

Impact of the 2004 Paris Convention to the Transport of Nuclear Material

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In 2004, contracting parties to the OECD Paris (and Brussels) Conventions signed Amending Protocols which brought the Paris Convention more into line with the IAEA Conventions amended or adopted in 1997. The principal objective of the amendments was to provide more compensation to more people for a wider scope of nuclear damage. The definition of "nuclear damage" was broadened to include environmental damage and economic costs, and the scope of application was widened, e.g. to include also damages from accidents during the transportation of nuclear substances.

As a consequence, it could be interpreted in some cases that the transportation of nuclear substances is not covered by the insurance of the nuclear installation for which the transport is carried out or that each particular transport would have to be separately insured. The liability limits for the transportation of nuclear substances differ from country to country. However, large incidences with release of nuclear substances during transportation have never been reported.

The Paris/Brussels amendments are not yet in force. They are expected to be ratified by the contracting parties shortly once they have consulted with industry stakeholders and then drafted the necessary amending legislation.

This paper shows country specific differences in the implementation of the Paris/Brussels amendments for the shipment of nuclear substances.

Introduction[1-3]

In the 1950s, the peaceful use of nuclear energy became of great importance. At the same time, the concerned States were aware of the fact, that the impact of a nuclear damage with cross-border consequences would need international arrangements. This led to the development of international frameworks to ensure that access to justice was readily available for victims outside of the country in which an accident occurs, so far as the countries are party to the relevant conventions. The number of different international instruments and their arrangements often gives rise to confusion. Many of the major instruments have been amended several times and not all countries party to the earlier version have ratified the latter.

Before 1997, the international liability regime was embodied primarily in two instruments, i.e. the Vienna Convention on Civil Liability for Nuclear Damage of 1963 and the Paris Convention on Third Party Liability in the Field of Nuclear Energy of 1960 linked by the Joint Protocol adopted in 1988. The Paris Convention was later built up by the 1963 Brussels Supplementary Convention.

These Conventions are based on the civil law concept and share the following main principles:

- Strict liability of the nuclear operator;
- Exclusive liability of the operator of a nuclear installation;
- Compensation without discrimination based on nationality, domicile or residence;
- Mandatory financial coverage of the operator's liability;
- Exclusive jurisdiction (only courts of the State in which the nuclear accident occurs have jurisdiction);
- Limitation of liability in amount and in time.

The Paris Convention went into force in 1968. But only few countries in Europe have ratified the convention, namely Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Turkey, and United Kingdom.[4]

The Brussels Supplementary Convention went into force in 1974 with only ten States having ratified the convention, namely Belgium, Denmark, France, Germany, Italy, Netherlands, Norway, Spain, Sweden, and United Kingdom.[5]

The Paris Convention is open for Member States of the Organisation for Economic Co-operation and Development (OECD) and other States if all Member States approve the admission. The Brussels Supplementary Convention is open only for States party to the Paris Convention.

The Vienna Convention is open to all States world-wide and went into force in 1977. 39 States are actual Members of the Vienna Convention, namely Argentina, Armenia, Belarus, Bolivia, Bosnia-Herzegovina, Brazil, Bulgaria, Cameroon, Chile, Croatia, Cuba, Czech Republic, Egypt, Estonia, Hungary, Kazakhstan, Latvia, Lebanon, Lithuania, Mauritius, Mexico, Montenegro, Niger, Nigeria, Peru, Philippines, Poland, Republic of Moldova, Rumania, Russian Federation, Saint Vincent and Grenadines, Saudi Arabia, Senegal, Serbia, Slovakia, T.F.Y.R. Macedonia, Trinidad and Tobago Ukraine, and Uruguay.[6]

Following the Chernobyl accident in 1986, the International Atomic Energy Agency (IAEA) initiated work on all aspects of nuclear liability with a view to improving the basic Conventions and establishing a comprehensive liability regime. In 1988, as a result of joint efforts by the IAEA and the Nuclear Energy Agency of the OECD (OECD/NEA), the Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention was adopted. Parties to the Joint protocol are treated as if they are Parties to both conventions. If an accident takes place in a country bound by the Paris convention which causes damages in a country bound by the Vienna convention, then victims in the latter are subject to compensation as per the Paris convention. The reverse is also true. Generally, no country can be a party to both conventions because the exact details are not consistent, leading to potential conflict in their simultaneous application. The Joint protocol was also intended to obviate any possible conflicts of law in the case of international transport of nuclear material¹. It entered into force in 1992.

The Vienna convention has been amended once in 1997, while the Paris convention and associated Brussels convention have been amended three times; in 1964, 1982 and 2004, though the latest amendment has not yet been ratified by enough countries to pass into force.

In 1997, the governments took a significant step forward in improving the liability regime for nuclear damage when delegates from over 80 States adopted a Protocol to Amend the Vienna

¹ Although the 2004 Paris Convention defines nuclear substances instead of nuclear material, most Countries have adopted in their legislation the term *nuclear material* with the definition given in the Convention. It is therefore used synonym throughout the text.

Convention. The amended IAEA Vienna Convention sets a minimum limit of the operator's liability (about USD 450 million) and entered into force in 2003 but with few members. It also broadens the definition of nuclear damage (to include the concept of environmental damage and preventive measures), extends the geographical scope of the Convention, and extends the period during which claims may be brought for loss of life and personal injury. It also provides for jurisdiction of coastal states over actions incurring nuclear damage during transport.

In 2004, contracting parties to the OECD Paris (and Brussels) Conventions signed Amending Protocols which brought the Paris Convention more into line with the IAEA Conventions amended or adopted in 1997. The principal objective of the amendments was to provide more compensation to more people for a wider scope of nuclear damage. They also shifted more of the onus for insurance on to industry. Consequently, new limits of liability were set as follows: Operators (insured) EUR 700 million, Installation State (public funds) EUR 500 million, Collective state contribution (Brussels) EUR 300 million, which adds up to a total of EUR 1,500 million. The definition of "nuclear damage" is broadened to include environmental damage and economic costs, and the scope of application is widened. Moreover, the 2004 amendment removed the requirement for a state to restrict the maximum liability of a nuclear operator, allowing for the first time states with a policy preference for unlimited liability to join the convention.

Nuclear liability with respect to the transport of nuclear material

While the 1960 Paris Convention did already include the transport of nuclear material as a means of nuclear installations operations, no different liability limit to that for Sites was set for damages occurring from carriage. With the 2004 amendments, the definition of "nuclear damage" was broadened to include environmental damage and economic costs, and the scope of application was widened, e.g. to include the ability to include lower limits for damages from accidents during the transport of some nuclear material.

As the transport of nuclear material may not be covered by the insurance of the nuclear installation for which the transport is carried out, each particular transport of nuclear material may have to be insured separately.

The Paris/ Brussels amendments are not yet in force. They are expected to be ratified by the contracting parties shortly once they have consulted with industry stakeholders and then drafted the necessary amending legislation.

In the following, country specific differences in the implementation of the Paris/ Brussels Convention and amendments for the shipment of nuclear material are shown.

Germany

In Germany, the legislation to implement the 2004 Paris Convention is currently under revision. The transport of radioactive/nuclear material is always covered by a nuclear liability insurance except for "small quantities" for which the "conventional" third party liability insurance applies, i.e. insurance of the conveyance.

According to the valid Ordinance on Nuclear Liability[7], the maximum limit for carriage is set to EUR 70 million. There is a clear distinction between the carriage of nuclear fuel material (i.e. Plutonium, U-233 and U-235) and other radioactive material from nuclear facilities. The liability limits for the carriage of nuclear fuel material raise in steps starting at EUR 0.25 million for a few grams up to a maximum of EUR 70 million. For the carriage of other material, the liability limit rises as a function of activity to a maximum of EUR 15 million.

At present, transport incidents are covered by insurance (up to EUR 70 million) and the German State (from EUR 70 million up to EUR 2.5 billion).

According to the new liability limits, it is expected that it will be increased to EUR 80 million (with a corresponding increase of the premium). Increasing the amount of the liability limit may not cause any change because in Germany liability was already unlimited in the past.

United Kingdom

The relevant UK legislation is the Nuclear Installations Act 1965[8] (as amended) which relates nuclear liability to “nuclear matter” only. The definition of “nuclear matter” found within the Nuclear Installations Act 1965 means:

- any fissile material (uranium metal, alloy, or chemical compound, plutonium metal, alloy or chemical compound, any other fissile material), and
- any radioactive material produced in or made radioactive by exposure to the radiation incidental to, the process of producing or utilizing any such fissile material as aforesaid.

Exceptions are defined in The Nuclear Installations (Excepted Matter) Regulations 1978. If nuclear matter falls within the quantities and forms prescribed within ‘excepted matter’, it is excluded from the provisions of the Act, and so does not attract the strict liability for damage which is imposed on United Kingdom operators of such installations.

The UK has not yet incorporated the 2004 amendments to the Paris Convention into UK law. The UK government is finalizing the wording of the amendment to the Act and the process is almost complete.

The liability limit for a consigning site is currently GBP 140 million per event (GBP 10 million for low-risk sites).

Operators are currently liable for personal injury and damage to property caused by a release of radioactive material or by radiation. The proposed amendment will broaden the “heads of damage” to make the operator liable for economic loss caused by damage to property, environmental remediation, the costs of environmental protection and economic loss following environmental damage. The nuclear operator is relieved of liability if an occurrence (i.e. a nuclear release) is attributable to hostile action in the course of any armed conflict, including any armed conflict within the United Kingdom. A release caused by a natural disaster (including a disaster of such an exceptional character that it could not reasonably have been foreseen) is the liability of the operator.

For carriage, the Act currently sets the limit at the level of liability applying to the consigning site. It is expected that these limits will become (and they will relate to material, packaging and maybe other factors) EUR 700 million and then further phased increases to EUR 1,200 million over a five year period following the initial increase for standard risk carriage (EUR 80 million for low risk carriage²).

The UK nuclear operators generally buy nuclear liability insurance. The Nuclear Installations Act 1965 requires a site licensee to provide “financial security” in relation to potential Act liabilities. Private sector operators generally comply with this requirement by providing an insurance policy. Similarly, private sector operators will generally buy general public liability insurance in relation to potential claims against them following accidents involving dangerous goods. The proposed new section 7A(9) of the Nuclear Installations Act allows the transfer of liability from a responsible operator in circumstances where, having previously been the responsibility of the operator, the nuclear substances are subsequently in the course of

² Low risk transports are to be prescribed in subordinate legislation

carriage on behalf of a person other than the licensee of the licensed site and such other person has a direct economic interest in the relevant nuclear substances. The proposed new section 7A(14) provides that the receipt of a financial or other benefit in consideration for providing nuclear transport services shall not in itself constitute a direct economic interest.

Switzerland

The 1983 Nuclear Liability Act[9] already implemented the unlimited liability for the owner of a nuclear installation or the holder of a transport license for the transit of nuclear material through Switzerland. Different from other States, the owner is also liable in the event that a damage is a direct consequence of warlike conflicts, civil war, and terrorist act of violence. The liable owner is obliged to hold insurance for up to CHF 1000 million (plus 10 % for interest and process costs). Carriage of nuclear material is included in the insurance. For the transit through Switzerland, the liability limit is CHF 50 million.

The 2004 Paris Convention was ratified by Switzerland and the 2008 Nuclear Liability Act implemented the provisions of the Convention into the Swiss legislative framework. In the Act, Switzerland incorporated the concept of a tri-partitioned total liability limit of EUR 1,500 million. However, the new Act can only enter into force after a) the Convention has been ratified by a certain number of Member States and b) if the respective Swiss Nuclear Liability Ordinance is developed and in force. The aim of the Ordinance is to specify the liability limits for nuclear installations, the calculation method for the federal premium, and the reduction of liability limits for low-risk installations and transport.

The Draft Nuclear Liability Ordinance is currently under revision by all political, governmental, non-governmental, and economical organizations within Switzerland. As the draft is written, it seems that liability for the transport of nuclear material is divided into two segments a) irradiated nuclear fuel material with more than 100 kg for which the liability limit will be EUR 1,200 million, and b) all other radioactive material stemming from nuclear installations for which the liability limit will be EUR 80 million. The Draft Ordinance also foresees that each individual transport should be insured up to the respective liability limit. As a consequence, additional insurance costs up to some hundred million CHF can be expected. The nuclear industry in Switzerland has made the point that transport to and from nuclear installations is part of the operation and should therefore be covered by the unlimited liability for the owner of the installation. Requiring a separate insurance per carriage would be in conflict with both the liability concept of the Paris Convention and the 2008 Swiss Nuclear Liability Act.

In addition, the classification of transport of all other radioactive material under the liability limit of EUR 80 million does provide unnecessary financial burden especially to the nuclear industry as it neglects the fact that most of those transportations do contain very limited radioactivity and should be treated like other dangerous goods of the same hazard.

France

In France, the 2006 revised nuclear law, incorporated all provisions from the 2004 Paris Convention but stipulated that this amendment would apply only when the 2004 Convention is ratified by the sufficient number of contracting parties.

USA

The USA takes a somewhat different approach, and is not party to any international nuclear liability convention, except for the Convention on Supplementary Compensation, which has yet to come into force. The Convention was opened for signature in September 1997 and signed by 13 countries, namely Argentina (ratified), Australia, Czech Republic, Indonesia,

Italy, Lebanon, Lithuania, Morocco (ratified), Peru, Philippines, Romania (ratified), Ukraine, and the United States of America.

The Price Anderson Act[10] - the world's first comprehensive nuclear liability law - has since 1957 been central to addressing the question of liability for nuclear accident. It now provides USD 12,500 million in cover without cost to the public or government and without fault needing to be proven. It covers nuclear power reactors, research reactors, enrichment plants, waste repositories and all other nuclear facilities.

It was renewed in 2005, with strong bi-partisan support, and requires individual operators to be responsible for two layers of insurance cover. The first layer is where each nuclear site is required to purchase USD 375 million liability cover (as of 2011) which is provided by a private insurance pool, American Nuclear Insurers (ANI). This is financial liability, not legal liability as in European liability conventions.

The second layer or secondary financial protection (SFP) program is jointly provided by all US reactor operators. It is funded through retrospective payments if required of up to USD 112 million (plus 5% for legal costs) per reactor per accident collected in annual installments of USD 17.5 million (and adjusted with inflation). Combined, the total provision comes to over USD 12,000 million paid for by the utilities.

The US Department of Energy (DoE) also provides USD 10,000 million for its nuclear activities. Beyond this cover and irrespective of fault, Congress, as insurer of last resort, must decide how compensation is provided in the event of a major accident.

The US Nuclear Regulatory Commission (NRC) requires all licensees for nuclear power plants to show proof that they have the primary and secondary insurance coverage mandated by the Price-Anderson Act. Licensees obtain their primary insurance for third-party liability through American Nuclear Insurers (ANI), and ANI manages the secondary insurance program also. Licensees also sign an agreement with NRC to keep the insurance in effect. American Nuclear Insurers also has a contractual agreement with each of the licensees to collect the retrospective premiums if these payments become necessary. A certified copy of this agreement, which is called a bond for payment of retrospective premiums, is provided to NRC as proof of secondary insurance. It obligates the licensee to pay the retrospective premiums to ANI if required.

The Price-Anderson indemnity covers also the damage caused by the carriage of nuclear materials to or from power reactors facilities within the U.S. The Facility Form policy provides what is called “insured shipment” coverage. Thus, a transporter automatically is insured for shipments of source material, special nuclear material, spent fuel or waste to or from a power reactor facility. However, Price-Anderson indemnity is not applicable for transport from US ports to fuel fabrication or vice versa.

The Price Anderson Act does not fully align with international conventions in that legal channeling is forbidden by State laws, so the Act allows only economic channeling, whereby the operator is economically liable but other entities may be held legally liable. This is a complication regarding any future universal compensation regime, though a provision was written into the Convention on Supplementary Compensation to allow the USA to join despite this situation.

Japan

Japan is not party to any international liability convention but its law generally conforms to them. Two laws governing them are revised about every ten years: the Law on Compensation for Nuclear Damage and Law on Contract for Liability Insurance for Nuclear Damage.

Plant operator liability is exclusive and absolute, and power plant operators must provide a financial security amount of JPY 120,000 million (USD 1,000 million). The liability also includes transport of nuclear material. The government may relieve the operator of liability if it determines that damage results from “a grave natural disaster of an exceptional character”, and in any case liability is unlimited.

For the Fukushima accident in 2011, the government set up a new State-backed institution to expedite payments to those affected. The body is to receive financial contributions from electric power companies with nuclear power plants in Japan, and from the government through special bonds that can be cashed whenever necessary. The government bonds total JPY 5 trillion (USD 62 billion).

Conclusions

Countries are presently formulating their respective legal frameworks to implement the 2004 Paris Convention on Third Party Liability in the Field of Nuclear Energy. Whilst some countries look at the transport of nuclear material as a low risk area, other countries seem to require the same liability as for nuclear installations. This is disproportionate to the actual risks, especially if premiums are to cover an operational risk, i.e. for each transport, instead of a facility risk, i.e. including transport.

Also, to be noted, the new Article 4(c) of the Paris Convention provides that the transfer of liability from one operator to another during the course of carriage, in certain circumstances, but this can only occur if the operator to whom liability is transferred has a 'direct economic interest' in the relevant nuclear substances.

For the transport industry, the latter may result in high financial burden, although it is likely that contracting states will continue their current requirements of making the Site Licence operator responsible for material leaving their site until such time as it reaches another licensed site rather than transferring liability, particularly as possession of the material may not constitute a ‘direct economic interest’ if the transfer was agreed then insurance rates may be high due to the limit and breadth of cover required. Possibly Members should consider only carrying material under contract terms that do not accept responsibility for releases unless the country, in which the transit originates, has made that responsibility the carriers, under the legislation of that country to ensure a ‘level playing field’ for insurance costs between Members.

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