

Indian Nuclear Law and Doctrine of Joint and Several Liabilities in Indian Legal Perspective

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ABSTRACT

The paper surveys the evolution of international and Indian nuclear liability law, emphasizing how legal frameworks address the dual promise and peril of nuclear power. It outlines early global efforts—beginning with expert concerns over catastrophic accidents—to create special liability regimes beyond ordinary tort law. Key international instruments are summarized, notably the Paris Convention, which imposes strict, exclusive liability on operators and sets minimum financial security requirements, including a EUR 700 million baseline and options for reduced amounts for lower risk situations. The Brussels Supplementary Convention is described as a complementary mechanism that provides additional tiers of public financial support to protect victims when operator funds are insufficient. The paper also contrasts these with broader conventions like the Vienna Convention and the global aspirations of the Convention on Supplementary Compensation, highlighting regional versus universal approaches. Turning to India, the study discusses the domestic Civil Liability for Nuclear Damage Act, 2010 (CLND Act) as the nation's framework for strict, no fault operator liability and for structuring compensation in nuclear incidents. It notes India's liability caps for operators and the central government's role in bridging gaps up to international thresholds, as outlined in official guidance.

Keywords: Nuclear Law, Global Efforts, Paris Convention, Civil Liability, International Thresholds.

Introduction

The development of nuclear power is one of the prevalent achievements of the 20th century that has made a significant impact in understanding the development of humanity and technology. "Nuclear energy is the energy emanating from the nucleus of atoms, which arises due to the fragmentation and fusion of atoms"¹ It can be called as natural energy i.e. green energy because in this process it does not evolved any type of air pollution or greenhouse gases so that the natural environment is damaged, but despite this, nuclear power is like a coin with two aspects, one which is beneficial for human life while the other aspects is filled with risks and challenges in which the first risk is about how it can be protected. The second risk is from terrorist events and wars between nations that may pose a serious threat to international security. The third risk is about its transport and spread because the technology of nuclear power is double use that if peaceful use for nuclear power activities cannot be controlled, it can be used in nuclear weapons or explosives that can bring disastrous holocaust for all mankind and animals of the earth.

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¹ Author: Oriol Planas - Technical Industrial Engineer Atomic energy: physical concept and differences with nuclear energy Publication Date: August 22, 2018, Last Revision: March 17, 2025 <https://nuclear-energy.net/energy/atomic-energy>

Keeping in mind the above risk, international institutions and world nations have created nuclear laws for proper development and use of nuclear power on the basis of mutual relations and for determining the obligation for the non-intentional natural disaster caused by it, which also works important to regulate scientific and technical use, security, protection and obligation of proper development of nuclear energy. At present time, law has been constructed on a large scale to regulate nuclear functions at the International and National level. Whose details are further described in this article.

Development of International Nuclear Law

The development of nuclear law was started in the early 19th century, in which the 'International Radiological Protection Commission' was first created in 1928, it can probably be considered as the first international organization for the use of nuclear power which started studying the development of International Standards for Radiation safety. And at the same time, it started using many research gradually in the field of nuclear power, which was widely destroyed and after that there was a open debate for the conservation and safety of nuclear power at the international level and as a result, In 1946, the United States passed the Nuclear Energy Act, 1946 and in this regard, The US president 'Irjanhwar' gave a speech on 'on the subject of nuclear peace' at the United Nations General Assembly and after that in 1957, formed an 'International Atomic Energy Agency' (IAEA) and implemented an international law in this regard which proved to be a milestone. The purpose of this nuclear law was to 'ensure that it was used for peace and prosperity in the world' Aim not to promote anti-social activities and military objectives or terrorist activities.

But ever since the construction of commercial nuclear power reactors started, there was concern about the potential threats of serious nuclear accident and the impacts on the people of the region and the effects of reading them. At the same time, his question was also that who would be responsible for the loss and damage to the 'Third party damage' expert in this field believed that if this causes an accident, it's loss could be very widespread, as a result of which the requirement of international conferences for nuclear operator was required to deal with the mandatory 'third party liability' and 'Border damage' as the said agency(IAEA) and law were unable to fulfill the objectives of the experts in the region in immediate time¹. In the 1957, "Brookhaven Report" was released, which was especially considered in issues related to nuclear accident or disaster and related points along with the far-reaching effects of nuclear matter and risks related to civil nuclear energy were also expressed. This report forwarded to establish international nuclear system for the compensation of damage and loss due to nuclear accident, which can be considered as early as the introduction of arrangements for nuclear liability².

After this, by the After this, for the determination of the obligation of nuclear power sector more secure and any kind of damage, the PARIS CONVENTION on the " third party obligation" adopted by the European nuclear power community in 1960 and in 1963, IAEA established a proper legal system to determine damage and responsibility of nuclear matter by the 'Vienna Convention' on 'Civil Liability for Nuclear Energy Damage, so that the risk can be dealt with in case of any type of nuclear accident and the international law legally determines punishment and liabilities for nuclear power damage, the details of which are described in the following paper.

Third-Party Liability in the Nuclear Energy Sector: The Paris Convention³

Economic Cooperation and Development Organization (OECD) has initiated the congratulatory on the Third-Party Liability in the field of nuclear energy and thereby establishing atomic liability arrangements for most countries of Western Europe and it was one of the first nuclear consequently

¹ SAFETY AND SECURITY Liability for Nuclear Damage UPDATED MONDAY, 15 MARCH 2021 <https://world-nuclear.org/information-library/safety-and-security/safety-of-plants/liability-for-nuclear-damage>

² International Civil Nuclear Liability Regime and India: A Comparative Assessment, Author of the Publication [Summaiya Khan](https://cms.nias.res.in/publications/international-civil-nuclear-liability-regime-and-india-a-comparative-assessment) , <https://cms.nias.res.in/publications/international-civil-nuclear-liability-regime-and-india-a-comparative-assessment>

³ The **Paris Convention on Third Party Liability in the Field of Nuclear Energy** is a 1960 OECD Convention on [liability](#) and compensation for damage caused by accidents occurring while producing [nuclear energy](#). The convention entered into force on 1 April 1968 and has been amended by protocols in 1964, 1982, and 2004. The convention, as amended by the 1964 and 1982 protocols have 16 parties. The 2004 protocol has not entered into force. [Austria](#) and [Luxembourg](#) signed the convention but have not ratified it. Switzerland deposited its instruments of ratification for the convention as amended by the 2004 protocol. The convention will enter into force for this country when the 2004 protocol entered into force in 2022.

dealing with potential nuclear liability issues. Which is known as Paris Convention¹ In 1960, the formators of the Paris Convention determined some standard formatting internationally for the damage caused by nuclear accidents that establish special provisions regarding 'third party liability' in the development of nuclear program because general laws before 1960 were not able to properly dispose of the problems arising in the region, resulting in a significant principle in the 1960. Through the establishment of special law and order through and in relation to this, the responsibility of individuals, institution or organizations was also determined in the following ways.

- If an accident occurs at the nuclear installation or when transporting nuclear materials to and from the installation, the operator of the nuclear installation is solely responsible for any subsequent harm. Except for the special exceptions mentioned in this convention. (article 3)
- In contrast to conventional tort law, which is predicated on fault or negligence, this liability is "strict". Regardless of whether guilt can be shown, a nuclear station operator is accountable under the Paris Convention.
- If multiple operators are held liable for nuclear damage under this Convention, **their liability will be joint and several**, with the caveat that if the liability results from nuclear damage brought on by a nuclear incident involving nuclear substances while they are being transported in the same means.(article 5(D))
- An operator of a nuclear installation has a minimum liability of 700 million Euros. The liability system created by the Paris Convention also allows governments with unlimited liability regimes to join.(article 7)
- Reduced liability amounts for low-risk nuclear installations and transport activities may be set by contracting parties to the Paris Convention; the minimum amounts are EUR 80 million for transport activities and EUR 70 million for low-risk installations.(article 7(b))
- The operator of the nuclear site needs to be financially secure enough to cover its liability. That security must be equivalent to either EUR 700 million or a reduced liability amount, whichever is higher, for the Paris Convention's contractual parties with unlimited liability regimes. In the event that the operator's financial security is inadequate or unavailable, contracting parties to the Paris Convention must also guarantee the settlement of nuclear damage claims up to the liability level stipulated in the Convention. (article 10)
- If a lawsuit is not filed within 30 years of the nuclear accident for nuclear damage related to death and personal injury, or within 10 years for other nuclear damage, the right to compensation disappears. In some situations, longer periods are feasible. (article 8)²

Both nuclear damage in a non-Paris Convention state (including its territories and maritime zones or on board a ship or aircraft registered by such state) and nuclear damage on the territory of a contracting party to the Convention (including its maritime zones) are covered by the Paris Convention if either it has no nuclear installations or it is a signatory to the 1988 Joint Protocol and the Vienna Convention.

Adopted under the OECD Nuclear Energy Agency's supervision, the Paris Convention applies to the majority of Western European nations. It is available to all OECD nations by default and to any non-member with the other contracting parties' approval. The Paris Convention is deposited with the OECD Secretary-General and has been modified by Protocols adopted in 1964, 1982, and 2004 and thus the above provision has been made for third party liability through this convention³.

The Brussels Supplementary Convention (1963)

In 1963, The Brussels Supplementary Convention was also conducted, which was accepted to provide additional financial assistance to compensate the damage caused by the nuclear accident,

¹ Nuclear Liability: A Key Component of the Public Policy Decision to Deploy Nuclear Energy in Southeast Asia International Law and Nuclear Liability, Authors: Mohit Abraham.

² Convention on Third Party Liability OECD Legal Instruments in the Field of Nuclear Energy (Paris Convention)<https://legalinstruments.oecd.org/public/doc/199/199.en.pdf>

³ Paris Convention on Third Party Liability in the Field of Nuclear Energy (Paris Convention or PC) https://www.oecd-nea.org/icms/pl_20196/paris-convention-on-third-party-liability-in-the-field-of-nuclear-energy-paris-convention

because in a case where the funds or financial assistance given under the premises is an indifferent, then it was provided under the Brussels Convention, so it was provided under the Brussels Convention that financial assistance in such a case would only make it a community by the nation, where such a nuclear establishment is established, but also through contribution by all nations of this convention.

This convention regime offers three levels of compensation with a minimum of EUR 1.5 billion, each party to Brussels supplementary convention must enact legislation establishing an operator liability amount of at least EUR 700 million, which must be supplied by insurance or other financial security, with the first tier matching the liability amount imposed under the Paris convention.

A second tier, which is the sum of EUR 1.2 billion less than the first tier's requirement, which must be supplied from public money made accessible by the party. Money made accessible by the party whose territory the liable operator's whose territory the liable operator's nuclear site is located.

And the third tier, consisting of EUR 300 million, is provided with public funds jointly provided by all parties to the additional Brussels contract, in accordance with a pre-determined formula. These safeguards shield operators from the risk of insolvency while offering victims a safety net.

Civil Liability for Nuclear Energy Damage; Vienna Convention

The international atomic energy agency supported the adoption of the Vienna convention on civil liability for nuclear damage, in 1963. By offering a wider geographic reach than the Paris treaty, this treaty sought to make it available to nations outside of the OECD framework. The main object of the Vienna Convention is to replace financial security and insurance related rules while establishing a minimum standard for the loss of nuclear energy of nuclear energy like the Paris Convention. With these relevant states, the policy of national law and international atomic law also means the functioning of reconciliation in the national and international method of the country. According to this convention, the following rules and legal principles have been rendered, which is the same as the same as Paris convention.

The time to time is being made to the amendment in Paris and Vienna convention. Both of these conventions are very large to each other. But there is also some difference between which separates these from one another.

The similarities between the two conventions are as follows....

- The obligation of the underlet founder.
- Liability for nuclear damage.
- Provision of the jointly or reality to the operator or other person jointly when the accident is during the transfer or storage of nuclear damage.

Along with the similarities used in both the convention, there are also some differences which are as follows.

First, Paris convention is primarily a group of western European countries, the Vienna convention is open to almost all countries.

Second, both of these conventions determine the liability amount, but there are some differences such as the Paris Convention mandates a certain liability limit. Not less than SDR 5 million upon the occurrence of which and not more than SDR 15 million originally (although this was later amended) in contrast, the Vienna Convention set no maximum limit, leaving each party free to legislate above the \$5 million minimum.¹

After that Adopted in 1997, the convention on supplementary compensation for nuclear damage (CSC) represents yet another significant advancement in the international nuclear liability rules. With the use of participating states resources, the CSC hopes to establish a worldwide compensation fund for nuclear damage, giving victims financial security. In contrast with the Paris and Vienna conventions, which have limited or regional memberships, the CSC aims to provide a universal framework that fills in the gaps between current liability regimes. However, the CSC has discovered that the contributions of key nuclear states have made it difficult to get widespread.

¹ AMERICAN Journal of Science on Integration and Human Development Volume 3, Issue 6, 2025 ISSN (E): 2993-2750 Legal Analysis of the Vienna and Paris Conventions in the Context of International Liability for Nuclear Damage Erkinov Bobojon Bakhtiyor ogli master's student of Tashkent State University of Law

Indian Nuclear Law Liability Framework

At the present, the field of nuclear energy is not a traditional business sector keeping in mind the need for a special approach based on clear and continuous public participation of technical and disciplinary of technical and disciplinary rules, the question arises that how the provisions are regulated and implemented to determine the liability of the responsible persons or institutions in case of any accident in the era of competition on the responsibility of this sector, because it comes under the law of tort, There is a legal provision that the person who causes harm has to compensate the loss caused to the victim.

In this regard, the Indian Atomic Energy Act, 1962 is the basic law for the regulation of Indian nuclear issues but this law is silent on points like liability of the person causing the damage in case of any kind of nuclear damage and payment of compensation to the victims. If such a question arose, then it was determined under the Indian tort law, which does not seem to be appropriate as per the times, an example of which can be seen as the Bhopal Gas Tragedy that occurred in 1984, which clearly shows that the full compensation could not be made under the tort law, hence, the public accident insurance act, 1991 was enacted to provide immediate relief to the victims of the accident. Keeping this in mind, till 2010, the same question has repeatedly been the subject of controversy regarding nuclear material, what is the provision for determining liability and compensation in case of an accident due to such material?

To determine the above question, the civil liability for Nuclear Damage Act, 2010 (CLND Act) is a law enacted to establish a domestic liability framework for determining compensation and liability for accidents caused by nuclear material. India signed the "Supplementary Compensation Convention" related to nuclear damage called CLC, 1997 in Oct. 2010 and ratified it in 2016¹, in compliance with which CLND Act is formed. In this act, the liability of such person or institution is jointly or individually, the provision of which has been made in the following manner.

- Strict and no-fault liability; the operator's liability in the event of a nuclear accident is based on strict no-fault liability, under which the operator is personally and jointly liable for any adverse event even if there is no fault or negligence on the part of the operator.²
- Jointly and personally liability; where one or more operators and suppliers are responsible for a nuclear accident, all will be jointly or severally liable to pay compensation. Provided that the responsibility of the said operator will be under the provisions mentioned of this legal law.³
- Operator is not liability; situation in which the operator will not be liable in any way to pay compensation.

First, in the event of serious natural events such as an earthquake, tsunami, storm

Second, In the event of an armed conflict or terrorism.

Third, if the accident has not occurred outside the designated prohibited area.

Fourth; the incident has occurred due to personal negligence or willful mistake or mistake of the person.⁴

- Operator limits of liability; under which act, the maximum liability of the operator of a nuclear installation depends on the type of facility which can be amended from time to time by the central government, which is as follows.

First, 1500rs crores for nuclear reactor with a thermal power of 10mw or more

Second, 300rs crores for spent fuel reprocessing plants.

Third; 100rs crores for research reactors below 10mw, other fuel cycle facilities, and for the transportation of nuclear materials.⁵

But if the damage claims from the incident exceed the operator's prescribed limit, then the Central Government is responsible for the remaining compensation, and the maximum liability of the Government is equal to Rs300 million Special Drawing Rights (SDRS). If the government thinks so, it can

¹ <https://www.iaea.org/newscenter/news/india-joins-convention-supplementary-compensation-nuclear-damage>

² Sec. 4(4) of the civil liability for nuclear damage act,2010

³ Sec. 6(2) of the civil liability for nuclear damage act,2010

⁴ Sec. 5 of the civil liability for nuclear damage act,2010

⁵ Sec. 6 of the civil liability for nuclear damage act,2010

also take additional measures in this regard for which the central government can establish a “Nuclear Liability Fund”¹

- Right to resort to operator; After giving compensation in the event of a nuclear accident, the operator will have the right to demand compensation from specific suppliers and this right will be available subject to certain prescribed conditions. Under a written contract or by reason of the supply or the work of its employees or the supply of sub-standard services.²

Perhaps adopting the same principle in Indian nuclear law, civil nuclear liability law ensures that victims are compensated for damages caused by a nuclear accident or disaster while also determining who will be liable for those damages and to what extent. Indian law traditionally deals with these types of cases as follows.

Firstly, by completely banning such activities,

Secondly, keeping in mind the immediate social usefulness of such substance, it can be allowed but with strict safety conditions.

Thirdly, it allows such activities but with the strict condition that in the event of an accident due to the conduct of such activities, the operator, jointly or individually, will have to pay compensation to the victims as a result of the accident.

Conclusion

At present time, nuclear energy sector plays an important role in the field of clean and green energy in the world and India. Although international conventions and Indian law ensure safety obligations and development of nuclear energy resources, they also frame the framework for mobility and operations. India is currently planning to establish many new nuclear plants and, in the future, all of them will be implemented under the aegis of NPCIL, the nuclear energy corporation owned by the Government of India. Therefore, any investment in the nuclear energy sector will be made by NPCIL and any institution or organization that will cooperate in this area will be included only as a supplier to the contractor of NPCIL and on the basis there is a clear provision in the Indian law that the provider can be held liable in case of any kind of accident. From the above discussion it is clear that the Indian law has some serious shortcomings in which there is ambiguity with respect to some provisions such as in case of an accident; the aggrieved party is allowed to take action under other laws also. Secondly, the act lacks clear provisions regarding compensation in excess of the limit. Third, there is no clear provision regarding additional costs and liability after an accident.

At present, technological progress in the nuclear sector has reduced the possibility of accidents to a great extent. But still, while being aware of such accidents, it is necessary to keep the safety aspects in mind and to prevent any such accidents, taking adequate measures in advance along with the safety of the person and the environment is also necessary.

The paper lastly concludes that while nuclear energy contributes to clean energy goals, robust legal regimes—both international and national—are essential to manage risks, ensure victim compensation, and support safe development of nuclear infrastructure.



¹ Sec. 7 of the civil liability for nuclear damage act,2010

² Sec. 17 of the civil liability for nuclear damage act,2010