NUCLEAR ENERGY AND INSURANCE PROBLEMATIC OF TURKEY

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ABSTRACT

Continuous increase of the energy prices due to the political changes across the world, fossil fuels that are quite expensive to be manufactured going soon to be extinct, the presence of foreign-source dependency, as well as the environmental effects make it a must to detect alternative energy sources, thus utilizing these sources as productive as possible, in today's world. Cheaper and cleaner energy production, which is one of the fundamental problems of economic and social life, leads countries to reconsider their energy policies. At this point in Turkey, certain concrete steps have been recently taken concerning the nuclear energy policies, which have been tried to be put into practise for about 50 years, and the construction phase was initiated for two nuclear power stations. It is aimed at activating first nuclear power station Akkuyu in 2023.

These concrete developments make it a must to regulate various regulations in terms of liability law and insurance law, as well. Within this context, the international regime concerning the liability law and the Paris Convention, to which Turkey is a party, draw a general frame, and here in this study the manner how the liability area is to be subjected to the insurance is discussed.

Keywords: Turkey, Nuclear Energy, Insurance, Nuclear Insurance.

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TÜRKİYE'NİN NÜKLEER ENERJİ VE SİGORTA SORUNSALI

ÖZET

Dünyadaki politik gelişmelere bağlı olarak enerji fiyatlarının sürekli artması, üretimi oldukça pahalı olan fosil yakıtların belirli bir süre sonra bitecek olması, dışa bağımlılığın varlığı ve çevresel etkiler sebebiyle alternatif enerji kaynaklarının tespit edilerek bu kaynaklardan yüksek verimle faydalanılması günümüzde adeta bir zorunluluk haline gelmiştir. Ekonomik ve sosyal hayatın temel sorunları arasında yerini alan daha ucuz ve temiz enerji üretimi, ülkeleri enerji politikalarını yeniden gözden geçirmeye yöneltmektedir. Bu noktada yaklaşık 50 yıldır hayata geçirilmeye çalışan nükleer enerji politikalarına ilişkin yakın geçmişte somut adımlar atılmış ve iki nükleer santralin yapım aşamasına geçilmiştir. 2023 yılında ilk nükleer santralimiz Akkuyunun aktif hale getirilmesi hedeflenmektedir.

Bahse konu somut gelişmeler, beraberinde hem sorumluluk hukuku hem de sigorta hukuku açısından muhtelif yasal düzenlemelerin yapılmasını gerekli kılmaktadır. Bu bağlamda, sorumluluk hukukuna ilişkin uluslararası rejim ile ülkemizin taraf olduğu Paris Sözleşmesi genel bir çerçeve çizmekle birlikte, sınırları belirlenmiş olan sorumluluk alanının ne şekilde sigortaya dahil edileceği, çalışma genelinde tartışmaya konu edilmiştir.

Anahtar Kelimeler: Türkiye, Nükleer Enerji, Sigorta, Nükleer Sigorta.

INTRODUCTION

The legal liability of the person running a nuclear facility has been regulated in domestic laws of many countries as a liability of risks. However, along with the one who runs the facility, the liabilities of the individuals working in such areas in the nuclear facilities as investment, construction, material provision, transportation and services in order for the activities of nuclear facilities to be maintained can be brough to agenda, in case of a nuclear accident. Therefore, it is of vital importance to establish a fair compensation system for the fulfillment of liability regime and the liability itself established on a solid legal ground and affective and fast administrative structure in order to identify the liabilities and liables evolving out of a nuclear event.

Against all of these challenges, the facility and liability insurance on the area of nuclear energy will securitize the investments made by the operator, while preventing the financial collapse that the operators may economically fall into along with those who may be hold liable. By this means, the violation of public benefits will be prevented by ensuring a prominent guarantee concerning the compensation for the losses&damages suffered by the injured parties. Besides, this insurance will have posses the characteristics of a solution mechanism boosting the nuclear energy industry and insurance market, as well. For this process, the liability regime and insurance concerning the area of nuclear energy appear before Turkey as a new area, of which boundaries are to be set. At the point where this requirement is deemed as a must to be met, the subject matter of nuclear liability is discussed touching on the current stage of Turkey and the liability regime regulated within the scope of international conventions to which many of European Union (EU) countries are a party on the area of nuclear energy, and we will also try to deeply analyze the nuclear liability insurance through an approach to international case examples in order to make suggestions for Turkey, in this paper.

I- NUCLEAR LIABILITY REGIME

A- OVERVIEW

The losses evolving out of nuclear accidents, the excessive number of victims, excessive coverage area of the damages, the challenges for justification due to the fact that the damages emergy after a long time, cause more problems at the point of identifying those liable from the accident, as well as the root cause[1]. Applying the rules and principles that are traditionally applied concerning the tort law at the area of nuclear liability remains incapable with regards to regulating a fair liability and compensation regime. Therefore, in today's world there is a special international liability regime adopted by many EU member countries and many international organizations, which is also reflected to the domestic laws of many industrialized countries, in the area of nuclear liability[2].

B- NUCLEAR LIABILITY REGIME WITHIN THE SCOPE OF INTERNATIONAL CONVENTIONS

Since the countries do not possess the capacity to solve the problems concerning the liabilities of the third party in the area of nuclear energy with their domestic laws and codes, a special regime is required to be constituted for this matter. As a matter of fact, so many liable parties may come up in the event of nuclear accidents, and those suffering from these accidents face many challenges while applying to those liable for compensation. In addition to this, those liable having unlimited liabilities without a complete insurance coverage brings into another question. Concerning the solution of these problems, in order to establish the frame of an effective compensation system in case of nuclear accidents,

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1 **OECD** (1994), Liability and Compensation For Nuclear Damage, An International Overview, Paris, p.9; **Pelzer, Norbert** (2010) "Main Features of the Revised International Regime Governing Nuclear Liabilty-Progress and Standstill" International Nuclear Law: History, Evolution and Outlook, 10 thAnniversary of the International School of Nuclear Law, OECD NEA No:6934, p.355.

2 **Schwartz, A. Julia** (2010), "Liability and Compensation for Third Party Damage resulting from a Nuclear Incident" International Nuclear Law: History, Evolution and Outlook, 10 th Anniversary of the International school of nuclear law, OECD NEA No:6934, p.307-308.

to constitute a legal regime in order to develop nuclear safety, and to create a suitable environment for the development of nuclear industry based on the above stated facts, the international nuclear legal liability conventions became a current issue. Thanks to these conventions, an international regime was formed intending to keep the nuclear industry alive and to maintain the balance between the destructive compensation claims and the public benefits with the policies with regards to the compensations for the injured victims in a nuclear accident[3].

There are essentially two basic international conventions concerning the legal liability of a nuclear energy station operator. These are the *Paris Convention dated as 29th July 1960 Concerning The Legal Liability Of Third Parties In The Area Of Nuclear Energy*, which was entered into by contracting states (most of them are Western European Countries) under the auspices of OECD in order to form an effective compensation mechanism, and the *Vienna Convention dated as 21st May 1963 Concerning The Legal Liability Against Nuclear Damages*, entered into for forming an international regime under the sponsorship of IAEA (International Atomic Energy Agency) within the scope of the main principles of Paris Convention[4].

The Paris Conventions bears the qualification of being comperatively more regional, while the Vienna Convention was intended for creating a larger system[5].

The third party nuclear liability and compensation regime as regulated in both of these international conventions base on the following essential principles[6].

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3 **Schwartz,** p.314.

4 **Mohan, Ram** (2015), Nuclear Energy and Liability in South Asia, Institutions, Legal Frameworks and Risk Assessment within SAARC, New Delhi, Springer, p.3.

5 **Nocera, Fabrizio** (2005), The Legal Regime of Nuclear Energy, A Comprehensive Guide to International And European Law, Antwerpen-Oxford, p.411; **Charreton, Pierre** (2014), "Towards a Necessary Optimization of the Nuclear Liability Regimes", Nuclear Law in Progress, Congress-Buenos Aires, INLA, p.655.

6 **Thomas, Anthony/Heffron J. Raphael** (2012), Third Party Nuclear Liabilty: The Case of a Supplier in the UK, University of Cambridge. <http://www.econ.cam.ac.uk/research-files/repec/cam/pdf/cwpe1207.pdf> l.a.d. 17/09/2018, p.3; **Pelzer** (2010), p.357; **Mohan**, p.5; **Pelzer, Nobert** (1999), "Focus on

- The strictly liability of the person running nuclear facility,
- Directing the liability to the person running the facility,
- Limiting the liability of the person running the facility in terms of time,
- Limiting the liability of the person running the facility in terms of volume,
- Ensuring a financial guarantee as equal to the liability of the person running the facility,
- The state courts that are party to the convention, where the nuclear accident occurred, to have the exclusive judiciary power,
- Enforcement of applicable and supplementary national law and conventions without any exception based on place of residence, the residential area and nationality.

The person to be held liable for damages occurring in case of a nuclear accident is recognized as the one running the facility in both conventions. The liability was canalized to the person running the nuclear facility in order to support the nuclear industry, and in order not to confront other actors in this area with the liability threat and risk of financial collapse[7]. The person running the nuclear facility, in which the nuclear

The Future of Nuclear Liabilty Law, Reform of Civil Nuclear Liability", Budapest Symposium, OECD NEA Publications, p.426; **Kolehmainen, Heikki** (1999), "The Modernisation of the Internetional Nuclear Third Party Liability Regime-Does Exclusive Liability still Make Sense?", Budapest Symposium 1999, OECD NEA Publications, p.456 et al.

7 Where the liability is required to be directed, there are two approaches named as "legal direction" and "economical direction". The first one, as stated in the conventions, is based on the principle that the liability is laid on the operator but anyone. In general, while the economical approach, adopted within the scope of Price Anderson Act in America, lays the legal liability on a person like the supplier or the institution, the legal consequences of the liability as economical matters are attributed to the operator, as well. **Burns, G. Stephen/Vasquez-Maignan, Ximena** (2014), "Progress Towards A Global Nuclear Liabilty Regime", Nuclear Law in Progress, Congress-Buenos Aires, INLA, p.639-640; **Trevor, J.P.H** (1969),"Principles of Civil Liability for Nuclear Damage", Nuclear Law for a Developing World, Vienna, IAEA, p.110 et al.
Canalization of the liability to the operator make it easier for the victims to find a drawee concerning the accident, thus making the suppliers, as a part of the industry, include in the system as financially secured. **Pelzer** (1999), p.478.

accident occurs or the nuclear particle is transported is held liable without any condition for faults. Within this context, the liability of the person running the facility, on which a nuclear accident occurs or a nuclear particle is transported is called as *strict liability*. The person running the facility is also provided with the opportunity for immunity evidence. Having no escape evidence is an indication that the liability laid on the person running the facility is the hazard liability[8]. Unlike the tort actions, there are two main reasons why the person running the facility is the only one held liable. First of all, it is aimed at preventing the complicated long lasting set off and compensating the victims for their losses[9] by creating a situation where the person running the facility is specifically held responsible. Additionally, since this will be a basis for eliminating the liability to take out policies, expect for the person running the facility, it is also aimed at eliminating the problems, which may be faced concerning the financial security and insurance coverage. As a result of holding the person running the facility as liable, those who are the injured parties of the nuclear accident do not have to prove the negligence or failure of the person running the facility. It will be enough for the victims to prove the root cause between the nuclear damage and nuclear accident. On the other hand, in the event that the nuclear damage is caused by a direct armed conflict, invasion, civil war, uprising or a calamitous natural disaster, there are some special exceptions where the person running the facility can be immunised from its liabilities based on certain reasons that are not immunity evidence, yet breaking the root cause[10].

Certain special limits set forth in terms of the compensation amount and time, for which the person running the nuclear facility is held liable on international conventions Today; the strict liability is

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8 **Güneysu, Gülin** (1989), "Legal Liability Evolving Out of The Damages Caused by Nuclear Reactors", Ankara University-Law School Journal, 1989-1990, Volume 41, Issue 1-4, p.208.

9 **Déri, Kataalin** (1999),"Insurance Agreement Covering the Paks NPP", Reform of Civil Nucelar Liability, Budapest Symposium 1999, Nuclear Energy Agency, p.400.

10 **Saxena, Vaibhav** (2014), "Nuclear Liability, New Dimensions and Emerging Trends, Nuclear Law in Progress", Congress-Buenos Aires INLA, p.683; **Thomas/Heffron**, p.36; **Schwartz**, p.310-311.

adopted in such countries as Germany, Japan, Switzerland, and provided the damages are limited to the boundaries of its own country, Finland[11].

While it is the liable one to compensate all the damages within the scope of traditional tort provisions, a limit is brought into the liability amount of the person running the facility, against the destructive compensation claims in the area of nuclear liability[12]. In general, it is tried to determine this amount that the insurance coverage secured by the person running the facility as financial security corresponds with the amount that can be paid by the insurance market. This limitation is recognized as a matter, which needs to be undertaken by the victims of the accident, due to the fact that it is only the operator that is strictly held liable, in terms of "quid pro quo"[13]. For the compensation claims exceeding this amount, other solution mechanisms like public funds can be used[14].

Limiting the liability in terms of time is of importance for the defendant person running the facility, the insurer of this person or other financial guarantors. Yet, the insurers do not intend to reserve any funds for a long time concerning the expired policies. Just like the amount-aspect, the limitation for the time is determined based on the maximum guarantee period that can be granted by the insurers in accordance with the insurance market's own dynamics. This period is generally limited as 10 years starting from the date of nuclear accident[15]. Where the causal relation of compensation claims for the damages evolving out of the cancer cases due to the radiation 20, 25 even 30 years after the nuclear accidents is settled[16], the insurance companies face with some serious problems[17].

In this regime as internationally adopted, for the liability of the person running the nuclear facility against third parties to be secured, it

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11 **Burns/Vasquez-Maignan,** p.640.

12 **Trevor,** p.111.

13 **Schwartz,** p.313.

14 **Thomas/Heffron**, s.36; **Pelzer,** (1999) p.433 and 439 et al.

15 **Trevor**, p.112.

16 **Cavers, David F**. (1964), "Nuclear Energy, Tort Liability and Financial Protection", Nuclear Energy, Public Policy and The Law, New York University School of Law, p.63.

17 **Schwartz**, p.313; **Saxena**, p.683; **Pelzer** (1999), p.430.

is required for the liability of the person running the facility is financially secured. Even if this security often appears as insurance coverage, the bank guarantee, operator pool system, self-insurance[18] and even a guarantee or security granted by the state where the nuclear facility is located can meet this financial guarantee requirement.

The scope of financial guarantee, as above stated, is determined based on the guarantee conditions to be provided by the insurance market in terms of money. Within this context, the guarantee amount as subjected to domestic law and as projected by the international regime must be evaluated as independent from the insurance market int erms of money and time, and also from the premium amount that can be paid by the operators. Although still the the nuclear insurance market is far beyond the limits settled about 50 years ago, the guarantee amount granted today is still behind the needs of nuclear energy industry. In many circumstances, the financial guarantee limits are mostly determined by the state where the nuclear facility is active within the limits as set forth by the international conventions, the local companies often apply for the application of pool mechanism in order to reach the maximum guarantee amount, thus trying to make a balance through this manner.

The court that has the judiciary power within the scope of international conventions is recognized as the contracting state court where the nuclear accident occurs and where the liable operator is active. Therefore, the other contracting state courts as a party to the convention will refuse the lawsuits, thus recognizing the decisions to be made by the competent state court. Thanks to this principle, all compensations claims will be evaluated under a single judicial authority, thus preventing the forfeitures due to the applications made on different court on different dates.

Where the applicable law is to be determined, the laws enforced by the member state court having the judiciary power were recognized. It was taken as basis that the contractual provisions and supplementary national laws are to be enforced without any discrimination based on dwelling area, place of residence and nationality. The objective of this is to

[18] **Schwartz**, p.312.

eliminate any possible legal contradiction concerning the determination of applicable law.

As in all the other principles mentioned, the authorized court and the applicable principles that are legally valid, possess the capacity to be applied with regards to the convention member states, only[19].

In the area of nuclear liability law, the western countries that possess well-developed nuclear industries lead to the process of forming the international regime. Additionally, the efficiency of such international mechanism is deeply connected with the international insurance market to unite their sources with coinsurance and reinsurance mechanisms, as well as forming an extended financial guarantee mechanism[20]. However the efficiency of the conventions mentioned in time has unfortunately started to be approached with suspicion. Yet, keeping most of the countries having the required capacity for nuclear energy production out of these conventions[21], national legislation of many countries starting to differ from the principles and bases as set forth in the conventions, and the changes in the industrial structures of the countries led an increase in the discussions concerning the canalization of the liability, the problems on the compensation system concerning whether the liability is to be limited, or not, as well as the concerns regarding the inefficiency of this regime. As a consequence of these developments, both Paris and Vienna conventions have been revized with supplementary and mutual protocols in different dates[22].

C- THE EVALUATION OF NUCLEAR LIABILITY REGIME AS SPECIFIC TO EUROPEAN UNION

Despite the fact that the European Union has an extended legal infrastructure particularly for the safety of nuclear facilities, it still sweats over the harmonization of legal structure concerning the nuclear liability regime in different characteristics that are valid in member states.

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19 **Thomas/Heffron**, p. 36; **Saxena**, p.683; **Schwartz,** p. 314-315 and p.321.

20 **Saxena,** p. 683; **Schwartz,** p.314-315.

21 Yet, many countries like USA and Japan, whose energy production is mainly based on nuclear industry is not a member to these conventions. See: **Nocera**, p.411.

22 **Mohan**, p.4.

There is also a structuring divided correspondingly to the international regulations in EU. Notwithstanding that various conventional regimes and protocols have been confirmed in 23 member states[23]; Austria, Cyprus, Malta, Ireland and Luxemburg apply their own domestic legal rules for nuclear liability, as the countries that are not party to the convention. Therefore, it does not seem possible for the United European Nuclear Liability Regime to be applied.

As above stated, even if the nuclear liability regime as agreed upon via the international regulations are based on the mutual principles and rules, the nuclear liability regimes of 23 member states do not fully correspond with each other, due to the differences in Paris and Vienna Conventions. This constitutes an impediment for the domestic market of European Union to function efficiently. Other than that, as a result of member states are subjected to different conventions within the scope of the Convention Concerning The Functioning Of European Union, taking different decisions based on the citizenship among the European Union citizens will constitute inconsistency in the EU Law[24].

The liability evolving out of the nuclear damages in countries that are not party to the Conventions will be determined in accordance with these countries' national law, while the procedural law will be determined as per the other judicial decisions and Brussels Regulation. The regulation no.: 44/2001 dated as 22nd December 2000 provides a satisfactory protection for the victims, even a more comprehensive one compared to

[23] 13 out of 23 countries in the international regime is not a party to the Paris Convention-1960, while 11 of these does not recognize the system projected by Brussels Supplementary Contract-1963. 10 members were integrated in Vienna Convention-1963, while 3 of these were integrated in Vienna Protocol-1997. While 18 member countries signed the Mutual Protocol, other 5 member countries that are a party to Paris Convention did not confirm the Mutual Protocol. While various liability limitations are accepted in 19 member countries, the strict liability principle prevails in 10 countries. While the minimum financial liability amounts differ from each other in 19 countries, there is no minimum liability amount in 9 member countries. See: **Gabartas, Herkus** (2014), "The Challenges for Co-Existence and Harmonization of Different Nuclear Liability Regimes In The European Union", Nuclear Law in Progress, Congress-Buenos Aires INLA, p.767.

[24] For the resolutions and detailed information concerning Court of Justice of European Union on this matter see: **Gabartas**, p.769.

Paris and Vienna Conventions. The forum shopping rule within this regulation grants the victims to make a choice between the state courts where the accident or the damage occurs. However, this situation will lead a problem where the lawsuit brought in by the prosecutor victim in its own country, which is not a party to any convention, is enforced in the country where the person running the facility inhabits. Within this scope, the opposing view arguing that the judiciary power of each country is based on the public order express the thought that certain decisions taken in a non-EU country that are recognized in certain EU member countries, while not recognized in the country of the defendant running the facility will not be accurate within the scope the above stated Regulation and EU basic principles. In this context, the Court of Justice of the European Communities are expected to resolve this matter as soon as possible taking the interest of the parties into consideration[25].

Since the presence of an absolute regime does not seem possible globally, it is recognized as the primary objective to ensure the regional harmonization within the Union. Within this objective in mind, three separate study groups were formed by Expert Group on Nuclear Liability (INLEX) within the Union[26] in order for the evaluation of the compensation claims, as well as working on insurance amount, capacity and international conventions[27]. As a result of the evaluations and designations, INLEX made certain recommendations that the member states are to confirm the protocols as revisions as immediate as possible; that the countries that are not party to any convention are to be included in the system; that the required steps are to be taken in accordance with Euratom Agreement and relevant directives; and that the road map is to be strictly followed[28].

Considering the current situation, even though the regional nuclear liability regimes generate a shattered structure, we think that there

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25 **Gabartas**, p.774 et al.

26 For detailed information on INLEX see <https://ola.iaea.org/ola/inlex-group.html> l.a.d. 16.03.2017.

27 **Beyens, Marc** (2014), "The EU Tentative to Harmonise Nuclear Liability Amaong The EU Memeber States", Nuclear Law in Progress, Congress-Buenos Aires INLA, p.663.

28 **Gabartas,** p.783 et al.

can be one more consistent and reasonable European nuclear liability system based on the global developments.

II- NUCLEAR INSURANCE

A- OVERVIEW

Insurance is a financial security providing the businesses exposed to an unexpected event or accident with the opportunity to go back their existing financial balance via risk transfer in terms of financial and commercial life aspects. However, the function of insurance is not limited to providing assurance by securitizing such risks as fire, natural disasters, loss of profit, third party liabilities, etc., which may affect the business life of the insured, thus compensating the damages of the victims. Hence, in terms of business organizations operating in certain areas like the nuclear industry, of which financial aspects may cause irrevocable consequences, the liability risk against third parties in case of a serious accident, and the financial loss in the business due to this accident, are in fact a nature that may deeply affect the whole branches of the industry, including that business organization. For this reason, it is a nonignorable fact that the insurance for nuclear energy is of vital importance for the development of nuclear industry. It would even be an accurate thought to say that the current situation of nuclear energy industry and international liability regime cannot develop as independent from the insurance sector[29].

The business organizations in the area of nuclear energy are unwilling to be active in the nuclear industry both in terms of the financial losses for the facilities, and concerning a financial security for their liabilities against third parties. Additionally, in countries where the governments do not get into the act in the area of nuclear industry, thus not providing any financial guarantee, the insurance does have a vital role in the designation and development of nuclear industry[30].

The nuclear insurance also has a determinant impact for the basic matters of nuclear liability law. Yet the liability limit is determined

[29] **Tetley, Mark**, "Nuclear Insurance, Yesterday, Today, Tomorrow", Nuclear Law in Progress, XII Congress-Buenos Aires, INLA, p.710.

[30] **OECD** (1994), p.29.

in accordance with the capacity of the insurance, while the time limit is determined as per the principles of insurance, as well. The reason for holding the person running the facility exclusively liable is that it is aimed to unite the current capacity in a single policy rather than being shared by the operator, supplier and the contractor based on the insurance technique[31].

Just like in the other insurance subject matters, the basic insurance principles and terms are valid in the area of nuclear insurance. However, particularly *reinsurance* and *underwriting process* for the approval of risk are of vital importance for the nuclear insurance.

B- NUCLEAR INSURANCE POOLS

It is quite important for the insurers that the risks to be undertaken are measurable and the liabilities are set within certain limits. The size of risk and the liability frame are the basic parameters for determining the compensation amount to be paid and the premium calculation[32].

Right at this point, the insurance pools[33] appear to us as one of the most critical instruments of insurance market, where there is not too many risks to be insured; where there is not enough knowledge consequences and size of the risk[34]; where the technical expertness is not satisfactory; above all, where there are full-scale risks that a single insurance company cannot handle in terms of its capacity for undertaking risks[35].

With the insurance pool, the insurers eliminate the situation of large financial losses and even bankruptcy, which they may confront in

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31 **OECD** (1994), p.30.

32 **Quattrocchi, John L.** (1999), "Nuclear Liability Insurance in The United States: An Insurer's Pective", Reform of Civil Nucelar Liability, Budapest Symposium 1999, Nuclear Energy Agency, p.398.

33 **Ampovska Marja** (2017), "Nuclear Insurance Pools Worldwide: The Role in the Nuclear Law" Balkan Social Science Review 9, p.7.

34 **Tetley**, p.716.

35 **Reitsma, Sebastiaan M.S.**; " Nuclear Insurance Pools: World-wide Practice and Prospective", Swiss Nuclear Insurance Pool, See: <http://www.iaea.org/inis/collection/NCLCollectionStore/_Public/31/051/31051428.pdf, > p.715, l.a.d. 04.05.2017.

case of a single nuclear accident, and at the same time, they form a protection mechanism securing the financial benefits of those with the potential of experiencing nuclear risk thanks to the financial vastness they created.

The operation of the nuclear insurance pools is performed within the framework of the principles stated on pool management contract. Having a few operational differences, this system is based on the principle of uniting a large insurance capacity that is for nuclear risks and cannot be met by a single insurance company, and of transfering this risk to comparatively smaller elements within a community where many insurance companies appear[36]. However, each pool may have certain unique characteristics and methods based on the economic and social reasons or the market conditions[37]. For example; while in certain countries like England, USA, Brazil, Canada, Japan, Korea, South Africa, the pool draws up a direct contract and policy with the member and distribute the premium to the members after that, in many Continental Europe countries, the pool does not have the legal authority to finalize any transaction; a fronting company[38] draws up the contract on behalf of the pool, collects the premiums and deal with the compensation claims, in case of accidents.

C- THE GUARANTEE COVERAGE OF NUCLEAR INSURANCE POOLS

While almost all the nuclear insurance pools offer third party liability coverage, certain pools keep this coverage as extended for transportation and workers' compensation; and some other pools, in fact, offer coverage for the damage of properties (inter-facility) along with the liability insurance[39]. Some pools may even offer coverage for the construction and re-construction of the nuclear facility within the scope of construction/mounting all risk policies. Additionally, most lately it can be seen that some other coverages are provided as protecting the balance sheet of the nuclear operator or ensuring profit distribution factors.

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36 <www.nuclearinsurance.com, ANI-Brouchure.pdf>, l.a.d. 04.05.2017.

37 **OECD** (1994), p.32.

38 **Milli Re T.A.Ş**. (2004), Annotated Dictionary for Insurance-Re-insurance terms, Istanbul, p. 122; **Reitsma**, p. 715.

39 **Reitsma**, p.717.

Even though the business organization that are covered are mostly limited to nuclear energy stations, there are also pools to offer coverages for nuclear fuel production facilities, research reactors, nuclear waste treatment facilities, reprocessing plants, nuclear waste facilities that are in the stage of being shutdown, and for the business organizations providing transportation for nuclear fuel and instruments. Some pools, of which number is quite low, offer coverage for radioisotopes and nuclides used in industrial, agricultural and medical areas, as well. Despite being evaluated within the same qualification level concerning the coverages offered against nuclear risks, certain risks that do not bears the qualification of a catastrophic event are kept out of the pool in many countries, and they are covered by individual insurance companies[40].

In terms of third party liability insurance, the coverage is generally shaped within the scope of the international regulations, on which the financial coverage is determined as to be undertaken by the operator to provide. Hence, it is recognized as a preliminary condition in many countries to provide an insurance coverage, for establishing a nuclear facility or going into action.

D- NUCLEAR INSURANCE POLICIES

Nuclear insurance policies are not that different from the other traditional insurances. The only difference is that it is regulated as per certain technical principles, which are required by the nuclear actions. Within this scope, the nuclear insurance policies can be regulated both in accordance with the liability law concerning the nuclear damage and the general principles, rules and legislation provisions as set forth by the domestic law concerning the insurance law.

The insurance policies for nuclear industry are presented under two main topics. The first one is an actual financial damage that may occur on the assets of the operator within the facility, or the damage on properties that, under certain circumstances, cover the income loss as well; and the second one is the third party liability coverage for the individuals and business organizations suffering from the damaged assets of the operator due to the accident other than the facility itself.

[40] **Reitsma**, p. 716.

1- Third Party Liability Coverage

In the policies offering liability coverage, the operator's liability against third parties concerning an accident occurring in its facility or during the transportation of a nuclear material is covered.

a- In Terms of Facility Accidents

The nuclear liability determining the subject matter of the policy, due to an accident occurring in the facility of the operator is determined in accordance with the domestic law regulations formed within the scope of the international conventions, provided it is a member, within the country where the nuclear facility is located; or directly with its own national legislation concerning the liability law of that country.

The contracts offering liability coverage are generally drawn up for one year, and the compensation payment is made depending on the consequences of the accident occurring in the period of time the contract is in force. In general, compensation payments can be made within 10 years after the accident occurs, or within 2 - 3 years after it is claimed.

The policy limits are generally set forth a bit higher than the legal liability amount, except for certain exceptions. Hence, the insurance policies offer coverage for the currency of the contract (generally one year) or for the operating life of the nuclear facility as in England, unlike the conventions determining the liability amount per accident, only. Due to this reason, it is aimed at ensuring the continuity of the missing insurance coverage with a replacement limit for the rest of contractual period, after the accident. On other words, it is not possible for the coverage to keep its extent automatically following the payment of compensation. Any compensation payment decreases the limit set forth in the policy. Therefore, it is ensured for each member company of the pool not to exceed the risk amount as undertaken within the financial period[41].

Considering the nature and size of the destruction occurring after a nuclear accident, it often cannot be easily determined whether it is a traditional damage based collapse, or it is nuclear. Therefore, the dam-

[41] **OECD** (1994), p.36.

ages suffered following a single nuclear event is covered with a single nuclear liability insurance policy, including the traditional damages, as set forth in the international conventions. Taking both type of damages under coverage with a single policy is suitable particularly for the insured and those exposed to these damages, while the non-nuclear damages are covered in a separate section with separate limitation in terms of subjecting them to the international conventions and the principles for nuclear liability.

Within the scope of popular practise, the damages caused by armed conflict, war or natural disasters, which occur the most in the country, are excluded from the scope of the coverage. However, in countries where the natural disaster occurs rarely, the nuclear accidents occuring after a big natural disaster can be covered, as well. In the event that a natural disaster risk is excluded from the coverage in the policy in accordance with the legislation, it can be seen that there has been some certain event in which the governments compensated the damages caused by this risk. The damages caused by civil rebellion, civil strife and acts of terrorism can be covered/excluded depending on the coverage. The damages caused by nuclear armament are not covered within the insurance policies. Even though the person running the facility has legal liabilities for the damages caused by its malicious and intentional acts, the nuclear insurance pools cover the damages caused by intentional and malicious acts. In accordance with the legislation where such obligations are applied, the insurers do not have the right of recourse against the operator concerning the payment made[42].

b- With Regard to The Transportation of Nuclear Materials

The person running the facility is liable for the damages caused by the nuclear materials kept under its own responsibility until the liability of the materials is transferred to some other person or until the liability is transferred to another legal entity with a contract. While in such limited number of countries as Switzerland, England and USA, the liability of the operator due to the transportation activities carried out within the

[42] **OECD** (1994), p.37.

boundaries of the country where the facility is located is covered with the third party liability policy of that operator, in many other countries, the liability concerning the damage evolving out of the transportation activities both inland and abroad is covered with a separate insurance policy.

Based on the frequency of transportation activities, apart from having the opportunity to regulate an independent policy for each transportation activity, the operator can also be covered for any and all the transportation operations covering a certain period of time (generally one year). On the other hand, the operator informs the insurer concerning all its transportation activities during the period of time as agreed upon. Despite providing time-saving for the operator, this situation may cause certain problems in multiple transportations.

The liability insurances evolving out of the transportation of nuclear materials are covered by traditional insurance company in some countries, while this practise is generally accepted as that this risk is to be covered by nuclear insurance pools.

Despite the fact the person running the facility undertakes a certain level of legal liability per nuclear accident within the framework of the national legislations and international conventions, the insurers offer coverage per transportation concerning the liability evolving out of the nuclear material transportation. By this means, the insurers will be able to control the maximum compensation amount that they will be required to pay against more than one accident risks, even if the possibility for this to occur is not very high. However, the insurance amount is still set as comparatively higher than the amount, for which the person running the facility is held liable, against certain residual demands coming off following the accident.

The liability of the operator against the transportation of nuclear materials is determined within the scope of national legislations and international conventions, as in the facility liability. Yet, in some countries, the liability of the operator for transportation may differ based on the characteristic of the material being transported. However, there is specific matter concerning the liability for transportation of nuclear materials. It is possible to face with different legal regulations concerning the liability, in the event that the transportation is made in different countries. In the event that the each and every country is subjected to the same

international convention on the transportation route, the applicable law is the same. But in this situation, there will be only one government with the judiciary power, and the liability level of the operator will be determined as per the national law. In the event that the transportation is made on the open sea, the national law, which the operator is subjected to will be enforced. If one of the countries on the transportation route is a party to any convention, while other country(ies) are not, it is inevitable to confront with various legal problems[43].

2- Coverage of the Property Damage

In case of a nuclear accident, it is of vital importance to cover the property damages, just like third party liability, in order for the operator to maintain its financial sustainability, as well as the continuity of nuclear industry. Particularly in this kind of policies, the site cleaning after the accident is highly significant.

On the policies providing coverage for the properties as issued by the nuclear insurance pools, the objective is to compensate the financial damages in the nuclear facility and the area. Along with the coverages offered within the scope of traditional fire insurance, certain events of contamination caused by uncontrolled reactivity and radioactive materials like reactor overheating and unintentional chain reaction are covered in the policy, as well. As it was already mentioned before, it is not an easy task to determine whether the damages are caused by nuclear events, or not during the accident.

The materials, equipment damaged due to the radioactive contamination can only be covered over its insurable interest value based on the enrichment prohibition, as a principle of insurance profession. However, since the cost for the damage compensation exceed the numbers in question, additional cost items are generally included in the policies. The expenditures for the cleaning of radioactive waste are to be specifically stated within the policy. As a matter of fact, in certain policies, the process for removing the undamaged materials within the plants that are in a position to be shutdown soon following an accident, can be included within the scope of the coverage. Besides, it is sometimes recognized as a must to take out property insurance policy for nuclear reactors as in

[43] **OECD** (1994), p.38.

USA, and the insurer is expected to clean and secure the area before making any compensation payment.

Machinery breakdown coverage as specific to facility differs in insurance markets. In fact, the coverage in certain policies are for the assets concerning the nuclear damages, while it is offered as an independent coverage; it is also possible to be covered from traditional insurance companies rather than nuclear insurance pools in some markets.

The direct damages and the profit losses that the operator suffers from are also presented within the scope of property damages[44]. However, these coverage units, are mostly regulated with a separate contract, despite being limited with the main coverage concerning the property damages.

The physical damages as exposed to these materials during the transportation of nuclear materials are not covered by the nuclear insurance pools. These damages can be covered with traditional insurance policies[45].

III- LEGAL LIABILITY OF THE NUCLEAR POWER STATION OPERATOR IN TURKISH LAW

A- OVERVIEW

In nuclear liability insurance, in order to understand the scope of insurance coverage, the cases excluded from the coverage, damage-compensation relation, in other words, to understand the contract in practise, the subject matter of the insurance contract, meaning the liabilities of nuclear power station operator and the person transporting nuclear materials, need to be set forth. The legal infrastructure, in force in our country regarding nuclear responsibility which we will try to examine in this title, is extremely important for this.

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[44] In accordance with Turkish domestic law and TCC article no.: 1453/f.2, the loss of profit due to the accident/event, and the damages evolving out ot the faults of the insured property is not covered by the insurance. However, as it can be clearly understood from the letter of article, this provision is not imperative, thus allowing contrary regulation.

[45] **OECD** (1994), p.39.

Turkey signed many international agreements concerning the legal liability of nuclear power station operator, and the law no.: 5710 concerning the establishing, operating of nuclear power stations and energy sales dated as 9/11/2007 is of vital importance, with regards to the contract being reflected to the domestic law, even though this is indirectly made. On the other hand, in accordance with the article no.: 90 of Turkish Constitution ensuring that the due international covenants are statutory, it is confirmed that Turkey signed the Paris Convention as amended with the relevant Protocols, and that the Paris Convention is a supplementary part of Turkish domestic law with the confirmation code no.: 299 dated as 08.06.1961[46]. Therefore, the essential regulation to determine the nuclear liability principles and the context of insurance contracts is Paris Convention, in terms of Turkey having no specific legal regulation concerning the nuclear liability.

B- PARIS CONVENTION DATED AS 29TH 1960 CONCERNING THE LEGAL LIABILITY AGAINST THIRD PARTIES IN THE AREA OF NUCLEAR ENERGY

The Paris Convention was entered into in Paris on 29th July 1960 in order to establish an international system ensuring the compensation of damages in the event that the third parties are exposed to damages in the relevant country or other countries that are party to the convention, while the nuclear facilities under the judiciary power of contracting party countries are operated or during the transportation of nuclear materials, and it is the first international regulation entered into force on 1st April 1968. Within the scope of its practises, it served as a model to the regulations and domestic law contexts regulated after it[47]. The secretariat of the convention is carried out by OECD (OECD 1994). Today, there are 16[48]

[46] **Güneysu**, p. 215-216; **Ulusan, İlhan** (1996), "Türk Hukukunda Nükleer Zararlardan Doğan Hukuki Mes'uliyet", Prof. Dr. Halit Kemal Elbir'e Armağan, İstanbul, p.552 ff.; **Aydoğdu, Murat** (2009), Sivil Amaçlı Nükleer Santral İşletenin ve Nükleer Madde Taşıyanın Hukuki Sorumluluğu**,** Adalet Ankara Publisher, p.202.

[47] **Schwartz**, p.316.

[48] Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Turkey, England. (Austria and Luxemburg did not approve it, despite signing the convention dated as 1960). See: **OECD** (1994), p.45, **Burns&Vasquez-Maignan**, p.635.

contracting party countries[49] signing the Paris Conventions, almost all of which are developed western countries, and to which Turkey[50] is a party.

Considering that the liability amounts set forth in Paris Convention cannot provide satisfactory protection, the convention was revized with various supplementary contracts and protocols. Projecting a three-step compensation system and being the first supplementary protocol, the Brussels Supplemental-Contract was entered into in Brussels on 31st January 1963, while the Protocols[51] amending the contract were signed[52] on 28th January 1964 and 16th November 1982, and the *Mutual Protocol Concerning The Enforcement Of Vienna Convention* was contracted on 21st September 1988[4]. Turkey signed this Mutual Protocol with Protocol 1964 and 1982, thus reflecting it to our domestic law[53]. Today, Paris Convention revized with the 1982 Protocol is in force for Turkey.

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[49] Apart from the fact that Paris Convention is open to all countries that are a member of OECD, it was provided for the other countries to become a party to the convention, based on the decision to be unanimously taken by the member countries. However, NEA member countries, which are not European, "Australia, Canada, Japan, Korea, Mexico and USA" were not included in the Convention. Therefore, the Paris Convention, in fact, gives the impression of a regional European Convention. For the signature and confirmation dates of the member countries (Australia, Luxemburg) signing the convention, and the original convention. See: <http://www.oecd-nea.org/law/paris-convention-ratification.html>; <http://acts.oecd.org/Instruments/ShowInstrumentView.aspx?InstrumentID=199&InstrumentPID=195&Lang=en&Book= >, l.a.d. 04.08.2016. Additionally, See: **OECD** (1994), p.45.

[50] Turkey signed the Paris Convention on 29th July 1960 and brought it into effect with the law no: 299 concerning "*The Confirmation of Convention On Legal Liability In The Area Of Nuclear Energy*" dated as 08.05.1961, published in Official Gazette dated as 13th May 1961, with the issue no 10806.

[51] The earliest form of the convention in 1960 entered into force with the Protocol - 1964 on 1st April 1968, and with the Protocol - 1982 on 7th October 1988. The latest protocol amending the convention is the Protocol - 2004, yet it is not in force. See: http://www.oecd-nea.org/law/paris-convention-ratification.html, l.a.d. 24.03.2017).

[52] **Schwartz**, p.316.

[53] The Supplementary Protocol-1964 amending the Paris Convention concerning the Legal Liability against Third Parties in the area of Nuclear Energy was confirmed with the law no.: 868 dated as 01.06.1967, published in the Official Gazette on 13.06.1967 with the issue no 12620; The Supplementary Protocol - 1982 amending the Paris Convention concerning the Legal Liability against Third Parties in the area of Nuclear Energy was published in the Official Gazette on 23.05.1986 with the issue no 19115 in accordance with the Council of Ministries' Decision no: 86/10513; and

Due to the needs and new matters evolving in time[54], on 12th February 2004, the Protocol-2004 was signed by the contracting party countries of Paris Convention, however this protocol hasn't entered into force, yet[55]. For this convention to enter into force for Turkey, it needs to be confirmed by GNAT (Grand National Assembly of Turkey).

Paris Convention, as above stated, is based on certain essential principle as the determination of the liability connection and limitation, ensuring financial coverage for the liability and a simple adjudication for these matters. Within this scope, the following questions are answered in the contract: Who will be held liable for which situations? Who will be the one to be get paid with the compensation? Which damages will be compensated? What will be the quantitative and time limitation of the liability? How will the financial coverage be provided? How will the applicable law and proceeding be determined?

The area of application was essentially limited in terms of "*subject matter*" in Paris Convention. The system was not kept as extended to cover the damages evolving out of any nuclear event, but rather, it was built on a system of compensation for the exceptional risks. The contract set area of application only for the situations in case of accidents while operating a nuclear power station or during the transportation of nuclear materials. Therefore, it would not be wrong to say that the liability as based in Paris Convention is, in fact, a liability evolving out of nuclear risks or nuclear accidents; however, the damages caused by medical, commercial, agricultural or scientific purposes are not covered within the system, except for the nuclear facility and nuclear energy[56]. For the damages that are not covered, it is possible to utilize the tort provisions.

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the Mutual Protocol concerning the Application of Paris&Vienna Conventions was published in the Official Gazette on 19.11.2006 with the issue no: 26351 in accordance with the Council of Ministries' Decision no: 2006/11171.

54 **Schwartz**, p.316.

55 For the following amendment accepted as per 20th article of the Paris Convention to enter into force, 2/3 of the countries signing the convention must confirm it: "*Any amendments made on this Convention shall be accepted with the conjoint consents of Contracting Parties. These shall enter into force with the confirmation or approval of 2/3 of the Contracting Parties. After the confirmation or approval, the amendment shall enter into force after the confirmation or approval date for each Contracting Parties.*".

56 On article 1/(a)(ii) of the Convention, the nuclear facility definition is provided, and it is set forth that the Steering Committe of the Organizational Nuclear Energy

Another criteria for the provisions of Paris Convention to be applied is that the nuclear accident has to occur due to a nuclear power station being used for peaceful purposes within the borders of the country that is a party to the convention. In this context, the provisions of Paris Convention would be applied for the damages caused by an accident occurring in a country (England) as a party to the convention, affecting to another contracting state (France)[57]. This matter was drawn up as follows in the current convention on the second article: "*This Contract is not applicable for the non-party countries, as well as the damages occurring in these countries, unless otherwise is stated on the national legislation of the contracting party country, having a nuclear facility established with a liable operator, and provided that the rights stated on article 6 (e) survive*.

Within the scope of this provision, applying the provisions of Paris Convention concerning a non-contracting country or the damages in that country in case of an accident evolving out of the nuclear power station of a country, which is a party to the convention is only possible provided that the contracting liable country does have an applicable provisions concerning this matter in its own domestic legislation. In contrary scenario, the compensation of the damages suffered by a contracting country due to a nuclear power station accident in a non-contracting country is only possible provided that the non-contracting country causing the damage becomes a party to the Paris Convention, or it is ensured that the Paris Convention is set as the applicable law in their domestic law legislation in case of nuclear damages[58].

Additionally, a second exception arises from the following provision of the Convention, governing article no.: 6 sub-article (e): "*A person*

Agency may, from time to time, identify the articles to be included in the Convention within the scope of nuclear articles. Again in the Convention, the terms nuclear event, instead of nuclear accident, and occasionally the term "damage" are included. This leads certain deficiencies of the Convention with regards to the area of application. Hence, the term "nuclear damage", meaning the nuclear devastation" was included, apart from the term nuclear event; and the liability of the nuclear power station operator was accepted due to the ionized radiation, including the ionized radiation event within this scope. See: **OECD** (1994), p.46-47; **Schwartz**, s. 317, 332 ff.; **Trevor,** p.111.

57 **Sands, Philippe/Galizzi Paolo** (1999), "The 1968 Brussels Convention and Liability for Nuclear Damage", Budapest Symposium, OECD NEA Publications, p.479.

58 **Schwarz**, p.319.

or anyone working for this person compensating the damage caused by a nuclear accident occurring in a Non-contracting Country, and whose workplace is located in a Contracting Country acquires the rights against the operator in the absence of 2nd article, as equal to the amount he/she paid." The final exception is in the Mutual Protocol Concerning The Vienna&Paris Conventions. In line with the second article of this protocol, a nuclear facility operator in a country that is a party to the Vienna Convention is held liable for the nuclear damages occurring in a country that is a party to both Paris Convention and Mutual Protocol in accordance with the Vienna Convention, while the nuclear facility operator in a country that is a member to the Paris Convention is held liable for the nuclear damages occurring in a country that is a party to the Vienna Convention and the Mutual Protocol in accordance with the Paris Convention. Within this scope, since Turkey did not sign the Vienna Convention despite signing the Mutual Protocol shall be held liable for damages in any country that is a party to the Vienna Convention in accordance with the provisions of Paris Convention.

In accordance with the principle of canalization of the above stated liability due to a nuclear accident, *it is solely the nuclear facility operator to be held liable* as per Paris Convention[59]. The operator of the facility is the one in the sole operator position of the facility, assigned or recognized by the public authorities in line with the Paris Convention (article 1).

The Convention has been regulated in a manner leaving no room for doubt, and deeply detailing the liability of the facility operator. The liability of the operator was based on the strict and limited liability principle[60]. The only condition for the liability is the proof of causal relation between the nuclear accident and the damage. There is no need for proving the wilful misconduct or gross negligence of the damaging party. The liability is undertaken by the facility operator, where the factors concerning the accident are concluded in case of a nuclear accident (article 5/a). Based on the same nuclear accident, the operators are held severally liable, in the event that there are more than one facility operators (article 5/d). Where the operator cannot be held liable in accordance with the Convention, the liability is settled within the framework of the general provisions.

[59] **Schwarz**, p.318; **OECD** (1994), p.48.
[60] **OECD** (1994), p.47.

The matter concerning who will be held liable for the transportation and storage of nuclear materials[61], have been regulated on the 4th article of the Convention. The liability of the facility operator is not absolute regarding the accidents occurring during the transportation of nuclear materials within this scope. Under certain exceptional situations, the title "operator" can be transferred to the transporter, as well. Under such circumstances, the transporter is held liable for the accident with the capacity of "operator". Where the operator is held liable for transportation, the sending operator is held liable as a principle. The receiver can only be held liable for the accidents provided that the liability is undertaken in written form, or the accident occurs after the materials are delivered[62].

In accordance with the contract, the drawee for the damaged party in action for damages is the operator of nuclear facility. There is no need for the damaged party to stand an ill will against the transporter, unless it (the damaged party) is the supplier or the operator[63].

The operator is granted with the right of recourse only against those causing the nuclear accident with their faults[64] or those undertaking the liability with a written contract (article 6/f). The first situation covers the natural person, only; the employer of this person is not granted with the right of recourse in this situation (article 6/g). The operator or the transporter in the capacity of operator shall be held liable in whole within the borders of the liability limits for the damages, except for the reasons breaking the causal relation. However, the operator is not held liable against the damages of nuclear accident caused by a armed-conflict, invasion, civil war, rebellion and extraordinary natural disasters within the scope of its limited liability in accordance with the 9th article of the Convention[65].

The operator is held liable for any damages on people and property as principle (death, loss of physical integrity and property damages, provided they are caused by a nuclear accident) (article 3)[66]. However, the damages on the delivery vehicles, the facility itself and the property, as

61 **OECD** (1994), p.48.
62 **Schwarz**, p.318.
63 **OECD** (1994), p.48-49; **Schwarz**, p.318.
64 **Schwarz**, p.318.
65 **OECD** (1994), p.48-49; **Schwartz**, p.318.
66 **Schwarz**, p.319.

principle, are excluded from the liability area of the operator. Even in the event that the nuclear material is not possessed by the operator due to being stolen, lost, abandoned, etc., the liability of the operator survives based on these article [67]. In addition to these matters, where the damages on people and property are compensated together, it is stipulated to compensate primarily the damages on people, then the damages on property.

The Article 7/a of Paris Convention that is in force as amended on 1982 is as follows, concerning the limitation of the operator's liability in terms of quantitative aspects: "*The compensation amount claimed to be paid for the damages caused by a nuclear accident cannot exceed the maximum liability as settled in compliance with this article.*"; and this amount was set as 15 million SDR independent from the interests and legal expenses for the nuclear facilities on the following sub-article[68]. Additionally, the contracting country is provided with the opportunity to settle higher and lower amounts provided it is not under 5 million SDR, based on the authority granted by the convention. In case of joint liability, it is essential for the maximum liability amounts not to exceed these amounts per operator[69].

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[67] Even though this matter is not clearly stated in the convention, we are led to the conclusion, where the prescription time is set forth for situations within the article 8, sub-article (b) stipulating the prescription times.

[68] The SDR (Special Drawing Rights) is an international reserve asset, created by the IMF in 1969 to supplement its member countries' official reserves. the IMF may allocate SDRs to member countries in proportion to their IMF quotas. SDR serves as the unit of account of the IMF and some other international organizations. The value of SDR is determined based on the basket of certain international currencies. The value of the SDR was initially defined as equivalent to 0.888671 grams of fine gold — which, at the time, was equivalent to one US dollar, SDR is re-defined as the basket of currencies; and this basket consists of the US dollar, euro, the Chinese renminbi, Japanese yen, and British pound sterling. The value of the SDR in terms of the US dollar is determined daily and posted on the IMF's website. It is calculated as the sum of specific amounts of each basket currency valued in US dollars, based on exchange rates quoted at noon each day in the London market. Decisions on general allocations are made for successive basic periods of up to five years. See: IMF Summarized info: <https://www.imf.org/external/np/exr/facts/tur/sdrt.pdf>, l.a.d. 11.09.2018.
As of 11.09.2018, 15 million SDR is equal to about 18.084.000 Euros.
See: <http://sdr-ozel-cekme-hakki.tlkur.com/euro>, l.a.d. 11.09.2018.

[69] **OECD** (1994), p.49; **Sands/Galizzi,** p.483-484.

Within the scope of the 10th article of the Convention, it is a must for the liability to be taken under coverage within the scope of the financial limits set by the contracting country, thus maintaining this coverage. Having various alternative financial coverage mechanisms, the insurance is recognized as the most often utilized mechanism in practice[70].

The liability is limited to 10 years-of-period for the compensation claim on the 8 th article of the Convention. It was confirmed that the right of claims that are not used within 10 years shall be concealed, in line with this article[71]. However, within the scope of the authority granted to the contracting countries to make adjustments, the contracting countries are provided with the rights to constitute prescription and lapse of time provided it is not less than two years that the damaged party is informed with the details of the damage and the person liable for the damages. In addition to this, it was ensured that where the damage is caused by the nuclear material being stolen, lost, abandoned, disposed to the sea, etc., the projected period of time cannot exceed twenty years[72].

On the 13th Article of the Convention, the judiciary power is granted to the state courts of the contracting country, where the accident occurs. Where the exact location of the accident cannot be identified or where it occurs in non-contracting countries, the special authorization rules shall be in force as set forth in this article[73]. By this means, it is aimed at ensuring the collaboration of proceeding, thus compensating the damages of the victims in a more efficient and faster manner. On the other hand, the European Nuclear Energy Court, established within the scope of the *Convention Concerning The Formation Of Security Control In The Area Of Nuclear Energy* entered into on 20th December 1957 before Paris Convention is granted with the judiciary power for any conflicts in accordance with the 17th article of the Convention[74]. In the Protocol - 2004, the parties are provided with the opportunity to agree upon a mutual court in order for increasing the equality on the distribution of the compensation and consistence in the resolutions taken, in addition to the

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70 **OECD** (1994), p.50; **Schwarz,** p.320.

71 **Schwarz**, p.321; **OECD** (1994), p.50.

72 **Trevor**, p.113.

73 **Schwartz**, p.321;**OECD** (1994), p.51;**Trevor**, p.115.

74 **Korkusuz, Mustafa** (2012), Nükleer Santral İşletenin Hukuki Sorumluluğu, İstanbul, Beta Press, p.61.

above stated matters[75]. The Competent court has the authority to apply the provisions of its own domestic laws in addition to the provisions of convention.

The Convention Concerning The Supplementary Compensation On The Nuclear Damages and the Supplementary Protocol For Amendments On Vienna Convention contracted after the negotiations carried out in 1997 within the scope of Vienna Convention made it a current issue in question whether these amendments are required to be applied on Paris Convention and Brussels Supplemental-Contract. The objective was to provide more compensation payment for more victims, thus the amendments made on Vienna Convention being applied on Paris Convention.

There were some radical changes made in Paris Convention, when compared to the Protocol - 2004 signed on 12.02.2004 and other protocols. As a matter of fact, the minimum financial liability limit, which had been suggested to be increased to 150 million SDR on 20th April 1990 by OECD Nuclear Energy Agency Steering Committee in the first protocol, was then suggested to be increased to a quite higher level beyond the former amount: 700 million Euros[76]. Nevertheless, the lower liability limit was set to 70 million Euros for the facilities with lower risk capacity, and 80 million Euros for transportation activities; and the operators that are active in countries accepting the strict liability of the operator have to guarantee the lower limit of the financial liability as set forth in the Convention. Even though the limitation of the operator's liability is one of the essential principles in Paris Convention, Germany adopted the strict liability principles starting from the middle 80s. Therefore, it is out of question to exclude Germany from the convention, and also the convention provisions are tried to be interpreted in conformity with the new regime adopted in Germany[77].

The application area of the convention was extended on the Protocol - 2004, and in the event that the sufferer country is a party to the Vienna Convention or Mutual Protocol, despite being a party to Paris Convention, or it does not possess a nuclear facility or its nuclear liability

[75] **Schwartz**, p.321.
[76] **Pelzer** (2010), p.377.
[77] **Schwartz**, p.333.

regime provides mutual advantages that are in parallel with the principles set forth in Paris Convention despite having a nuclear facility, the Paris Convention is confirmed to have the application capacity.

As in Vienna Protocol-1997, the prescription period for compensations to be claimed for the deaths and injuries was increased to 30 years following the accident in the Paris Protocol-2004. Besides, the definition of the term "nuclear damage" was included in the Protocol, stating that along with the loss of lives and personal injuries, the financial damages based on these matters, the measures taken for restoring the damaged environment, as well as the income losses suffered due to the environmental damage were included in the nuclear damage. 2004 In the Paris Convention, the economic damages are only connected to the number of items, as differently from the Vienna Protocol; and other economic damages within the scope of civil law of the proceeding company are not included in the Protocol[78].

The OECD member countries are the only ones granted with the right for direct participation in line with the Protocol-2004, differently from Vienna Protocol-1997. However, as in the Slovenia example in 2001, it is possible for the non-member countries to be a party to the Protocol with the consensus of all the other contracting countries. Within this scope, the Protocol was undersigned by 16 countries, but since the convention was not confirmed by any countries, the validity provision hasn't entered into force due to fact that the approval requirement 2/3 couldn't be met[79].

IV- AN ANALYSIS CONCERNING THE NUCLEAR INSURANCE APPLICATION IN TURKISH LAW

Since there is no active nuclear power station in Turkey yet, there is naturally no nuclear insurance convention contracted as property or liability insurance for a non-existing risk up to today.

The Insurance Law no.: 5684, Article 15, the first sub-article is the prevailing provision as follows: "*People inhabiting in Turkey must have their insurance coverages of their insurable utilities to be taken out by the insurance companies that are active in Turkey, thus locating in Turkey, as well.*" In line with th is provision, it is forbidden for those inhabiting in

[78] **Schwartz**, p.334.

[79] **Schwartz**, p.336 and Annex 7, p.351; **Burns&Vasquez-Maignan**, p.637.

Turkey to get coverage for their utilities[80] abroad. Detailing this prohibition on the second section of this provision, the President was provided with the opportunity to expand the scope of the details stated in the last sub-article. In line with the relevant provision of the aforementioned law, the primary interest of the power station operator for property and liability insurance is to be in Turkey, while it will be clarified within the scope of the aforementioned prohibition depending on whether the operator inhabiting in Turkey, or not. Within this framework, it will a legal obligation for the power station operator registered to be residing in Turkey, or confirmed to be residing in Turkey depending on the circumstances, to get coverage from the insurance companies[81] that do business in Turkey. However, this legal obligation will be able to be overcome by including the nuclear insurances in the coverages to be taken out abroad with the President's decision, within the scope of the third sub-article of the relevant provision.

The financial capacities of the insurance companies in Turkey[82] is not satisfactory for undertaking this kind of risk by all alone, while, on the other hand, it is doubtful even for these local companies to unite and go over a nuclear insurance pool mechanism within the framework of the international practises. But, in the practise of nuclear insurance, the expectation of the international insurance companies and re-insurers is in the direction of including the existing local insurance companies or nuclear insurance pools in the country where the power station is operated, in this process. Hence, the domestic insurance companies would be more efficient in the processes of risk analysis, interpreting the national law, taking the required measures before and after the accident, taking initiatives for preventing the damages, distributing the compensation, contacting with the victims of accident, thus being in a position of taking actions on a major level. With all these facts in mind, even if the financial capacities are not suitable for undertaking such risks, it is considered as a generic tendency for the domestic insurance pools to be included in the process due to the opportunity to transfer the whole risk to the foreign re-insurers. Therewithal, since there is no limitation in terms of the re-

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80 **Özer Kabukçuoğlu, F. Dilek** (2012) Sigortacılık Kanunu Şerhi, İstanbul, Oniki Levha Press, p.218.

81 **Özer**, p.219.

82 For the data, financial sizes and premium generation of Turkish insurance sector, see: <https://www.tsb.org.tr/resmi-istatistikler.aspx?pageID=909>, l.a.d. 01/07/2018.

insurance ratios with regards to Turkey national law, it is within the bounds of possibility to transfer the whole risk to a foreign re-insurer within the financial capacity of a nuclear insurance pool to be established in Turkey. Apart from being a political choice, including the nuclear insurance contracts in the foreign insurances in line with the law no.: 5684, sub-article: 15/3 is not considered to be the answer for the expectations of international insurance application. Within this context, apart from the nuclear insurance policies providing coverage for property damages, taking the contracts offering nuclear liability coverage as minimum in the compulsory insurances will have a challenging impact on the national companies with a license on the related area to provide coverage for insurance in accordance with the aforementioned law, 13th article.

Another major subject that needs to be discussed at this point is the manner of compensating the damage that exceeds the liability limits of the operator within the scope of liability insurance. Hence, with regards to our domestic law, the maximum financial liability amount for nuclear facilities in the applicable Paris Convention as amended in 1982 identifying the nuclear liability regime was clearly determined to be 15 million SDR as independent from the interests and legal expenses[83]. Additionally, the contracting country was provided with the opportunity to determine higher and lower expenses based on the authority granted with the convention, provided it is not under 5 million SDR[84] .

Although yet it was stipulated to increase the liability limit to a stiff amount that is equal to 700 million Euros in accordance with the Protocol - 2004 for Paris Convention[85] this amount is way behind compensating the damages caused by nuclear accidents with its current situation in today's world.

The damages beyond the compulsory coverage limitation as set forth by the Convention with regards to the Operator (actual insurance limits in practise) were made up to the political and economical choices of each and every country.

For example, in France; the maximum liability amount of the operator is limited to 600 million French Francs, and it is confirmed to pay

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[83] As of 17.09.2018 15 million SDR is equal to about 17.949.130,35 Euros. See: <http://sdr-ozel-cekme-hakki.tlkur.com/euro>, l.a.d. 17.09.2018.

[84] **OECD** (1994), p.49; **Sands/Galizzii**, p.483-484.

[85] **Pelzer** (2010), p.377.

2.5 billion of French Francs for the accident occurring in a military facility by the French Government. In terms of damages occurring during transportation, the liability amount is 150 million French Francs The damages that are beyond the limitation will be compensated by the Government as per the Brussesls Convention. In the event that the transportation is not within the scope of the Convention, the transporter is required to get a coverage of 1.5 billion Francs[86].

In Japan[87] the government can interfere in the compensation payment process in case of two situations. On the first one, the government may sign a compensation agreement with the nuclear power station operator as a supplemental to the insurance for the liability, where the risk is not covered with insurance or other financial coverages (where the nuclear damage is caused by an earthquake, a volcanic eruption or an unknown formation occurring during the standard operating process, or for the compensations claims after 10 years), or on the second one, which is comparatively stricter yet generally applied, the government may provide financial support, where the damages exceed the financial coverage amount[88].

In today's world, the current nuclear liability regime of USA is regulated in Price Anderson Act (PAA) dated as 1957, succeeding in Atomic Energy Codes and still in force[4]. PAA projects a two-stage coverage system for individual operators[89]. On the first stage, it is laid down as a condition to get coverage of 450 million $ by American Nuclear Insurers (ANI) as a private nuclear insurance pool starting from 2017)[90]. Hence, this limit corresponds to the maxmimum amount to be covered in the

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86 **Kocaoğlu, Necip Kağan** (2010), "Nükleer Tesis İşletenin Hukuki Sorumluluğu: Karşılaştırmalı ve Uluslararası Özel Hukuk Analizi"**,** Ankara Barosu Dergisi, Year:68, No. 2010/2, p.49. **OECD** (1994), p.66.

87 **Nomura, Toyohiro/Hokugo Taro/Takenaka, Chihiro** (2012), Japon's Nuclear Liability System, Legal Affairs OECD NEA, p.22-24.

88 **Saxena**, p.687; **OECD**, p.72.

89 **OECD** (2016), Nuclear Legislation in OECD and NEA Countries, Regulatory and Institutional Framework for Nuclear Activities, U.S., OECD, p.23. <(https://www.oecd-nea.org/law/legislation/usa.pdf-)>, l.a.d. 23.08.2016; **Kremen, David** (1999), "Nuclear Liability Regime In The U.S.A.", Seminar On Nuclear Law And Liability; 8-9 September 1999, Ankara, p.3.

90 As 375 million between the years 2011 - 2017, the limit has been stipulated as 450 million $ as of 2017 See: <http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/liability-for-nuclear-damage.aspx, https://www.gpo.gov/fdsys/pkg/FR-2016-12-30/pdf/2016-31368.pdf>, l.a.d. 02.05.2017.

insurance market in practise. The proceeding, inspection and research expenses are included in the compensation limit, as differently from the international regime, provided it is under judicial control. So this provides a guarantee for the insurers concerning the maximum insurance coverages to be paid.

Where the sum of the damages following a nuclear accident exceeds 450 million $, the Price-Anderson fund, financed by shared reactor operator companies and named as Secondary Financial Protection (SFP) becomes a part of the process. Each and every nuclear facility in USA is to pay 121,255 million $ (max.),[91] as retro call and retrospective payment [92] per accident for this fund. Where the damage exceeds the first-step coverage amount, this projected amount in SFP is collected as pro rata. In the event that all the companies pay the liability amount for the fund, taking all the reactors located in America, a coverage that is approximately equal to 13 billion $ would be provided within the scope of PAA without any burden laid on the government and the state. Apart from power reactors, the enrichment with research reactors, waste protection, as well as the facilities carrying out other nuclear activities can benefit from this coverage[93].

While the international practise is as above stated concerning France - as a member of the Union -, and also Japan and USA with a long

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[91] Starting from 2013, this amount is applied as follows with the inflation adjustments $ 127,317,750 per reactor per incident. See: <https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/nuclear-insurance.html and http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/liability-for-nuclear-damage.aspx>, l.a.d. 02.05.2017.

[92] The term "Retrospective Coverage" is used for the covering of compensation claims concerning the damages occurring before the effective date of the insurance policy. See: **Milli Reasürans T.A.Ş.,** p.272.
When the damage occurs, each and every reactor is held with the liability to retrospectively pay up to $127,317,750. This premium can be increased on the ratio of 5% for legal expenses. Besides, the premium amount is to be updated in every 5 years in line with the consumer price index. The latest update was made in 2013. However, this amount cannot be paid, unless an accident occurs. See: <https://www.nrc.gov/reading-rm/doc- collections/fact-sheets/nuclear-insurance.html> and <http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/liability-for-nuclear-damage.aspx>, l.a.d. 02.05.2017.

[93] Liability for Nuclear Damage, < http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/liability-for-nuclear-damage.aspx,>, l.a.d. 23.08.2017.

history on nuclear insurance, Turkey is in a position, where it has to establish a fund, in which the reactor operators can be included, just like the example given for USA, in order to compensate the damages that are not covered by insurance, with the process of transition to nuclear energy taking the insurance legislation and the economical balances into consideration. However, the fact that the number of power stations in the above stated countries[94] is about one hundred, while in Turkey the concrete steps have been taken for only two power stations, it does not seem possible for a nuclear energy market, in which there are only two operators, to contribute in the fund projected to be established.

In Turkish domestic law, it is a known fact that there is a special regulation on the law no.: 5684 Article: 33/A with the following topic "*Coverage for extraordinary events*" concerning the nuclear risks in the insurance legislation to serve for establishing the actual required structure. The regulation in this provision has the capacity to conclude the discussions made concerning the aforementioned law's 13th and 15th articles. As a matter of fact, on the first sub-article of the provision in question, the Ministry (Ministry of Treasury and Finance) is provided with the opportunity to grant the Undersecretariat of Treasury[95] with the authority to establish insurance or re-insurance pools, to coordinate the process of establishing these pools, to assign one or more than one legal entities as extraordinary risks control center in order for running the pool, organization or collaboration mechanisms[96].

First of all, we do not think it is right to discuss the nuclear risks under the topic "*The Coverage in Extraordinary Events*", since it is not classified in "*Terrorism, war, natural disaster and suchlike extraordinary events*". In fact, as highlighted in the relevant regulation, the nuclear risks are the risks that are specific. On the other hand, even though the Minister is granted with the authority to get insurance or re-insurance coverage by the Undersecretariat for civil air or marine transportation vehicles where the coverage cannot be taken out from the domestic market nor

[94] America has 99, France has 58 and Japan has 50 active power stations. See: <https://www.iaea.org/pris/>, l.a.d. 12.04.2017.

[95] Within the scope of No.1 Presidential Decree, Undersecreteriat of Treasury has been merged with Ministry of Finance and restructured under the name of Ministry of Treasury and Finance. For this reason, in the text where Undersecreteriat of Treasury is mentioned, it must be presumed as Ministry of Treasury and Finance.

[96] **Özer**, p.565.

the international insurance markets, or where it is challenging to get covered, and also where it is deemed required by the Ministry, in case of terrorism, war, natural disasters and similar extraordinary events in accordance with the third sub-article of the aforementioned provision, it can be clearly understood that the nuclear risks are not included within this scope from the letter of the provision. While it is projected for the Undersecretariat to personally provide coverage for extraordinary events concerning civil air and marine transportation vehicles, we consider the matter where it is not granted with any authority to offer coverage as required against nuclear risks, as a deficiency.

Consequently, it can be seen that the Undersecretariat is self-authorized for the organization of any legal infrastructure like establishing a pool system for nuclear risks, ensuring the coordination between the insurance and re-insurance companies, forming the collaboration mechanisms, etc., in accordance with the relevant provision. However, the manner how this authorization will appear, as well as the manner of projecting a structure concerning both the incapacity to provide coverage as set forth by the international legislation, and the damages exceeding this level will be clarified in time.

At this point, "*The Insurance Institution For Natural Disasters*", having been /currently being operated in Turkey successfully for a long time, constitutes an alternative structure that can be a model for nuclear insurances, and even a model, which has the capacity to include nuclear risks.

Having its legal infrastructure within the scope of Catastrophe Insurance Law no.: 6305, which entered into force on 18.08.2012, the Insurance Institution of Natural Disaster is a specific quality institution for the coverage of compulsory earthquake insurance in order for compensating the economic damages on buildings caused by an earthquake, as well as compensating the physical and economic damages caused by various natural disasters and risks, which cannot be covered or are challenging to be covered by the insurance companies, subjected to the public legal entity established before the Ministry. In the event that the coverage is not satisfactory as taken out from the national and international markets concerning the risks undertaken by the Institution, it was made possible for the Government to undertake the risk against a reasonable amount, for the part to be determined by the President with the request of the Minister (art.8/f.1).

Within the framework of the authority granted by the Undersecretariat to itself in Insurance Code-Article 33/A, a nuclear insurance model based on the grounds of establishing a nuclear insurance pool system comprising of companies with the financial capacity to meet the requirements for nuclear risks in the sector, assigning the public legal entity to this pool system, if deemed required, granting certain exemptions as granted to TCIP (Turkish Catastrophe Insurance Pool), as well as the Government to undertake a certain amount for the damages on compulsory insurance coverage possesses the characteristics of an option, which can be discussed reasonably. In fact, it can be possible to rezerve fund in a size larger than the compulsory liability insurance limit via the power station operators contributing in the part as undertaken by the Government, after the number of power station operators increase, as in Amerika and most of the nuclear states. While there is currently a structure as specific to natural disasters, the special structure to be established against nuclear risks being articulated to the aforementioned Law, is considered as another alternative to us.

CONCLUSION

The international nuclear responsibility and compensation regime has been established by many states in different positions at the point of nuclear energy. Just after Chernobyl disaster, certain concrete steps were taken in order to establish a more global and new system by means of interconnecting two main international regimes that are not suitable for the current condition in 1988, thus undersigning the Mutual Protocol. In 1997, Vienne Protocol - 1997 for Vienna Convention and the Convention Concerning The Supplementary Compensation Of Nuclear Damage were engaged as the new distinctive factors of the system. The revision studies initiated on the following years on Paris and Brussesls Convention as the other side of the Regime were tried to put into action with the Protocols completed in 2004.

However, it is a concrete fact that most of the regulations could not be put into practise due to both political and legal reasons, and that most countries behaved timidly in this matter. Apart from having regional characteristics in the area of application, the conventions are also criticized for being geographically distant to many states, in terms of

their areas of application. Further to that, many developed countries currently possessing more than 20% of the global nuclear energy capacity are not even a member of any convention, comprising the international nuclear energy regime, based on political and economical reasons. Today, there are only 60 countries that are a party to any convention, or regulating the nuclear liability regime within their own domestic law regulations. Pelzer compares this situation not to a global nuclear liability regime, but rather to a regime constituted as a rag bag. Therefore, in case of a possible nuclear accident occurring today, there is a number of challenges to be overcome evolving out of international private law, constituting an impediment for an efficient compensation mechanism. Even though almost every country in Europe is a party to either Paris or Vienna Convention, all of them not being a member to the Mutual Protocol conceives the possible conflict in the laws in terms of proceeding. Even USA signing the supplementary compensation contract does not convince the countries with developed nuclear industries like China, Iran, Israel, Korea, South Africa.

One of the other aspect of this matter, which cannot be ignored is the nuclear insurance market. The insurance representatives point out the challenges to be confronted in the insurance market with regards to providing coverage for the operator's liability limit, of which level has been increased within the scope of the conventions, taking the national insurance markets and re-insurance capacities into consideration not in every country yet in most of them. Therefore, the liability levels are being attempted to be determined as per the limitations set forth by the insurance market, thus making the legislators as captives to the insurance industry. As a consequence, it is not an unexpected situation for the effective dates of revisions to delay more and more, within the scope of the directions and expectations of the insurance market.

Another challenge faced in the insurance market is caused by the objective of increasing the prescription period for physical injuries and damages to 30 years. Particularly the requests depending on the cancer contingencies claimed to occur as a result of being exposed to ionized radiation many years after the accident seems like a critical handicap for insurers, taking the problems to be confronted where the causal relation between the illness and the accident is to be set.

Including the environmental damages and preventive measures within the scope of the damage in recent years is quite worrying with regards to the application of insurance.

Another problem concerning the nuclear liability insurance policies is that there is no provision concerning the compensation for damages on the business itself, including the properties in it, within the international conventions. The justification for this exception is the prevention of the financial coverage being used on this kind of property damages rather than being used on third parties. However, both the operator and the owners of the properties within the facility take account of the losses they may suffer due to such damages, thus adding it in the service charges.

While there are that many problems and challenges globally, which are required to be solved, concerning the nuclear liability regime and nuclear insurance application, the financial size of the insurance sector in Turkey, as well as the apprehensions towards nuclear risks, and the absence of a projected concerning the insurance application will keep this subject matter discussed for a length of time.

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