

***International civil nuclear liability***  
***(Its legal nature and the specific conditions for its establishment)***

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***Abstract:***

Following World War II, the conflict intensified between the Western bloc, led by the United States, and the Eastern bloc, led by the former Soviet Union. The arms race escalated, with both sides striving to acquire the most powerful military arsenals. This led to the development of the atomic weapons industry and the use of nuclear energy for both military and peaceful purposes.

These increasing and expanding nuclear activities have resulted in major nuclear risks and hazards, including accidents that have impacted public health and the environment. These risks are widespread, persistent, and have devastating consequences.

This situation has compelled individuals and actors within the international community to intensify their efforts and coordinate cooperation to establish legislative and practical mechanisms for mitigating the serious dangers of nuclear activities. Since the 1960s, numerous regional and international agreements have been concluded, defining the legal nature of nuclear civil liability and outlining the specific conditions necessary for establishing and managing this liability. This is the subject of our current study.

***Keywords:*** Liability - Nuclear Activities - Health Hazards - Environment - International Law.

***Introduction:***

For decades, several legal opinions and international judicial precedents have focused on establishing and solidifying theories and foundations for international civil liability for damages resulting from internationally wrongful or harmful acts, whether committed through negligence, wrongful conduct, or harmful acts (the theory of risk). Given that nuclear activities involve a high degree of risk and cause significant health, environmental, and material damage, the principles of international nuclear liability have established the possibility of holding those responsible for damages resulting from nuclear accidents accountable, whether intentional or unintentional. This

liability is considered to be more tortious than contractual, and obligates them to compensate those harmed.

In addition to the general conditions for establishing international nuclear civil liability—namely, the commission of a wrongful or harmful act, attribution of this harmful act to a subject of international law, the occurrence of nuclear damage, and the existence of a causal link between the damage and the wrongful act—international civil liability has specific conditions and a distinct legal nature. This is because it arises from activities that are not internationally prohibited but pose serious risks and widespread, long-lasting, and severe consequences.

This necessitates the establishment of a special international legal framework to regulate this liability, defining its characteristics, nature, and conditions. This leads us to question the legal nature of international nuclear civil liability and the specific conditions for its establishment.

This research study aims to answer these questions and is divided into two main sections. The first section focuses on defining the legal nature of this liability, while the second section outlines the specific conditions for establishing it. First - The Legal Nature of International Nuclear Civil Liability:

International nuclear civil liability is a legal system specific to compensating victims of nuclear accidents for all physical, material, and environmental damages, and establishing liability for the operator of the nuclear facility. It is fundamentally a tort liability, characterized by a special legal nature, which we summarize as follows:

1- Nuclear civil liability is an objective liability:

The principle of strict or absolute liability in the field of nuclear energy uses means that the operator of a nuclear facility is responsible for damages resulting from its nuclear activities, whether the nuclear accident resulted from its own error or negligence, or from force majeure. The nuclear operator cannot evade its responsibility, regardless of the causes of the accident, even if it was not its fault.(Nimat Muhammad Safwat Muhammad, 2009, p. 290.)

Strict liability means that the operator of a nuclear facility is responsible for compensating damages resulting from a nuclear accident, regardless of whether fault was involved. This is also known as "no fault liability" or "absolute liability." The strict liability system "supports the compensatory function of nuclear civil liability."

Unlike civil law, which in certain cases establishes liability based on risk and requires the victim (the injured party) to prove that the entity actively contributed to causing the damage, nuclear civil liability relieves the injured party of the burden of proving fault or negligence on the part of the nuclear facility operator. This ruling is based on the victim's lack of any information about events occurring within the nuclear facility or during the transport of nuclear materials at the time of the nuclear accident. The establishment of strict liability results in relieving the injured party of the burden of proving fault or negligence, requiring only the establishment of a causal link between the damage and the nuclear accident. Furthermore, it entails the liability of the nuclear facility operator for damages resulting from the nuclear accident, even if they took the necessary preventative measures.

International nuclear agreements have enshrined the principle of absolute international responsibility, starting with the Paris Convention on Civil Liability in the Field of Nuclear Energy in 1960, the Brussels Convention on the Liability of Operators of Nuclear Ships in 1962, and the Vienna Convention on Civil Liability for Nuclear Damage in 1963, as manifested in the text of Article IV of this Convention, in addition to the Convention on Damage Caused by Space Objects in 1971 and many

other agreements and domestic nuclear legislations that have enshrined the principle of absolute international nuclear responsibility. ( - Wael Abu Taha, Nuclear Damage 2016, pp. 95-96.)

It should be noted that the nuclear civil liability system applies to both civilian and military nuclear facilities. In this context, we recall that the French government issued the law on civil liability for nuclear energy damage on October 30, 1968, which was amended by the laws of June 16, 1990, and June 13, 2006. This amendment enshrined the principle of strict nuclear civil liability. The French law derived its provisions from the aforementioned Paris and Brussels Conventions. According to Article 1 of this law, the operator of a nuclear vessel is legally liable for damages resulting from the use of nuclear energy based on the element of risk. The Russian law of November 21, 1995, concerning the use of atomic energy, adopted the same principle, establishing the concept of absolute liability in the field of nuclear activities. This is stipulated in Article 54 of this law, which establishes the liability of the operator of a nuclear facility for damages and losses resulting from radioactive effects, regardless of whether the fault originated on their part. (The original text of Article 54 of the Russian Law of 1995 is as follows:

“Conforming to the federal position, the responsibility for exploiting the environment and causes caused by the effects of radiation are likely to be affected or not damaged by radiation.”)

Among the international legal precedents that enshrined the principle of absolute international responsibility are the two rulings issued by the arbitration tribunal in the Trail smelter case between Canada and the United States, dated April 16, 1938, and March 11, 1941. In these rulings, the Canadian government was obligated to compensate the citizens of the American territory based on strict liability. Additionally, the United States was held responsible for its nuclear tests on Anipoituk Atoll in the Marshall Islands in the Pacific Ocean in 1954, which caused severe damage to Japanese fishermen who were near the site of the nuclear explosions. Following a formal protest from Japan, the United States sent a memorandum to Japan outlining a final settlement and full compensation for all damages. Another precedent is the case of damages resulting from the fall of a Soviet satellite in 1978 on Canadian territory. Canada filed a lawsuit against the Soviet Union for damages caused by the fall of the Soviet satellite on its territory, citing the serious damages resulting from the activities of the Soviet Union, relying on the principle of absolute international responsibility, which is considered a general principle of established law. In Article 38 of the Statute of the International Court of Justice, Australia also relied on the principle of absolute international nuclear responsibility when it initiated legal proceedings against France before the International Court of Justice, demanding compensation for damages resulting from French nuclear tests near Australian territory. (Mohsen Abdullah Al-Abdullah, the same reference, p. 67.)

## 2- Nuclear Civil Liability: A Focused Liability Principle:

The nuclear civil liability system is characterized by a focused liability principle, as stipulated in Article 6 of the 1960 Paris Convention on Civil Liability in the Field of Nuclear Energy. This principle holds the operator of the nuclear facility solely and exclusively responsible for all damages resulting from the facility's nuclear activities. This facilitates compensation for victims and avoids the problem of multiple civil liability.

The principle of focused nuclear civil liability was further enshrined in Article 2 of the 1963 Vienna Convention on Civil Liability for Nuclear Damage. This principle

has become a legal defense that can be invoked by any party harmed by nuclear activities or accidents, provided a causal link exists between the damage and the nuclear incident.

Nuclear civil liability is the exclusive responsibility of the operator of the nuclear facility. It is focused solely on the operator, who may be a natural or legal person under public or private law. The reason for establishing the principle of exclusive operator liability is that the operation of nuclear facilities and the transport of nuclear materials present extraordinary risks. This justifies holding those carrying out these activities fully responsible for the harmful consequences they cause. The concept of posed risks is the basis of the operator's exclusive liability. The French draft law adopted the concept of nuclear civil liability focused on the operator in the provisions of Law No. 90-488 issued on June 16, 1990. The Bulgarian Law of 2002 on the Safety of the Use of Nuclear Energy and the Egyptian Law No. 07 of 2010 also adopted the principle of focusing nuclear civil liability.

### 3- Nuclear Civil Liability: Specific Liability:

The principle of specifying nuclear civil liability was established as a condition for the liability of the operator of a nuclear facility in nuclear liability agreements. Minimum and maximum limits were set for compensation for damages resulting from nuclear activities. The 1960 Paris Convention set the minimum compensation amount at five million Special Accounting Units (SAUs) and the maximum at one hundred and fifty million. The 1963 Vienna Convention established the same minimum compensation amount but left the maximum to the domestic legislation of the contracting parties, as stipulated in Article 5 of that convention. This was subsequently adopted by the French law of October 30, 1968, as previously mentioned, which set the maximum compensation amount at 600 million francs. If the value of the damages exceeds this amount, the French state intervenes to supplement the compensation due. The amount of state intervention is limited to 2,500 million French francs. If the compensation for damages exceeds the maximum amount of state intervention, bodily injuries are compensated first, and then the remaining amount is distributed among compensation for material damages, according to the percentage of damage suffered by the victims.

While the general rules of tort liability do not place specific limits on the amount of compensation that the party responsible for the damage must pay to the injured party, and are obligated to compensate for and redress all damages, the rules specific to nuclear civil liability have adopted a system of limited liability for the operator of the nuclear facility. Article 5 of the 1963 Vienna Convention stipulates that: "The State in which the facility is located may determine the operator's liability for an amount not less than \$5 million for each nuclear accident..." The provisions of the Convention thus established a minimum liability for the operator and adopted a system of unlimited liability in determining the maximum amount of compensation. Subsequent amendments to the Paris and Vienna Conventions, through the 1997 Protocol, increased the minimum compensation to €320 million from \$5 million. The aforementioned Protocol did not specify a maximum compensation amount. (Article 7 of the Protocol amending the Paris Agreements of 1997.)

The 2004 Protocol amending the 1960 Paris Agreement raised the minimum compensation value from €18 million to €700 million as a reference value, and made the euro the currency and unit of compensation instead of the Special Drawing Rights.

In implementation of these amendments, the French Environmental Code, through Article L597-7, obligates nuclear operators to secure their nuclear activities. Article L597-4 of the same code sets the maximum liability of the operator at €700 million as compensation for damage resulting from a single nuclear accident. This amount is reduced to €70 million if the facility where the accident occurred is considered low-risk.

A consortium for nuclear damage insurance was established in France, comprising insurance and reinsurance companies operating in the nuclear field. Initially known as the "French Atomic Risk Insurance Consortium (PFARA)" upon its founding in 1957, it aimed to cover nuclear risks. In 1969, it transformed into the "Group of Economic Interests (GIE)," and in 1995, it was renamed the "Nuclear Risk Reinsurance Group (ASSURATOME)." This group now consists of 36 French insurance companies that study the risks of nuclear activities, the conditions for insuring these activities, reinsurance conditions, and guarantees related to the liability of nuclear operators and nuclear carriers. From the preceding discussion in this section, we conclude that France bears civil responsibility for its nuclear crimes committed in the Algerian Sahara. This responsibility is both criminal and civil. Having previously addressed international criminal responsibility for French nuclear crimes, the focus here will be on its nuclear civil responsibility, which fulfills all the elements and criteria established by international jurisprudence and law through various definitions of international civil responsibility, in addition to incorporating the specific rules for nuclear liability stipulated in international conventions in this field. Nuclear activities were enshrined in domestic legislation, including French laws and decrees. The legal nature of France's international civil responsibility for its nuclear criminal acts in Algeria was also agreed upon, as it was considered an objective, focused, and specific responsibility that created an international relationship between France, the responsible party, Algeria, the victim, and the international community, which is responsible for implementing the obligations arising from it, in accordance with the rules of public international law.

#### Second – Special Conditions for Nuclear Civil Liability:

In addition to the general conditions required for international responsibility, namely the commission of a harmful or internationally wrongful act, its attribution to a subject of international law, the occurrence of damage as a result of this act, and the existence of a causal link between the commission of the harmful act and the occurrence of the damage, the establishment and application of nuclear civil liability must be subject to specific and defined conditions, which we will list as follows:

##### 1- Nuclear Incident:

A "nuclear incident" means any event or series of events originating from a single source that causes nuclear damage. The 1997 Protocol Amending the Vienna Convention on Civil Liability for Nuclear Damage defines it as: "Any event or series of events originating from a single source that causes nuclear damage or creates a serious and imminent threat of causing such damage..."

The 1960 Paris Convention also defines a nuclear incident as: "Any event or series of events originating from a single source that causes nuclear damage(The beginning of Article 1 of the 1960 Paris Agreement in the original text reads as follows:

"Tout fait ou succession de faits de même origine qui cause un dommage nucléaire...")

A nuclear accident is an act or acts originating from a nuclear facility that result in nuclear damage, such as an explosion or leak, due to a loss of control over nuclear materials. A nuclear accident has a national or even international geographical scope when its effects extend beyond the borders of the country where the nuclear facility is located, causing damage to people, property, or the environment in other countries.

A nuclear accident is linked to the concept of nuclear damage, which distinguishes it from other events subject to non-nuclear civil liability. A nuclear accident most often occurs within a nuclear facility or during the transport of nuclear materials. 2- Nuclear Damage:

The definition of nuclear damage is found in the amended text of the Vienna Convention on Civil Liability for Nuclear Damage, Article 1 of which states: "Nuclear damage means:

- 1- Death or personal injury.
- 2- Loss of or damage to property.
- 3- Economic losses resulting from the loss or damage referred to in subparagraphs 1 and 2, and to the extent not mentioned in those subparagraphs, if incurred by a person entitled to compensation for such loss or damage.
- 4- The costs of measures to restore the damaged environment, unless the damage is minor, if such measures have already been taken or are to be taken, and to the extent not mentioned in subparagraph 2.
- 5- Loss of income, arising from an economic benefit derived from the use or enjoyment of the environment, incurred as a result of severe damage to that environment, and to the extent not mentioned in subparagraph 2.
- 6- The costs of preventive measures and any other loss or damage caused by such Measures.
7. Any economic losses, other than any losses resulting from environmental damage, if permitted by the general law of civil liability applied by the competent court.

In the case of paragraphs 1 to 5 and 7 above, losses or damages shall be insofar as they arise from or are caused by ionizing radiation emitted from any radiation source within a nuclear facility, or emitted from nuclear fuel, radioactive products, or radioactive waste located in a nuclear facility, or attributable to nuclear material originating from or sent to a nuclear facility, whether arising from the radioactive properties of such material, or a combination of radioactive, toxic, explosive, or other hazardous properties of such material. The 1960 Paris Convention did not include an explicit definition of nuclear damage. Instead, it established the liability of the operator of a nuclear facility whose nuclear activities cause harm to persons or property. Article 3 stated that "the operator of a nuclear facility is liable for all damage to persons and all damage to property."

The 1963 Vienna Convention, however, defined three categories of nuclear damage in Article 1, paragraph 1: death or personal injury, and any other damage or loss as defined by the law of the court competent to hear a case of international civil liability for nuclear damage. It further specified death, personal injury, and various losses and damages resulting from ionizing radiation as follows:

1. Death or personal injury, or any loss or damage to property arising from or caused by the radioactive properties, or a combination of radioactive, toxic, explosive, or other hazardous properties, of nuclear fuel, radioactive products, or radioactive

waste in or from nuclear material originating from, generated within, or transmitted to the nuclear facility.

2. Any other loss or damage arising from or caused in this manner, if and to the extent so provided by the law of the competent court.

3. Death or personal injury, or any other loss or damage arising from or caused by other ionizing radiation emitted from any other radioactive source within the nuclear facility, if so provided by the law of the State of the facility.

- Paragraph (k) of Article 1, Section 1 of the 1963 Vienna Convention on Civil Liability for Nuclear Damage. International Atomic Energy Agency, Information Bulletin, 20 March 1996, INFCIRC/500.

The original text of Paragraph (K) of Article One was as follows:

“- All of these people, all of them, all of them, or all of them, that produce or result from proprietary radioactives or a combination of proprietary and toxic toxins, explosives, other products or radioactive devices. Available in an installation nuclei, or in the nuclei mats that provide a nuclei installation, either safely or immediately.

- All at once or do mmage once presented, in the case and in the measures où the drop of the tribunal compètent the prevoit.

- If the installation is dropped or the installation is placed in plain sight, all of the people are exposed to it, all of the people or all of the people who have it are safe or produce all the same rayonnement that appears from all over the other source of the rayonnement. in a nuclear installation.

Regarding the geographical scope of damages covered by the nuclear civil liability system, Article 3 adds Article 1 to Article 1 of the 1963 Vienna Convention, the first paragraph of which states, "This Convention applies to nuclear damage wherever it occurs," while the second paragraph establishes certain exceptions to the provisions of the first paragraph.

### 3- Causation between the Damage and the Nuclear Incident:

The third element of nuclear civil liability is the causal relationship between the nuclear incident and the damage. Establishing liability requires a causal link between the physical act of the operator of the nuclear facility and the resulting damage.

This raises the issue of proving causation in nuclear civil liability, particularly in cases of bodily harm. Establishing causation requires three essential elements:

#### A - Proving radiation exposure:

This is a difficult matter for victims who have left the site of the nuclear accident. Consequently, some countries have enacted specific laws to facilitate proving radiation exposure. For example, Article 22 of the Swiss Nuclear Civil Liability Act stipulates that the government (the Federal Council) may order an investigation in the event of a serious accident. It requires all those affected by the accident, or who believe they are victims, to report the incident within three months of the announcement of the investigation, specifying the date and location of the harm. The Act also states that "failure to comply with the obligation to report in this manner does not preclude the right to claim compensation, but it may make proving the causal link between the harm and the accident more difficult." B. Determining the level of radioactivity that poses a risk to humans:

The importance of determining the level of radioactivity in the environment and food is evident in delayed physical damage, which only appears long after a nuclear accident, and in some cases, only in the second or third generation.

**C. Proving the Link Between Radiation Exposure and Nuclear Damage:**

The French Law of 1968 on Civil Liability for the Use of Nuclear Energy stipulates that: "With regard to bodily damages, a decree shall define, in accordance with the crime of radiation and absorbed contamination and the period during which the injury manifests, a non-exhaustive list of injuries presumed to be attributable to a nuclear source, unless proven otherwise." Furthermore, French Law No. 02 of January 5, 2010, concerning compensation for victims of nuclear tests, recognized the right of victims of French nuclear tests to claim compensation, particularly those suffering from cancers resulting from exposure to nuclear radiation. The law also established a system of presumption of causation, which favored claimants. They needed only to prove they had contracted one of the cancers specified in the decree and that they resided in a French nuclear test zone at the time of the tests to receive compensation. Despite this, victims were unable to prove causation. Only 30 compensation claims out of 985 submitted to the committee by December 31, 2012, were accepted. This situation compelled the French legislature to... By issuing Law No. 256 on February 28, 2017

It should be noted that the Protocol amending the Vienna Convention on Civil Liability for Nuclear Damage has expanded (Muhammad Muhammad Abdul Latif, the same reference, pp. 920-922.)

***Conclusion:***

This research study on international nuclear civil liability clearly demonstrates that the issue of assigning and establishing international nuclear civil liability, and finding a causal link between the serious and extensive damages to humans and the environment and nuclear activities, is governed by a special legal framework. This framework, considered a principle of public international law, clarifies the legal nature of this liability, defines the conditions for its establishment and application, explains the legal consequences of assigning international liability, identifies the legal and judicial mechanisms that can be used to hold those responsible for nuclear damage accountable, compensate victims of these nuclear activities, and determine the competent international judicial bodies to adjudicate international claims.

In summary, the following research findings can be drawn:

1. Nuclear activities result in serious, persistent, and widespread health and environmental impacts.

2. Nuclear activities are considered internationally illegal acts because they violate the fundamental principles and treaty rules of international law. 3. In accordance with the provisions of regional and international nuclear agreements, those responsible for nuclear hazards bear international civil responsibility and its legal consequences, particularly the obligation to compensate victims and decontaminate radioactively contaminated areas.

4. International nuclear civil responsibility is established based on the special legal nature of nuclear liability as an absolute, focused, and specific objective responsibility, and on the fulfillment of all general and specific conditions. These conditions include the occurrence of the event giving rise to responsibility (the

harmful act), its attribution to a subject of international law, the occurrence of nuclear damage, and the existence of a causal link between the damage and the harmful act.

5. Those responsible for nuclear damage bear international nuclear civil responsibility under the three legal foundations of international responsibility in general: the theory of fault, the wrongful act, and the risk.

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