

Terms of Insurance for Nuclear Damage

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Abstract

This study addressed the regulations of nuclear damage insurance, by elucidating the concept of nuclear damage insurance, its characteristics, and its effects. Furthermore, the study delineated the insurer's obligation to provide financial guarantees for compensation for nuclear damages, through an exposition of the scope of nuclear damage insurance and its problems and addressing the conglomerations of nuclear operators. It was recommended that contemporary insurance companies and systems should abandon traditional methods in the field of nuclear damage insurance. This entails devising insurance approaches and treatments that align with the magnitude and nature of nuclear damage. Additionally, it is imperative for states to support and protect the insurance sectors from the risk of insolvency or bankruptcy, which leads to shirking their responsibilities and obligations towards nuclear operators or the afflicted parties.

Keywords: Insurance, Risk, Premium, Nuclear Damage

INTRODUCTION

Insurance for nuclear facilities and the resultant damages constitutes one of the primary guarantees for mitigating the severity of a nuclear incident. The significance of nuclear damage insurance lies in its role as a protection for individuals, companies, and properties against the harmful effects of nuclear radiation and incidents. Additionally, insurance provides financial protection and compensation for damages that may occur as a result of these incidents, aiding in the alleviation of potential losses.

This study addresses the issue of nuclear damage insurance and the challenges faced by the parties involved, by elucidating the concept of nuclear damage insurance, its characteristics, and its effects. Furthermore, the study delineates the insurer's obligation to provide financial guarantees for compensation for nuclear damages, through an exposition of the scope of nuclear damage insurance and its problems and addressing the conglomerations of nuclear operators.

The study aims to present a clear investigation that can resolve the problems and difficulties encountered by the parties in the insurance relationship in the nuclear field.

According to Search

The research methodology in nuclear damage insurance relies on utilizing an analytical approach to understand the foundations and rules upon which nuclear damage insurance is based. This involves analyzing legal texts from both international conventions and national laws, as well as examining relevant legal trends and opinions related to nuclear insurance. The goal is to reach a sound assessment of the nuclear damage insurance process, addressing the challenges that hinder both nuclear operators and insurance companies or consortia alike.

SEARCH CONCEPTS

Nuclear Damage Insurance Concept

Contemporaries define insurance as a contract in which the insurer commits to pay the insured, or the beneficiary for whom the insurance is stipulated, a sum of money, a regular income, or any other financial

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compensation in the event of an incident or the realization of a risk specified in the contract, in exchange for a premium or any other financial payment made by the insured to the insurer (Hakim, 1965; Al-Jamal, 1975). It is also defined as a process whereby one party, the policyholder, in exchange for a premium, obtains a commitment from the other party, the insurer, to pay a sum to the policyholder or to a third party upon the occurrence of a specified risk, with the insurer taking on a set of risks that are balanced according to statistical laws (Mansour, 1986).

Insurance is also defined as a contractual system based on compensation, aimed at cooperating to repair the incidental damages of risks through organized bodies that technically execute their contracts based on statistical rules and bases (Al-Zarqa, 1984).

Insurance is based on the idea of cooperation among a group of people to distribute the impacts of disasters that one member of the group might face, meaning the individual alone does not bear the burden of damage, but rather it is shared by others, reducing the burden on each member as the group size increases (Al-Ahwani, 2002). Insurance centers around three elements: the potential risk, the premium which is the price of insurance, and the insurer's offer which is in exchange for the insurance premium (Ibrahim, 1994).

The civil liability laws regarding nuclear damages and neither the Vienna Convention on Civil Liability for Nuclear Damage of 1963 and its 1997 amending protocol have addressed the concept of nuclear damage insurance. Therefore, Gaib (2016) views it as a form of liability insurance or as a result thereof, serving a dual purpose: on one hand, ensuring the availability of funds for compensation for nuclear damages to the victims, and on the other hand, protecting the operator against devastating claims. This principle is called "the principle of matching liability and coverage," considered one of the internationally agreed pillars of nuclear liability law.

It should be noted that the liability covered by insurance is civil liability, whereas criminal liability cannot be insured, even if it results in fines.

In summary, nuclear damage insurance is a form of liability insurance, necessitating the presence of another party affected by the nuclear incident or damage.

Nuclear Damage Insurance Characteristics

Nuclear damage insurance is distinguished from other traditional insurances by several characteristics, summarized as follows:

Firstly, those harmed by nuclear damages can file their claims against the operator, i.e., the nuclear facility operator, insurer, or guarantor, meaning the harmed party can demand compensation from the operator as the primary responsible party for damages resulting from a nuclear incident originating from their facilities, as well as for damages during the transportation of nuclear materials within jurisdictions or sent to their facilities. The harmed party can also demand compensation from the insurer, considering the latter, which was accepted by the authority to insure or guarantee, responsible towards the harmed party for damages incurred by the insured (the operator), providing another guarantee for the harmed party to obtain fair and assured compensation for the damages they suffered (Gaib, 2016).

Article (26) of the Saudi Civil Liability for Nuclear Damage System states: "A claim for compensation may be filed against the operator, the insurer, or any other person providing the financial guarantee referred to in Article (twenty-three) of the System."

Secondly, the rarity of nuclear incidents, the magnitude of damages compared to other industrial activities, the delayed appearance of most physical damages long after the incident, the extent of radioactive contamination, and the high costs required for decontamination, and the impossibility of using contaminated facilities and objects despite the absence of visible physical damages (Al-Mashhadani, 2002).

Thirdly, the enormity of damages resulting from a nuclear incident, and the consequent large amount of compensation required to remedy the damage, thus we find that nuclear risk was excluded from the scope of insurance through the general insurance documents of 1957 and 1982. This exclusion was the main reason for

the French Union for Nuclear Risk Insurance to adopt a special policy for civil liability for nuclear exploitation and financial guarantee as a fundamental condition for granting the license since 1993, which can be provided by the state for publicly owned nuclear facilities. Nuclear damages could significantly exceed the specified compensation amounts, with the cost of the Chernobyl accident still uncertain, although estimates run into hundreds of billions of euros. Damages from the 2011 Fukushima nuclear incident are estimated at approximately 8.7 trillion Japanese yen (Gaib, 2016).

Fourthly, the lack of precise indicators for insurance companies regarding the extent of nuclear risk despite several major incidents, each time indicating that the magnitude of an incident does not define the ultimate extent that another incident could reach, sometimes the opposite is true. Each incident confirms to insurance companies that their evaluations and the results generated by the incident need to be reconsidered, especially as many factors contribute to the widening scope and impact of such incidents (Al-Mashhadani, 2002).

Fifthly, the high technical and technological characteristics of nuclear risk do not allow it to conform to the technical rules of traditional insurance, which involves cooperation among the insured – or risk pooling and balancing risks, using statistical laws and probability calculations. Additionally, traditional technical conditions are not applicable to it in terms of the risk to be insured must be recurrent, distributed in its occurrence, and homogeneous with other risks gathered by insurance companies, making nuclear risk distinct from other traditional risks, thereby posing a significant challenge for insurance companies in their efforts to cover this type of risk (Fath El Bab, 2016).

Sixthly, insurance companies' experience with one type of reactor or facility when applied to others is not beneficial due to the qualitative leaps in this industry, making modern and more technologically advanced facilities entirely different from their predecessors or others. Moreover, formulating general terms and policies for insurance companies is challenging due to the complex mechanisms of facilities and their diversity at the same time (Al-Mashhadani, 2002).

Seventhly, the guarantee or insurance must cover all damages inflicted on third parties and fall under the operator's responsibility. Since the operator is the primary and absolute responsible party for compensating nuclear damages, the operator (the insured) must provide sufficient insurance to cover all damages that may result from a nuclear incident. Therefore, the Vienna Convention set a minimum amount of five million U.S. dollars, leaving the maximum amount to the internal legislations of the member states of the convention (Gaib, 2016).

In conclusion, contemporary insurance companies and systems should abandon traditional methods in the field of nuclear damage insurance by finding insurance methods and treatment.

Nuclear Damage Insurance Contract Effects

The effects of a nuclear damage insurance contract lie in the obligations that fall on its parties. The idea behind nuclear insurance – like other forms of liability insurance – is to distribute the harmful results and disperse the risks faced by the nuclear energy operator among a group of contributors to prevent the operator alone from bearing the burden of those effects through the cumulative balance from the contribution proceeds, through which compensation is provided when the insured risk occurs. Thus, the effects of this legal relationship are represented by the obligations of its parties: the insurer, the insured, and the beneficiary

Firstly, the Obligations of the Insurer: Represented by the specialized insurance company that undertakes the contracting procedures from the insured, meaning the insurer is the insurance company (Sayyid, 2015), and it has been said to be the person who takes selling his guarantee and insuring risks as a profession (Hussein, 1995)

The insurer's obligations in an insurance contract involve the insurer providing the guarantee or the due amount to the insured or beneficiary as agreed upon when the risk occurs or the specified term in the contract is reached (Al-Kilani, 2009).

Therefore, the insurer in an insurance contract has a primary obligation, which is to guarantee the liability that may be incurred by the insured, the liability that was the subject of the insurance. Generally, the insurer is the guarantor for all burdens and costs arising from this liability. However, the insurer's obligation is determined

by the actual damage incurred as long as this damage falls within the scope of insurance. If there is no damage, no obligation is incurred by the insurer (Al-Dinosauri & Al-Shawarbi, 1992).

Currently, the American Nuclear Insurance Company is the only source in the United States for nuclear risk insurance. Given the expected increase in the number of nuclear reactors currently and in the future, it was necessary to establish an economic and effective insurance mechanism to meet the obligations related to nuclear risks. This prompted insurance companies to organize themselves into syndicates and unions based on mutual insurance and reinsurance, with insurance companies being the direct party in the contract. Given the large amount required to cover the insurance financially to face numerous risks, it primarily requires a financial cover that individuals cannot afford. Therefore, nuclear risk insurance is currently only undertaken by federations of joint-stock companies, similar to the European Union for Nuclear Insurance (Al-Mashhadani, 2002).

Secondly, the Obligations of the Insured: The insured is the second party in the insurance process, who pays the premiums according to the contract with the company in exchange for receiving the determined or agreed-upon compensations or benefits from the insurance (Sayyid, 2015).

The insured has a set of obligations, summarized in his obligation to pay the premium or subscription at the specified times, his obligation to provide the required information accurately at the time of contract conclusion detailing all known circumstances that the insurer needs to know to assess the risks he is taking on, especially the facts that the insurer has made the subject of specific written questions. He must also notify the insurer of any circumstances that arise during the contract that may lead to increased risks and inform the insurer of any incident that could make the insurer liable (Hakim, 1965).

Since the insured in nuclear liability insurance is the operator, as the party requesting insurance, obligated to conduct and sign the contract and pay its premiums, the operator, in terms of nuclear facilities, is the person appointed or recognized by the state of the facilities to operate its facilities (Al-Mashhadani, 2002).

Thirdly, the Obligations of the Beneficiary (The Harmed Party): The harmed party is the beneficiary of the insurance value and may be the insured himself or a third party, as in some cases of life insurance (Sayyid, 2015).

The beneficiary of the insurance contract in nuclear damage insurance is the one who suffers nuclear damage, whether a natural or legal person, public or private, regardless of nationality, residence, or domicile, covering all damages resulting from nuclear incidents anywhere in the world due to nuclear fuel or radioactive waste related to the nuclear facility or nuclear ship. This is according to Article (1) of the Saudi System for the Control of Nuclear and Radiation Uses of the year 1439 AH, paragraph (b) of Article one, and paragraph (1) of Article (13) of the Vienna Convention on Civil Liability for Nuclear Damage of 1997; Article (1) paragraph (3), and also Article (13) of the Brussels Convention Concerning the Liability of Operators of Nuclear Ships of the year 1962.

As for the obligations incumbent on the harmed party, there are no specific obligations to be performed, but they have the right to a direct claim against the insurer without the need to sue the insured. It should be noted that there are certain difficulties and problems associated with nuclear damage insurance, which will be discussed in the section dedicated to the nuclear operator's obligation to insure.

Nuclear Operator's Obligation to Insure Scope of Nuclear Damage Insurance and Its Problems.

Article (23) of the Saudi Civil Liability for Nuclear Damage System states that "each operator, when applying for a license to operate a nuclear facility, must provide financial guarantee (whether insurance or any other form of guarantee) covering his liability for nuclear damages, according to what the regulations specify". This provision aligns with Article (7) paragraph (1/a) of the Vienna Convention on Civil Liability for Nuclear Damage of 1997, which states: "The operator must maintain insurance, or another financial guarantee covering his liability for nuclear damage in the amounts damages that are to be borne by the operator."

National laws have obligated nuclear operators to insure against their liability with insurance companies, making insurance provision a mandatory obligation for the nuclear operator engaging in the activity, as a means of

financial protection for those harmed by nuclear activity (Rafa'i), based on the strict liability of the operator which is linked to his obligation to insure or provide what guarantees his compliance in the event of a nuclear incident (Ali, 2017).

Therefore, the absolute liability of the nuclear operator, which must be centered exclusively on the operator, meaning it does not fall on the supplier, provider, or manufacturer, necessitates covering their liability when covering the operator's liability itself. This way, companies operating nuclear energy avoid resorting to more than one insurance company to cover nuclear risks affecting third parties, causing complicated legal problems. Establishing the principle of centralized liability facilitates the financial guarantee mechanism through the following (Al-Mashhadani, 2022):

Excluding the participation of more than one party in paying the insurance, such as nuclear fuel suppliers, radioactive material transporters, and owners of transport vehicles, whose responsibility is determined according to ordinary law.

Avoiding participation in the insurance process and what is known as "over-insurance".

Eliminating the right of the operator to pay except in strictly defined cases.

The scope of nuclear damage insurance includes the following: Firstly, Liability Insurance:

This insurance covers damages arising from nuclear incidents, whether physical, such as death and personal injury, or damages to properties, whether these damages occurred inside the facility or during the internal or international transportation of nuclear materials to or from it (Al-Hilai, 2019).

Excluded from this type of insurance coverage are military uses of nuclear energy, nuclear weapons, nuclear fusion operations, risks arising from exposure to multiple sources (cumulative damage attributed to gradual pollution by radioactive materials), nuclear risks resulting from war, aggressive acts, civil war, civil disobedience, as well as damages resulting from a severe natural disaster. Also excluded are damages to the nuclear facility itself or any properties located at the site of this facility being used or intended for use in the purposes of this facility or its equipment, fuel, or stocks (Al-Mashhadani, 2022).

Also excluded are nuclear damages arising from small quantities of nuclear materials if not specified and exempted, physical risks affecting workers in the facility due to regular daily work as they are covered by another type of insurance, damages resulting from the deliberate act of the operator, genetic or hereditary damages, and finally, damages resulting from the decay of items of the nuclear facility and its properties due to regular use (Al-Mashhadani, 2022).

Secondly, Property Insurance: This type of nuclear insurance is optional. The nuclear operator may, at his discretion, insure against material damages incurred as a result of his nuclear activity. This type of insurance is conducted according to the general rules governing the insurance contract in general, representing significant importance to the nuclear operator as a means of protection and insurance for his investments in the nuclear field. This type of insurance is favored by insurance companies due to the known total value of the nuclear facility or its equipment in advance (Abd Al-Aal, 2008).

Insurance companies differ in their coverage of damages in this type of insurance. While some companies narrow the scope of risks covered by the insurance, others expand it to issue policies covering all risks. Thirdly, Individual or Social Insurance:

Individual or private insurance is made by the insured to insure himself or his dependents against a specific risk, with the goal of ensuring personal interests that do not rely on any social consideration. Individual nuclear risk insurance in the workplace takes two forms: insurance for the benefit of an individual and individual insurance for the benefit of a group. The importance of individual insurance in both its forms in the nuclear field lies in the case of the insured not benefiting from the social insurance system, where individual insurance covers all nuclear risks covered by social insurance (Abd Al-Razzaq, 2018).

It is evident from the foregoing that mandatory insurance within the nuclear rules is liability insurance. The Saudi regulator has obligated the operator, when applying for a license to operate a nuclear facility, to provide

financial guarantee (whether insurance or any other form of guarantee) covering his liability for nuclear damages, and detailed those guarantees to the regulations, which have not yet been issued.

Nuclear Insurance Pools Nuclear insurance

pools are defined as an organizational collective for insurances, bonds, agreements, or for shares or homogeneous parts in their nature or elements, then the assignment or distribution (or reinsurance among the members of the insurance pool if it is limited to their operations) from that pool in one of the forms of reinsurance (Maqar, 1968).

Nuclear risk insurance unions or nuclear insurance federations were established in every country with a nuclear industry, based on cooperation and participation. Insurance projects combine their technical, financial, and human capabilities to create a specialized union in nuclear insurance due to the individual project's capabilities often being insufficient to cover the risks (Abd Al-Latif, 2019)

These pools and federations face significant challenges, not just in assessing and defining nuclear risk, but also in providing the necessary financial coverage to face the consequences of the risk, which far exceeds the individual financial capacities of insurance companies. Nuclear insurance against liability or the facility requires a massive financial cover in anticipation of the risk insured against, which is beyond the financial capabilities of any single insurance or reinsurance company to face alone (Abd Al-Aal, 2008).

Therefore, the primary reason for the creation of pools is to create an absorptive capacity to contain risks of catastrophic nature, such as nuclear risks and damages (Mansour, 1990).

These insurance pools are formed through an agreement between several insurance or reinsurance companies in a country, renewed annually, with each company retaining its legal and economic independence. The main goal of these pools or insurance federations is to face large or specific risks and damages. Each company member, according to the founding agreement of the federation, must pre-determine a financial amount as the maximum it can bear alone for each nuclear risk covered by the federation. This amount represents the extent of the company member's commitment when the insured risk occurs, and may be required by the federation's constitution not to be less than a specified minimum (Abd Al-Aal, 2008).

It is noted that the absorptive capacity at the level of insurance pools is constantly increasing, aiming to attract new members who add capacity to their absorptive capabilities. The number of these federations is 27 worldwide (Hilal, 1989; Abd Al-Latif 2019).

Nuclear insurance pools and federations offer multiple benefits, including (Abd Al-Latif, 2019):

Providing high guarantees for the insured due to the controlled membership in the federation and risk distribution according to members' commitments at the international level.

Concentrating nuclear risks within one federation prevents all federation members from insuring risks beyond the net value of all insurance policies, meaning a single member cannot individually underwrite part of the risks to a reinsurance project, although the federation itself can reinsure with other nuclear federations worldwide.

The federation system is cost-effective both nationally and internationally. Nationally, concentrating knowledge and expertise in nuclear insurance activities within one entity reduces expenses.

Internationally, reinsurance is conducted in national markets directly without intermediaries' involvement. In conclusion, many countries have established pools and federations for nuclear risk insurance. It is noted that there is no pool or federation for nuclear risk and damage insurance in the Kingdom, and the study hopes that nuclear insurance will be regulated by specific provisions, either in nuclear regulations or through a separate independent system, without relying solely on the traditional general rules of insurance, taking into account the special nature of nuclear risks and damages.

RESULTS

The study's results revolve around the provisions of insurance for nuclear damages and the difficulties and

issues surrounding this. The findings are as follows:

The liability covered by insurance is civil liability; criminal liability is not insurable, even if it results from such as fines.

Insurance for nuclear damages is a type of liability insurance, which necessitates the involvement of another party, represented by the individual harmed by the nuclear incident or damage.

Many countries have established pools and federations for insuring nuclear risks.

There is no pool or federation for insuring nuclear risks and damages in the Kingdom of Saudi Arabia.

RECOMMENDATIONS

Based on the conclusions drawn from the study of the legal basis for civil liability in the nuclear field, the following recommendations can be made:

Contemporary insurance companies and systems should abandon traditional methods in the field of insurance for nuclear damages by finding insurance methods and treatments that match the size and nature of the nuclear damage.

The study hopes that nuclear insurance will be regulated by specific provisions, whether in nuclear regulations or through a separate independent system, without relying solely on the traditional general rules of insurance. These provisions should consider the special nature of nuclear risks and damages.

States should support the insurance sectors and protect them from the risk of failure or bankruptcy, which leads to shirking their responsibilities and obligations towards nuclear operators or the injured parties.

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