1956. Considering the use of nuclear energy originated from the military and the potential dangers of nuclear energy, the IAEA and the European Economic Cooperation Organization (Organization for Economic Co-operation and Development (OECD) after the year of 1961) are creating effective guarantees for nuclear safety, preventing nuclear accidents, and also making efforts for the establishment of an international nuclear damage compensation mechanism[2]. In 1960, the European Economic Cooperation concluded the Convention on Liability of Third Parties in the Field of Nuclear Energy in Paris, which was the first international convention in the field of liability for nuclear damage. Since the formulation of this convention, the research, formulation and discussion of the international liability system for nuclear damage have not ceased. The current international conventions for nuclear damage liability include: the Convention on Liability of Third Parties in the Field of Nuclear Energy (ie, the Paris Convention), The Supplementary Convention to the Paris Convention of July 29, 1960 on the Liability of Third Parties in the Field of Nuclear Energy (ie, the Brussels Supplementary Convention), the Vienna Convention on Civil Liability for Nuclear Damage (ie, the Vienna Convention), Optional Protocol on the Compulsory Settlement of Disputes under the Vienna Convention on Civil Liability for Nuclear Damage, the 1997 Vienna Convention on Civil Liability for Nuclear Damage, and the 1988 Joint Protocol on the Application of the Vienna Convention and the Paris Convention, The Convention on Supplementary Compensation for Nuclear Damage, the Liability Convention for Operators of Nuclear Powered Ships of 1962 (not yet in force), and the 1971 Convention on Civil Liability for the Carriage of Nuclear Material by Sea. Generally speaking, the above conventions can be divided into two major systems, namely, the Paris Convention System and the Vienna Convention System, and the 1988 Joint Protocol and the Convention on Supplementary Compensation for Nuclear Damage, which is the most influential Convention, were established to merge the two systems as bridges.

1.1. Emergence and development of the Paris Convention system

Recognizing that the general tort law cannot solve the special problem of third-party nuclear liability, in order to ensure that victims of nuclear damage accidents can obtain full and fair compensation, considering that the development of the nuclear energy industry should not be held by unaffordable nuclear liability obstacle, on July 29th 1960, the “Convention on Liability of Third Parties in the Field of Nuclear Energy” (the “Paris Convention”) was established in Paris as the first international convention in the field of liability for nuclear damage.[3] The 1960 Paris Convention proposed a set of special legal mechanisms on the basis of a series of important principles of nuclear damage compensation. Most of the systems were absorbed by relevant conventions and nuclear liability legislation of various countries, and are still in use today, such as the sole liability principle of operators, the operator's strict liability principle, the operator's financial guarantee obligations, and set the operator's maximum and minimum compensation limits. The convention is open to OECD member states. Except for OECD member states, if other countries want to join the convention, they must be agreed to all parties of this Convention.[4] The Paris Convention entered into force on April 1, 1968.

In order to provide more nuclear damage compensation funds, make up for the lack of funds of the Paris Convention, and introduce national and international public funds for compensation for nuclear damage, the OECD Nuclear Energy Agency modified the Paris Convention of 1960 in early 1963. The Supplementary Convention to the Paris Convention of July 29, 1960 on Third Party Liability in the Field of Nuclear Energy was formulated in Brussels, the capital of Belgium, referred to as the Brussels Supplementary Convention. The Brussels Convention created a triple compensation
mechanism for liability in the nuclear accident. In short, the member states establish an international public fund, when the compensation amount exceeds the upper limit of the respective national fund of the first-level operator and the second-level, the third-level international public funds compensate for the damage in accordance with the quota formula.[5] Thus, the Brussels Supplementary Convention established a solid financial bond among member states. According to Article 19 of the Treaty, only the parties to the Paris Convention can become or continue to be parties to the Brussels Supplementary Convention.[6] The Convention has a total of 25 articles and entered into force on December 4, 1974.

The formulation of the Brussels Supplementary Convention gives the member states of the Paris Convention an opportunity. The members can choose to join the Brussels Supplementary Convention or not to join the Brussels Supplementary Convention and continue to implement the Paris Convention. The Paris Convention and the Brussels Supplementary Convention develop the Paris Convention system. Most of the member states of this system are Western European countries, so this system has certain regional characteristics.

Both of these conventions have undergone three amendments in the form of supplementary protocols in 1964, 1982 and 2004. Among them, the 1964 amendment was to be consistent with the 1963 Vienna Convention; the 1982 amendment changed the currency calculation unit to special drawing rights (SDRs), and taking into account the depreciation of the currency, the public funds established by the Supplementary Convention have been increased by 2.5 times; the 2004 amendments have not yet entered into force.

1.2. Emergence and development of the Vienna Convention system

The Vienna Convention system revolves around the 1963 Vienna Convention on Civil Liability for Nuclear Damage, which also includes the 1963 Optional Protocol on the Compulsory Settlement of Disputes in the Vienna Convention on Civil Liability for Nuclear Damage, and the 1997 Vienna Convention on Civil Liability for Nuclear Damage.

In order to build a global legal system in the field of civil liability for nuclear damage, the Vienna Convention on Civil Liability for Nuclear Damage was formulated by the International Atomic Energy Agency (IAEA) in Vienna on May 21, 1963. The Convention defines legal terms in the field of nuclear energy, such as "nuclear damage" and "nuclear incident", and stipulates the constituent elements of nuclear facility operators' liability for nuclear damage, the operator's certification obligations, and strict and sole liability of the operator and the limit of the operator's liability, the operator's financial security and nuclear damage insurance, the operator's right of recourse, the jurisdiction of the court and the validity of the judgment.

The Optional Protocol on the Compulsory Settlement of Disputes under the Vienna Convention on Civil Liability for Nuclear Damage, which was formulated by the IAEA on the same day as the Vienna Convention on Civil Liability for Nuclear Damage, consists of nine articles, which provide for the dispute resolution of the interpretation or application of the Convention shall fall within the compulsory jurisdiction of the International Court of Justice, and any disputes between the parties may therefore be submitted by the parties to the International Court of Justice. The Protocol entered into force in May 1999.

The deficiencies of the Vienna Convention on Civil Liability for Nuclear Damage have been further amended and improved, so that the potential victims can receive adequate and reasonable compensation, coordinating the legal system of nuclear damage compensation in the member states, and balancing the compensation of victims with the sustainable development of the nuclear energy
industry. Therefore, in September 1997, government took a significant step forward in improving the liability regime for nuclear damage. At a Diplomatic Conference at IAEA Headquarters in Vienna, 8-12 September 1997, delegates from over 80 States adopted a Protocol to Amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage. [7] Based on the Vienna Convention of 1963, the 1997 Vienna Convention further expanded the definition of nuclear damage, narrowed the scope of exemption, and increased the compensation limit for nuclear operators to not less than 150 million to 300 million SDRs, the time limit for litigation involving loss of life and personal injury was extended to 30 years from the date of the nuclear incident. The 1997 Vienna Convention, with a total of 24 articles, entered into force in October 2003.

Generally speaking, the systems of the Vienna Convention and the Paris Convention are very similar in terms of legislative purpose, principles and content. [8] However, unlike the Paris Convention system with certain regional characteristics, the Vienna Convention is a global treaty. According to Articles 21 and 24 (1) of the Vienna Convention on Civil Liability for Nuclear Damage, countries around the world and International organizations, including all member states of the United Nations, any specialized agency, and all member states of the International Atomic Energy Agency, may join this Convention.

1.3. 1988 Joint Protocol
The Chernobyl nuclear accident that occurred in 1986 made the international community realize the importance of expanding the scope of the international nuclear liability regime.[9] Although the Vienna Convention system and the Paris Convention system were very similar in terms of purpose, principles, and specific content, at the time there was no mechanism to link the two, so the two are independent in implementation. Both Conventions apply only to victims in the territory of its own member states. Therefore, in order to mutually extend the benefits of the specific regime of civil liability for nuclear damage under each Convention, establish a bridge between the Vienna Convention and the Paris Convention and eliminate the consequences of the simultaneous application of both conventions to the same nuclear accident, "Conference on the Relationship between the Paris Convention and the Vienna Convention" was jointly held by the IAEA and OECD at the IAEA headquarters in Vienna on September 21, 1988. And they contracted Joint Protocol relating to the Application of the Vienna Convention and Paris Convention, which had 11 articles and entered into force on April 27, 1992.

Acting as a link between the Paris Convention system and the Vienna Convention system[10], The Joint Protocol is only open to states members of the Paris Convention system or the Vienna Convention system. There is no substantial stipulation in the Protocol. It mainly explains the application of the two Convention systems after a nuclear accident.

1.4. Convention on Supplementary Compensation for Nuclear Damage
Recognizing the importance of the Vienna Convention system and the Paris Convention system, as well as the legislation of each country in compliance with the principles of these conventions in the design and implementation of nuclear damage liability systems, the IAEA has made efforts to increase the amount of nuclear damage compensation, encourage regional and global cooperation, and promote the safe use of nuclear energy.[11] Therefore, on September 12, 1997, the IAEA chaired the development of the Convention on Supplementary Compensation for Nuclear Damage (CSC), which can be used as a legal mechanism covering nuclear damage liability worldwide. With the ratification of Japan, the Supplementary Compensation Convention entered into force on April 15, 2015. The treaty consists of a body and an annex, which has 27 articles. Till January 2018, ten countries have
officially become member states of the Supplementary Compensation Convention. According to the chronological order, the member states are Romania, Morocco, Argentina, the United States, the United Arab Emirates, Japan, Montenegro, India, Ghana and Canada.[12]

This Convention is the most international and inclusive international convention in the field of liability for nuclear damage compensation. With the accession of states that are not parties to the Vienna Convention system and the Paris Convention system, such as the United States, India, and Japan, it has become a hot spot in the field of international nuclear liability, and calls for China to join in. Therefore, the following will analyze the characteristics of the Convention, discuss the significance of China's choice to follow this trend and join this Convention, and clarify the preparations that China should do to join in.

2. Characteristics of the Convention on Supplementary Compensation for Nuclear Damage Liability

2.1. The Convention on Supplementary Compensation is more open and inclusive

Although established on the basis of the aforementioned two convention systems, compared with the Paris Convention system, the Vienna Convention system, and the 1988 Joint Protocol linking the two, the Supplementary Compensation Convention is more open and inclusive, making it a new chapter for the international nuclear damage compensation liability system.[13] Article 18 of the Supplementary Compensation Convention stipulates that both members of the Paris Convention and the Vienna Convention can join this Convention. Other countries can also join in as long as the relevant domestic legislation is consistent with the content specified in the annex to this Convention. States that have civil nuclear facilities in their territories are only required to be member of the Convention on Nuclear Safety. This clause allows many countries that are not willing to accede to the above two conventions, especially the United States, Canada, Japan, and other major civil nuclear industrial countries with complete domestic nuclear damage liability legal systems to directly join the convention. As the "Complementary Conventions" to the aforementioned two convention systems, this Convention also takes as much attention as possible to the two Conventions and the corresponding domestic legislation of each country, so that the members if this Supplementary Conventions do not need to propose amendments to the aforementioned two Conventions when they join the Supplementary Convention. If a member chooses to apply this Supplementary Convention, it only needs to appropriately modify its national law to meet the requirements of the Annex to the Convention. For countries that have not joined or do not intend to accede to the two convention systems, after joining the Supplementary Convention, they must first apply the provisions of the Convention and require their domestic nuclear damage liability legal system to be consistent with the content of the Supplementary Conventions. Through the reservation of the provisions in the annex, even the United States, whose domestic law is not fully consistent with the principles of the Convention, can also become a member of the Supplementary Convention. All these maximize the convergence of the Supplementary Convention and effectively promoted the establishment and development of a global nuclear damage compensation liability legal system.

2.2. The Supplementary Convention established a public funding mechanism to increase the amount of compensation for nuclear damage

As stated in the Preamble to the Supplementary Convention, the purpose of the Convention was to establish a worldwide liability regime to supplement and enhance these measures with a view to
increase the amount of compensation for nuclear damage. Therefore, the core “supplement” of the supplementary convention is to establish a public funding system. Establishing a three-tier compensation mechanism for nuclear damage liability and taking international public funds as the foundation are not the invention of the Supplementary Compensation Convention. This kind of mechanism was established in the Brussels Supplementary Convention as early as 1963. Article 12 of the Convention provides for the source of public funds and calculation.[14] Article 3 provides for a three-tier compensation mechanism and the application of public funds. In accordance with the current Brussels Supplementary Convention, as amended in 1982, the Contracting Parties undertake that compensation in respect of the damage shall be provided up to the amount of 300 million Special Drawing Rights per incident; such compensation shall be provided: 1) up to an amount of at least 5 million Special Drawing Rights, out of funds provided by insurance or other financial security, such amount to be established by the legislation of the Contracting Party in whose territory the nuclear installation of the operator liable is situated; 2) between this amount and 175 million Special Drawing Rights, out of public funds to be made available by the Contracting Party in whose territory the nuclear installation of the operator liable is situated; 3) between 175 and 300 million Special Drawing Rights, out of public funds to be made available by the Contracting Parties according to the formula for contributions specified in Article 12.[15] However, because the Brussels Supplementary Convention has few members which are mostly Western European countries, the mechanism is relatively narrow in scope and has not become a global mechanism. The Supplementary Compensation Convention, which will establish a worldwide nuclear liability regime, incorporates the above-mentioned mechanism of the Brussels Supplementary Convention. Article 3 of the Supplementary Compensation Convention requires “Compensation in respect of nuclear damage per nuclear incident shall be ensured by the following means: (a)(i) the Installation State shall ensure the availability of 300 million SDRs or a greater amount that it may have specified to the Depositary at any time prior to the nuclear incident, or a transitional amount pursuant to sub-paragraph(ii); (ii) a Contracting Party may establish for the maximum of 10 years from the date of the opening for signature of this Convention, a transitional amount of at least 150 million SDRs in respect of a nuclear incident occurring within that period; (b) beyond the amount made available under sub-paragraph (a), the Contracting Parties shall make available public funds according to the formula specified in Article IV”.[16] Here, the compensation limits of various countries are unified, and the public funds allocation method after the nuclear incident is clearly defined in Article 4 of the Convention. The formula for contributions according to which the Contracting Parties shall make available the public funds referred to in Article III. In order to ensure the apportionment of the public funds, the Supplementary Convention stipulates that the public funds shall be paid by the courts of the Contracting State Party that have jurisdiction when the nuclear incident occurred. This mechanism not only clarifies the strict liability of operators of nuclear facilities in compensation for nuclear damage, but also guarantees supplementary compensation mechanisms for nuclear damage by the contracting government, and also establishes public funds jointly funded by the contracting government to protect the nuclear incident victims. Those who can get paid in time and in full while the civil nuclear industry can continue to develop at the same time.

2.3. The Supplementary Compensation Convention is the mastermind and frontier of the international nuclear damage compensation system

Throughout the text and annex of Convention on Supplementary Compensation for Nuclear Damage,
as a global framework for nuclear damage compensation, this Convention is the integrator of the aforementioned convention systems and the relevant legislation of various countries. For example, the scope of the “nuclear damage” is defined by the Paris Convention system as “(i) damage to or loss of life of any person; and (ii) damage to or loss of any property other than 1. the nuclear installation itself and any other nuclear installation, including a nuclear installation under construction, on the site where that installation is located; and 2. any property on that same site which is used or to be used in connection with any such installation, 3. upon proof that such damage or loss (hereinafter referred to as "damage") was caused by a nuclear incident in such installation or involving nuclear substances coming from such installation, except as otherwise provided for in Article 4."[17] The 1963 Vienna Convention also defines the scope of "nuclear damage" 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, 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; and (iii) 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."[18] The 1997 Vienna Convention on Civil Liability for Nuclear Damage increased the “environmental damage, loss of income deriving from an economic interest and etc” into the scope, it provides "Nuclear Damage" means -(i) loss of life or personal injury;(ii) loss of or damage to property;and each of the following to the extent determined by the law of the competent court -(iii) economic loss arising from loss or damage referred to in sub-paragraph (i) or (ii), insofar as not included in those sub-paragraphs, if incurred by a person entitled to claim in respect of such loss or damage;(iv) 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 (ii);(v) loss of income deriving from an economic interest in any use or enjoyment of the environment, incurred as a result of a significant impairment of that environment, and insofar as not included in sub-paragraph (ii);(vi) the costs of preventive measures, and further loss or damage caused by such measures;(vii) any other economic loss, other than any caused by the impairment of the environment, if permitted by the general law on civil liability of the competent court, in the case of subparagraphs (i) to (v) and (vii) 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 material coming from, originating in, or sent to, a nuclear installation, whether so arising from the radioactive properties of such matter, or from a combination of radioactive properties with toxic, explosive or other hazardous properties of such matter."[19] The Supplementary Compensation Convention incorporates the more advanced definition of the 1997 Vienna Convention and concerns environmental damage. The scope of "nuclear damage" in the Supplementary Compensation Convention is defined as "(i) loss of life or personal injury; (ii) loss of or damage to property; and each of the following to the extent determined by the law of the competent court; (iii) economic loss arising from loss or damage referred to in sub-paragraph (i) or (ii), insofar as not included in those sub-paragraphs, if incurred by a person entitled to claim in respect of such loss or damage; (iv) 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 (ii);(v)loss of income deriving from an economic interest in any use or enjoyment of the environment, incurred as a result of a significant impairment of that environment, and insofar as not included in sub-paragraph (ii);(vi)the costs of preventive measures, and further loss or damage caused by such measures;(vii)any other economic loss, other than any caused by the impairment of the environment, if permitted by the general law on civil liability of the competent court, in the case of sub-paragraphs (i) to (v) and (vii) 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 material coming from, originating in, or sent to, a nuclear installation, whether so arising from the radioactive properties of such matter, or from a combination of radioactive properties with toxic, explosive or other hazardous properties of such matter. ”[20]

As another example, the Supplementary Compensation Convention reaffirmed the principle of the sole jurisdiction principle. It stipulates that “1.Except as otherwise provided in this article, jurisdiction over actions concerning nuclear damage from a nuclear incident shall lie only with the courts of the Contracting Party within which the nuclear incident occurs. 2.Where a nuclear incident occurs within the area of the exclusive economic zone of a Contracting Party or, if such a zone has not been established, in an area not exceeding the limits of an exclusive economic zone, were one to be established by that Party, jurisdiction over actions concerning nuclear damage from that nuclear incident shall, for the purposes of this Convention, lie only with the courts of that Party. The preceding sentence shall apply if that Contracting Party has notified the Depositary of such area prior to the nuclear incident. Nothing in this paragraph shall be interpreted as permitting the exercise of jurisdiction in a manner which is contrary to the international law of the sea, including the United Nations Convention on the Law of the Sea. However, if the exercise of such jurisdiction is inconsistent with the obligations of that Party under Article XI of the Vienna Convention or Article 13 of the Paris Convention in relation to a State not Party to this Convention jurisdiction shall be determined according to those provisions.”[21]

Moreover, the establishment of public funds and a three-tier compensation mechanism as discussed above is the manifestation of the Supplementary Compensation Convention as a global framework for nuclear damage compensation legal system. Of course, the Supplementary Compensation Convention also explains the traditional principles and regulations of the liability system for nuclear damage compensation, such as the principle of strict liability, sole liability, and limited liability, the national financial guarantee mechanism and etc.

3. Significance and Advantages of China to join Convention on Supplementary Compensation for Nuclear Damage

From the perspective of domestic law, although there is currently no legislation that specializes in nuclear damage compensation, provisions scattered in laws and regulations, such as Nuclear Safety Law and Tort Law, have already provided principles on nuclear damage compensation in China. However, the relevant provisions of the "Nuclear Safety Law" and other laws are too abstract and principle. Until now, only the Reply on Addressing the Issue of Third-Party Nuclear Liability issued by the State Council stipulates clauses on nuclear damage compensation, but there is little legal authority with regard to the 2007 Reply. China has actively participated in international communication in the area of nuclear issues for a long time and joined the International Atomic
Energy Agency (IAEA) in 1984. Until now, eight international conventions on nuclear issues have been ratified and signed by China, including the Statute of the International Atomic Energy Agency, the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, and the Convention on Nuclear Safety. However, none of these are on nuclear damage compensation. Thus, at present, the legal system of liability for nuclear damage compensation in China is not complete, and China has not acceded to any relevant international conventions. Joining Convention on Supplementary Compensation for Nuclear Damages has the following significance for China.

**Table 1. China’s Applicable Legal Provisions on Nuclear Damage Compensation.**

| Laws                                                                 | Administrative Regulations and Rules               | International Conventions |
|----------------------------------------------------------------------|----------------------------------------------------|----------------------------|
| - Nuclear Safety Law (Article 11 and 90)                             | - Reply on Addressing the Issue of Third-Party Nuclear Liability in June 2007 (the 2007 Reply) | - None                     |
| - Prevention and Control of Radioactive Pollution Law (Article 12 and 59) |                                                    |                            |
| - Tort Law (Article 70)                                              |                                                    |                            |
| - Principles of Civil Law (Article 123)                              |                                                    |                            |
| - Product Quality Law (Article 73)                                   |                                                    |                            |
| - Maritime Law (Article 208)                                         |                                                    |                            |

3.1. *the Supplementary Compensation Convention itself is concerned as an integrator and pioneer of the international nuclear damage liability legal system, joining and implementing this Convention has many advantages*

Specifically, the mechanisms of the Supplementary Compensation Convention ensure that victims can receive full and targeted compensation immediately with minimal litigation procedure after the nuclear incident. The Convention also requires that the basic principles of operator liability, such as sole liability and strict liability, be incorporated into national legislation of non-Parties to the Paris Convention and Vienna Convention systems (because the parties to the two convention systems are required to comply with these two traditional international conventions on nuclear liability principles.). Such a rule makes it unnecessary for victims to prove who is responsible for a nuclear incident after the occurrence of the nuclear incident, and the operator is absolutely responsible for any failure, negligence, or accident. At the same time, the Convention provides that “jurisdiction over actions concerning nuclear damage from a nuclear incident shall lie only with the courts of the Contracting Party within which the nuclear incident occurs”.[22] It saves the victim from having to travel to a number of countries to sue. Thus, compared with the general civil tort system, it saves litigation costs and time and enables victims to obtain timely compensation by a short or even no litigation procedure. The three-tier compensation mechanism discussed in detail above also ensures that victims can obtain full nuclear damage compensation. The system design not only helps protect the interests of victims, enables victims of nuclear damage to receive their compensation in a timely and full amount, but also protects nuclear project investor. Certainty, without the operator's sole and strict liability, and the court where the accident took place has the sole jurisdiction, many investors and nuclear operators would be reluctant to participate in nuclear projects.

3.2. *Willing to Join Convention on Supplementary Compensation for Nuclear Damage urges China to establish and perfect the domestic nuclear damage compensation legal system as soon as possible, which can bring China’s related law into line with the latest international nuclear damage liability legal system.*
According to the Annex to the Supplementary Compensation Convention, countries that are neither parties to the Paris Convention nor to the Vienna Convention should accede to the Convention in accordance with the Annex. Thus, such countries must ensure that their domestic legal system meet the relevant legal principles of the Convention. At the same time, the Convention also stipulates a clear compensation limit. Although China’s "Nuclear Safety Law" implemented in 2018 has stipulated the scope of nuclear damage compensation, the subject of liability and general financial guarantee arrangements, etc., the content is too abstract and cannot be operated directly. Besides Nuclear Safety Law, the 2007 Reply on Addressing the Issue of Third-Party Nuclear Liability provides regulations on nuclear damage compensation. The 2007 Reply stipulates the sole liability and strict liability of the operators, clarifies the compensation limits for operators and supplementary compensation limit for State. So, generally speaking, there is no conflict between China's domestic law and the Supplementary Compensation Convention. However, the related legislation and regulations in China are too principle and it is difficult to clarify the damage boundary and compensation mechanism. So, even if now China wishes to accede to this convention, it will be very difficult for China to pass the legality review based on the Convention. Therefore, establishing and improving China's specialized nuclear damage compensation legal system is the necessity for China to join the Supplementary Compensation Convention.

3.3. Becoming a party to the Supplementary Compensation Convention is good for China to integrate into the international legal framework of nuclear damage liability and pursue China's "going out" strategy of nuclear industry.

With the rapid development of the nuclear industry, China is becoming an important export country of nuclear facilities and technique. The Office of the State Council regards "actively promoting nuclear industry 'going out" as the main task of China's energy development from 2014 to 2020. At present, China has signed agreements for investment in nuclear projects with Pakistan, the United Kingdom, and Argentina. Many nuclear projects have been exported to several countries from China, and more than 30 countries have signed intergovernmental nuclear energy cooperation agreements to promote international cooperation in the nuclear industry. However, because China’s domestic nuclear damage compensation legal system is not specific and China is one of the few countries in the world that has not joined the International Convention on Nuclear Damage Compensation, many countries have doubts about China's ability to compensate for nuclear damage. Therefore, acceding to the most inclusive Supplementary Compensation Convention and aligning with the international legal mechanism for nuclear damage liability will clarify the liability for cross-border nuclear damage and effective compensate the victims. Joining the convention is good to establish China's good international image and strengthen the international community's confidence on China's nuclear industry "going out" strategy.

4. Conclusion

Compared with the Paris Convention system and the Vienna Convention system, the Supplementary Compensation Convention is more open and inclusive, which has effectively promoted the establishment and development of a global nuclear damage compensation legal system. To increase the amount of compensation for nuclear damage victims, the Supplementary Compensation Convention has established an effective public funding mechanism. At the same time, as a global mechanism for nuclear damage compensation, the Supplementary Compensation Convention
provisions are at the forefront. For China, choosing to accede to and implement the Supplementary Compensation Convention has many advantages. Not only can China benefit from the convention, it also urges China to establish and improve a legal system for nuclear damages compensation with Chinese characteristics at an early date, and integrate it into the international legal framework for nuclear damages as soon as possible.

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[3] See: Introduction of Paris Convention on Nuclear Third Party Liability, http://www.oecd-nea.org/law/paris-convention.html.
[4] OECD Nuclear Energy Association: "International legal instruments governing liability and compensation for nuclear damage".
[5] The combined Paris/Brussels regime provides for compensation to a maximum amount of SDR 300 million, in three tiers: A first tier corresponding to the liability amount imposed under the Paris Convention, meaning that each Party to the Brussels Supplementary Convention is required to establish by legislation an operator liability amount of at least SDR 5 million, to be provided by insurance or other financial security. A second tier consisting of the difference between SDR 175 million and the amount required under the first tier, which is to be provided from public funds to be made available by the party in whose territory the nuclear installation of the liable operator is situated; A third tier comprising SDR 125 million to be made available from public funds contributed jointly by all the parties to the Brussels Supplementary Convention according to a pre-determined formula. The Brussels Supplementary Convention thus established a strong financial link between its parties.
[6] Convention of 31st January 1963 Supplementary to the Paris Convention of 29th July 1960: Article 19 No State may become or continue to be a Contracting Party to this Convention unless it is a Contracting Party to the Paris Convention.
[7] See: background of Vienna Convention on Civil Liability for Nuclear Damage, http://www.iaea.org/publications/documents/conventions/vienna-convention-on-civil-liability-for-nuclear-damage.
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[11] OECD Nuclear Energy Association: "International legal instruments governing liability and compensation for nuclear damage".
[12] IAEA: Registration No.: 1914: Parties of Conventions on Supplementary Compensation for Nuclear Damage, 29 Jan 2018, P1.
[13] See Mcrae, Ben; “”, Nuclear Law Bulletin No.61, 1998.
[14] Article 12 of 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 ("Brussels Supplementary Convention").
[15] Article 3 of 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 ("Brussels Supplementary Convention").
[16] Article III of Convention on Supplementary Compensation for Nuclear Damage.
[17] Article 3 of Convention on Third Party Liability in the Field of Nuclear Energy.
[18] Article 1 of VIENNA CONVENTION ON CIVIL LIABILITY FOR NUCLEAR DAMAGE.
[19] PROTOCOL TO AMEND THE VIENNA CONVENTION ON CIVIL LIABILITY FOR NUCLEAR DAMAGE: ARTICLE 2 Article I of the 1963 Vienna Convention is amended as follows: 2.(k).
[20] Convention on Supplementary Compensation for Nuclear Damage: Article I Definitions 6.
[21] Convention on Supplementary Compensation for Nuclear Damage: Article XIII Jurisdiction.
[22] Article XIII Jurisdiction of Convention on Supplementary Compensation for Nuclear Damage.