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Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident

Workshop Proceedings
Bratislava, Slovak Republic
18-20 October 2017

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Nuclear Law

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NUCLEAR ENERGY AGENCY
ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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NUCLEAR ENERGY AGENCY

The OECD Nuclear Energy Agency (NEA) was established on 1 February 1958. Current NEA membership consists of 34 countries: Argentina, Australia, Austria, Belgium, Bulgaria, Canada, Czechia, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Norway, Poland, Portugal, Romania, Russia (suspended), the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Türkiye, the United Kingdom and the United States. The European Commission and the International Atomic Energy Agency also take part in the work of the Agency.

The mission of the NEA is:

- to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes;
- to provide authoritative assessments and to forge common understandings on key issues, as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

Specific areas of competence of the NEA include the safety and regulation of nuclear activities, radioactive waste management and decommissioning, radiological protection, nuclear science, economic and technical analyses of the nuclear fuel cycle, nuclear law and liability, and public information. The NEA Data Bank provides nuclear data and computer program services for participating countries.

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Foreword

The First International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident was organised by the OECD Nuclear Energy Agency (NEA) in co-operation with the French authorities and held in November 2001 in Paris, France. Its purpose was to integrate third party liability and compensation issues into an essentially technical emergency exercise (the International Nuclear Emergency Exercise INEX-2000, a simulated nuclear accident at the Gravelines Nuclear Power Plant in France). The emphasis of the workshop was placed on the manner in which the 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy[1] and the 1963 Brussels Convention Supplementary to the Paris Convention[2] would apply to the indemnification of damage incurred by victims in states parties to those conventions as a result of a nuclear accident scenario.

The Second International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident was held in Bratislava, Slovak Republic, in May 2005. The workshop, co-organised by the NEA and the Nuclear Regulatory Authority of the Slovak Republic, was based on two fictitious scenarios aimed at testing the implementation of various third party liability regimes with a special focus on an assessment of the indemnification measures that would be taken if a nuclear accident occurred in a state party to the 1963 Vienna Convention on Civil Liability for Nuclear Damage,[3] and more specifically a state party to both the Vienna Convention and the 1988 Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention.[4]

The Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident (the "workshop") was again held in Bratislava, Slovak Republic, in co-operation with the Nuclear Regulatory Authority of the Slovak Republic in October 2017. This workshop assessed the implementation of currently applicable international nuclear liability conventions in conjunction with, *inter alia*, non-convention states regimes, assuming all the modernised international instruments have come into force. The exercise therefore focused on the implementation of the following instruments: i) the Paris Convention and the Brussels Supplementary Convention, both as amended by the 2004 Protocols;[5] ii) the Vienna Convention

1 Convention on Third Party Liability in the Field of Nuclear Energy of 29th July 1960, as amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1982 (1960), 1519 UNTS 329 (Paris Convention or PC).

2 Convention of 31st January 1963 Supplementary to the Paris Convention of 29th July 1960, as amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1982 (1963), 1041 UNTS 358 (Brussels Supplementary Convention or BSC).

3 Vienna Convention on Civil Liability for Nuclear Damage (1963), IAEA Doc. INFCIRC/500, 1063 UNTS 266, entered into force 12 Nov. 1977 (Vienna Convention or VC).

4 Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention (1988), IAEA Doc. INFCIRC/402, 1672 UNTS 293, entered into force 27 Apr. 1992 (Joint Protocol).

5 On 12 February 2004, the contracting parties to the Paris Convention and to the Brussels Supplementary Convention adopted two Protocols to respectively amend each of these Conventions (jointly referred to as the "2004 Protocols"), which entered into force on 1 January 2022. In this report, the Paris Convention as amended by the 2004 Protocol is referred to as the "Revised Paris Convention" or the "RPC", unofficial consolidated text provided in: NEA (2017), "Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960, as amended by the Additional Protocol of 28 January 1964, by the Protocol of 16 November 1982 and by the Protocol of 12 February 2004", NEA Doc. NEA/NLC/DOC(2017)5/FINAL. The Brussels Supplementary Convention as amended by the 2004 Protocol is referred to as the "Revised

and the 1997 Protocol to amend the Vienna Convention;[6] iii) the Joint Protocol; and iv) the Convention on Supplementary Compensation for Nuclear Damage.[7]

The workshop was organised around seven substantive sessions:[8]

- Session 1: Notification of an accident and evacuation process;
- Session 2: Determining the damage to be compensated;
- Session 3: Proving the causal link;
- Session 4: Identifying the liable entity;
- Session 5: Claims handling;
- Session 6: Resolving disputes;
- Session 7: Amounts available.

Discussions focused on the legal aspects of compensating victims having suffered nuclear damage due to a nuclear incident occurring at a land-based nuclear power plant, which would cause transboundary damage. More than 170 participants from 33 countries (of residence) attended the workshop, including non-NEA member countries such as the People's Republic of China (China), Croatia, India, Nigeria, the Philippines, Singapore, South Africa, Ukraine and the United Arab Emirates. Participants came from public and private sectors representing governments, regulatory authorities, academia, the judiciary, operators, suppliers, law firms, the European Commission (EC) and the International Atomic Energy Agency (IAEA).

Prior to the workshop, a questionnaire was developed to prepare the sessions and gather information on the implementation of the international nuclear liability instruments and the national legislation from convention and non-convention states (the "questionnaire").[9] The main purpose of the questionnaire was to identify the laws and regulations applicable in each country in the event of a nuclear accident at a land-based nuclear power plant (no nuclear transport-related issues were addressed), and to have an overview of how the legal systems are designed and would operate, especially when there are no treaty relations between the state in whose territory the nuclear accident occurred and the state in whose territory nuclear damage is suffered.

The Secretariat received responses to the questionnaire from 29 countries.[10] Country responses to the questionnaire have been summarised for each specific session of the workshop.

This report was approved by the Nuclear Law Committee on 7 October 2022 by written procedure and prepared for publication.

Brussels Supplementary Convention" or the "RBSC", unofficial consolidated text provided in: NEA (2017), "Convention of 31 January 1963 Supplementary to the Paris Convention of 29 July 1960, as amended by the Additional Protocol of 28 January 1964, by the Protocol of 16 November 1982 and by the Protocol of 12 February 2004", NEA Doc. NEA/NLC/DOC(2017)6/FINAL.

6 Protocol to Amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage (1997), IAEA Doc. INFCIRC/566, 2241 UNTS 302, entered into force 4 Oct. 2003 (1997 Protocol to Amend the Vienna Convention or Revised Vienna Convention). For the purposes of this report, the "Vienna Conventions" will hereinafter refer to the Vienna Convention and the Revised Vienna Convention jointly.

7 Convention on Supplementary Compensation for Nuclear Damage (1997), IAEA Doc. INFCIRC/567, 36 ILM 1473, entered into force 15 Apr. 2015 (CSC).

8 The detailed programme of the workshop is reproduced in Annex 1 to this report.

9 The questionnaire is provided in Annex 2 to this report.

10 For more information, see an overview of the replies to the questionnaire provided in the Opening Session of this report.

Acknowledgements

The Nuclear Energy Agency (NEA) would like to thank the Slovak Nuclear Regulatory Authority for hosting the Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident. The NEA would also like to thank Mr Martin Pospíšil (Slovak Nuclear Regulatory Authority) and Mr Christian Raetzke (CONLAR Law Firm) for their commitment and contribution in preparing and moderating the workshop.

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Countries		
Australia	Austria	Belgium
Canada	China	Czechia
Finland	France	Germany
Greece	Hungary	India
Ireland	Italy	Japan
Luxembourg	Netherlands	Nigeria
Philippines	Poland	Portugal
Romania	Slovak Republic	Slovenia
Sweden	Türkiye	United Kingdom
Ukraine	United States	

The NEA extends its gratitude in particular to the speakers and chairs of the Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident for their valuable contribution at the workshop and insightful comments during the review process of the report:

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Name	Organisation*	Country
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Mr Juraj Chochol	KOOPERATIVA poisťovňa, a.s.	Slovak Republic
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Dr Patricia Milligan	Nuclear Regulatory Commission	United States
Ms Ximena Vásquez-Maignan	Nuclear Energy Agency	Nuclear Energy Agency

* The organisations mentioned in the table are those to which the speakers belonged when the Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident was held.

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List of abbreviations and acronyms

ADR	Alternative dispute resolution
CNSC	Canadian Nuclear Safety Commission
CRPPH	Committee on Radiological Protection and Public Health (NEA)
DNL	Division of Nuclear Law (NEA)
DOE	Department of Energy (United States)
EC	European Commission
ECURIE	European Community Urgent Radiological Information Exchange
EPA	Environmental Protection Agency
EU	European Union
FEMA	Federal Emergency Management Agency
FNEP	Federal Nuclear Emergency Plan
IAEA	International Atomic Energy Agency
ICRP	International Commission on Radiological Protection
IEC	Incident and Emergency Centre
NEA	Nuclear Energy Agency
NIAC	Nuclear Insurers Association of Canada
NLC	Nuclear Law Committee (NEA)
NRC	Nuclear Regulatory Commission (United States)
OECD	Organisation for Economic Co-operation and Development
RLZ	Federal Radiological Situation Centre (Germany)
SNSA	Slovenian Nuclear Safety Administration
TEPCO	Tokyo Electric Power Company
UN	United Nations
US	United States
WPNEM	Working Party on Nuclear Emergency Matters (NEA)

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Introductory session

Summary of welcome addresses

Mr William D. Magwood, IV, **Director-General of the OECD Nuclear Energy Agency (NEA)**, welcomed the participants to the workshop. He pointed out the importance of treaty relations between countries and the positive impact they have in the event of transboundary damage caused by a nuclear incident, as they provide a clear framework to compensate victims. In line with this, Mr Magwood emphasised the need for establishing consistent global nuclear liability regime(s). He then mentioned the importance of emergency preparedness and evacuation planning, with particular regard to how practical exercises could help identify the gaps in decision making and communication.

Ms Marta Žiaková, **Chair of the Slovak Nuclear Regulatory Authority and Chair of the NEA Steering Committee for Nuclear Energy (the "NEA Steering Committee")**, highlighted how the TEPCO Fukushima Daiichi Nuclear Power Plant accident (the "Fukushima accident"), beyond being a severe nuclear safety challenge, also put a spotlight on the issue of the indemnification of victims of nuclear damage. Ms Žiaková expressed her confidence that the workshop would serve as a platform for the exchange of opinions, discussions and experiences, and would contribute to a common understanding of the challenges faced in the areas of nuclear liability and compensation for nuclear damage.

Ms Zora Mistríková, **Manager of Legal and Corporate Affairs**, **Slovenské elektrárne, Slovak Republic**, emphasised the importance of having a sound and comprehensive legal framework for nuclear liability and claims management for all the stakeholders involved in the generation of nuclear power. More specifically, a clear definition of nuclear damage and the establishment of liability limits for nuclear operators are key to effective operation and further development of the commercial nuclear power plant industry.

Mr Juraj Chochol, **Chair of the Slovak Nuclear Insurance Pool/Head of Non-life Department, KOOPERATIVA poisťovňa, a.s.**, pointed out that the Fukushima accident demonstrated that the issue of indemnification of nuclear damage in the event of a nuclear incident is of great importance not only to victims, but to all involved stakeholders, who need to have a clear understanding of how nuclear liability regimes apply.

Ms Ingrid Brocková, **Director General, Directorate General for Economic Cooperation, Ministry of Foreign and European Affairs of the Slovak Republic**, said that exploring the practical aspects of the application and implementation of international nuclear liability instruments would allow the participants to discuss compensation issues in detail (e.g. assessment of coverage available in the event of a nuclear incident, effectiveness of indemnification measures), and enable them to consider potential improvements to the indemnification regimes currently in place.

Mr Anton Masár, **Vice-chairman of the Board of Directors, Director of the Finances and Services Division, JAVYS a.s. (Slovak National Nuclear and Decommissioning Company)**, stressed the importance of having the emergency preparedness and response procedures already in place in case of a nuclear incident. He also noted the benefit of involving experts in decommissioning activities to discuss the establishment of relevant procedures at the national level, especially with regard to risk assessment.

Mr Roland Dussart-Desart, **Chair of the NEA Nuclear Law Committee (NLC) and Head of the Legal Division at the Belgian FPS Economy, SMEs, Self-employed and Energy**, reminded participants that the First International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident (2001) greatly contributed to analysing the disastrous effects of the lack of

an international framework in the area of nuclear liability at the time of an accident and highlighted the importance of preventive measures. After the Second International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident (2005), several important events took place, among them: (i) the Fukushima accident in March 2011, which showed how evacuation and indemnification processes may be organised in an efficient manner to the benefit of victims; (ii) the establishment of the Group on Nuclear Liability in the European Union by the EC (2011-2013) with the purpose of assessing possibilities to improve claims handling, increase available insurance capacity and harmonise nuclear liability amounts within the European Union (EU); and (iii) the entry into force of the CSC in April 2015. Mr Dussart-Desart emphasised that the lessons learnt from the Fukushima accident and the issues identified by the Group on Nuclear Liability in the European Union fully justify the need to organise this workshop.

Opening session

Setting the scene

Ms Ximena Vásquez-Maignan, **Head of the NEA Office of Legal Counsel**, stressed the importance of having nuclear liability and compensation regimes in place. On the one hand, a nuclear incident can cause detrimental damage to health, property, the environment and the economy, with potential transboundary effects. On the other hand, nuclear energy brings significant benefits, such as low-carbon electricity production and various possibilities for use in medical diagnosis and industrial and agricultural areas, among others. Therefore, a balance needs to be found between the risks which, because of their "potential magnitude and peculiar characteristics, could lead to far greater damage being suffered in the event of an accident than would normally be the case with conventional industrial activities",[11] and the benefits that the use of nuclear energy can provide.

Since the rules of ordinary tort law are not suited to deal with particular problems in the nuclear field, the decision was made to adopt special nuclear third party liability and/or compensation regimes at national and international levels. These regimes were designed to maintain this balance in order to ensure adequate compensation for damage suffered by victims in case of a nuclear incident, and at the same time to protect nuclear power plant investors and suppliers from ruinous liability claims. Five basic principles underlie such regimes:

Strict liability

The operator of a nuclear installation is strictly liable for nuclear damage to third parties caused by a nuclear incident occurring at its installation or during transport of nuclear substances to or from that installation. As a consequence, victims of such an accident do not bear the burden of proof to demonstrate fault or negligence of the operator and shall only establish a causal link between the nuclear incident and the damage suffered. This is an important deviation from general tort law principles, "which render a defendant liable for a plaintiff's damage only where it can be established that the defendant owed a duty of care to the plaintiff and breached that duty through negligence or an intentional act or omission. Since it would be virtually impossible for a claimant to have the necessary technical knowledge of what had taken place in a nuclear installation or during the course of transport when the accident occurred, and it would be extremely costly and time consuming to understand the origin of a nuclear incident, strict liability (also called 'absolute liability' in some jurisdictions) provides a large measure of equity that would not otherwise be available to victims."[12]

Exclusive liability (legal channelling)

The operator of a nuclear installation is exclusively liable for nuclear damage caused to third parties by a nuclear incident occurring at its nuclear installation or during transport of nuclear substances to or from such installation. As the only entity legally liable for nuclear damage is the operator, the liability for damage suffered by third parties is therefore "channelled" directly to such operator. For third parties who suffered nuclear damage, "channelling liability to the operator obviates the need to identify and pursue all defendants who are potentially responsible

11 Schwartz, J. (2010), "Liability and Compensation for Third Party Damage resulting from a Nuclear Incident", in NEA (ed.), *International Nuclear Law: History, Evolution and Outlook*, OECD Publishing, Paris, p. 307.

12 *Ibid.*, p. 310.

for causing the accident. This is a significant benefit when one considers the difficulty victims would face trying to obtain the evidence necessary to establish cause after an accident has occurred. In addition to rendering victims' claims easier to establish, 'channelling' has the effect of sparing investors and suppliers of goods, services and technology from having to defend complicated and expensive lawsuits to identify the liable entity, or from purchasing third party liability insurance which, given the restricted market capacity for such coverage, could result in less coverage being available to respond to operators' needs for same." [13] In addition, no other law than nuclear liability law applies in this situation (e.g. tort law), which brings greater legal certainty for victims and different stakeholders involved in a nuclear incident.

Limitation of liability in amount

Unlike ordinary tort law rules that usually do not limit the compensation amounts to be paid, certain original international nuclear liability conventions provided for a maximum amount of liability to be borne by the operator of a nuclear installation. However, several states (e.g. Germany, Japan and Switzerland) have adopted unlimited liability. The modernised nuclear liability conventions provide for a minimum liability amount, thus allowing states to adopt unlimited liability if they choose.[14]

Compulsory financial security

To make sure that funds will be available to pay victims' claims for compensation, nuclear installation operators are required to financially secure their liability with insurance or any other type of financial security (i.e. private insurance, mutuals, bank guarantees, operators' pooling system, self-insurance, state guarantee).

Liability limited in time

Taking into account that health-related effects caused by the emission of ionising radiation may not develop until long after the nuclear incident has occurred, the legal period during which an action may be brought by victims is of significant importance. Progressively, certain nuclear liability conventions have extended such period to the benefit of victims of a nuclear incident.[15] Several states adopted nuclear liability legislation that limits the time for submission of claims for damage caused by a nuclear incident to a period of ten years following such incident, with some other states having extended such period to thirty years in case of loss of life or personal injury. In most jurisdictions, there is usually a discovery rule as well, requiring claims to be filed within two or three years of the discovery of the damage and of the identity of the liable nuclear operator.

13 *Ibid.*, p. 311.

14 *Secretariat note*: It is worth mentioning that the Paris Convention provided for a maximum amount (see Article 7 of the Paris Convention), but such limit has been removed in the Revised Paris Convention, which provides a minimum amount (see Article 7 of the Revised Paris Convention). The Vienna Conventions and the CSC establish minimum amounts (see Article V.1 of the Vienna Convention and the Revised Vienna Convention; Article 4.1 of the CSC Annex).

15 *Secretariat note*: The Revised Paris Convention and the Revised Vienna Convention extended the prescription period for loss of life and personal injury claims from 10 to 30 years (see Article 8(a) of the Revised Paris Convention and Article VI.1 (a) of the Revised Vienna Convention). Article 9 of the CSC Annex provides for a general ten year prescription period (claims for loss of life and personal injury included) and states that "[…] If, however, under the law of the Installation State the liability of the operator is covered by insurance or other financial security or by State funds for a period longer than ten years, the law of the competent court may provide that rights of compensation against the operator shall only be extinguished after a period which may be longer than ten years, but shall not be longer than the period for which his liability is so covered under the law of the Installation State."

The third party nuclear liability conventions also provide two additional principles, which were elaborated to deal with the complexities raised by the potentially transboundary character of nuclear damage and the management of cross-border compensation claims.[16]

Unity of jurisdiction

In principle, jurisdiction over nuclear damage claims lies only with the courts of the state in whose territory the nuclear incident has occurred. If the place where the incident occurred is not certain, the courts of the state where the liable operator's installation is located have jurisdiction.

Applicable law and non-discrimination

The court having jurisdiction will apply the convention(s) to which its state is a party and its own national laws to claims for compensation of nuclear damage caused by a nuclear incident. Those laws shall apply to all substantive and procedural matters, without any discrimination based upon nationality, domicile or residence.

The following international nuclear liability conventions have been adopted, establishing similar nuclear liability regimes to deal with the risks associated with nuclear activities, and contain the above basic principles, which are internationally accepted and usually transposed into national legislation, whether the concerned state has or has not adhered to one of the conventions:

- the Paris Convention, in force since 1 April 1968: There are 16 contracting parties to date (mostly Western Europe). The Paris Convention is supplemented by the Brussels Supplementary Convention, which establishes a supplementary funding instrument (the so-called "three-tier compensation" system) for the 13 contracting parties. The 2004 Protocols to amend these Conventions were adopted to provide more funds to a larger category of victims for a broader scope of damage. They entered into force on 1 January 2022;
- the Vienna Convention, in force since 12 November 1977: There are 45 contracting parties to date (mostly Central/Eastern Europe, Asia, South/Central America).[17] The Vienna Convention was amended by the 1997 Protocol to Amend the Vienna Convention and there are 16 contracting parties to date.[18] Like the Revised Paris Convention, the Revised Vienna Convention provides more funds to more victims for more types of damage; and
- the CSC, in force since 15 April 2015: There are 11 contracting parties to date.[19] The CSC provides a global liability-compensation regime (i.e. provides basic principles and supplementary funding based on a two-tier system).

16 *Secretariat note*: These principles apply between states that have treaty relations, i.e. have signed the same international nuclear liability convention(s).

17 The Vienna Convention is open to all member states of the United Nations or of any of the specialised agencies or of the IAEA by accession.

18 The Revised Vienna Convention is open for ratification, acceptance or approval by all states.

19 The CSC is open to ratification, acceptance of approval from a state which is a party to either the Vienna Convention or the Paris Convention, or a state which declares that its national law complies with the provisions of the CSC Annex, provided that, in the case of a state having on its territory a nuclear installation as defined in the IAEA 1994 Convention on Nuclear Safety, it is a contracting state to that Convention.

In addition, the Joint Protocol constitutes a "bridge" between the Paris Convention and the Vienna Conventions and ensures that, in relations between the contracting parties to the Protocol, there is a "mutual extension of the operator's liability under one Convention to damage suffered in territories of Parties to the other Convention."[20] There are 34 contracting parties to the Joint Protocol to date.

The evolution of the nuclear liability regimes can be summarised in three main phases:

- *The first phase* corresponds to the development of nuclear energy (adoption of the Paris Convention, the Brussels Supplementary Convention and the Vienna Convention);
- *The second phase* covered the post-Chernobyl nuclear accident[21] era and resulted in a comprehensive review of nuclear liability regimes, including the then existing nuclear liability instruments. It also resulted in the enhancement of the basic principles of nuclear third party liability and compensation regimes, including: (i) higher amounts of compensation; (ii) a broader definition of nuclear damage to cover categories such as damage to the environment and economic loss; and (iii) updated jurisdiction rules to grant a state's exclusive jurisdiction over claims arising from an incident occurring in its exclusive economic zone. A longer prescription period was also provided for loss of life or personal injury. Some new international legal instruments were adopted (the Joint Protocol and the CSC), while the existing regimes were amended to incorporate the enhanced principles (the Revised Vienna Convention, the Revised Paris Convention, the Revised Brussels Supplementary Convention);
- *The third phase* corresponds to the post-Fukushima Daiichi Nuclear Power Plant accident period. The following main lessons learnt can be identified in this regard: (i) relying on the general principles of law in a situation where a nuclear incident occurs would not be for the benefit of victims, as time is of the essence regarding compensation for nuclear damage; (ii) the legal preparedness to deal with the consequences of a nuclear incident is as important as the emergency preparedness and response; (iii) when a nuclear incident occurs, the legal framework allowing for an efficient and adequate indemnification of victims must be in place – there is no time to start enacting basic laws once the incident has occurred; (iv) a country should adhere to one or several nuclear liability convention(s) that would govern its relationship with its neighbouring countries and their nationals who may be affected by a nuclear incident.

Following the Fukushima Daiichi accident, the IAEA member states identified a number of actions that would promote the safe and secure use of nuclear energy. Specifically, the IAEA Action Plan on Nuclear Safety[22] encouraged the IAEA member states to work towards establishing a global nuclear liability regime that addresses the concerns of all countries that might be affected by a nuclear accident with a view to providing appropriate compensation for nuclear damage. The

20 Pursuant to Article II of the Joint Protocol, if there is a nuclear incident in a Paris Convention state, victims in the Vienna Convention states will be compensated in the same way as victims in the Paris Convention state and *vice versa*. It effectively extends the geographical scope of both Conventions and is open to states that are parties to the Vienna/Revised Vienna Conventions or the Paris/Revised Paris Convention. For more information, see IAEA (2013), *The 1988 Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention – Explanatory Text*, IAEA International Law Series No. 5, IAEA Doc. STI/PUB/1593, IAEA, Vienna, Section 3.1.

21 The accident at the Chernobyl nuclear power plant in 1986 was the most severe in the history of the nuclear power industry. For more information on the Chernobyl accident, see Burns, S. (2022), "The impact of the major nuclear power plant accidents on the international legal framework for nuclear power", in NEA (ed.), *Principles and Practice of International Nuclear Law*, OECD Publishing, Paris, pp. 87-89.

22 The *IAEA Action Plan on Nuclear Safety* was approved by the IAEA Board of Governors on 13 September 2011 and endorsed by the IAEA General Conference during its 55th regular session on 22 September 2011. IAEA (2011), "Draft IAEA Action Plan on Nuclear Safety", Report by the Director General, IAEA Doc. GOV/2011/59-GC(55)/14, endorsed by the IAEA General Conference in Resolution, "Measures to strengthen international cooperation in nuclear, radiation, transport and waste safety", IAEA Doc. No. GC(55)/RES/9 (22 Sept. 2011).

plan also requested the IAEA International Nuclear Liability Experts Group (INLEX) [23] to recommend actions to facilitate achievement of such a global regime. In August 2012, INLEX finalised its recommendations in this regard.[24]

On 28 August 2013, a Joint Statement on Civil Liability for Nuclear Damage (Joint Statement)[25] was signed between the United States (US) and France. On 6 September 2013, a G20 Leaders' Declaration was issued.[26] On 1 November 2013, a Franco-Russian Nuclear Power Declaration[27] was adopted. All these initiatives encouraged multilateral co-operation towards achieving a global nuclear liability regime and called for countries to have treaty relations by joining one or several nuclear liability conventions.

In April 2014, the Steering Committee for Nuclear Energy held a policy debate on progress towards a global nuclear liability regime, which stressed the importance of achieving greater globalisation and harmonisation of nuclear liability regimes in order to ensure adequate and timely compensation for damage to persons and property resulting from a nuclear incident and to promote consistent treatment of potential victims and operators worldwide. They encouraged NEA member countries with nuclear power programmes and other consenting countries to adhere to one of the enhanced nuclear liability regimes and to adopt consistent legislation if they have not already done so.[28] During the 59th IAEA General Conference in September 2015, the IAEA member states adopted a resolution[29] that: encourages member states to work towards the establishment of a global nuclear liability regime; notes that the Paris Convention, the Vienna Convention, the Brussels Supplementary Convention, the Joint Protocol and the CSC can provide the basis for establishing a global regime based on the nuclear liability principles; stresses the importance of having effective and coherent nuclear liability mechanisms in place at the national and international levels; recognises that nuclear liability principles, including strict liability, should apply to nuclear incidents; and notes that nuclear liability principles can benefit from the enhancements relating to a broader definition of nuclear damage, expanded jurisdiction and increased compensation, and from the best practices recommended by INLEX.

The Fukushima accident can therefore be regarded as a wake-up call for the international community to stress the importance of legal preparedness. Japan was already prepared to deal with the consequences of a nuclear incident before the Fukushima accident occurred: although Japan was not party to any international nuclear liability conventions at the time of the accident, its legislation provided a comprehensive legal framework compatible with the guiding principles of the international nuclear liability regimes (i.e. the 1961 Japanese Act on

23 INLEX was established by the IAEA Director-General in September 2003 to: (a) explore and advise on nuclear liability issues; (b) enhance global adherence by nuclear and non-nuclear states to an effective nuclear liability regime; and (c) assist in the development and strengthening of the national nuclear liability legal frameworks in IAEA member states. For more information on INLEX, see IAEA (n.d.) International Expert Group on Nuclear Liability (INLEX), www.iaea.org/about/organizational-structure/offices-reporting-to-the-director-general/office-of-legal-affairs/international-expert-group-on-nuclear-liability-inlex (accessed 30 June 2023).

24 2012 "Recommendations on how to facilitate achievement of a global nuclear liability regime, as requested by the IAEA Action Plan on Nuclear Safety", available at: www.iaea.org/sites/default/files/17/11/actionplan-nuclear-liability.pdf (accessed 30 June 2023). At its 22nd meeting held on 6-8 September 2022, INLEX elaborated the "Statement of the International Expert Group on Nuclear Liability (INLEX): Benefits of Joining the Global Nuclear Liability Regime", available at: www.iaea.org/sites/default/files/22/10/inlex-22nd-meeting0922.pdf (accessed 30 June 2023).

25 2013 "Joint Statement on Liability for Nuclear Damage" by France and the United States, available at: www.energy.gov/node/4813282 (accessed 30 June 2023).

26 "G20 Leaders' Declaration", Saint Petersburg Summit, 5-6 September 2013, available at: www.oecd.org/g20/summits/saint-petersburg/Saint-Petersburg-Declaration.pdf (accessed 30 June 2023).

27 Franco-Russian Nuclear Power Declaration is provided in NEA (2013), *Nuclear Law Bulletin*, No. 92, OECD Publishing, Paris, pp. 209-210.

28 For more information, see NEA (2016), *Five Years after the Fukushima Daiichi Accident*, OECD Publishing, Paris.

29 IAEA (2015), General Conference Resolution: "Measures to strengthen international cooperation in nuclear, radiation, transport and waste safety", IAEA Doc. GC(59)/RES/9, adopted on 17 Sept. 2015.

Compensation for Nuclear Damage)[30] and allowed the Japanese government to take the necessary actions immediately after the Fukushima accident to start indemnifying victims for nuclear damage quickly and efficiently.

The existence of a comprehensive legal framework related to nuclear liability is also necessary to develop nuclear energy, as public acceptance implies that the public understands the liability and compensation regime that will apply in case of a nuclear incident, whether at the national or the international levels. Stakeholders involved in nuclear power programmes (operators, investors, suppliers, etc.) require a clear and comprehensive legal framework that will ensure legal certainty and will make it possible to carry out risk assessments and determine the financial consequences. Nuclear insurers also require harmonisation of national legislation to allow the pooling system for insurance and reinsurance, and clear definitions to determine the insurance coverage in case of an incident. Therefore, states (whether nuclear or not) are encouraged to include in their national legislation the internationally accepted nuclear liability principles and to adhere to at least one nuclear liability convention, with the aim of ensuring adequate and harmonised compensation to victims, facilitating international nuclear trade and ensuring similar treatment of nuclear operators.

Insurance of nuclear risks: overview of nuclear insurance system

Mr Mark Tetley, **insurance expert and lecturer at the NEA nuclear law educational programmes**, provided a detailed overview of the nuclear insurance system, the purpose of which is to ensure the risk transfer – shifting the risk of loss (i.e. the financial impact of an event) from one person to another. In the nuclear business, it is necessary to secure business continuity, which may require the sharing or transfer of risk in different ways.

Insurance is fundamentally a contractual relationship between the person insured and an insurer against payment of a premium. The insurer undertakes to indemnify the insured person in case an insured event occurs. The main characteristic of this event is its fortuity (i.e. an unknown event). Any insured event must be fortuitous and it must not be immediately predictable. Insurance only provides protection in circumstances where the loss is accidental; policies do not cover the consequences of normal operation of a business, especially when the loss arises from an activity it has been specifically authorised to undertake. Such losses would be considered to be inevitable and beyond the scope of insurance. In addition, the insured person must have an insurable interest. The legal doctrine of insurable interest requires that the person to be covered by insurance have a current financial interest, recognised in law, in the thing or event to be insured.

In the context of a nuclear incident, there is a potentially large-scale unknown event that needs to be covered by insurance or a financial security in order to make sure that payment of claims for nuclear damage is swift, effective and equitable. There are several players in the insurance industry, but essentially the financial risk is transferred to an insurer or a number of insures (i.e. co-insurance) who re-transfer(s) part of the risk or the risk as a whole to a reinsurer(s), who might possibly seek to obtain insurance for its activities from another reinsurer (i.e. retrocession). In the case of a nuclear incident, this system of insurance/reinsurance/retrocession needs to be contractually tight and effective to avoid any unnecessary delay in compensating victims.

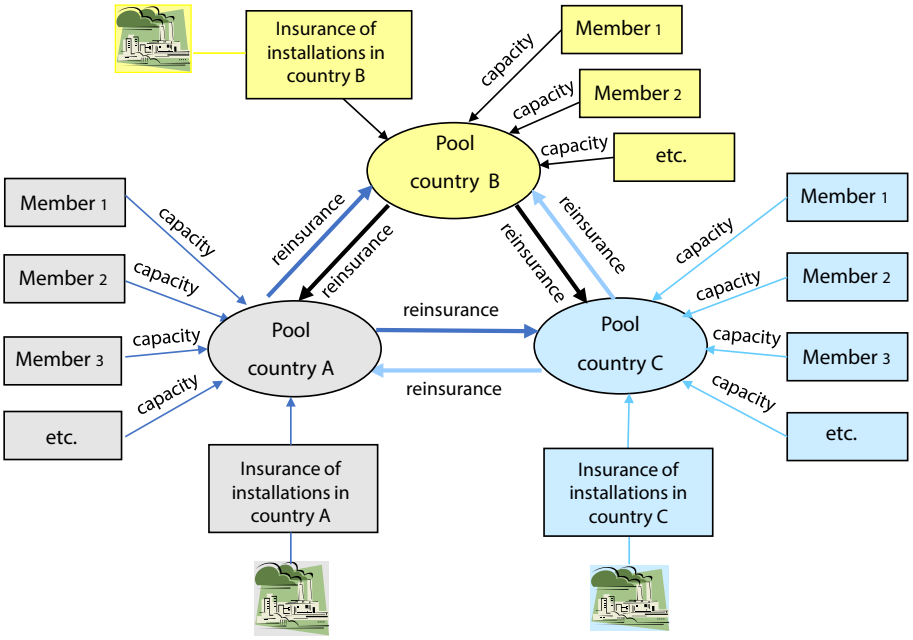
There are two types of insurance available for nuclear power plants: on-site material damage insurance (to insure the operator's assets) and off-site third party liability insurance. Operators of nuclear installations who are required by their national law to provide a compulsory financial security to cover their nuclear third party liability in case of a nuclear incident have several options to insure themselves (e.g. mutual insurance companies, captive insurance companies, self-insurance, traditional insurer/reinsurer market, financial market, operators' pooling system).

Nuclear third party liability insurance is for the most part provided by national nuclear insurance pools, which were established to accompany the development of the civil nuclear

30 For more information on the Japan's nuclear liability legal framework, see NEA (2012), *Japan's Compensation System for Nuclear Damage: As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, OECD Publishing, Paris.

industry and to remedy the lack of capacity of insurance companies to provide an adequate solution by themselves. Pool members offer their capacity on a net retention basis, which is an important feature that helps the members manage their worldwide capacity. The main objective of a pool is to provide insurance to their local operators, and if the capacity of the local pool is not sufficient, it can usually get reinsurance from foreign pools. Pools have many advantages, such as: considerable cover capacity; solid financial backing given the wide range of participants; the ability of their members to manage major incidents; and their expertise and knowledge in the nuclear field.[31] The pools operating system is provided in the following diagram:

Figure 1. **Nuclear insurance pools: Operating system**



Source: Swiss Pool for the Insurance of Nuclear Risks, in Tetley, M.G (2017) "Insurance of Nuclear Risks", presented at the Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident, Bratislava, October 2017.

Another party that plays a key role in the whole process is the state. The state usually intervenes if the risk cannot be covered, for example in case of unlimited liability, events that cannot be insured (e.g. war), or events that can only be insured partially (e.g. terrorism, which is generally subject to sub-limits).

The insurance coverage of a nuclear operator may be created by mixing different types of available financial securities (e.g. mix of open market insurance solutions, mutual insurance, nuclear pools insurance, captive insurance and site monetary retention), based on considerations of "risk appetite", statutory obligations, costs, cover consistency, solvency, market spread and claims handling efficiency. Nuclear insurance normally covers all the activities of the nuclear fuel cycle, including nuclear transport, with the exception of uranium mining and radioactive sources, which require special arrangements and are usually covered by other types of insurance.

From the perspective of an insurer, the following prerequisites are needed for a nuclear insurance of a nuclear installation to be put in place: (i) adherence to a nuclear third party liability

31 For more information on the nuclear pools operating system, see Reitsma, M.S. and M.G. Tetley, (2022), "Insurance of nuclear risks", in NEA (ed.), *Principles and Practice of International Nuclear Law*, OECD Publishing, Paris, pp. 447-451.

convention and/or acceptable domestic legislation in the nuclear field; (ii) technical risk acceptability (technical conditions of a nuclear installation) and adequate regulatory control (i.e. existence of a local independent regulator); (iii) participation of a local insurer and freedom to reinsure externally; (iv) hard currency payment and exchange control freedom; and (v) acceptable sovereign rating with no trade restrictions.

At the outset of the civil nuclear industry, the decision was made to adopt specific nuclear liability conventions that had been drafted to accommodate the rise of the civil nuclear industry in the 1950s, and the specific risks this new industrial sector brought. In exchange for having an obligation of an absolute and strict liability, nuclear operators received a temporal and financial limit to their liability that enabled them to approach the private insurance market to transfer the risks. The concept that an operator has a liability exclusively channelled to it, while restricted in most dimensions, has permitted the involvement of private insurance in the development of the civil nuclear industry. Nuclear site liability insurance policies are designed to follow the relevant national nuclear legislation that establish the scope of the operators' liability depending on whether the operator's country is party to one of the nuclear liability conventions, or has a legislation that adheres to the principles embodied in these conventions. In order for the channelling principle to be fully applicable, all general insurance policies have radioactive contamination exclusions, as nuclear liability is covered by specific nuclear insurance policies.

Regarding the relationship between the basic principles of the nuclear liability regimes and those relating to insurance, the following issues may be emphasised:

Requirement for financial security

The legal imperative imposed on nuclear operators to provide financial cover is the incentive to buy insurance.

Liability channelling

Taking into account that all nuclear liability is channelled to the site operator, there is a radioactive contamination exclusion clause in all insurance policies to ensure this channelling. This allows the insurers to avoid accumulation of loss exposure that may be generated by the co-existence of different insurance policies. In addition, a general waiver of rights of recourse granted to suppliers and contractors is usually provided (but this is not absolute).

Strict liability

Strict liability provides direct and rapid access to insurance funds and offers certainty of a maximum exposure to insurers. Weakening this principle (e.g. by providing a statutory right of recourse against suppliers) may compromise this principle, make the insurance community reluctant to provide cover because of the risk exposure and ultimately may have detrimental effects on the quick and efficient compensation of victims.

Liability limited in time

This notion entails restricting the operator's liability to a period of ten years (or 30 years for loss of life and personal injury provided in the revised nuclear liability conventions). However, the private insurance market may be reluctant to extended the period of indemnification beyond ten years because of the causality issue (e.g. how can a case of cancer be determined to be due to a nuclear accident more than ten years after the accident?).

Liability limited in amount

A financial limit of liability provides a maximum cost to the operator for any nuclear incident and allows nuclear insurers to have certainty as to the extent of their coverage.

Clear definitions

Clear definitions of nuclear damage and other key terms give clarity to the scope of insurance cover.

Jurisdiction clarity

The insurers' capital is generally exposed in the country of the liable operator only. This also provides more legal certainty and helps to attract the insurance market players.

Nowadays, the nuclear insurance industry faces many challenges, among them the coverage of terrorism, which is, unlike an act of war, not exempted from the scope of application of the nuclear liability conventions. Insurers generally charge an additional premium to cover terrorism. With respect to new technologies development, insurers have to address cyber operational risks where the absence of a liable entity may cause problems.

With regard to the enhanced requirements embodied in the 2004 Protocols, there is no more issue for insurers to provide the maximum cover required under these conventions (i.e. EUR 700 million), but insurers might sometimes find it problematic to cover the extended scope of nuclear damage on the whole (even though there are significant improvements, especially regarding the cover of environmental damage),[32] and in general they may be reluctant to provide cover for the extended prescription period of 30 years for loss of life and personal injury.

As a conclusion, there is a need for a comprehensive legal framework that includes an immediate, long term and secure claims handling system, both at the national and international levels, to ensure continuity and consistency of compensation to victims. There is also a need to ensure the consistency of the legal liability framework as a whole, including national legislation, conventions, insurance policies and market practices.

The nuclear insurance market needs long-term stability and certainty. The current insurance market can sustain a large-scale nuclear incident, and should ultimately provide the full cover consistent with the scope of application of the revised nuclear liability conventions, because it is a private market that is constantly evolving to accommodate the needs of the nuclear industry.[33]

Discussion session

Clarification was requested on why the availability of nuclear insurance cover is conditioned by the existence of a cap to the nuclear liability of an operator, taking into account that such insurance cover will anyway be limited in amount due to the limited capacity available at the nuclear insurance market. It was explained that the insurance policy requires a financial security limit, which corresponds to a determined value for each insured interest and represents a key component in attracting capital in insurance.

Regarding the impact that the absence of radioactive contamination exclusion clauses in conventional insurance policies may have on the principle of legal channelling, it appeared that the main purpose for introducing such clauses was the need to control the exposure to risks in case of a nuclear incident. Therefore, it was decided to designate a single entity liable for nuclear damage (i.e. the nuclear operator) so the insurers can avoid dealing with multiple claims from different sources and eventually protect themselves from the risk of bankruptcy. The existence of radioactive contamination exclusion clauses in insurance contracts provides the insurance market with certainty and helps attract capital to the industry.

32 See Article 1 (a)(vii) of the Revised Paris Convention.

33 For more information on the state of the nuclear liability insurance market today, see European Commission, Directorate-General for Energy (2020), *Study on the insurance, private and financial markets in the field of nuclear third party liability: Final report*, No. ENER/D2/2017-562, Publications Office of the EU, Luxembourg.

Another question was raised relating to the challenges nuclear insurers may face while assessing the technical risks of a nuclear installation in view of providing an insurance cover. The technical assessment is one of the critical parts of the overall nuclear insurance risk assessment. The technical state of a nuclear installation may directly impact certain limits in the insurance cover and/or the premium, depending on the extent of the risk that insurers are willing to accept. There is co-operation between nuclear insurance pools that enables insurers to have access to surveys performed by nuclear engineers in charge of assessing the technical state of nuclear installations. It gives insurers a clear overview of the technical risks involved.

With regard to the exact amount of compensation paid to victims following the Fukushima accident, it was highlighted that TEPCO (the operator liable) established a dedicated webpage where updated information on the amount of compensation paid out is provided.[34] The nuclear insurance cover was not triggered by TEPCO because earthquakes and tsunamis are non-insurable risks in Japan. As a consequence, a state guarantee under a governmental indemnity agreement was triggered.

Overview of responses to the questionnaire

The questionnaire was divided into ten sections, covering a wide variety of legal issues, ranging from general information on the national legal regime of the responding country (e.g. the implementation of the international nuclear liability conventions, or the adoption of the reciprocity principle) to more specific questions (e.g. the existence of alternative dispute resolution mechanisms, or the existence of provisions regarding claims handling in the event of a nuclear incident).

The questionnaire was structured as follows:

Table 1. **Questionnaire sections**

Section 1	National legal regime – General information
Section 2	Notification of an accident
Section 3	Evacuation process
Section 4	Determining the damage to be compensated
Section 5	Proving the causal link
Section 6	Identifying the liable entity
Section 7	Financial securities
Section 8	Claims handling
Section 9	Resolving disputes
Section 10	Amounts available

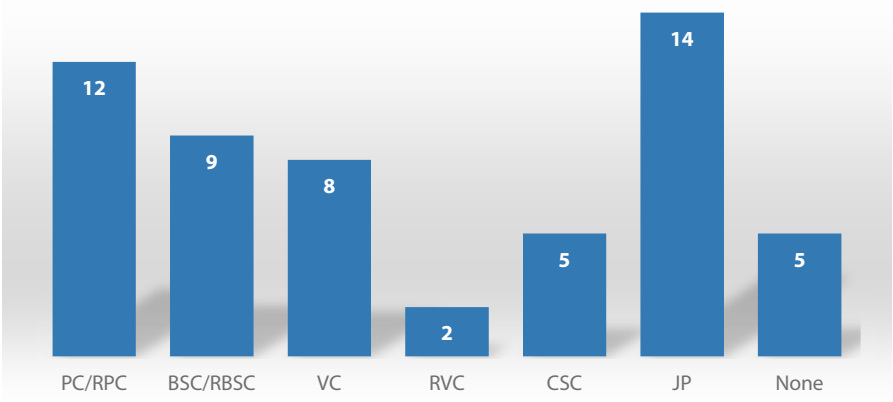
The questionnaire proposed an accident scenario, distinguishing between installation states (i.e. states within whose territory a nuclear power plant that caused a nuclear incident is situated) and affected states (i.e. states other than the installation states, which have no nuclear power plants and in which territories nuclear damage is suffered). The purpose of this distinction was to channel the responses given by each country depending on whether they had nuclear power plants in their territory. Taking into account that in spite of the proposed distinction, many countries replied to both scenarios (i.e. as installation states, but also as affected states), responses to the questionnaire were processed without taking into account this distinction.

34 For more information, see TEPCO (n.d.), "Compensation for Nuclear Damages", www.tepco.co.jp/en/hd/responsibility/revitalization/compensation-e.html (accessed 30 June 2023).

Among the responding countries:[35]

- **Twelve** countries are contracting parties to the Revised Paris Convention, and **nine** of them have also ratified the Revised Brussels Supplementary Convention;
- **Eight** countries are contracting parties to the Vienna Convention, and **two** of them are also contracting parties to the Revised Vienna Convention;
- **Five** countries are contracting parties to the CSC, with **one** of them being also party to the Vienna Convention and the Revised Vienna Convention;
- **Fourteen** countries are contracting parties to the Joint Protocol;
- Finally, **five** countries are non-convention states, which have not ratified any of the existing international nuclear liability conventions.[36]

Figure 2. **Has your country ratified an international nuclear liability instrument?**



Source: NEA.

Twenty-four responding countries said that they have adopted a specific nuclear liability law in their domestic legislation, and more specifically:

- **All** countries having nuclear power plants in their territory (the "nuclear countries") confirmed the existence of such a law[37] in their national legal order;

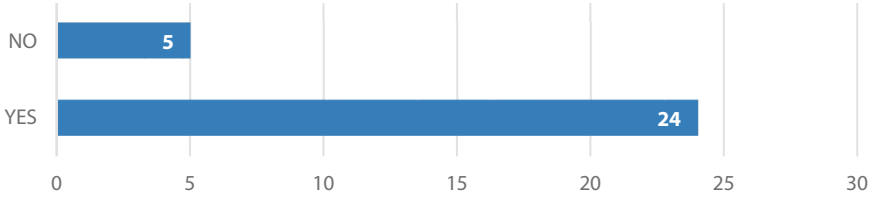
35 The countries who replied to the questionnaire are: Australia, Austria, Belgium, Canada, China, Czechia, Finland, France, Germany, Greece, Hungary, India, Ireland, Italy, Japan, Luxembourg, the Netherlands, Nigeria, Philippines, Poland, Portugal, Romania, Slovak Republic, Slovenia, Sweden, Türkiye, the United Kingdom, Ukraine, and the United States.

36 *Secretariat note*: Austria and Luxembourg both signed the 1960 Paris Convention and the 1963 Brussels Supplementary Convention as well as the 1964 Additional Protocol the 1982 Protocol to amend these two Conventions. Neither country has ratified any of these instruments.

37 *Secretariat note*: China is considered as being one of these countries. The Nuclear Safety Law entered into force in 2018 (available in NEA (2018), *Nuclear Law Bulletin*, No. 100, OECD Publishing, Paris, pp. 119-138) provides in its Article 90 for strict and exclusive liability of the operator. Third party liability matters are governed by two Replies of the State Council adopted in 1986 and 2007, which adopt the principles laid down in the international nuclear liability conventions. For the English translation of both Replies, see NEA (n.d.), *China: Nuclear legislation*, www.oecd-nea.org/jcms/pl_24008 (accessed 30 June 2023).

- **Five** non-nuclear countries responded that a nuclear liability law has not been adopted in their national legislation. Among these countries, Greece, Portugal and Türkiye[38] have ratified the Revised Paris Convention, while **two** other countries, Australia and Ireland, are non-contracting states.

Figure 3. **Has your country adopted a nuclear liability law?**

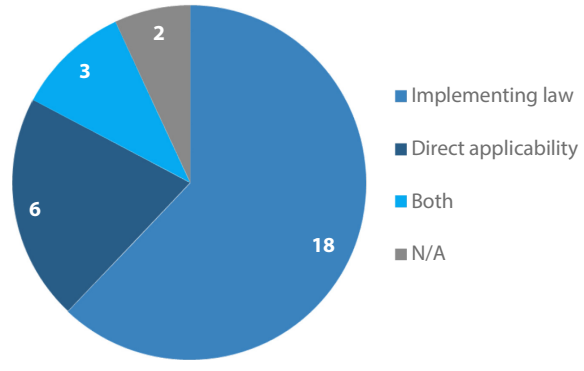


Source: NEA.

In answering the question regarding the incorporation of an international instrument within their national legal system (either via an implementing law, or through a direct application):

- **Eighteen** countries replied that an implementing law needs to be adopted at the national level for the international instrument to apply;
- **Six** countries replied that in accordance with their national legislation, international instruments apply directly in their national legal order;
- **Three** countries (i.e. the Netherlands, Ukraine and the United States) offered a more nuanced approach, according to which both methods are possible. In the Netherlands, international law is directly applicable, but some aspects of such law may be subject to implementing legislation. In the United States, some provisions of the CSC are directly applicable (e.g. Article XIII on jurisdiction), while other provisions shall be construed based on the relevant national legislation (e.g. the Price-Anderson Act).[39]

Figure 4. **Under your legal system, is your country required to have an implementation law or is an international instrument directly applicable?**



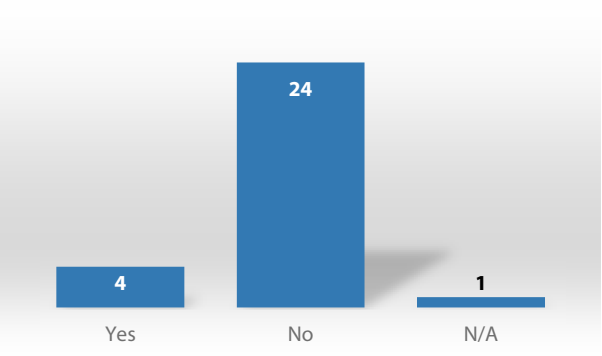
Source: NEA.

38 *Secretariat note*: On 8 March 2022, a new Nuclear Regulatory Law No. 7381 (Official Gazette of 8 March 2022, no. 31772) entered into force in Türkiye. In addition to providing a regulatory framework for nuclear energy and ionising radiation activities, section five of the law addresses nuclear third party liability matters (available in NEA (2022), *Nuclear Law Bulletin*, No. 108/109, OECD Publishing, Paris, pp. 139-143).

39 Price-Anderson Act of 1957, 42 USC Section 2210 (Price-Anderson Act).

Finally, the **majority** of the responding countries (**twenty-four** in total) mentioned that they have not signed any bilateral agreement including provisions on nuclear liability. Only **four** countries (i.e. Finland,[40] France,[41] Germany[42] and Nigeria) effectively concluded such agreements with certain countries.

Figure 5. **Does your country have bilateral agreements with other states that include provisions on nuclear liability?**



Source: NEA

40 Agreement with the Government of the Russian Federation and the Government of the Republic of Finland for Co-operation in the Peaceful Uses of Atomic Energy, entered into force on 6 Apr. 2015 (FTS 32/2015). Agreement on Co-operation in the Field of Peaceful Uses of Atomic Energy Between the Government of the Kingdom of Saudi Arabia and the Government of the Republic of Finland, entered into force on 3 June 2017 (FTS 48/2017).

41 Agreement between the Government of the French Republic and the Government of the Russian Federation on Third Party Liability for Nuclear Damage Caused in Connection with Deliveries from the French Republic for Nuclear Installations in the Russian Federation of 20 June 2000.

42 Agreement between the Federal Republic of Germany and the Swiss Confederation on Third Party Liability in the Field of Nuclear Energy of 22 October 1986 (Federal Law Gazette [*Bundesgesetzblatt*] [*BGBl.*] II 1988, p. 598). Agreement between the Government of the Federal Republic of Germany and the Government of the Russian Federation on nuclear liability in connection with deliveries from the Federal Republic of Germany for nuclear facilities in the Russian Federation of 23 June 1998 (*BGBl.* II 1998, p. 2365).

Session 1

Notification of an accident and evacuation process

Introduction to Sub-session 1: Notification of an accident

Ms Florence Touïtou-Durand, **Head of Legal Affairs, French Alternative Energies and Atomic Energy Commission (CEA), member of the NLC Bureau and Chair of Session 1,** mentioned that the Chernobyl and Fukushima accidents demonstrated that major nuclear and radiological accidents can have immediate as well as long-term consequences not only in the territory of the installation state, but also within the territories of the affected states. The Chernobyl accident had radiological consequences of an unprecedented scale, far beyond the territories of the USSR's neighbouring countries. After the accident, discussions were initiated within the IAEA for the purpose of strengthening international co-operation in the development and use of nuclear energy. The intention was to make the states bear the obligation in the event of a nuclear incident to notify, as quickly as possible, other states for which there is a risk of harmful radiological consequences.

The notification system first aims at minimising the radiological consequences of a nuclear incident in the states that could be affected. It also aims at developing international co-operation and providing assistance and robust emergency responses, which help enhance the public trust in the peaceful use of nuclear energy. Among the current issues in the area of notification of a nuclear incident, the following may be highlighted: the necessity to ensure the dissemination of information in a timely, accurate and reliable manner taking into account the new information technologies and means of communication; establishing a proper mechanism for dissemination of information on the outset of a nuclear incident, which constitutes an important driver for the simplification and efficiency of compensation of nuclear damage, especially regarding the basis under which the preventive measures may be decided and undertaken. What is the purpose of the notification process? What kind of events or occurrences should the public be notified of? To whom should the notification be addressed? What kind of information should be provided? How should this information be provided? These were some of the questions addressed in this session.

Notification of an accident: International legal framework

Mr Andrea Gioia, **Senior Legal Officer at the Office of Legal Affairs, IAEA**, provided an overview of the international legal framework applicable to the notification of a nuclear accident. This framework is composed of binding international legal instruments, but also of non-binding instruments that often complement the binding ones and help states comply with their international obligations in this field. The most important international legal instrument in the area of notification of nuclear incidents is the 1986 Convention on Early Notification of a Nuclear Accident (the "Early Notification Convention")[43] adopted in the aftermath of the Chernobyl accident. This Convention establishes a notification system for a nuclear accident from which a release of radioactive material occurs or is likely to occur, and which has resulted or may result in an international transboundary release that could be of radiological safety significance for another state. The Early Notification Convention was adopted together with its "twin"

43 Convention on Early Notification of a Nuclear Accident (1986), IAEA Doc. INFCIRC/335, 1439 UNTS 276, entered into force 27 Oct. 1986 (Early Notification Convention).

convention – the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (the "Assistance Convention"),[44] which sets out an international framework for co-operation among its contracting states and with the IAEA to facilitate prompt assistance and support in the event of nuclear accidents or radiological emergencies. These two Conventions constitute the main international legal instruments for emergency preparedness and response in the event of a nuclear accident, and aim at strengthening the international response to a nuclear accident by providing a mechanism for rapid information exchange.

The scope of application of the Early Notification Convention (Article 1 of the Convention) covers any accident involving the following facilities or activities:

- any nuclear reactor wherever located;
- any nuclear fuel cycle facility;
- any radioactive waste management facility;
- the transport and storage of nuclear fuels or radioactive wastes;
- the manufacture, use, storage, disposal and transport of radioisotopes for agricultural, industrial, medical and related scientific and research purposes; and
- the use of radioisotopes for power generation in space objects,

from which a release of radioactive material occurs, or is likely to occur, and which has resulted, or may result, in an international transboundary release that could be of radiological safety significance for another state. It is worth noting that the Early Notification Convention is meant to cover only releases, or the likelihood of such releases, that could have transboundary effects.

In the event of such an accident involving facilities or activities of a state party to the Early Notification Convention, or of persons or legal entities under its jurisdiction or control, that state party must, in accordance with Article 2 of the Convention: (a) forthwith notify, directly or through the IAEA, the states that are or may be physically affected, and the IAEA, of the accident, its nature, time of occurrence and exact location; (b) promptly provide, directly or through the IAEA, to the same states, and to the IAEA, specific information relevant to minimising the radiological consequences in those states. Regarding the information to be provided, Article 5 of the Convention specifies that the following shall be provided:

- time, exact location and nature of the accident;
- facility or activity involved;
- assumed or established cause and foreseeable development of the accident relevant for the transboundary release;
- general characteristics of the radioactive release;
- current and forecast meteorological and hydrological conditions relevant for forecasting the transboundary release;
- results of environmental monitoring relevant to the transboundary release;
- off-site protective measures taken or planned;
- predicted behaviour over time of the radioactive release,

taking into account that such information may be used without restriction, except when provided in confidence by the notifying party. In addition, Article 3 of the Convention provides a non-binding commitment (i.e. on a voluntary basis) of a state party which stipulates that "with a view to minimizing the radiological consequences, states parties may notify in the event of nuclear accidents other than those specified in Article 1." At the time when the Convention was adopted, this provision was mainly inserted in the Convention to cover, in particular, activities and facilities

44 Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1986), IAEA Doc. INFCIRC/336, 1457 UNTS 134, entered into force 26 Feb. 1987 (Assistance Convention).

relating to nuclear weapons and nuclear tests. Article 3 may have a broader application depending on each state party's decision (e.g. Japan notified the IAEA on the Fukushima accident even though the accident did not have any transboundary effects).

With regard to the process of exchange of information, each state party is requested in accordance with Article 7 of the Convention to inform the IAEA and other states parties (directly or through the IAEA) about its competent authorities and points of contact responsible for issuing and receiving the notification and information referred to in Article 2 of the Convention. The IAEA has to maintain an up-to-date list of such authorities and points of contact, as well as the points of contact of relevant intergovernmental organisations. Since 2001, there have been regular meetings of these points of contact because, unlike other conventions within the auspices of the IAEA, the Early Notification Convention does not have a regular peer review mechanism.

Other functions of the IAEA are underlined in Article 4 of the Convention: it has to forthwith inform states parties, IAEA member states, other states that may be affected and relevant intergovernmental organisations of a notification received pursuant to Article 2 (a) of the Convention; and promptly provide any state party, member state or relevant intergovernmental organisation, upon request, with the information received pursuant to Article 2(b) of the Convention. The practice has gone beyond what is stipulated in the Convention regarding the role of the IAEA, as the 2011 IAEA Action Plan on Nuclear Safety has entrusted the Agency with an important new function: "to provide [IAEA] Member States, international organizations and the general public with timely, clear, factually correct, objective and easily understandable information during a nuclear emergency on its potential consequences, including analysis of available information and prognosis of possible scenarios based on evidence, scientific knowledge and the capabilities of Member States."[45]

The Early Notification Convention is part of a wider international legal framework for emergency preparedness and response (EPR), which comprises:

- The Convention on Assistance in the Event of a Nuclear Accident or Radiological Emergency;
- EPR provisions in the Convention on Nuclear Safety (Article 16)[46] and in the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Article 25);[47]
- Bilateral agreements between neighbouring states;
- Non-binding instruments, such as a number of safety standards; and
- Operational arrangements and mechanisms.

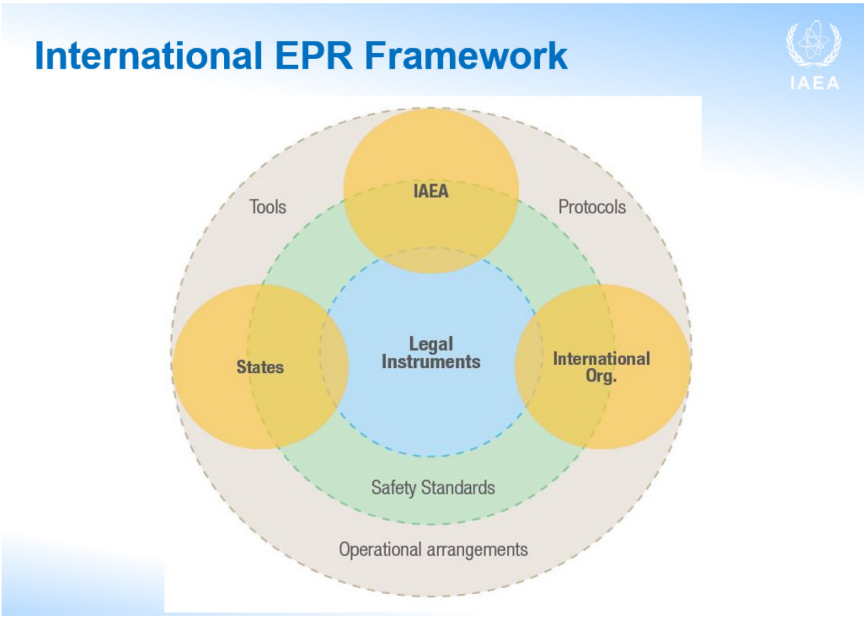
45 IAEA (2011), "Draft IAEA Action Plan on Nuclear Safety", *supra*, note 22.

46 Convention on Nuclear Safety (1994), IAEA Doc. INFCIRC/449, 1963 UNTS 293, entered into force 24 Oct. 1996 (CNS).

47 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997), IAEA Doc. INFCIRC/546, 2153 UNTS 357, entered into force 18 June 2001 (Joint Convention).

The IAEA EPR system is summarised in the following diagram:

Figure 6. **IAEA ERP system**



Source: IAEA.

Among the IAEA Safety Standards, the most important are:

- Preparedness and Response for a Nuclear or Radiological Emergency (GSR Part 7): among the general requirements, Requirement 2 provides, *inter alia*, for the adoption of legislation and the establishment of regulations "for effectively governing the provision of prompt and adequate compensation for victims for damage due to a nuclear or radiological emergency";
- Arrangements for Preparedness for a Nuclear or radiological Emergency (GS-G-2.1);
- Criteria for Use in preparedness and Response for a Nuclear or Radiological Emergency (GSG-2).

The IAEA Operational Arrangements that directly relate to notification of a nuclear accident are:

- The Operations Manual for Incident and Emergency Communication (IEComm): It provides detailed information and communication details, including information for developing and implementing practical operational procedures in an incident/emergency;
- The IAEA Response and Assistance Network (RANET): It establishes provisions on facilitation and co-ordination of assistance upon request;
- The Joint Radiation Emergency Management Plan of the International Organizations (JPLAN): It governs co-ordination of inter-agency response.

Finally, the IAEA Incident and Emergency Centre (IEC), established in 2005, implements all IAEA functions related to the EPR.

Notification of an accident: A practical approach

Commissioner Stephen G. Burns, **US Nuclear Regulatory Commission**, provided a practical perspective of the notification of an accident in the United States. Within the US government, there are many organisations that are in charge of responsive measures to nuclear incidents. The US Nuclear Regulatory Commission (NRC) is responsible for co-ordinating the response to incidents at commercial nuclear power plants, while the US Federal Emergency Management Agency (FEMA), under the Department of Homeland Security, would co-ordinate the overall federal response to incidents with off-site consequences. State and local governments would have primary responsibilities for determining and implementing such measures and notifying the public. In the event of a transboundary nuclear incident affecting another country, the US has bilateral agreements with neighbouring countries in the area of notification which contain provisions on prompt notification of events consistent with Article 9 of the Early Notification Convention.

For nuclear incidents at commercial nuclear power plants involving another country, the NRC is designated as a National Competent Authority under the Early Notification Convention, and is therefore in charge of co-ordinating the entire notification process to the IAEA. The US Department of Energy (DOE) would be primarily responsible for national research laboratories and other DOE nuclear facilities (such as enrichment facilities), and would also be considered as a National Competent Authority. At the same time, radioactive sources are normally regulated by the NRC or one of the NRC "agreement states" (i.e. individual state governments that have been delegated regulatory authority under the federal Atomic Energy Act of 1954,[48] as amended). However, orphan or banned radioactive sources would be under the responsibility of the Environmental Protection Agency (EPA), which would be considered as a National Competent Authority. The Department of State would lead communications to the highest level of foreign governments.[49]

Principles and guidance for emergencies are defined in the NRC's Incident Response Program (Management Directive 8.2).[50] A more detailed desk procedure guides the NRC emergency operations center international liaison desk officer.

Regarding the currently existing notification challenges, which did not exist at the time of the Three Mile Island[51] or Chernobyl accidents, the possibility of instantaneous communication via social media may significantly affect the notification process. As an example, several pictures taken at the onset of a fire caused in 2015 by a failed transformer at the Indian Point nuclear power plant near New York City and resulting in the shutdown of a reactor, were posted online on social media before the competent authorities could learn about the incident and caused panic within the public.[52] A similar situation with an immediate transmission of information via social media occurred with the Leningrad nuclear power plant steam leak incident in Russia in 2015.[53]

48 Atomic Energy Act of 1954, as amended, 42 USC 2011 *et seq*.

49 For more information on the tasks and responsibilities of the authorities involved, see FEMA (2023), "Nuclear/Radiological Incident Annex to the Response and Recovery Federal Interagency Operational Plan".

50 NRC (2023), "NRC Incident Response Program", Management Directive 8.2, DT-23-10.

51 *Secretariat note*: The Three Mile Island Unit 2 reactor partially melted down on 28 March 1979. This was the most serious accident in the US commercial nuclear power plant operating history, although its small radioactive releases had no detectable health effects on plant workers or the public. For more information on the Three Mile Island accident, see Burns, S. (2022), "The impact of the major nuclear power plant accidents on the international legal framework for nuclear power", in NEA (ed.), *Principles and Practice of International Nuclear Law*, OECD Publishing, Paris, p. 83.

52 For more information regarding this incident, see DiSavino, S. and L. Lambert, "Transformer fire causes shut-down of nuclear reactor north of New York City", *Reuters* (10 May 2015), available at: www.reuters.com/article/us-usa-nuclearplant-incident/transformer-fire-causes-shut-down-of-nuclear-reactor-north-of-new-york-city-idUSKBN0NU0RN20150510 (accessed 30 June 2023).

53 For more information on this event, see Stewart, W. "Russians flee Chernobyl-style plant over fears of radioactive leak", *Express* (21 Dec. 2015), available at: www.express.co.uk/news/world/628592/Chaos-Russians-flee-Chernobyl-style-plant-radioactive-leak (accessed 30 June 2023).

Today, there is better communication thanks to several methods that may be used to convey information, but ensuring that communication is accurate and complete constitutes a real challenge. The notification system provided in the Early Notification Convention adopted in 1986 may be challenged, especially with regard to the availability of information, due to significant strides in technological advances in communication since the Convention was originally adopted. However, the Early Notification Convention remains adaptable to the new means of communication and still has relevance despite significant improvements in communication technologies over the past decades. With regard to the Assistance Convention, even though it was designed as a vehicle to request assistance for major accidents (e.g. severe radiation exposure), it might be more practically and frequently used for smaller radiological incidents. The United States has not itself requested assistance through this Convention, but has offered assistance on several occasions.

In conclusion, the spirit of the notification and emergency response conventions is still relevant today, but the methods by which the information is shared must evolve along with technological progress. Awareness of challenges regarding information availability through social media and other means should be constantly assessed. Effective co-ordination at national and international levels is key to the transmission of reliable, accurate, and timely information.

Discussion session

Concerning the need to amend the Early Notification Convention to take into account new communication technologies and to reflect the recently expanded responsibilities of the IAEA in the area of notification, it was noted that the Early Notification Convention does not specify the means whereby the state party has to notify, meaning the Convention can be considered flexible in this respect. There are also a number of supplementary operational agreements to the Convention, such as the IEComm, which includes a chapter on communications with the IAEA Incident and Emergency Centre outlining various means of communication that may be used (including the internet). The current version of the IEComm [54] specifies that electronic mail, facsimile and telephone represent both primary and routine emergency communication channels. A protected IAEA website called USIE – *Unified System for Information Exchange in Incidents and Emergencies* [55] - is continuously available as a primary channel for communication. Therefore, notification and request for assistance forms established by the Early Notification Convention can be easily transmitted to the IAEA via USIE and then to the concerned regulators. Basically, an incident could be communicated to the IAEA IEC via any means of communication, and the IEC would come back to the person who communicated this information to clarify all the details.

With regard to the existence of any exact parameters for notification (e.g. parameters identified at the time of construction of a nuclear power plant that might lead to an incident) in the Early Notification Convention, it was noted that even though the Convention contains a list of details which are to be notified, it is up to the state party that notifies to interpret its obligations under the Convention and determine what it has to notify, and to what extent.

Overview of responses to the questionnaire

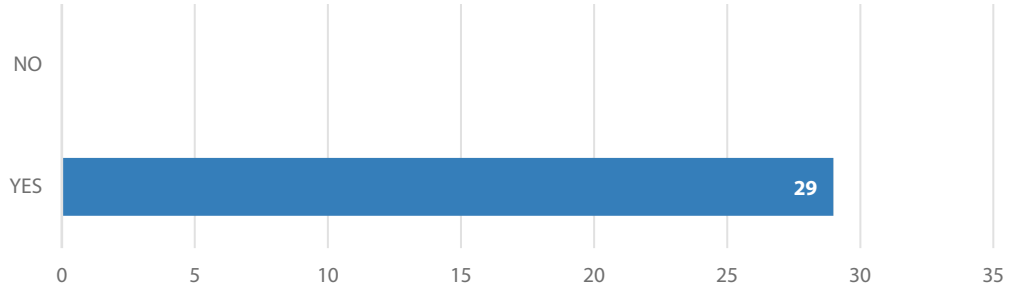
Multilateral and Bilateral Agreements in the Area of Notification for Nuclear Accidents with Transboundary Effects

All the responding countries informed that they are parties to the Convention on Early Notification.

54 IAEA (2020), *Operations Manual for Incident and Emergency Communication*, IAEA, Vienna.

55 For more information on USIE, see IAEA (2015), Unified System for Information Exchange in Incidents and Emergencies, https://iec.iaea.org/usie/actual/LandingPage.aspx (accessed 30 June 2023).

Figure 7. **Is your country party to the 1986 Convention on Early Notification of a Nuclear Accident?**



Source: NEA.

The **majority** of the responding countries reported that they concluded bilateral agreements with their neighbouring countries in the area of notification of nuclear accidents with transboundary effects. Examples:

- Canada: On 20 February 2014, the Canadian Department of Health and the US DOE signed a Statement of Intent regarding "Nuclear and Radiological Emergency Management and Incident Response Capabilities";
- Germany: Bilateral agreements on the exchange of information on nuclear installations located in border regions were concluded with eight neighbouring countries. Joint commissions and expert groups have been set up with Austria, Belgium, Czechia, France, the Netherlands and Switzerland;[56]
- Hungary: Bilateral agreements were concluded with Austria, Croatia, Czechia, Germany, Romania, Serbia, the Slovak Republic, Slovenia, and Ukraine.[57]

It is worth mentioning that Luxembourg concluded bilateral agreements on information exchange in case of incident with radiological effects with Belgium and France.[58]

At the EU level, the European Community Urgent Radiological Information Exchange (ECURIE)[59] has been set up to facilitate early notification and information exchange in the event of a radiological or nuclear emergency. All countries that are members of the European Union ("EU member states") as well as Switzerland, Norway, Montenegro, the Republic of North Macedonia and the United Kingdom participate in the ECURIE system. They must promptly notify the EC if they decide to take measures to protect their population in the event of an emergency. The EC must then make this notification available to all other member states. In addition, Nordic countries, i.e. Denmark, Finland, Iceland, Norway and Sweden, have jointly established the NORDIC manual (NORMAN) for co-operation between their respective regulators in response to

56 For more information, see Chapter 17(iv) "Consultation with Neighbouring Countries" in: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) (2019), "Report by the Federal Government for the Eighth Review Meeting of the Convention on Nuclear Safety in March/April 2020".

57 For more information on the bilateral agreements signed by Hungary in this field, see Hungarian Atomic Energy Authority (n.d.), "International Relations", www.oah.hu/web/v3/HAEAportal.nsf/web?openagent&menu=03&submenu=3_6 (accessed 31 Aug. 2023).

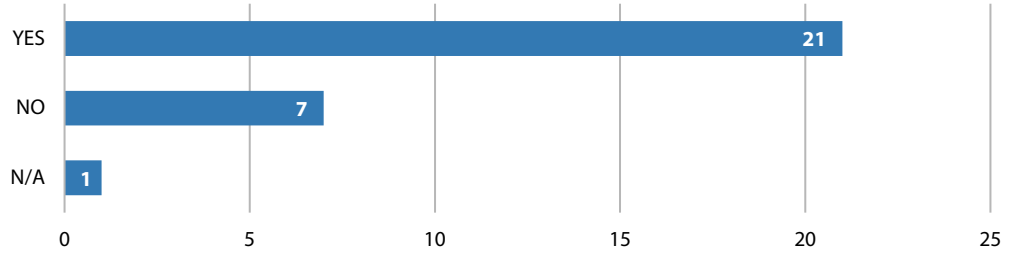
58 See, for example, the Law of 27 April 2006 concerning the approbation of the Agreement between the government of the Grand Duchy of Luxembourg and the government of the Kingdom of Belgium concerning the information exchange in case of an incident or accident which might have radiological consequences, 2006 (Official Journal of the Grand Duchy of Luxembourg [*Mémorial* A] no. 80/2006).

59 For more information on ECURIE, see Council Decision 87/600/Euratom of 14 December 1987 on Community arrangements for the early exchange of information in the event of a radiological emergency, *Official Journal of the European Union (OJ)* L 371/76 (30 Dec. 1987) and Agreement between the European Atomic Energy Community (Euratom) and non-member States of the European Union on the participation of the latter in the Community arrangements for the early exchange of information in the event of radiological emergency (Ecurie) in *Official Journal of the European Union (OJ)* C 102 (29 Apr. 2003).

and preparedness for nuclear and radiological emergencies and incidents. The manual describes practical arrangements regarding communication and information exchange to fulfil the obligations provided in the bilateral agreements between the Nordic countries. These arrangements also apply to a response to events or threats of malicious use of radioactive material and threats or malevolent acts concerning nuclear facilities.

In total, **seven** countries declared that they have not concluded any bilateral agreements in the area of notification for nuclear accidents with transboundary effects. Among them, there are countries with nuclear power plants (China, India, Japan), as well as countries with no nuclear power plants (e.g. Australia, Ireland, the Philippines, Portugal).

Figure 8. **Does your country have bilateral agreements in the area of notification that would apply in case a nuclear accident has transboundary effects?**



Source: NEA.

Notification System and/or Emergency Preparedness Response Scheme

All **29** responding countries confirmed that they have an emergency preparedness response scheme in place. As a general rule, each country structures such response scheme on the basis of its own internal territorial and administrative organisation, relying on a multitude of entities and authorities. Therefore, the emergency response plans set out by each country vary. The responses received may be illustrated as follows:

a) **Authorities in charge** of **initial** assessment and continuous evaluation of the emergency situation. Examples:

- Austria: The Federal Ministry of Agriculture and Forestry, Environment and Water Management is in charge of evaluating the consequences of radiological and nuclear emergencies and monitoring the environmental impact;
- Germany: The Federal Radiological Situation Centre (RLZ) at the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (now: The Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection) co-ordinates the emergency response within the Federal government and with the Länder as well as internationally. The tasks of the RLZ consist of the recording, presentation and assessment of the radiological situation in the area of communication and co-ordination (identification of the adequacy of the implementation of protective measures, information of the population, and preparation of recommendations for action).[60]

b) **Mandatory close co-operation** between local, regional and central authorities within the country. To achieve this, a clear description of the duties assumed by all relevant organisations and authorities is necessary. Examples:

60 For more information, see *Gesetz zum Schutz vor der schädlichen Wirkung ionisierender Strahlung* (*Strahlenschutzgesetz* – StrlSchG) [Act to protect against the harmful effects of ionising radiation (Radiation Protection Act - *StrlSchG*)] of 27 June 2017, as amended (*BGBl.* I, p. 1966).

- Australia: The Australian Emergency Management Arrangements establishes the relationships and co-ordination arrangements between the Australian government and the states and territories in the event of an emergency. The Australian government has an overarching Australian Government Disaster Response Plan (COMDISPLAN), which complements local and regional disaster response plans for Australian states and territories.[61] Emergency Management Australia (EMA) is the Australian government's lead agency for disaster and emergency management. It centralises emergency response across the Australian Commonwealth, states and territories. EMA also incorporates the Australian Government Crisis Coordination Centre, which has capacity to co-ordinate responses to all-hazards on a 24/7 basis;[62]
- Canada: In case of radiological emergencies in nuclear installations in its territory, provincial or territorial emergency management organisations and the Canadian Nuclear Safety Commission (CNSC) (for licensed nuclear facilities), or the Department of National Defence/Canadian Forces (DND/CF) (for nuclear powered vessels), will normally be the first government agencies to receive the initial report. Based on its assessment of the information, Health Canada, in consultation with appropriate Federal Nuclear Emergency Plan (FNEP) partners (including CNSC or DND/CF, as appropriate) will assess the need for changing the FNEP response level, as required, and notify federal FNEP partners accordingly. [63] Public Safety Canada (PS) and the Government Operations Centre (GOC) will handle all other notifications under the Federal Emergency Response Plan (FERP);
- Hungary: The Government Decree 167/2010. (V.11.) Korm. on national nuclear emergency preparedness and response provides a list of stakeholders that shall be involved in the Nuclear Emergency Response Plan (NERP), including a wide range of national, regional and local authorities along with technical entities each providing their expertise in their relevant field of competence (e.g. government co-ordination body, National Public Health and Medical Officer Service, national water damage response middle direction organisation, Paks Nuclear Power Plant and Hungarian Academy of Science).[64]

c) **Co-ordination of national authorities** within the framework of international arrangements. Examples:

- Belgium and Luxembourg: The exchange of liaison officers is a practice followed in the framework of bilateral arrangements in terms of emergency response scheme;[65]
- Poland: According to Article 77(2)(2) of the Act of Parliament of 29 November 2000, national contact points established by the President of the National Atomic Energy Agency will communicate any information on nuclear or radiological emergencies in the territory of Poland to the IAEA and the EC; [66]

61 See Australian Government (2020), *COMDISPLAN 2020*, www.homeaffairs.gov.au/emergency/files/plan-disaster-response.pdf (accessed 31 Aug. 2023).

62 For more information, see Australian Government (n.d.), "Emergency management", www.homeaffairs.gov.au/about-us/our-portfolios/emergency-management/about-emergency-management (accessed 31 Aug. 2023).

63 Government of Canada (2014), *Federal Nuclear Emergency Plan Part 1: Master Plan*, www.canada.ca/en/health-canada/services/publications/health-risks-safety/federal-nuclear-emergency-master-plan-part-1.html#a44 (accessed 31 Aug. 2023).

64 See Section 18 of the Government Decree No. 167/2010. (V. 11.) Korm. on National Nuclear Emergency Preparedness and Response.

65 See Article 9 of the Agreement between the government of the Grand Duchy of Luxembourg and the government of the Kingdom of Belgium concerning the information exchange in case of an incident or accident which might have radiological consequences, 2006 (Official Journal of the Grand Duchy of Luxembourg [*Mémorial* A] n° 80/2006).

66 Act of 29 November 2000 on Atomic Energy, 2000 (Journal of the Laws of the Republic of Poland of 2001, No. 3, Item 18 and No. 100, Item 105) (Act of 29 November 2000 on Atomic Energy).

- United States: For incidents affecting another country (e.g. Canada or Mexico), the US Department of State would lead the notification of that country and the IAEA in accordance with the Convention on Early Notification, and negotiate co-operative cross-border activities.[67]

d) **Designation of the authority** to which the nuclear accident will have to be notified. Examples:

- Austria: The Federal Alarm Centre at the Austrian Federal Ministry of the Interior together with the Division on Radiation Protection in the Austrian Ministry of Agriculture and Forestry, Environment and Water Management have been designated as contact points for information exchange with regard to the IAEA or the ECURIE;
- Germany: The operator of the nuclear installation where the nuclear accident would occur shall alert in parallel RLZ, GMLZ, supervisory authorities at a Land's level, by the competent civil protection authority, taking into account the criteria for alerting the disaster control authority by the operators of nuclear facilities set out by the Commission on Radiological Protection (SSK) and Reactor Safety Commission (RSK).[68] The notification of the RLZ at the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (now: The Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection) is carried out by the reporting office of the Land via the GMLZ since RLZ is not staffed 24/7. These redundant alerting channels are intentional;
- Slovak Republic: The Nuclear Regulatory Authority of the Slovak Republic is the entity to which the licence holder will have to report any type of nuclear accident in the installation.[69]

e) **Operational centralisation** of the response scheme. Examples:

- France: The Prime Minister ensures, in liaison with the President of the Republic, political control and strategic direction of crisis management operations through the establishment of an Interministerial Crisis Unit (Cellule interministérielle de crise, or CIC), which brings together all the relevant ministries, as well as the competent nuclear safety authority (civil or defense), experts in the nuclear field and representatives of the operator. In addition, an Interministerial Committee for Nuclear and Radiological Crises (Comité interministériel aux crises nucléaires ou radiologiques) may be established, with the participation of various ministries, administrative authorities, and nuclear operators.[70] This Committee is responsible for proposing measures to be taken to the Prime Minister;
- Luxembourg: Execution of the emergency intervention plan in the case of a nuclear accident falls within the competence of the Prime Minister and Minister of State, the Minister for Home Affairs and the Minister of Health. A crisis cell will be instituted that would initiate, co-ordinate and monitor the execution of all the measures intended to deal with the crisis and its effects. It is composed of high-level representatives from the relevant ministries and administration, including the head of the Radioprotection Division.[71]

67 FEMA (2023), *supra* note 49, p.31.

68 Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (2013), "Criteria for alerting the disaster control authority by the operators of nuclear facilities" (RSK/SSK 2013, BAnz AT of 9 Oct. 2014 B1).

69 See Article 27(4) of the Act No. 541/2004 on Peaceful Use of Nuclear Energy and on the Amendment and Supplementing of Certain Acts, as amended.

70 Interministerial Directive of 7 April 2005 on the action of the public authorities in case of an event causing a radiological emergency (Official Journal of the French Republic [JORF] of 10 Apr. 2005, p. 5).

71 Government of the Grand Duchy of Luxembourg (2021), *Emergency Response Plan in the event of a nuclear accident*.

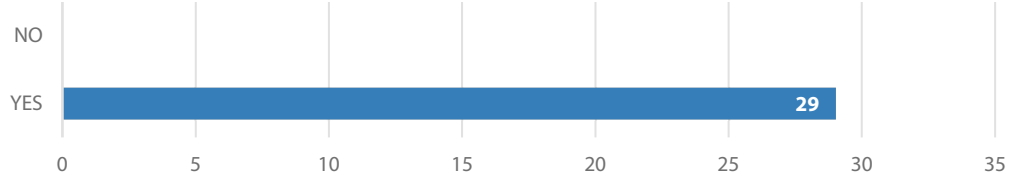
f) An **important role is borne by the nuclear operator** of the nuclear installation where the hypothetical nuclear accident occurs. Examples:

- Czechia: The Act No. 263/2016 of Coll. of 14th July 2016 provides for an obligation of the operator liable to notify any emergency occurring at its nuclear installation to a wide range of stakeholders (e.g. the State Office for Nuclear Safety, local authorities, warning the affected general public and ensuring the dissemination of the emergency information through the appropriate media);[72]
- Slovenia: The operator of a nuclear power plant or the licensee of radioactive sources has to immediately inform the police, the citizens, the Notification Centre of the Republic of Slovenia (CORS) and the Slovenian Nuclear Safety Administration (SNSA).[73]

g) A critical aspect developed in the emergency response strategy concerns the **recovery process and post-accident management** (i.e. returning from an emergency situation to a controlled and stable status for the nuclear installation, the economic activities and the social life in the concerned areas). Examples:

- Canada: The FNEP is developed in accordance with the principle of preparation for the transition from an emergency situation to recovery. It provides that "[r]esponsibility for recovery is largely within provincial/territorial jurisdiction. The decision to transition to recovery will be taken by these authorities in the case of an emergency occurring in or near Canada, and by the federal authorities in the event of a far-field emergency. Some FNEP partners and FNEP Designated Officials may be involved in support of restoration efforts of the affected areas"; [74]
- France: The National Response Plan for Major Nuclear or Radiological Accidents contains a strategy for preparing for post-accident management after the recovery period. The objectives of this strategy are: (i) to protect people from the dangers of ionising radiation; (ii) to provide assistance to people affected by the consequences of the accident; and (iii) to reclaim areas whose economic and social fabric were affected.[75]

Figure 9. **Does your country have a notification system and/or an emergency preparedness and response scheme?**



Source: NEA.

Procedures for disseminating information in the case of a nuclear accident

Similar to the notification procedure, management and dissemination of information in the event of a nuclear accident requires multilevel co-operation involving authorities and stakeholders within the country and abroad. Furthermore, it should be noted from the outset that the type of information that will be disseminated as well as the kind of protective measures that will be taken by the competent authorities on the basis of this information will be precisely dependent upon such assessment, which is supposed to be made by a specific authority in each country.

72 See Section 157 of the Act No. 263/2016 Coll. of 14 July 2016, 2016.

73 For more information on the SNSA, see Republic of Slovenia (n.d.), "Slovenian Nuclear Safety Administration", www.gov.si/en/state-authorities/bodies-within-ministries/slovenian-nuclear-safety-administration (accessed 31 Aug. 2023).

74 Government of Canada (2014), *Federal Nuclear Emergency Plan Part 1: Master Plan, supra* note 63, Section 5.

75 SGDSN (2014), "National Response Plan Major Nuclear or Radiological Accidents" (n° 200/SGDSN/PSE/PSN).

Dissemination of information may use **different channels depending on the public concerned** (e.g. local authorities may be responsible for informing the public that is affected, while central government authorities may assume the task of informing the general public). National competent authorities will assume the task of providing information at an international level. Examples:

- France: The Prime Minister and ministerial authorities, prefectural authorities, nuclear safety authorities, expert agencies and the operator are involved in the process at the national level. Each stakeholder will assume a different role in explaining the crisis management structure, in offering educational information on the situation or even information on how the accident is being handled step by step. At the international level, the state authorities will take the lead and be in charge of informing the concerned states and concerned international organisations;[76]
- Slovenia: A wide range of institutional stakeholders work together to disseminate information. Under the Act on the Protection Against Natural and Other Disasters, the Emergency Notification Centre of the Republic of Slovenia along with regional emergency notification centres shall provide information and communication support to the management and implementation of protection, rescue and relief (e.g. communicating urgent information that needs to be published without delay and free of charge under the mass media act). The publication of urgent appeals, announcements and other messages shall have priority in any mass media.[77] The SNSA and the nuclear operator will also be in charge of drafting press releases, which ultimately will have to be approved by the Civil Protection Headquarters. In addition, regarding the foreign public, the Government Communication Office will be in charge of disseminating information;[78]
- United Kingdom: Local authorities are the duty holders for the local level response, including the dissemination of information to the immediate public likely to be affected. However, the Department for Business, Energy and Industrial Strategy (BEIS)[79] is the Lead Government Department and would be responsible for national and international dissemination of information;
- United States: Federal, state and local officials share responsibility for co-ordinating and communicating information to the public during a power plant radiological release incident. State and local authorities have primary responsibility for making protective action decisions and communicating health and safety instructions to their affected populations.[80]

Several responding countries provided a specific mention of the **kind of information** that shall be disseminated by the authorities. Examples:

- Italy: According to Section II of the Chapter X of the Legislative Decree of 17 March 1995, n. 230, specific information shall be provided to the public concerned, in a timely and repeated manner. More specifically, it shall include (i) based on available information, the kind of the emergency and its characteristics: (a) kind, (b) origin, (c) magnitude and

76 *Ibid*.

77 See Article 55 of the Act on Protection Against Natural and Other Disasters, as amended (Official Gazette RS No. 64/1994).

78 See Section 5 of Government of the Republic of Slovenia (2021), "Protection Strategy for a Nuclear and Radiological Accident" (No. 84200-2/2021/3).

79 *Secretariat note*: BEIS existed until 2023 when it was split into the Department for Business and Trade (DBT), the Department for Energy Security and Net Zero (DESNZ) and the Department for Science, Innovation and Technology (DSIT). Responsibility for national security and investment policy has gone to the Cabinet Office.

80 FEMA (2023), *supra* note 49.

(d) likely evolution; (ii) the measures to be adopted; and (iii) the authorities and organisations to contact for information, advice, assistance and rescue;[81]

- Slovak Republic: The licence holder and local authorities are required to immediately inform the public about (i) the facts regarding the incident or accident; (ii) the actions that need to be taken; and, if necessary, (iii) the health protection measures regarding the public affected. Further information should include information on (a) an incident or accident, its characteristics, in particular its origin, extent and possible evolution; (b) measures in times of threat, and (c) urgent and follow-up measures to protect the public.[82]

Finally, the means used to **communicate information towards the public** play a significant role. Such means need to respond to the urgency of the situation by rapidly spreading information and reaching out to the entire population. Examples:

- Luxembourg: The information campaign incorporated in the emergency plan provides three main elements: (i) establishment of a crisis information website[83] to provide information on nuclear emergencies, radioactivity in general and the nuclear sites located close to Luxembourg in English, French and German; (ii) publication of brochures to inform the population, raise their awareness and prepare them for such an eventuality; (iii) establishment of an office for crisis communication. This office, equipped with permanent staff, is charged with updating all available information and organising communication during a crisis by making use of modern network communication platforms;[84]
- Sweden: Providing general information to the public is a responsibility of all public authorities within their respective areas of competence. The County Administrative Boards are responsible for informing the concerned population. Urgent information shall be transmitted by radio as a VMA (Viktigt Meddelande till Allmänheten, i.e. Urgent Message to the Public), but will also be made available through other national and international media, including social media. The main objective of the message is to give easily accessible and understandable information to the people affected by the accident;
- United States: The Nuclear/Radiological Incident Annex to the Response and Recovery Federal Interagency Operational Plans states that in the event of a nuclear emergency, FEMA's Integrated Public Alert and Warning System provides significant capability for public messaging, including capability to broadcast an alert message to all cellular phones in a given area (as a Wireless Emergency Alert), access to the Emergency Alert System, NOAA All Hazards Weather Radio network, and internet connected alerting tools.[85]

Introduction to Sub-session 2: Evacuation process

Ms Florence Touïtou-Durand, **Head of Legal Affairs, French Alternative Energies and Atomic Energy Commission (CEA), member of the NLC Bureau and Chair of Session 1**, emphasised that the strategy of responding to a major nuclear or radiological accident is based on a synergy of actions, and more specifically: (i) the implementation of protective actions which are intended to promptly deploy in an emergency (especially an emergency management system – EMS); (ii) the return of the nuclear facility to a control state; (iii) communication with the public throughout the emergency; and (iv) the preparation of the post-accident management and the

81 See Article 130 of the Legislative Decree No. 230 of 17 March 1995, as amended (Official Journal, GU Serie Generale n.136 of 13 June 1995).

82 See Article 28(22) of the Act No. 541/2004 on Peaceful Use of Nuclear Energy and on the Amendment and Supplementing of Certain Acts, as amended.

83 Government of the Grand Duchy of Luxembourg (n.d.), "Info crise", https://infocrise.public.lu/en.html (accessed 31 Aug. 2023).

84 SGDSN (2014), *supra*, note 75.

85 FEMA (2023), *supra*, note 49.

protection of people through an evacuation process, among other means. The aim of such a strategy is to limit public exposure to ionising radiation in the event of a major accident or in case of the threat of an accident.

During the emergency phase, the global strategy is based on three key measures: (i) evacuation, (ii) sheltering in place and (iii) stable iodine administration. The choice of measures to be implemented and the geographical scope of these measures would depend on the situation. With regard to the evacuation itself, its purpose is to protect the public as quickly as possible by moving people to a place where there is no need to implement any protective measures to ensure their protection against ionising radiation. Therefore, any evacuation process must be determined in advance through documents, plans that are designed to clarify the organisation in the event of a nuclear incident, etc. It is decided based on the foreseeable exposure to ionising radiation, but it may change as the situation progresses. In cross-border areas, co-operation with neighbouring countries is essential and it aims at achieving harmonised orders and/or guidelines to provide the highest level of protection. Certain industrial activities and their possible closure following a nuclear incident may cause damage to property or people and therefore it may be necessary to implement measures to keep these activities ongoing for the safety of people and/or the environment. The sub-session on the evacuation process aims to address these issues.

Evacuation process: Overview of the applicable frameworks

Dr Patricia Milligan, **Senior Technical Advisor, Division for Emergency Preparedness and Response, Office of Nuclear Security and Incident Response, US NRC and member of the Bureau of the NEA Working Party on Nuclear Emergency Matters (WPNEM)**, provided an overview of the evacuation planning for nuclear power plant accidents in the United States. The importance of the protective actions in case of a nuclear incident (such as sheltering, evacuation, food embargo, use of thyroid blocking drugs), which are designed to reduce doses received from a nuclear incident, can hardly be underestimated. As of today, there were fortunately very few incidents at nuclear power plants in the United States that necessitated implementation of protective actions, but certain experience was gained from other events (e.g. grave natural disasters). An effective evacuation requires a thorough planning of not only the evacuation process itself, but also of its short- and long-term consequences on people who were evacuated.

In the United States, the legal framework for evacuation is based primarily on the following regulations and studies:

- the NRC Regulation 10 CFR 50.47(b)(10): Contains a range of protective actions developed for the plume exposure pathway for emergency. Consideration has been given to evacuation, sheltering and the use of potassium iodide (KI), as appropriate. Evacuation time estimates have been developed by applicants and licensees. According to this regulation, the nuclear licensees shall update the evacuation time estimates on a periodic basis;
- the NUREG 0654/FEMA-REP-1 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness is Support of Nuclear Power Plants": Lays out various criteria for evacuation, including evacuation time estimate analyses, public notification, traffic planning and impediments to evacuation. All these requirements shall be considered on an ongoing basis and regularly evaluated through biannual exercises;
- the EPA Protective Action Guide Manual: Describes the correlation between costs/risks and benefits of evacuation and provides that "the decision to evacuate must weigh the anticipated radiation dose to individuals […] against the feasibility of evacuating […] and the risks associated with the evacuation itself";[86]

86 EPA (n.d.), "Protective Action Guide Manual", available at: www.epa.gov/radiation/protective-action-guides-pags (accessed 31 Aug. 2023).

- Evacuation Time Estimate Studies: NUREG/CR-4831 "State of the Art in Evacuation Time Estimate Studies for Nuclear Power Plants" 1992; NUREG/CR-6863 "Development of Evacuation Time Estimate Studies for Nuclear Power Plants" 2004; and NUREG/CR-7002 "Criteria for Development of Evacuation Time Estimate Studies" 2011;
- the NUREG/CR-6864 "Identification and Analysis of Factors Affecting Emergency Evacuations" 2005: Contains a review of 200 evacuations, among which 50 were selected for additional study. The following lessons can be drawn from these studies: (i) the evacuation process shall be managed as part of an overall emergency response (i.e. training, preparation, communication) as evacuation does not end when people are moved beyond the demarcation zone and there is a need to consider what happens to evacuees afterwards; (ii) the scope of the transportation/transit of dependent people needs to be reconsidered and the response to this shall be broadened;
- the NUREG/CR-6981 "Assessment of Emergency Response Planning and Implementation for Large Scale Evacuations" 2008: Examines ten evacuations and emergencies in which almost eight million people were moved.

All these regulations and studies are updated on a regular basis, especially to take into account the outcome of different exercises and lessons learnt from real cases (such as the Fukushima accident and the 2005 Hurricane Katrina). In addition, the IAEA Safety Guide No. GS-G-2.1 "Arrangements for Preparedness for a Nuclear or Radiological Emergency" provides that the following should be taken into account in preparing for evacuation: criteria and decision-making; established evacuation routes and traffic control; access control and protection of property; arrangements for special population groups and facilities; consideration of farm animals and pets; provisions to meet the human needs of evacuees.

Concerning the financial aspects of the evacuation process in the United States, the Price-Anderson Act states that the NRC has the obligation to make the determination of an extraordinary nuclear occurrence.[87]

Regarding the NEA activities in the area of evacuation, the NEA Working Party on Nuclear Emergency Matters (WPNEM) is in charge of gathering lessons learnt from non-nuclear events, joining forces with the OECD Working Group on Chemical Accidents, the High-Level Risk Forum of the OECD Public Governance and Territorial Development Directorate and the EC's Joint Research Centre. This collaboration resulted in the report entitled *Towards an All-Hazards Approach to Emergency Preparedness and Response: Lessons Learnt from Non-Nuclear Events*, which confirms similarities in the EPR across sectors, identifies lessons learnt and good practices for the benefit of the international community and demonstrates the value of an all-hazards approach. Moreover, the NEA organised an International Workshop on the INEX-5 Exercises on Notification, Communication and Interfaces Related to Catastrophic Events Involving Radiation or Radiological Materials[88] – a table-top exercise to address emergency management aspects of notification, communication and interfaces between and among countries and international organisations during the early phase of a release from a nuclear power plant due to a catastrophic natural disaster.

87 Paragraph 140.83 of the Price-Anderson Act provides that if the Commission determines that both of the criteria set forth in paragraphs 140.84 and 140.85 have been met, it will make the determination that there has been an extraordinary nuclear occurrence. If the Commission publishes a notice in the Federal Register in accordance with § 140.82(a) and does not make a determination within 90 days thereafter that there has been an extraordinary nuclear occurrence, the alleged event will be deemed not to be an extraordinary nuclear occurrence. The time for the making of a determination may be extended by the Commission by notice published in the Federal Register. Price-Anderson Act, *supra* note 39.

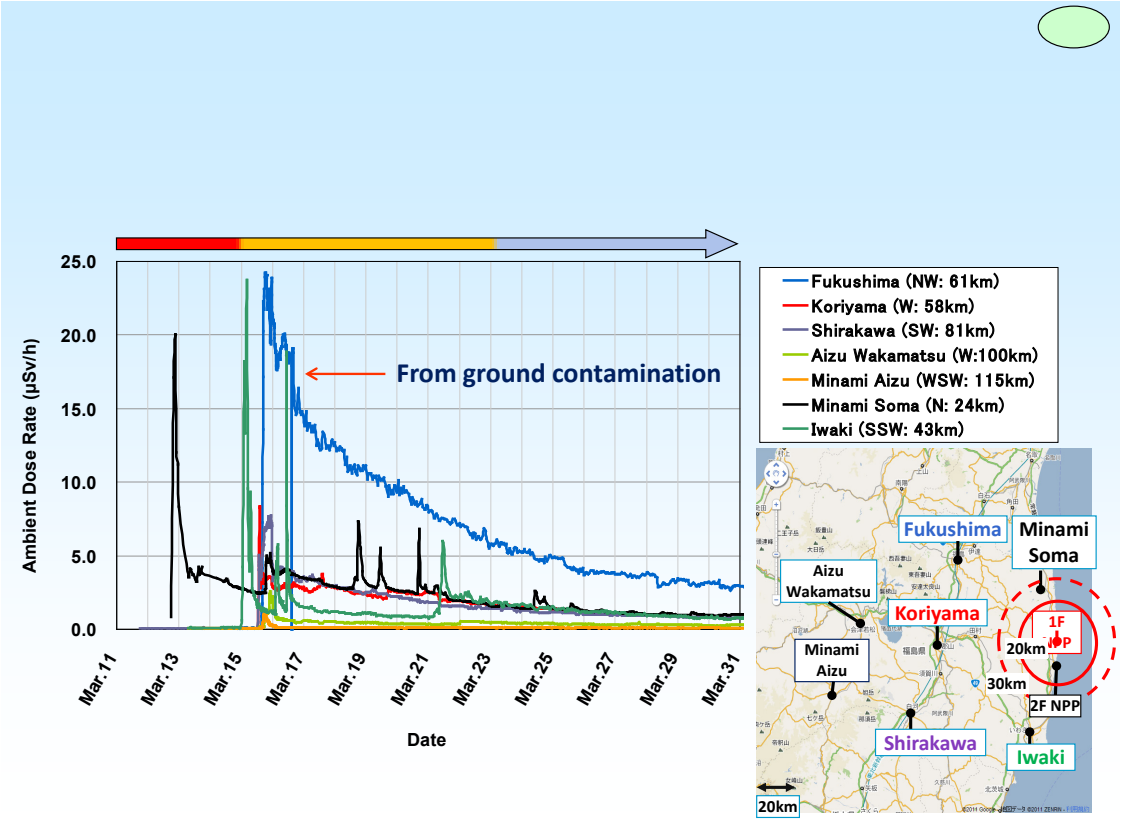
88 For more information on the International Workshop on the INEX-5 Exercises on Notification, Communication and Interfaces Related to Catastrophic Events Involving Radiation or Radiological Materials, see NEA (n.d.), "INEX-5", available at: www.oecd-nea.org/jcms/pl_27079/inex-5 (accessed 31 Aug. 2023).

Evacuation process: A practical approach

Mr Toshimitsu Homma, **Senior Advisor for Emergency Preparedness and Radiation Protection Technical Coordinator, Radiation Protection Policy Planning Division, Radiation Protection Department, Japanese Nuclear Regulation Authority, and member of the Bureau of the NEA Committee on Radiological Protection and Public Health (CRPPH)**, gave an overview of the evacuation process in a nuclear emergency based on the lessons learnt from the Fukushima Daiichi accident.

The nuclear emergency in the Fukushima Prefecture began on 11 March 2011 following the impact of a tsunami triggered by the "Great East Japan Earthquake". It led to prolonged releases of radionuclides from several units at a multi-unit plant combined with a natural disaster. The following diagram demonstrates radiological situation off-site and corresponding protective actions implemented in the early phase of the Fukushima accident:

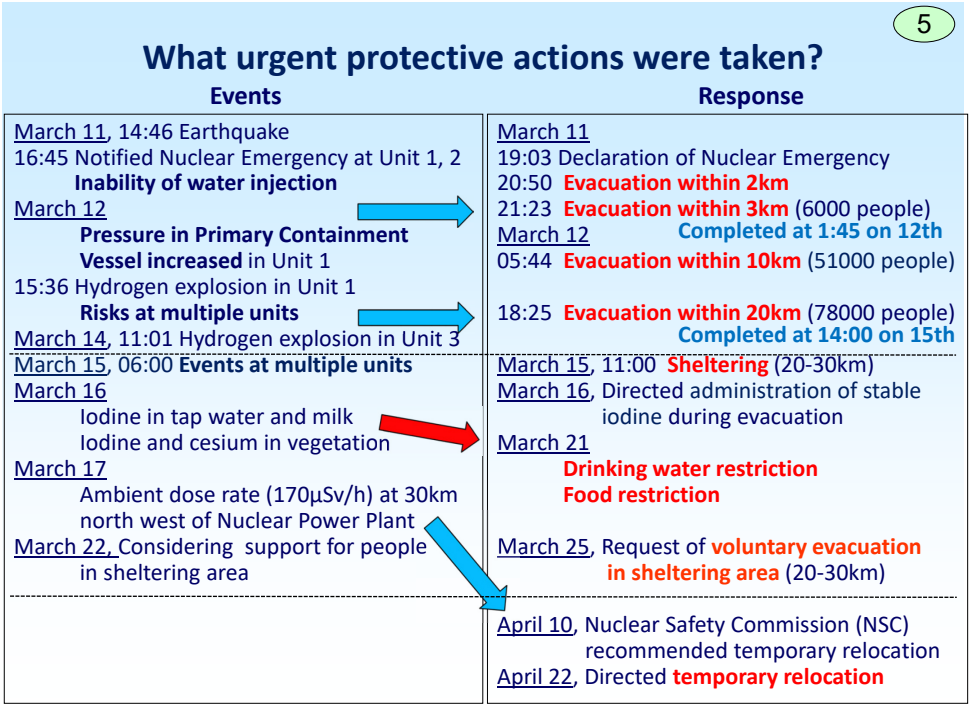
Figure 10. **Fukushima accident: Radiological situation off-site and corresponding protective actions**



Source: Homma, T. (2017) "Evacuation Process in Nuclear Emergency – Lessons from Fukushima Daiichi accident", presented at the Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident, Bratislava, October 2017.

The following diagram shows a timeline of key events and respective urgent protective actions that were taken right after the Fukushima accident:

Figure 11. **Fukushima accident: Urgent protective actions**



Source: Homma, T. (2017) "Evacuation Process in Nuclear Emergency – Lessons from Fukushima Daiichi accident", presented at the Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident, Bratislava, October 2017.

Evacuations started on 11 March 2011, followed by sheltering, food and drinking water restrictions and temporary relocation. With regards to the evacuation itself, actions were not always co-ordinated as the competent authorities experienced major problems in communication due to the difficulties in activating the off-site response centre, which was damaged during the accident, the plant conditions and certain insufficiencies in pre-planning. Orders for evacuation and sheltering were modified several times within 24 hours. The extended time of sheltering and a breakdown of the local infrastructure resulted in serious disruptions to people's lives. There were major problems in transmitting the evacuation orders from the national government to the local governments (only three municipalities within the emergency planning zone of 10 kilometres received the orders), but thanks to municipalities' independent judgement and based on the information obtained via media, the concerned evacuation orders were issued. Prior to the accident, municipalities within the 10-kilometre zone (as per the Emergency Planning Zone in force at that time) had their own emergency plan according to which people had to be transported by bus to a temporary gathering spot. But a wider area evacuation plan across the municipalities was not prepared. As a consequence, several evacuees were required to move several times from one evacuation area to another in the absence of any accurate information regarding the duration of evacuation and the exact location (e.g. more than 20% of the overall number of evacuees were moved more than six times).

Prior to the accident, the criteria for lifting protective actions and the criteria for long-term protective actions were not available. Initial urgent protective actions put in place were also modified several times, resulting in changes in sheltering. The competent authorities requested residents to evacuate on a voluntary basis in certain areas. In addition, they applied the International Commission on Radiological Protection (ICRP) concept of optimisation of protection

below a reference level in the Emergency Exposure Situation[89] and established a Deliberate Evacuation Area comprising areas beyond the 20 kilometres of the evacuation zone where the annual cumulative dose after the onset of the accident would potentially reach 20 mSv. As a result of the environmental monitoring conducted beyond the restricted area, specific locations were identified with a potential exposure to doses for residents above 20 mSv within one year from the accident. These locations were designated as specific spots recommended for evacuation in a Governmental Guideline issued in June 2011 (in total, 300 houses were concerned). In August 2011, the government prepared requirements for lifting evacuation orders for certain areas based on the safety status of the nuclear power plant, the decrease of the air radiation dose rate and the restoration of the public service functions and infrastructure. In September 2011, lifting of the evacuation-prepared area between 20 to 30 kilometres was implemented.

In terms of radiological impact, and thanks to the precautionary evacuation measures that reduced the exposure to ionising radiation, the average effective doses to adults who were evacuated in March 2011 were estimated to be less than 6 mSv in the first year after the accident and, to those evacuated in April to June 2011, less than 10 mSv in the first year. The doses received in the Deliberate Evacuation Area were significantly impacted by the delays in evacuation in the early phases. Approximately 2 200 patients and elderly people stayed in hospitals and nursing homes within the 20 kilometres evacuation zone. No medical support was provided during evacuation of these people or at shelters, resulting in the deterioration of the physical condition of many patients. More than 50 patients died either during or soon after the evacuation in March 2011. The overall criteria of the restricted zones (conditions for lifting evacuation orders, parameters for decontamination, etc.) were rearranged in December 2011 on the basis of the nuclear power plant conditions (i.e. reactor core shutdown was completed). The first lifting of an evacuation order was made in April 2014 and concerned a low-contamination area. As of March 2020, all evacuation orders were lifted except for so-called "Difficult to Return" zone (i.e. the zone where the overall exposure dose is estimated at 50 mSv or less a year).[90] Nevertheless, and as of October 2017, the percentage of returning people was still low due to difficulties to access medical and infrastructure services, and people's concern about radiation conditions and the safety of the nuclear power plant. As of October 2017, there were still 57 000 people evacuated out of the initial 160 000 evacuees.

Although no direct health effects of radiation were discernible, the mortality risk was significantly higher in the first month of the triple disasters. This excess risk of death is attributed to indirect health impacts. The Disaster Related Deaths (the "DRDs", which can be defined as deaths which occurred due to aggravation of injury as a result of the Great East Japan Earthquake, and who qualified for condolence money pursuant to the Act on Payment of Condolence Money due to the natural disaster) in Fukushima accounted for 60% of all DRDs (2 147 out of 3 591 in total) within the first 72 months after the earthquake (as of March 2017).

The following key lessons may be drawn based on the experience gained from the Fukushima accident:

- necessary arrangements should be established for implementing precautionary urgent protective actions before a release on the basis of the nuclear power plant conditions;
- advance preparation for the safe evacuation of special facilities is necessary (e.g. designation of medical teams and hospitals, means of transportation);
- sheltering indoors should be conducted only for a short period until either safe evacuation or termination of sheltering is possible;
- predefined criteria based on operational intervention levels concerning relocation and other early measures are needed to ensure a timely response;

89 ICRP (2009), *Application of the Commission's Recommendations for the Protection of People in Emergency Exposure Situations*, ICPR Publications 109. Ann. ICPR 39 (1).

90 *Secretariat note*: The restricted area still subject to evacuation orders as of 31 March 2021 is available at: www.meti.go.jp/english/earthquake/nuclear/roadmap/index.html (accessed 31 Aug. 2023).

- timing and support for evacuation need to be optimised to reduce radiation exposure, avoid negative health effects arising from evacuation or relocation, and provide necessary medical and psychological assistance; and
- strategies and arrangements for lifting evacuation orders are key to reducing human health effects.

It is important to improve emergency response arrangements based on past experience, and to continuously improve arrangements in practice through exercises.

Discussion session

A question arose regarding what entity should be primarily responsible for paying evacuation-related costs to compensate victims in accordance with the nuclear liability conventions in the framework of the preventive measures. Should it be the operator? The local authorities? The government? Based on the example of the United States, the operator pays certain fees to the state to set up and maintain emergency preparedness plans; therefore, the planning infrastructure should come from the operators. When an event occurs, it enrols in the general insurance fund, but the operator pays for the entire infrastructure and co-ordinates the entire evacuation plan with the state. There is additional money that may be available according to FEMA upon certain conditions.

With regard to the impact and/or potential pressure exercised by certain media on the competent authorities regarding the question as to whether an evacuation order should be issued when an event occurs (even low-level dose radiation incidents), it appeared that this represents a real issue for the competent authorities as some of the media do not check the accuracy of the information they deliver (the facts are often verified at a later stage), which leads to a situation where the authorities are put into disadvantageous conditions. There is a need to change the way the low-level dose radiation incidents are discussed and to figure out how the competent authorities can get the attention of people more effectively.

Finally, concerning the issue of the people's behaviour during evacuation and the need to apply penalties or sanctions against those who do not follow the evacuation orders, the lessons learnt from past events demonstrate that people usually behave well during disasters and typically follow the instructions given. However, it might be difficult to control things at the beginning of an accident; therefore, the behaviour of people and other stakeholders (such as the state and competent authorities) may raise certain liability issues at a later stage before courts.

Overview of responses to the questionnaire

With regard to the evacuation process, the responding countries were invited to identify the authorities that would make decisions with respect to evacuation measures and impose restrictions (on harvesting, production and consumption of food products, etc.) following a nuclear accident. On the basis of the responses received, the following elements appear to be shared by the responding countries in their approaches to implementing such measures:

a) **Complementarity** between competent authorities. This may concern:

   i) Close co-ordination between **national authorities in charge of protective measures**. As an example:

      – Austria: The Federal Ministry of Agriculture and Forestry, Environment and Water Management (BMLFUW) in co-ordination with the Federal Ministry of Health and Women's Affairs (BMGF) are responsible for decisions on protective measures in case of a nuclear/radiological emergency. The competency for the control of food lies with

the BMGF. In addition, based on the Radiation Protection Act, a joint decision about the prohibition of placing food on the market will be taken by the BMLFUW and the BMGF.[91]

ii) **Assistance from technical agencies** providing their expertise to national or local authorities, implementing protective measures. Examples:

- Canada: Recommendations for evacuation would be issued by the provincial authorities responsible for public safety. These recommendations would be based on the CNSC guidelines limiting public exposure to radiation of no more than 1 mSv/year from nuclear facilities.[92] Food restrictions would be issued by the Canadian Federal government under its Food and Drug Act as a responsibility of Health Canada.[93] Overall, the Canadian Guidelines for Intervention During a Nuclear Emergency would serve as a framework for the restrictions to be applied;[94]
- Sweden: Under the Civil Protection Act (2003:778) and the Civil Protection Ordinance (2003:789), the leader of the rescue services in place is in charge of making decisions with respect to evacuation and other immediate measures. The County Administrative Boards are responsible for carrying out the evacuation operations in their own county area. It is also their responsibility to plan and implement other public protective measures, including sanitising an affected area. They will be assisted by the Swedish Radiation Safety Authority, the Swedish Food Agency, the Swedish Board of Agriculture and the National Board of Health and Welfare, which are also relevant competent regulatory bodies.

iii) **Close co-operation between national and local authorities**. Examples:

- Netherlands: Under the Act of 21 February 1963 laying down rules on the release of nuclear energy and the use of radioactive materials and equipment emitting ionising radiation (the "Nuclear Energy Act") and the Act of 11 February 2010, containing provisions on fire services, disaster and crisis management and medical assistance (the "Security Regions Act"), in the case of a nuclear incident occurring at a nuclear power plant, the competent minister has the authority to take special measures, e.g.: (i) denying access to the affected area; (ii) evacuating people, animals or goods, (iii) confiscating goods and animals that are likely to have been contaminated; (iv) accelerating drainage of contaminated water; and (v) decontaminating people and distributing protecting substances. Mayors and the Chairman of the security region (i.e. division of the territory of the Netherlands in case of an emergency), have to co-operate in the execution of these measures. The Chairman of the security region can take such measures as well, but must report them to the competent minister who can take substitutional measures or order their repeal;[95]
- Poland: Pursuant to Article 89 of the 2000 Atomic Energy Act, decisions on intervention measures for nuclear emergencies with consequences not occurring outside one region are taken by regional governors (wojewoda). In emergencies of

91 For more information on the emergency plans in Austria and a compendium of protective measures in case of accidents at nuclear power plants, see Ministry of Climate Action and Energy (n.d.), "Strahlenschutz", available at: www.bmk.gv.at/themen/klima_umwelt/strahlenschutz.html (in German only) (accessed 31 Aug. 2023).

92 See Sections 13, 14 and 15 of the Radiation Protection Regulations (SOR/2000-203) (Canada Gazette, Statutory Instruments, Vol. 134, No. 13 of 21 June 2000).

93 Canadian Food and Drug Act, as amended (R.S.C., 1985, c. F-27).

94 Health Canada (2003), *Guidelines for Intervention During a Nuclear Emergency*.

95 See Articles 46 to 49(d) of the Act of 21 February 1963 laying down rules on the release of nuclear energy and the use of radioactive materials and equipment emitting ionising radiation, 1963 (Stb. [Bulletin of acts, orders and decrees] 1963, No. 82) (Nuclear Energy Act). See Part 2 of the Act of 11 February 2010 containing provisions for the fire services, disaster management, crisis management and medical assistance, 2010 (Stb. 2010, No. 145) (Security Regions Act).

wider range, including accidents abroad, the Council of Ministers is responsible for making such decisions;[96]

- United States: The Nuclear/Radiological Incident Annex to the Response and Recovery Federal Interagency Operational Plans provides that state and local officials have the overall responsibility for developing and implementing the appropriate protective action decisions for the public during a radiological emergency at a nuclear power plant. They are responsible for notifying the public to take protective actions such as evacuation, sheltering in place, or taking potassium iodide as a supplement, basing their decisions on the protective action recommendations provided by the nuclear power plant operator and their own radiological or health organisations. The NRC provides advice, guidance and support to state and local government officials. Neither the operator nor the NRC can order the public to take protective actions.[97]

b) **Decision to evacuate** shall be based, among other criteria, on the radiological evaluation of the situation. As an example:

- Finland: In the event of a nuclear accident, the Radiation and Nuclear Safety Authority (STUK) is responsible for formulating the description of the accidents and the evaluation of the possible radiation impacts to the public. This forms the basis for the preparedness measures that STUK suggests to other authorities that are responsible for making the decisions about the emergency preparedness measures. More precisely, the Ministry of the Interior is responsible for the national co-ordination of the emergency preparedness measures. The operational lead belongs to the rescue services or the police, depending on the situation. Evacuation is part of this task. Furthermore, the Finnish Boarder Guard leads the operation in sea areas. In addition, the Ministry of Agriculture and Forestry is responsible for setting the limits for the maximum allowed amount of radiation in food products and feed, while the Finnish Food Authority gives orders and guidance concerning the protection of primary production, food products, feed and water supply in close co-operation with STUK.

c) **Nuclear operator remains a key** stakeholder in the elaboration of protective measures. Examples:

- Slovenia: In case of an emergency event at the Krško nuclear power plant, the operator shall propose immediate protective measures, which shall be co-ordinated with the SNSA;[98]
- United States: Protective action recommendations shall be provided by the operator of the nuclear power plant.[99]

Session 1 – Conclusions

i. *Existence of a relevant international framework*: States shall notify other states of a (potential) transboundary nuclear accident according to the Early Notification Convention, with the IAEA playing a central role in this exchange of information. The IAEA's mission was extended to include the assessment of potential emergency consequences and prognosis of possible emergency progression after the Fukushima accident. States shall also have a consistent legal international framework in place to meet their obligations for the emergency preparedness according to the Assistance Convention, the Nuclear Safety Convention, the Joint Convention, and the IAEA Safety Standards, guidelines and operational arrangements;

96 Act of 29 November 2000 on Atomic Energy, 2000, *supra* note 66.

97 FEMA (2023), *supra* note 49.

98 Section 9 of Government of the Republic of Slovenia (2021), "Protection Strategy for a Nuclear and Radiological Accident" (n° 84200-2/2021/3).

99 FEMA (2023), *supra* note 49.

ii. *Challenges*: Effective co-ordination is needed nationally and internationally to ensure transmission of reliable, accurate and timely information to other national authorities and to the public and avoid the "pollution" of information by social media;

iii. *Requirements for an effective and timely evacuation*: Planning, emergency preparedness (e.g. in the United States, based on licensees' input; the US NRC, FEMA and EPA assessments, guidelines and regulations; international exercises such as the NEA international nuclear emergency exercises) and consideration of lessons learnt from non-nuclear disasters are essential;

iv. *Lessons learnt from the Fukushima accident*: Evacuate in a timely and safe manner (do more good than harm); ensure that evacuation arrangements are in place, up to date and relevant to different intervention levels (safety culture is essential); sheltering must be a short-term solution; psychological assistance is necessary in addition to medical help.

Session 2

Determining the damage to be compensated

Introduction

Mr Ben McRae, **Assistant General Counsel at the US Department of Energy, member of the NLC Bureau and Chair of Session 2**, highlighted that the concept of "nuclear damage" was one of the most interesting topics discussed during the negotiations of the Revised Paris Convention and the Revised Vienna Convention. It appeared that in every country the concept of "nuclear damage" meant something different. A lot of progress has been made since the original conventions were drafted with regard to the categorisation of the damage to be covered under the definition of "nuclear damage" in the revised nuclear liability conventions, which introduced, in addition to the two "traditional" categories of "loss of life or personal injury" and "loss of or damage to property", certain types of economic loss, the costs of restoring an impaired environment and the costs of measures taken to prevent or minimise nuclear damage. However, such losses and costs constitute nuclear damage only "to the extent determined by the law of the competent court" [100] – which makes it clear that it is ultimately up to the competent court to decide, in accordance with the national law applicable, what exactly is covered under the definition of "nuclear damage", and to what extent.

Determining the damage to be compensated: Evolution of the international nuclear liability conventions

Mr Andrea Gioia, **Senior Legal Officer at the Office of Legal Affairs, IAEA,** gave an overview of the evolution of the international nuclear liability conventions in terms of determining damage to be compensated. The Paris Convention and the Vienna Convention were both adopted in the early 1960s and were drafted in similar but not identical terms. The structure of the two conventions is different with regard to the definition of "nuclear damage": in the Vienna Convention, there is a definition of "nuclear damage" integrated in the list of definitions provided in Article 1 of the Convention, [101] whereas the Paris Convention does not define "nuclear damage" in its list of definitions, but covers it in its Article 3, which governs the operator's liability. [102] However, regarding the definition of "nuclear damage", both Conventions cover loss of life or personal injury, and loss of or damage to property.

100 See Article 1(vii) of the Revised Paris Convention, Article I.1(k) of the Revised Vienna Convention and Article I(f) of the CSC.

101 Article I.1(k) of the Vienna Convention defines "nuclear damage" as follows : "'Nuclear damage' means - (i) loss of life, any personal injury or any loss of, or damage to, property which arises out of or results from the radioactive properties or a combination of radioactive properties with toxic, explosive or other hazardous properties of nuclear fuel or radioactive products or waste in, or of nuclear material coming from, originating in, or sent to, a nuclear installation; (ii) any other loss or damage so arising or resulting if and to the extent that the law of the competent court so provides; and (iii) if the law of the Installation State so provides, loss of life, any personal injury or any loss of, or damage to, property which arises out of or results from other ionizing radiation emitted by any other source of radiation inside a nuclear installation."

102 Article 3(a) of the Paris Conventions provides that "The operator of a nuclear installation shall be liable, in accordance with this Convention, for: (i) damage to or loss of life of any person; and (ii) damage to or

The main dissimilarity lies in the fact that the Vienna Convention provides an "open" definition of "nuclear damage" as it also covers "any other loss of damage to the extent provided by the law of the competent court", whereas the definition of "nuclear damage" provided by Paris Convention is a "closed" one. Both Conventions exclude damage to the nuclear installation itself and to any property on the same site (which is used or to be used in connection with that installation).[103] These provisions aim at preserving the limited amount of money available under the Conventions for payment of damage suffered by third parties.[104] In addition, the Vienna Convention also excludes damage to the means of transport upon which the "nuclear material" involved was at the time of the incident, but the law of the installation state may provide to the contrary.[105]

In order to be covered by the definition of "nuclear damage", both the Vienna Convention and the Paris Convention require damage to arise out of or result from the radioactive properties of "nuclear fuel" or "radioactive products or waste" in a "nuclear installation", a combination of radioactive properties with toxic, explosive or other hazardous properties of the same.[106] In case of transport, the above definitions are replaced by "nuclear material" [Article I.1(h) of the Vienna Convention] and "nuclear substances" [Article 1(a)(v) of the Paris Convention]. Moreover, the damage arising out of, or resulting from "ionizing radiations emitted by any source of radiation inside a nuclear installation" is mandatorily covered by the Paris Convention.[107] The Vienna Convention only includes this kind of damage "if the law of the Installation State so provides".[108]

Both Conventions contain provisions on compensation of damage other than "nuclear damage". Article IV.4 of the Vienna Convention allows for the compensation of damage other than "nuclear damage" when a "nuclear incident" causes both "nuclear damage" and another kind of damage and the two are not reasonably separable. Article 3(b) of the Paris Convention does the same where the damage or loss is caused jointly by a "nuclear incident" and an incident other than a "nuclear incident." Both Conventions also provide that when damage is caused jointly by a "nuclear incident" covered thereby and an emission of ionising radiation outside their scope, nothing shall limit or otherwise affect the liability of any person who may be liable in connection with that emission of ionising radiation. The scope of application of these provisions is however not the same, as the Paris Convention only excludes damage caused outside a nuclear installation,[109] whereas the Vienna Convention also excludes damage inside

loss of any property other than 1/ the nuclear installation itself and any other nuclear installation, including a nuclear installation under construction, on the site where that installation is located; and 2/ any property on that same site which is used or to be used in connection with any such installation, 3/ upon proof that such damage or loss (hereinafter referred to as 'damage') was caused by a nuclear incident in such installation or involving nuclear substances coming from such installation, except as otherwise provided for in Article 4."

103 See Article 3(a) of the Paris Convention and Article IV.5 of the Vienna Convention.

104 *Secretariat note*: The following definition of a "third party" can be cited: "A 'third party' is anyone other than the operator of the nuclear installation at which, or in the case of transport in relation to which, the accident occurs and other than a supplier of goods, services or technology used, or to be used, in connection with that nuclear installation. A third party includes the employees of the operator of that nuclear installation, although such employees may be required under their national legislation to seek redress under a public health insurance, social security, workers' compensation, or other scheme or system relating to occupational accidents or diseases in case of accident or illness." See Schwartz, J. (2022), "Liability and compensation for third party damage resulting from a nuclear incident", in NEA (ed.), *Principles and Practice of International Nuclear Law*, OECD Publishing, Paris, p. 409.

105 See Article IV.5 of the Vienna Convention.

106 See Article 1(a)(i) of the Paris Convention and Article I.1(k) of the Vienna Convention.

107 The definition of "radioactive products or waste" provided in Article 1(a)(iv) of the Paris Convention excludes only radioisotopes "outside a nuclear installation" which have reached the final stage of fabrication.

108 The definition of "radioactive products or waste" in Article I.1(g) of the Vienna Convention excludes radioisotopes which have reached the final stage of fabrication without further qualification.

109 See Article 3(b) of the Paris Convention and paragraph 8 of NEA (1982), "Exposé des Motifs", revised text approved by the OECD Council on 16 Nov. 1982, OECD Doc. C/M(82)24(Final) (*Exposé des Motifs of the Paris Convention*).

a nuclear installation but not caused by "nuclear fuel" or "radioactive products or waste" as defined in the Convention, unless otherwise provided by the law of the installation state.[110]

As a conclusion, both definitions of "nuclear damage" provided in the Paris Convention and the Vienna Convention apply to nuclear incidents at nuclear installations and to transport incidents. The two definitions are broadly similar, but there are some minor differences:

- "open" versus "closed" definition: "any other loss or damage" (i.e. nuclear damage other than loss of life and personal injury, and loss of, or damage to, property) may be covered by national law under the Vienna Convention, but not under the Paris Convention;
- damage caused by radioisotopes: damage caused by ionising radiations emitted by "any source of radiation inside a nuclear installation" is mandatorily covered by the Paris Convention, but not by the Vienna Convention;
- "damage to the means of transport" is mandatorily covered by the Paris Convention, but not by the Vienna Convention.

The Chernobyl accident questioned the effectiveness of the nuclear liability conventions existing at that time and challenged the adequacy of these conventions to cope with the transboundary effects of a major nuclear incident. The negotiations that started in 1989 under the IAEA auspices to revise the Vienna Convention concluded that the Vienna Convention's definition of "nuclear damage" is "ambiguous and inadequate",[111] especially with respect to the coverage of environmental damage and various forms of economic loss not necessarily included in the concept of personal injury or damage to property. The need to bring the Vienna Convention more in line with the Paris Convention to facilitate the application of the Joint Protocol was also expressed. The negotiations resulted in the adoption of the Revised Vienna Convention and the CSC, and led to an opening in 1997 of negotiations regarding the re-examination of the Paris Convention concerning, among other issues, its definition of "nuclear damage" in order to bring it in line with the new definition of "nuclear damage" in the Revised Vienna Convention and the CSC, and facilitate the application of the Joint Protocol. The Revised Paris Convention was adopted in 2004.

The new definition of "nuclear damage" provided in the Revised Vienna Convention, the CSC and the Revised Paris Convention[112] covers, in addition to loss of life or personal injury, and loss of or damage to property, five additional heads of damage, each "to the extent determined by the law of the competent court", and specifically:

- economic loss arising from death or personal injury or from property damage, insofar as not included therein;

110 See Article IV.4 of the Vienna Convention and IAEA (2020), *The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage – Explanatory Texts*, IAEA International Law Series, No. 3 (Rev. 2), IAEA Doc. STI/PUB/1906, IAEA, Vienna (*Explanatory Texts of the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage*), Section 1.2.

111 *Ibid.*, IAEA (2020), *The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage – Explanatory Texts*, Section 2.3.1.

112 See Article I.1(k) of the Revised Vienna Convention, Article I(f) of the CSC and Article 1(a)(vii) of the Revised Paris Convention.

- the costs of "measures of reinstatement"[113] of impaired environment, unless such impairment is insignificant, insofar as not already included as property damage;
- loss of income deriving from an economic interest in the use or enjoyment of the environment incurred as a result of significant impairment, and insofar as not already included as property damage;[114] and
- the costs of "preventive measures",[115] and further loss or damage caused thereby.

In addition, the definition in the Revised Vienna Convention and the CSC also includes a "residual" head of damage, i.e. "any other economic loss, if permitted by the general law on civil liability of the competent court". The Revised Vienna Convention no longer excludes "nuclear damage" to the means of transport, but the CSC still does, "unless the law of the Installation State provides to the contrary".

The provisions relating to compensation of damage other than "nuclear damage" remain unchanged. All conventions now mandatorily include within the definition of "nuclear damage" damage arising out of, or resulting from, ionising radiation emitted by any source of radiation inside a nuclear installation. With regard to time limitation, the Vienna Convention and the Paris Convention provide that rights of compensation are extinguished if an action is not brought within ten years from the date of the nuclear incident.[116] The Revised Vienna Convention and the Revised Paris Convention extend the period of extinction to 30 years, but only for loss of life and personal injury.[117] The CSC Annex keeps the period of extinction at ten years for all kinds of nuclear damage. Longer periods can only be allowed if, under the law of the installation state, insurance or other financial security is available.[118]

As a conclusion, and with regard to the modernised nuclear liability conventions:

- all those nuclear liability conventions now deal with compensable damage in a definition of "nuclear damage";
- they now mandatorily cover damage to the means of transport;
- all definitions now mandatorily cover damage caused by "any source of radiation inside a nuclear installation";
- all definitions are now structured as "closed" definitions and are almost identical;

113 *Secretariat note*: "Measures of reinstatement" are defined as any "reasonable measures" which have been approved by the competent authorities of the state where the measures were taken, and which aim to reinstate or restore damaged or destroyed components of the environment, or to introduce, where reasonable, the equivalent of these components into the environment. The law of the state where the damage is suffered shall determine who is entitled to take such measures. For more information, see Article I.1(m) of the Revised Vienna Convention, Article I(g) of the CSC and Article 1(a)(viii) of the Revised Paris Convention.

114 The definition in the Revised Paris Convention requires the economic interest to be "direct".

115 "Preventive measures" are defined as any "reasonable measures" taken by any person after a nuclear incident taken by any person after a nuclear incident [*Secretariat note*: The Revised Paris Convention adds to this definition the following sentence - "or an event creating a grave and imminent threat of nuclear damage has occurred", but the Revised Vienna Convention and the CSC have similar words in the amended definition of "nuclear incident" (Article I.1(l) and Article I(i), respectively], to prevent or minimise nuclear damage, subject to any approval of the competent authorities required by the law of the state where the measures were taken. See Article I.1(n) of the Revised Vienna Convention, Article I(h) of the CSC and Article 1(a)(ix) of the Revised Paris Convention. "Reasonable measures" are defined as measures which are found under the law of the competent court to be appropriate and proportionate, having regard to a number of enumerated circumstances. See Article I.1(o) of the Revised Vienna Convention, Article I(l) of the CSC and Article 1(a)(x) of the Revised Paris Convention.

116 See Article VI of the Vienna Convention and Article 8 of the Paris Convention.

117 See Article VI of the Revised Vienna Convention and Article 8 of the Revised Paris Convention.

118 See Article 9 of the CSC Annex.

- all definitions cover the same new heads of damage, in addition to the two traditional ones, except that: (i) the Revised Paris Convention requires a "direct" interest in the use or enjoyment or the environment in order for economic loss deriving therefrom to be compensable;[119] and (ii) the Revised Vienna Convention and the CSC also cover "any other economic loss, other than any caused by the impairment of the environment, if permitted by the general law on civil liability of the competent court".[120]

Determining the damage to be compensated: National legal systems

Ms Ximena Vásquez-Maignan, **Head of the NEA Office of Legal Counsel**, further elaborated on the topic of damage to be compensated with regard to national legal systems. Time is definitely of the essence when a nuclear incident occurs. If there is a dispute on the determination of the "nuclear damage" to be compensated, victims will have to submit their case to the competent court, and more precisely: (i) if there are treaty relations between the installation state and the affected state, the competent court will be determined according to the provisions on jurisdiction of the common treaty and will rule on the exact extent of "nuclear damage" to be compensated; (ii) if there are no treaty relations, the competent court will have to be designated in accordance with the international private law principles and, once determined, will rule on the "nuclear damage" to be compensated and its extent.

If there is a dispute on the interpretation or implementation of the definition of "nuclear damage" provided under an international nuclear liability convention, states parties to the same convention may submit their case to the relevant court or tribunal, and more specifically: the European Nuclear Energy Tribunal for the Paris Convention and the Brussels Supplementary Convention contracting parties, the International Court of Justice for the Vienna Convention parties,[121] and arbitration or the International Court of Justice for the Revised Vienna Convention and the CSC parties.[122] However, victims have neither time or means (financial or material), nor mental strength to go to court to get compensated in order to be able to continue with their lives. What options have been retained by the countries to try to clarify what "nuclear damage" means in practice and avoid a lengthy discussion between the operator, the victims and the courts?[123]

There are very few countries that have designated an authority or commission to further specify which damage shall be compensated. This is the case of:

- Canada, where a Nuclear Claims Tribunal can be established "to examine and adjudicate claims for damage arising from the nuclear incident as expeditiously as the circumstances and considerations of fairness permit":[124]
- Romania, where the National Commission for the Control of Nuclear Activities may set up a special commission to determine the cause and consequences of the nuclear occurrence, examine and assess nuclear damage, issue recommendations as to the compensation, assistance and reconstruction measures, and issue recommendations as to the improvements to the nuclear installation with respect to nuclear and radiation emission safety;[125] and

119 See Article 1(a)(vii) of the Revised Paris Convention.

120 See Article I.1(k) of the Revised Vienna Convention and Article I(f)(vii) of the CSC.

121 Optional Protocol Concerning the Compulsory Settlement of Disputes (1963), IAEA Doc. INFCIRC/500/Add.3, entered into force 13 May 1999.

122 See Article XX.A of the Revised Vienna Convention and Article XVI of the CSC.

123 For more information, see an overview of the replies to the questionnaire provided later in this Session.

124 See Sections 36 to 69 of the Nuclear Liability and Compensation Act, 2015 (SC 2015, c. 4, s. 120) (NLCA).

125 Law no. 703/2001 on civil liability for nuclear damage (Official Gazette of Romania, Part I, no. 818 of 19 December 2001). *Secretariat note*: For more information, see Chirica T. and V. Chiripus (2004), "Third Party Nuclear Liability Regime in the Romanian Legislation", 5th International Conference on Nuclear Option in Countries with Small and Medium Electricity Grids, Dubrovnik, Croatia, 16-20 May.

- Slovenia, where a Commission for the Assessment of Nuclear Damage may be set up to prepare an assessment of the amount of nuclear damage within six months from the date of the nuclear incident and will "propose the amount, the manner and the dynamics of the drawing of funds".[126]

The example of Japan is particularly noteworthy. The Japanese Act on Compensation for Nuclear Damage (the "Compensation Act"),[127] although adopted before the ratification of the CSC by Japan, reflects all the basic principles of the nuclear liability convention. The Act also contains provisions governing the Japanese Dispute Reconciliation Committee for Nuclear Damage Compensation (the "Reconciliation Committee"). The Reconciliation Committee has two roles: (i) to mediate disputes between victims and the operator; and (ii) to issue guidelines to define what nuclear damage shall be compensated (the "Guidelines").

The Reconciliation Committee was established in April 2011, quickly after the Fukushima accident.[128] Before then, it had already been established once, in 1999 after a criticality accident at the nuclear fuel processing facility at Tokaimura, and it was dissolved in 2010. The Reconciliation Committee consists of ten members coming from different fields of expertise, who are appointed by the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT).

Between April 2011 and December 2014, the Reconciliation Committee issued eight non-binding Guidelines[129] to further determine the scope of nuclear damage to be compensated with regard to the Fukushima accident. Indeed, even though the Compensation Act provides a definition of "nuclear damage",[130] it appeared that this was not detailed enough to organise smooth and efficient compensation to victims for nuclear damage. The Guidelines determine the type of damage to be compensated. In order to make sure not to include damage that would only have been exclusively caused by the natural disaster (i.e. the earthquake and the tsunami), the Reconciliation Committee took into consideration the damage that was compensated for the Tokaimura incident, as no natural event had taken place then. When drafting these Guidelines, "the Committee also took the view that so long as there was a legally sufficient cause between an item of damage and the accident – namely that it was damage within a scope that is judged as logically and reasonably arising from the accident based upon the social convention – then it was included in nuclear damage."[131] Some damage was difficult to identify due to their ongoing character (e.g. evacuation or mental anguish – up to what point in time must the victims be compensated?). Another issue was to determine how the compensation must be calculated (i.e. how much money should be paid for each damage). As a general principle, "compensation of the actual costs incurred is made for evacuation expenses and the like, for example, based on certification thereof. However, given that the victims of the accident number several tens of thousands, and given the need for urgent relief, methods could be considered such as allowing a reasonably calculated fixed amount of compensation. […] If it were proven that evacuation expenses or the like were incurred in excess of this fixed amount, then the amount of

126 See Article 13 of the Act on Liability for Nuclear Damage, 2010 (Official Gazette of the Republic of Slovenia – International Treaties, No. 77/10, 2010) (2010 Act on Liability for Nuclear Damage).

127 Act on Compensation for Nuclear Damage, as amended (Act No. 147 of 1961, as amended by Act No. 19 of 17 April 2009).

128 For more information on the Reconciliation Committee for Nuclear Damage Compensation, see Nomura, T. et al. (2012), "Japan's nuclear liability system", in NEA (ed.), *Japan's Compensation System for Nuclear Damage: As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, OECD Publishing, Paris, pp. 22-24.

129 For the texts of the Guidelines, see NEA (2012), *Japan's Compensation System for Nuclear Damage: As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, OECD Publishing, Paris, pp. 89-183.

130 "Nuclear damage" is defined in the Compensation Act as any damage "caused by the effects of the fission process of nuclear fuel, or of the radiation from nuclear fuel, etc., or of the toxic nature of such materials […]."

131 See "Preliminary Guidelines on Determination of the Scope of Nuclear Damage resulting from the Accident at the Tokyo Electric Power Company Fukushima Daiichi and Daini Nuclear Power Plants", in NEA (2012), *Japan's Compensation System for Nuclear Damage: As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, OECD Publishing, Paris, pp. 89-101.

compensation could be increased to an extent that is necessary and reasonable."[132] Depending on the type of damage, the Guidelines provide for a formula or approach to calculate the compensation, or determine the lump sums to be paid.

The three Preliminary Guidelines issued on 28 April 2011 were supplemented on 31 May 2011 by the Secondary Guidelines on Determination of the Scope of Nuclear Damage in order to provide even further detail regarding nuclear damage to be compensated. On 20 June 2011, the Supplement to Secondary Guidelines was released.

As an example of the content of the Guidelines, the Guideline concerning the damage suffered due to government instructions to evacuate specifies (i) the affected areas, which comprise the evacuation areas, the in-house evacuation areas, the voluntary evacuation areas, etc.; and (ii) the evacuees entitled to compensation, who are those individuals who were in an affected area at a certain period of time, some individuals who were outside of an affected area, etc. People who voluntarily evacuated from areas not subject to evacuation orders were also entitled to compensation as it was considered that it was reasonable for them to evacuate due to the lack of information and communication regarding the nuclear incident. The type of expenses to be compensated are quite similar for the different types of damage, including the rumour-related damage.[133] As an example, the expenses to be compensated for damage relating to government instructions to evacuate are as follows:

- examination expenses of persons and property;
- evacuation expenses;
- temporary access expenses;
- homecoming expenses;
- injury or death;
- damage for mental anguish;
- business damage;
- damage resulting from incapacity to work; and
- loss or reduction of property value.

TEPCO received over 2.7 million claims for compensation as of December 2016.[134] Among them, 99.2% were directly solved between TEPCO and the victims, 0.78% were resolved before the ADR Centre and only 0.01% were submitted before the courts. The fact that most of the claims were directly settled between TEPCO and the victims based on the Guidelines demonstrated that although such Guidelines are not legally binding, they were accepted by all parties as detailed recommendations issued by independent and objective experts and allowed a quick and efficient settlement of claims between the victims and the operator.

132 *Ibid*.

133 The Secondary Guidelines define "rumour-related" as damage referring to "concern about the risk of contamination with radioactive material in relation to products or services, due to facts that are widely known through media reports, leading consumers or trading partners to refrain from purchasing the product or service, or stop trading in the service or product, resulting in damage. […] The expression so-called 'rumour-related' damage is interpreted in various ways by different people, and is sometimes used to mean damage arising from psychological concern that induces customers or trading partners to avoid purchasing/trading in a product or service due to worry about the risk, even though there is no risk due to radioactive material or the like at all. However, when related to a nuclear accident such as the accident, at the very least it should be regarded as an adverse reaction by the market in order to avoid the risk of contamination with radioactive material, which is not necessarily clear scientifically, and consequently there is eligibility for compensation as nuclear damage where such avoidance behaviour can be said to be reasonable." *Ibid*., pp. 110-111.

134 As of December 2021, TEPCO received almost 3 million applications. For more information, see TEPCO (2023), *Records of Applications and Payouts for compensation of Nuclear Damage*, www.tepco.co.jp/en/hd/responsibility/revitalization/pdf/comp_result-e.pdf (accessed 31 Aug. 2023).

Prof. Monika Hinteregger, **Institute of Civil Law, Foreign and International Private Law, Karl-Franzens-University of Graz**, provided an example of national legislation on compensation of nuclear damage. [135] The Austrian Federal Act on Civil Liability for Damages Caused by Radioactivity [136] (AtomHG) reviewed the principles governing liability for damage caused by ionising radiation. The AtomHG governs civil liability for damage to persons or property by ionising radiation from the operation of nuclear installations, the transport of radioactive material and the handling of radionuclides. The AtomHG replaced the 1964 Law on Civil Liability for Nuclear Damage (Atomhaftpflichtgesetz)[137] and entered into force on 1 January 1999. Since there are no nuclear installations in Austria, the AtomHG focuses on the possibility for Austrian citizens to sue in Austria for nuclear damage suffered in Austria, rather than on the distribution of damage in case of a nuclear accident with transboundary effects.

The AtomHG covers two areas of liability: "liability for damage caused by radiation from nuclear plants and nuclear material and liability for damage caused by radiation from radionuclides. […] [The] [l]iable persons are the operator of a nuclear plant, the carrier of nuclear substances and the holder of radionuclides. The liability imposed on the operator of a nuclear plant and the carrier of nuclear material is unlimited, is irrespective of fault, and does not depend on the occurrence of a nuclear incident. […] The operator of a nuclear plant is the holder of the license and any other person who is entitled to control the operation of the nuclear plant and who actually derives or is at least in the factual or legal position to derive its operating profits."[138] This rule allows the victims of a nuclear incident to pierce the corporate veil, if necessary. In addition, victims can sue the provider of services or goods, or a public authority, but only on fault-based liability and subject to the subsidiarity principle.

The right to sue the supplier is restricted, however, as "[t]he action will be dismissed if the defendant can prove that an action against the operator will lead within a reasonable period of time to a decision, that this decision can be enforced, and that there are sufficient funds available to ensure compensation on behalf of the operator. If this assumption proves false, the case against the supplier can be reopened. This provision is intended to make sure that responsibility for nuclear damage stays primarily with the operator, who is in the best position to prevent the damage and to provide insurance if damage occurs." [139] Consequently, the operator does not have a right of recourse against any other liable person, unless damage was caused by an act or omission done with the intent of causing harm, or if the right of recourse is expressly provided for by contract.

There is no exclusive jurisdiction of the installation state for nuclear damage in the AtomHG. Victims are entitled to "bring the action or the motion for a temporary injunction both before the court in the jurisdiction of which the damage has been caused, as well as before the court in the jurisdiction of which the damage has occurred. Claims concerning preventive measures can also be brought before the court where the preventive measures were performed. One main goal of the [AtomHG] is to make sure that if nuclear damage, though caused in a foreign state, occurs in Austrian territory, an Austrian court will have jurisdiction and the Austrian law will be applicable. […] However, if nuclear damage has occurred in a foreign territory the situation is different. If Austrian law is applicable – a fact that is determined by the private international law of the state that has jurisdiction – the plaintiff will only be able to benefit from the Austrian law insofar as his or her national law would provide for compensation as well. […] The main target of this provision, apart from the wish of giving an incentive for other states to grant the

135 For more information on Austrian legislation on compensation for nuclear damage, see Hinteregger M. (2006), "The New Austrian Act on Third Party Liability for Nuclear Damage", *Denver Journal of International Law & Policy*, Vol. 35, No.1.

136 Federal Act on Civil Liability for Damage Caused by Radioactivity, as amended, 1998 (*BGBl.* I No. 170/1998) (AtomHG).

137 *Bundesgesetz vom* 29 April 1964 *über die Haftung für nukleare Schäden (Atomhaftpflichtgesetz), (BGBl.* No. 117/1964). This law was substantially amended by *Bundesgesetz Erweiterte Wertgrenzen-Novelle Bundesgesetzblatt Teil I* (*BGBl.* I No. 140/1997), which entered into force on 1 July 1998.

138 Hinteregger M. (2006), *supra* note 135, p.196.

139 *Ibid.*, pp. 197-198.

same benefits as the Austrian law, is to protect the Austrian suppliers of nuclear plants, as they are among the very few suppliers in the world who, in future, will not be protected by legal channelling."[140]

Regarding the "nuclear damage" itself, the AtomHG extended this term compared to the *Atomhaftpflichtgesetz* and, according to the concept of nuclear damage as provided by the revised nuclear liability conventions, new categories of damage, such as environmental damage or costs of preventive measures, were introduced. The following heads of damage are covered by the definition of "nuclear damage" according to the AtomHG:

- loss of life and personal injury (including loss of income, medical expenses comprising examination expenses, as well as pain and suffering); [141]
- loss of property or damage to property[142] [including: (i) decontamination costs; and (ii) costs of measures of reinstatement for environmental damage. There is however no compensation for "pure" environmental losses, such as natural resources damage];[143]
- costs of preventive measures;[144] and
- loss of income and non-economic loss.[145]

The operator's liability under AtomHG does not cover damage to the nuclear installation itself and to any other nuclear installation situated on the same site, or to any property on the site of the installation which is used or was used in connection with that installation. The carrier shall not be liable for damage to the means of transport used to transport the nuclear substances involved in a nuclear incident.[146]

Finally, […] "personal injury due to nuclear radiation ranges from acute radiation exposure, to only statistically registered damage, to genetic damage which will only come to bear by future generations. If radiation does not immediately lead to a specific radiation disease, the person affected by radiation will be in a difficult position to establish the causal link. To ease the burden of proof in such cases, Section 12(1) [of the AtomHG] establishes a presumption of causality. If an injured person can submit reasonable evidence of having been physically exposed to nuclear radiation originating from a nuclear plant, from nuclear material or radionuclides, it will be

140 *Ibid*., p.200.

141 Section 12 of the *Atomhaftpflichtgesetz* granted compensation for pain and suffering only on the condition of long infirmity. *Ibid*., p.198.

142 Pursuant to Section 11(1) of the AtomHG, compensation for loss of life or personal injury and loss of property or damage to property shall be regulated by the general provisions of tort law. The person who has suffered such loss or damage is also entitled to claim economic loss arising from these damages. *Ibid*.

143 As further explained in Hinteregger M. (2006), *supra* note 135, "If the damage to property presents a significant impairment of the environment, costs of measures of reinstatement are to be reimbursed, even if these costs exceed the market value of the impaired good. The plaintiff may ask for advance payment. The amount exceeding the market value of the impaired good, however, has to be refunded if restoration to the original condition is not performed within a reasonable amount of time. Impairment of the environment that is not part of the damage to property does not entitle a victim to damages." *Ibid*., pp. 198-199.

144 Liability for nuclear damage also includes the costs of preventive measures taken to remove an imminent threat of causing damage, provided that such measures are reasonable. The entitlement to this claim lies with the person who actually has paid the costs. *Ibid*., p.199.

145 Other loss or damage caused by preventive measures, as well as loss of income deriving from an economic interest in any use or enjoyment of the environment, incurred as a result of a significant impairment of that environment, and any other economic loss, other than any caused by the impairment of the environment "are only recoverable if that damage can be classified as loss of income. Even then, the claim is limited in amount. Together with compensation for nonpecuniary damage, pursuant to section 11, subsection 3 [of the AtomHG], the amount must not exceed ATS 560 000 (approximately 40 000 Euro) per person. Nonpecuniary damage will be awarded if a person, due to preventive measures or radioactive contamination, is forced to undergo a radical and unwanted change of life, for example loss of accommodation, job or business." *Ibid*.

146 *Ibid*., p.196.

presumed that the injury was caused by nuclear radiation, provided that nuclear radiation is known to be a cause of such damage. The presumption can be rebutted by the defendant by proving that it is probable that the damage was not caused by nuclear radiation. For the rebuttal it would be sufficient to show that in the case under consideration other causes were more probable than the nuclear radiation. The presumption of causality cannot be applied by a patient if radionuclides were used for the purpose of medical treatment."[147]

As a conclusion, the Austrian nuclear law differs from the basic principles set forth in the nuclear liability conventions (apart from the principle of strict liability with mandatory insurance), and more specifically:

- there are no grounds for exoneration of a nuclear operator from nuclear liability;
- the operator's liability is unlimited in amount; however, the mandatory insurance coverage is limited and there is a possibility of "direct action" against the insurer. The grounds for exoneration provided in the nuclear liability conventions (i.e. damage caused by a nuclear incident directly due to an act of armed conflict, hostilities, civil war) apply to the insurance coverage (i.e. they are excluded from the scope of the insurance policies);
- there is no legal channelling, but rather a specific kind of economic channelling, where a victim can sue the operator on non-fault basis, and the provider of services or goods, or a public authority, on fault basis and subject to the subsidiarity principle;
- there is no exclusive jurisdiction of the installation state; if nuclear damage is suffered in Austria, the Austrian law applies regardless of the place where a nuclear incident occurred;
- the definition of nuclear damage follows general tort law principles; and
- there is a presumption of proof of causality for personal injury in case of a nuclear incident.

Although the Austrian Parliament has decided not to be a part of the international nuclear liability regimes for the moment, it demonstrated its interest in the further development of the international nuclear liability system. According to Section 30 of the AtomHG, the federal government is obliged to report regularly to Parliament on the development of the international instruments on nuclear liability. In a simultaneously adopted resolution, Parliament holds out the prospect of revising its decision if the international system of nuclear liability improves to such an extent that it is able to ensure adequate compensation for Austrian citizens for nuclear damage. For that purpose, the federal government is further requested to continue participating actively in international negotiations in order to support the development of this system.

Determining the damage to be compensated: How detailed is detailed enough?

Mr Will Morris, **Underwriting Manager, Nuclear Risk Insurers Ltd.**, stressed that determining the damage to be compensated in the event of a nuclear incident may be very lengthy, in particular because of claims that may take years or decades to become apparent (e.g. latent disease), but also due to litigations and appeals, which can add time to the process. Changes in law can lead to additional causes of action and increase the amount of damage, as well as create further challenges to the insurance industry, such as: class action litigation; "no-win no-fee" agreements and contingent fees; jury trials; "deep pocket" syndrome (if people know that there is an insurance in place, they may tend to sue the liable person before courts); and potential "stacking" of policy limits over several years. All these aspects create uncertainty for insurers in terms of: (i) pricing – the more uncertainty, the more difficult (and expensive) the price would be; (ii) reserving – when uncertainty around number of losses and time frame leads to "incurred but not reported" claims (i.e. the claims that might happen but with no certainty); and (iii) capital – when more uncertainty requires higher capital reserves.

147 *Ibid.*, p. 200.

Insurers use a number of methods to manage this uncertainty: by having a cap on the amount payable per year and per lifetime; by managing exposure to costs as well as damages; by using deductibles to encourage risk management; by aggregating claims from one occurrence into one year; by using triggers (i.e. events that activate coverage under a particular insurance policy) to define exposure. The common types of triggers are: (i) occurrence (i.e. if the loss occurs in a particular year) and (ii) claims-made (i.e. if a claim occurs in a particular year). However, there is an extensive litigation regarding "triggers", and more specifically regarding the question of when something can be considered to "occur" (e.g. on first exposure to the injury-causing conditions? On first manifestation of the injury, or when the injury becomes known? On a continuous basis during the entire period, thereby triggering all policies covering all years during that period?).

The triggers that may be used by insurers in the Revised Paris Convention (e.g. Articles 1, 3 and 8 of the Convention)[148] seem to be not clear enough in order for them to deal with this uncertainty. Regarding nuclear legislation in the United Kingdom, [149] the 2016 Nuclear Installations Order clarified the term "economic loss" which was already covered by the existing legislation, and provided new heads of damage (e.g. measures of reinstatement, loss of income, preventive measures) which assist insurers by providing further detail on the extent of damage to be compensated and therefore removes some uncertainty. There are also certain triggers available for the UK insurers in the 1965 Nuclear Installations Act, according to which the nuclear site licensee has the duty to ensure that no occurrence takes place on the licensed site involving nuclear matter during the period of the licensee's responsibility causing injury to any person. [150] The revised NIA 65 provides some definitions of "occurrence" [151] (e.g. "if nuclear matter is in a place at a particular time as a consequence of an occurrence […] neither the presence of the matter in that place at that time nor any effect that the matter produces at that time is to be treated as a separate occurrence falling within any of those provisions"), but does not give a full definition, which raises certain challenges, such as the absence of the dividing line between accidental occurrences and emissions during the normal course of operation (e.g. "intended emissions"), and a clear understanding of the occurrence triggers.

148 Article 1(a)(i) of the Revised Paris Convention provides that a "nuclear incident" means any occurrence or series of occurrences having the same origin which causes nuclear damage; Article 1(a)(vii) of the Convention states that "'nuclear damage' means […] loss of life or personal injury […], to the extent that the loss or damage arises out of or results from ionising radiation emitted by a source of radiation inside a nuclear installation." Article 3 of the Convention mentions that "the operator of a nuclear installation shall be liable […] for nuclear damage […] upon proof that such damage was caused by a nuclear incident in such installation […]." Article 8 of the Convention provides that "the right of compensation shall be subject to prescription […] with respect to personal injury […] thirty years from the date of the nuclear incident."

149 The UK Nuclear Installations Act 1965 (c. 57), as amended (NIA 65) implemented the Paris Convention into the national legal system. With regard to the Revised Paris Convention and the Revised Brussels Supplementary Convention, the United Kingdom had then an extensive consultation process called "Implementation of changes to the Paris and Brussels Supplementary Conventions on nuclear third party liability – a public consultation" (for more information see www.gov.uk/government/consultations/compensating-victims-of-nuclear-accidents) (accessed 31 Aug. 2023). It resulted in the adoption of the Nuclear Installations (Liability for Damage) Order 2016 (SI 2016 No. 562) and several revisions to the NIA 65.

150 Section 7(1) of the NIA 65 stipulates that: "[…] where a nuclear site licence has been granted in respect of a site, the licensee has the duties set out in subsections (1A) […]." Subsection (1A) provides that "it is the duty of the licensee to secure that no occurrence involving nuclear matter falling within subsection (1B) causes: (a) injury to any person […]." Subsection (1B) states that "the occurrences referred to in subsection (1A) are: (a) any occurrence on the licensed site involving nuclear matter during the period of the licensee's responsibility […]."

151 This definition initially comes from a court decision *Magnohard Limited and Others v the United Kingdom Atomic Energy Authority and the Scottish Environmental Protection Agency* [2004 SC 247, 2003 SLT 1083.9], holding that an occurrence took place every time nuclear material was disturbed and moved to a new place.

Discussion session

A question arose as to whether, in order to ensure the applicability of the new heads of damage according to the revised nuclear liability conventions (i.e. the Revised Paris Convention, the Revised Vienna Convention and the CSC), there is a need to adopt a specific implementing law in states with monistic legal systems (i.e. legal systems where international law does not need to be transposed into national law because the act of ratifying an international treaty immediately incorporates that treaty into national law). With regard to the United States, in case of a nuclear incident outside the United States, the US courts would have jurisdiction according to the CSC with no need for an implementing law, as the CSC Annex is directly applicable at the national level. However, regarding the definition of "nuclear damage", the US courts will have to interpret the heads of damage as provided in the CSC to determine their extent. In Germany, the situation is similar: the German legislation implementing the Revised Paris Convention does not contain any specific nuclear liability provisions on the new heads of damage. They will therefore be awarded by a competent court on the basis of general civil law rules.

A hypothetical scenario was discussed in which a nuclear incident occurs in the Slovak Republic, with transboundary damage in Austria. In this regard, a question was raised on how potential differences in court decisions rendered in both Austria and the Slovak Republic would be dealt with. It was noted that in the absence of treaty relations, victims in Austria could sue whoever they want to sue in Austria. The main question is to know whether, in case there are no valuable assets of the operator liable in Austria, a decision of Austrian courts could be recognised and enforced in the Slovak Republic. Taking into account that there are no treaty relations between the two countries, the principle of exclusivity of jurisdiction provided in the nuclear liability conventions would not apply, and therefore the Austrian victims would have the right to sue the operator liable in Austria or in the Slovak Republic. In addition, according to the EU rules on recognition and enforcement of judgements,[152] an Austrian judgement would be enforced in the Slovak Republic. However, no consensus was reached regarding the right for the Austrian victims to sue the liable Slovakian operator. Some considered that such right may depend on whether the Slovakian law and the nuclear liability convention to which it is party allow for compensation of nuclear damage suffered outside the territory of the Slovak Republic. For example, the geographical scope of application of the Vienna Convention (unlike the geographical scope of the Revised Vienna Convention) is unspecified and does not clearly stipulate whether the Vienna Convention applies to damage suffered in the territories of non-contracting states.[153] Therefore, whether the Austrian victims can sue the liable operator in the Slovak Republic may also depend on the Slovakian law. Others considered that, if nuclear damage is suffered in Austria, the Austrian (and not Slovakian) law would apply. Therefore, this is only a question of enforcement of an Austrian court decision within the EU according to the Brussels I *bis* Regulation.[154]

It was concluded that the issue of the definition of "nuclear damage" remains a complex topic – even though the revised nuclear liability conventions provide more certainty regarding to the heads of damage to be compensated, it is ultimately up to the national law and national courts to decide on the extent of damage to be compensated. However, going to court to decide on the extent of damage to be compensated may be to the detriment of victims, as the whole process could take a lot of time and money. To remedy this situation, the possibility of creating a commission in charge of working on a detailed definition of nuclear damage in the event of a nuclear incident (like in Japan) could help. Finally, once a nuclear incident does occur, victims would need to have money with no delay; therefore, national legislation should provide for emergency payment to compensate at least certain types of nuclear damage (e.g. evacuation costs) right after the accident.

152 Regulation (EU) No 1215/2012 of the European Parliament and of the Council of 12 December 2012 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters (recast), *Official Journal of the European Union* (OJ) L 351/1 (20 Dec. 2012) (the Brussels I *bis* Regulation).

153 *Secretariat note*: On the geographical scope of application of the nuclear liability conventions, see Session 3 - Proving the causal link of this report.

154 This matter was discussed later on at the workshop during Session 6 – Resolving disputes of this report.

Overview of responses to the questionnaire

Definition of nuclear damage

The first question related to the existence of a definition of nuclear damage under the national legislation of the responding country. In addition, in cases where the responding country confirms the existence of such a definition under its domestic legislation, it was also invited to clarify whether this definition would reflect the one provided in the international nuclear liability conventions to which it is party (if applicable). Of the 29 responding countries, **14** countries reported that they do not provide for a definition of nuclear damage under their national legislation. This is particularly true for states that recognise, in light of their domestic legislation, the direct applicability of several of the provisions in the nuclear liability conventions (see Figure 12.a). Examples:

- China: There is no definition of nuclear damage under the national legislation. Section 2 of the State Council's Reply on the Civil Liability for Damage Arising out of Nuclear Accident – Guo Han [2007 No.64] mentions only that "(t)he operators shall be liable to compensate for personal casualties, property losses or environmental damages arising out of nuclear accidents";[155]
- Germany: The relevant provisions of both the Paris Convention and the Revised Paris Convention would be directly applicable;
- Slovak Republic: There is no definition of nuclear damage in the national legislation. Section 2 of the Act No. 54/2015 Coll. expressly states that Article I.1.k of the Vienna Convention, which provides for the definition of nuclear damage, will apply. Further, Section 3(1) of the Act specifies that "nuclear damage" means damage resulting and causally linked to a nuclear incident in accordance with the provisions of an international treaty (i.e. the Vienna Convention);[156]
- United States: The Price-Anderson Act does not contain an express definition of nuclear damage. However, application of this Act would reflect and be compliant with the definition of "nuclear damage" in the CSC Annex. Under the Price-Anderson Act, the law to be applied is the substantive law of the state in which the nuclear incident occurred, rather than the federal substantive law.[157] Accordingly, certain terms or determinations, such as "nuclear damage", are not defined in the Act.

In all, **15** responding countries confirmed that their national legislation includes a definition of nuclear damage (see Figure 12.b). Examples:

- Hungary: Definition of nuclear damage provided in the national legislation is based upon the definition in the Vienna Convention;[158]
- India: Definition of nuclear damage in the national legislation corresponds to the definition given under the CSC;[159]
- Sweden: The national legislation includes a definition of nuclear damage based on the definition provided in the Paris Convention.[160]

155 The text of the State Council Official Reply to Questions on the Liabilities of Compensation for Damages Resulting from Nuclear Accidents – Guo Han [2007] No. 64 (Guo Han [2007] No. 64) is available at: www.oecd-nea.org/law/legislation/china-guo-han-2007-no64-en.pdf (accessed 31 Aug. 2023).

156 Act No. 54/2015 Coll. of 19 March 2015 on Civil Liability for Nuclear Damage and on its Financial Coverage and on changes and amendments to certain laws, 2015 (*Zbierka zákonov* [The Collection of Laws of the Slovak Republic] no. 18 of 28 March 2015) (Act No. 54/2015 Coll.).

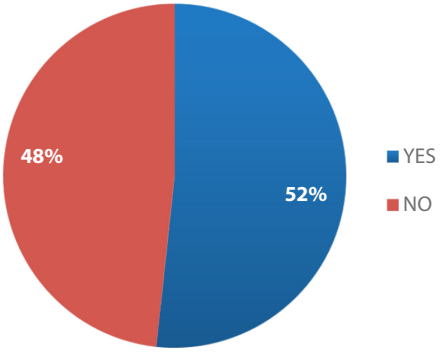
157 Price-Anderson Act, *supra* note 39.

158 See Article 2(23) of the Act CXVI of 1996 on Atomic Energy (1996 Act on Atomic Energy).

159 See Section 1(g) of the Civil Liability for Nuclear Damage Act, 2010 (No. 38 of 2010) (CLND Act).

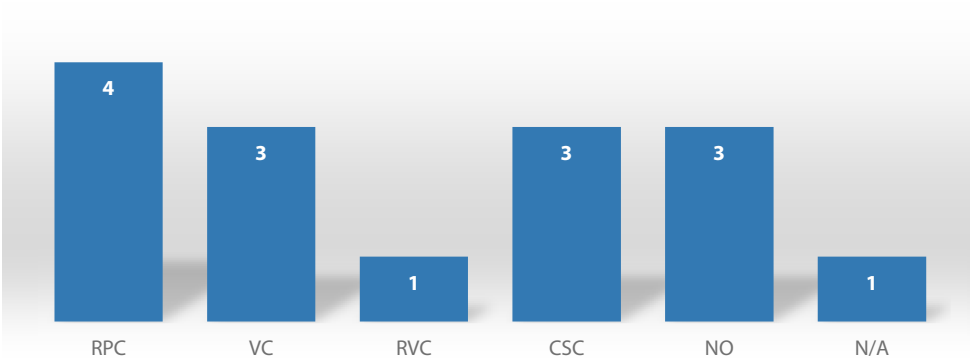
160 See Section 7 of the Act on Liability and Compensation for Nuclear Incidents, 2010 (SFS 2010:950).

Figure 12.a. **Does your national legislation provide for a definition of "nuclear damage"?**



Source: NEA.

Figure 12.b. **Does the definition of "nuclear damage" under the national law reflect the one provided in any of the international nuclear liability conventions?**



Source: NEA.

A definition of heads of damage more detailed than those provided under the international nuclear liability convention(s)

This question concerned the relevance of having a definition of heads of damage under national law that would be more detailed than those provided under the international nuclear liability conventions. A **large majority** of the responding countries reported that a larger definition is not provided under their domestic legislation. Only **four** countries (i.e. Austria, Canada, Czechia and the Netherlands) replied that their national legal system provides for definitions of heads of damage entitling victims to receive compensation which are more detailed than those provided under the international nuclear liability conventions (see Figure 13), and more specifically:

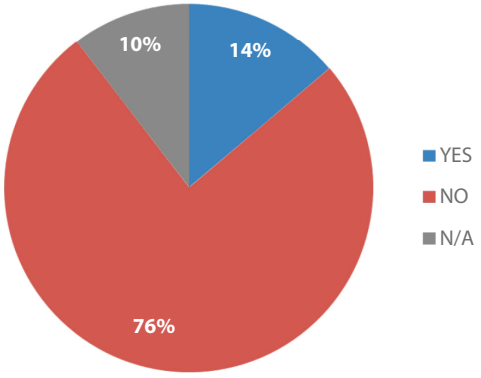
- Austria: All damage to persons and property is subject to compensation under the civil law, in accordance with the relevant provisions under the national nuclear legislation. In principle, all heads of damage must be compensated; [161]
- Canada: The psychological trauma linked to bodily injury is recognised as a supplementary head of damage eventually leading to compensation claims; [162]

161 See Section 11 of the AtomHG, *supra* note 136.

162 See Section 14 and following of the NLCA, *supra* note 124.

- Czechia: Beyond the heads of damage provided in the Vienna Convention, relevant national legislation covers damage arising in the form of costs of interventions necessary to prevent or reduce exposure or restore the original or equivalent state of the environment, if these interventions were made necessary by a nuclear event and the nature of the damage thus permits;[163]
- Netherlands: Definition of damage under the national civil law is construed on the basis of three provisions that provide for more detailed definition of nuclear damage compared to the one provided under the Paris Convention.[164]

Figure 13. **Does your national legal system provide for definition(s) of heads of damage that would entitle victims to receive compensation that are more detailed than those provided under the international nuclear liability convention(s)?**



Source: NEA.

Designation of an authority/commission to provide for a mechanism to further specify which damage shall be compensated

Of the 29 responding countries, **8** countries confirmed the existence of such an authority or commission under their national legislation (Austria, Canada, India, Japan, the Philippines, Romania, Slovenia and Ukraine, see Figure 14). Examples:

- Austria: Under the AtomHG, the Court of First Instance will be the competent jurisdiction for adjudication of claims and applications for interim injunctions under the Act;[165]
- Canada: Establishment, upon decision of the government, of a Nuclear Claims Tribunal is provided under the NLCA, creating an ad hoc jurisdiction to examine and adjudicate claims for damage arising from the nuclear incident as expeditiously as the circumstances and considerations of fairness permit.

Establishment of a special commission is provided in the national legislation of **some** other responding countries. Differences in the structure of such bodies exist between national legislation. Examples:

- India: the establishment of a Claims Commissioner is provided under its domestic legislation;[166]

163 See Article 34 of the Act No. 18/1997 Coll. of 24 January 1997 on the Peaceful Uses of Nuclear Energy and Ionising Radiation and on Amendments and Alterations to Some Acts.

164 See Articles 6:95, 6:96 and 6:106 of the Dutch Civil Code.

165 See Section 22 of the AtomHG, *supra* note 136.

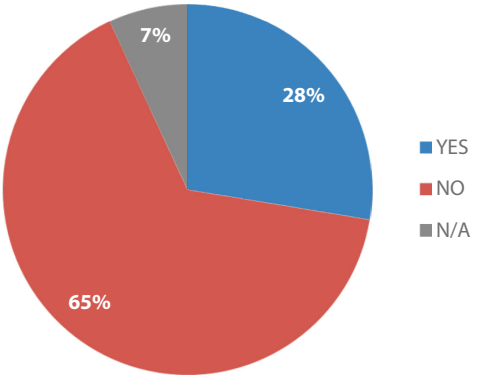
166 See Section 9 of the CLND Act, *supra* note 159.

- Romania: The Romanian National Commission for the Control of Nuclear Activities (CNCAN) may set up a special commission to determine the cause and consequences of the nuclear occurrence; examine and assess nuclear damage; issue recommendations as to the compensation, assistance and reconstruction measures; and issue recommendations as to the improvements to the nuclear installation in respect to nuclear and radiation emission safety;
- Slovenia: an ad hoc Commission for the Assessment of Nuclear Damage will be established to prepare an assessment within six months from the date of the nuclear incident that will propose the amount, the manner and the dynamics of the drawing of funds.[167] Members of the Commission shall be appointed by the government upon proposal of the government (50% of the members); the insurers (25% of the members) and the operator (25% of the members).

Some countries reported that equivalent mechanisms exist under their national legislation without necessarily taking the form of an authority or commission. Examples:

- Belgium: The King will set up the criteria for the equitable distribution of funds available for damage compensation in the event that they do not sufficiently cover all the damage suffered;[168]
- United States: In certain situations, the competent US District Court may appoint a special caseload management panel to function in a way that would provide for the equitable, prompt and efficient resolution of claims arising out of a nuclear incident.[169]

Figure 14. **Does your national legal system designate an authority/commission to provide for a mechanism to further specify which damage shall be compensated?**



Source: NEA.

Extent of the coverage of damage (direct-indirect damage or both)

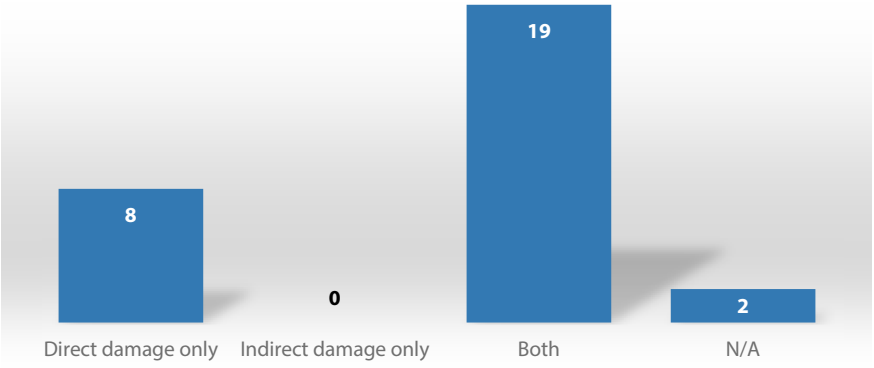
In all, **19** responding countries confirmed that their national legislation provides for the coverage of both indirect and direct damage. On the contrary, **8** countries reported that their domestic law covers direct damage only (see Figure 15).

167 See Article 13 of the 2010 Act on Liability for Nuclear Damage, *supra* note 126.

168 See Law of 22 July 1985 on civil liability in the field of nuclear energy (Belgian Official Journal [*Moniteur belge*] of 31 August 1985, n° 1985011261) (1985 Law).

169 See Article 170.n.(3) of the United States Atomic Energy Act of 1954, as amended, 42 USC 2011 *et seq*.

Figure 15. **In accordance with your national legislation, for which of the following types of damage would victims of a nuclear accident be compensated?**



Source: NEA.

Among the countries whose national legislation covers both types of damage, indirect damage may not be explicitly defined, but its content may be associated to:

a) **General provisions of tort law**. Examples:

- Japan: The concept of "indirect damage" is not explicitly defined in the Civil Code,[170] but it may be taken out of the definition of "torts" provided in the Code;
- Türkiye: There is no legal or judicial definition of the term "indirect damage". However, the relevant provisions of the Turkish Code of Obligations No. 6098 recognise indirect damage such as losses suffered by persons deprived of their means of support as a result of death and loss of earnings, losses resulting from total or partial inability to work and losses resulting from the detriment inflicted on economic future in cases of bodily harm.[171]

b) **Relevant provisions of the international nuclear liability convention**, to which the country in question is party. Examples:

- Belgium and Slovenia: Indirect damage is covered under the national legislation in reference to the relevant provisions of the Revised Paris Convention;
- India: Definition of indirect damage is inbuilt in the definition of "nuclear damage" provided in the relevant domestic legislation, which is similar to the definition provided in the CSC.[172]

Regarding the type of damage that may be included in the definition of indirect damage, on the basis of the responses received, it may concern:

a) **Damage related to loss of life or personal injury**. As an example:

- Germany: According to the national law, compensation may cover: (i) reduction of the earning capacity, compensation to surviving dependants; (ii) monetary compensation for the mental suffering in the case of loss of life; or even (iii) reimbursement of the costs of treatment or financial loss because of temporary or permanent loss of earning capacity in the case of personal injury.[173]

170 Japanese Civil Code, 1896 (Act No. 89 of 27 Apr. 1896).

171 Turkish Code of Obligations, Law No. 6098, 2011 (Official Gazette no. 27836 of 4 February 2011).

172 See Section 1(g) of the CLND Act, *supra* note 159.

173 See Sections 28-30 of the Atomic Energy Act, as amended, 1959 (*BGBl*. I 1959 S. 814) (*Atomgesetz* or AtG).

b) **Damage related to property**. Examples:

- Finland: Compensation may cover claims for: (i) costs or repair of the damage object; (ii) other costs arising from the damage; (iii) reduction in values of an object that has been destroyed or lost; or (iv) loss of income and maintenance;[174]
- Hungary: According to the Act on Civil Code, "under the principle of the right to full compensation the tortfeasor shall cover: a) any depreciation in value of the property of the aggrieved party; b) any pecuniary advantage lost; and c) the costs necessary for the mitigation or elimination of the financial losses sustained by the aggrieved party".[175]

System of assessment of the extent of compensation to be paid

The system to assess the extent of compensation to be paid would make it possible to determine whether the nuclear damage caused by a nuclear accident on the territory of a country appears to exceed or is likely to exceed a certain threshold, or to provide the operator, the insurer(s), the competent court and/or the installation state with have a rough estimate of the compensation to be paid.

Of the 29 responding countries, **8** confirmed that their legislation provides for such a system of assessment (see Figure 16). However, the authority in charge of the assessment may vary from country to country. Examples:

a) Some countries reported that the **competent court will be responsible** for making such a decision. Examples:

- Italy: In the case of multiple claims and when it is expected that the amount of compensation may exceed the financial guarantees referred to in Articles 19 and 20 of the Law 1860 of 31 December 1962 on the peaceful use of nuclear energy, the President of the Court shall order insolvency proceedings to take place and appoint a judge to oversee said proceedings. If it is found that the said financial guarantees are insufficient, the court shall proportionally reduce the amount for each injured party;[176]
- United States: The competent court would impose temporary restrictions on the distribution of compensation and implement an equitable plan of distribution for all claimants, where it appears that the statutory liability limit may be exceeded.[177]

b) Instead, for some countries, it is within the tasks of the **public authorities to proceed to this assessment**. Examples:

- Canada: Determination of the extent of compensation would be made prior to the recommendation made to the government to establish a Nuclear Claims Tribunal. Following the establishment of the Tribunal, the competent Minister would be required to table a report on the costs and extent of damage in Parliament;[178]

174 See Chapter 5, Section 5 of the Tort Liability Act No. 412/1974 of 31 May 1974 (*vahingonkorvauslaki, skadeståndslagen* Act No. 412/1974).

175 See Section 6:522 of the Act V/2013 on the Civil Code, 2013 (Official Gazette of Hungary [*Magyar Közlöny*] of 26 Feb. 2013, vol. 31, pp.2382-2663).

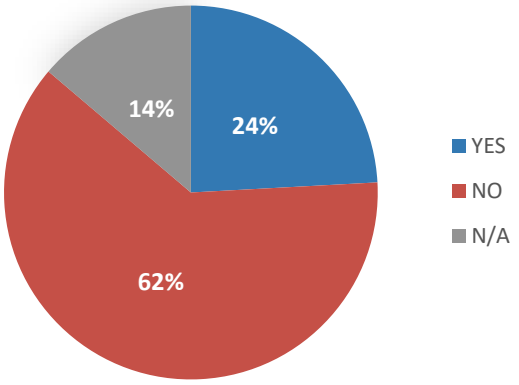
176 See Article 25 of the Law on the peaceful use of nuclear energy adopted on 31 December 1962 (Official Journal, *GU Serie Generale* n.27 of 30 Jan. 1963) (Law of 31 December 1962, No. 1860). *Secretariat note*: The law for ratification and implementation of the 2004 Protocols to amend the Paris Convention and the Brussels Convention Supplementary to the Paris Convention adopted on 23 July 2020 (Official Journal, *GU Serie Generale* n.196 of 6 Aug. 2020) (Law of 23 July 2020, no. 97) does not seem to affect Article 25 of the Law of 31 December 1962 No.1860.

177 See Section 11.h.h of the United States Atomic Energy Act of 1954, *supra* note 169.

178 See Section 36 *et seq.* of the NLCA, *supra* note 124. For the designation of the Minister, see Section 4 of the NLCA.

- France: If it appears that, as a result of a nuclear accident, the maximum amounts available are likely to be insufficient to compensate all damage suffered, a decree adopted by the Council of Ministers and published within six months of the date of the accident shall record this exceptional situation and determine the arrangements for distributing the amounts. The amounts available shall be allocated as follows: (i) priority shall be given to the compensation of personal injuries in a manner to be determined by analogy with the legislation on accidents at work; and (ii) the remaining amounts after this first compensation, if any, shall be allocated among the victims in proportion to any personal injury still to be compensated and the other nuclear damage suffered;[179]
- United Kingdom: The nuclear licensee of an affected installation is required to notify the appropriate authority if the claims made in respect of cover for an installation reach a notice level. The notice level is when aggregate claims have reached three fifths (i.e. 60%) of the limit of liability for the category of site. Payment of any claims above this notice level may only be made in accordance with a direction from the appropriate authority in respect of any particular claim.[180]

Figure 16. **Is there a system to assess the extent of compensation to be paid in order to determine whether the nuclear damage caused by a nuclear accident on your country's territory appears to exceed or is likely to exceed a certain threshold?**



Source: NEA.

Designation of an authority to take measures of reinstatement

This question relates to the designation of the authorities entitled to take, and competent to approve, measures to reinstate or restore damaged or destroyed components of the environment. The majority of the responding countries confirmed that relevant provisions designating the competent authorities exist under their domestic legislation. The responses provided reflect the variety of stakeholders involved and the necessary co-operation among them.

a) Several countries reported that this type of decisions relevant to **measures of reinstatement would be taken at the level of the central government**. Examples:

- Slovenia: Under Article 2 of the Act on Liability for Nuclear Damage, only the costs of those measures of reinstatement of a polluted environment, which are ordered or approved by the Ministry responsible for the environment in accordance with the Act

179 See Article L. 597-14 of the French Environmental Code issued by Order No. 2012-6 of 5 January 2012 (Official Journal of the French Republic of 6 Jan. 2012, p. 10).

180 See Section 20 of the NIA 65, *supra* note 149.

governing the protection of the environment, will be considered as falling under the definition of nuclear damage;[181]

- United Kingdom: A qualifying public authority (i.e. the responsible public body or public office holder), is entitled to take measures of reinstatement. Approval of measures is to be made by the Secretary of State (or court if the decision is appealed).[182] It should be noted also that payments for claims for reinstatement measures may also be made in qualifying territories outside the United Kingdom, but such claims must have been approved by the qualifying territory competent authority.[183]

b) Some countries highlighted that the competence to decide on measures of reinstatement may be **shared between central and regional authorities** depending on the political organisation of the State. Examples:

- Belgium: Environmental issues (e.g. measures to reinstate damaged or destroyed components of the environment) are under the competence of regional authorities;[184]
- Canada: Section 18 of the Nuclear Liability and Compensation Act provides that reasonable costs of remedial measures that are taken to repair, reduce or mitigate environmental damage that is caused by a nuclear incident are compensable if the measures are ordered by an authority acting under federal or provincial legislation relating to environmental protection.[185]

c) Finally, it should also be noted that under the domestic legislation of some countries, measures of reinstatement may be taken jointly by the person suffering the nuclear damage and the competent authorities. As an example:

- Austria: Along with the public authorities, it is possible under its national law that the person suffering nuclear damage to their property take measures of reinstatement of the environment, if the person liable is unable or unwilling to restore it to its former condition.[186]

Session 2 – Conclusions

i) The Paris Convention and the Vienna Convention have *similar (but not identical) definitions of nuclear damage*. The new heads of damage (provided in the Revised Paris Convention, the Revised Vienna Convention and the CSC) are almost identical and were considered necessary to specify the type of damage and implement the Joint Protocol. Negotiations proved that countries had different views on the type of nuclear damage to be compensated; therefore, conventions ensure that certain "categories" of damage are covered, leaving to national courts the task to specify which nuclear damage would be compensated in practice;

ii) If the operator or insurer, and the victim *disagree on the nuclear damage and/or the compensation amount*, the court may intervene, but victims do not have the time, the financial and material means and mental strength to follow that process. Very few states have provided post-accident solutions to detail nuclear damage and speed up the compensation process minimising law suits, as is the case in Japan;

181 See Article 2(4) of the 2010 Act on Liability for Nuclear Damage, *supra* note 126.

182 See Sections 11A and 11B of the NIA 65, *supra* note 149.

183 *Ibid*., Schedule 1A.

184 See Article 6(1)(II)(1) of the Special Law on Institutional Reforms of 8 August 1980, 1980 (Belgian Official Journal of 15 August 1980, n° 1980080801).

185 See Section 18 of the NLCA, *supra* note 124.

186 See Section 11(2) of the AtomHG, *supra* note 136.

iii) The *Austrian* national law reflects the revised nuclear liability conventions' heads of damage (even though it is not a convention state) and, for some, has detailed their scope and related compensation;

iv) *Uncertainty with regard to "nuclear damage"* (i.e. when insurance is triggered and related compensation amounts) entails higher insurance premiums to cover the risk incurred by the insurers and reluctance to cover those too uncertain heads of damage. The Revised Paris Convention and the United Kingdom implementing law provide certainty and predictability to some extent that has allowed the insurance pool to provide coverage for all heads of damage of the Revised Paris Convention, except the 10-30 years' prescription period.

Session 3

Proving the causal link

Prof. Vanda Lamm, **President of the Section of Economics and Law, Hungarian Academy of Sciences, member of the NLC Bureau and Chair of Session 3**, pointed out that the causal link (i.e. the connection between the cause – such as an act, an omission, an event – and its effects) is an important issue in law in general. Establishment of a causal link is a crucial question in general tort, criminal and other branches of law. Establishing a causal link between the nuclear incident and certain types of damage suffered may be a challenge to victims.

Proving the causal link: Identifying the persons entitled to claim compensation

Ms Fiona Geoffroy, **Senior Legal Adviser, Électricité de France (EDF)**, explained how the persons entitled to claim compensation for nuclear damage are identified while analysing the aspects relating to causation and the geographical scope of the nuclear liability conventions.

To demonstrate causation in tort law, the claimants must establish that the loss they have suffered was caused by the defendant: in most common law systems it is called the "but for" test (i.e. "but for" the defendant's actions, would the claimant have suffered the loss? If yes, the defendant is not liable. If no, the defendant is liable). "Causation," in a personal injury case, makes the crucial link between a person or company's behaviour and another person's injury. Even if a defendant in a negligence case is careless or reckless, he cannot be held liable for injuring the plaintiff, unless his negligent behaviour caused the injury. In some types of personal injury cases, however, causation is the centre of the case. For instance, in a strict liability case like those involving product liability or ultra-hazardous activities, the burden of proof is shifted and the plaintiff only needs to prove that the harmful behaviour or product caused damage.

In the very beginning of the nuclear liability conventions, it was acknowledged that there is a need to go beyond the principle of strict liability to establish a specific regime applicable to nuclear liability. In addition to the basic principles of the special nuclear liability regime(s) already mentioned, the nuclear liability conventions cover: (i) nuclear damage suffered by natural and legal persons in territories covered by the geographical scope of the relevant conventions; (ii) caused by nuclear incidents at nuclear installations or in the course of transport; and (iii) during the prescription period provided for in those conventions.

The Paris Convention does not apply to nuclear incidents occurring in the territory of non-contracting states or to damage suffered in such territory, unless the national legislation of the operator liable otherwise provides.[187] The Brussels Supplementary Convention applies to

187 Article 2 of the Paris Convention states that "This Convention does not apply to nuclear incidents occurring in the territory of non-Contracting States or to damage suffered in such territory, unless otherwise provided by the legislation of the Contracting Party in whose territory the nuclear installation of the operator liable is situated, and except in regard to rights referred to in Article 6(e)." Article 23(a) of the Paris Conventions provides that "This Convention shall apply to the metropolitan territories of the Contracting Parties." Paragraph 7 of the *Exposé des Motifs of the Paris Convention* further specifies that the term "territory" as used in the Convention is understood to include territorial seas. NEA (1982), *Exposé des Motifs of the Paris Convention*, *supra* note 109. In addition, the NEA Steering Committee Recommendation of 25 April 1968 [NE/M(68)1] mentions that "Signatory countries, in adopting measures to apply the Convention, should take into account that the Paris Convention is applicable to nuclear incidents occurring on the high seas

damage suffered in the territory of contracting parties, on or over the high seas on board a ship or aircraft registered in the territory of a contracting party; or on or over the high seas by a national of a contracting party, provided that, in the case of damage to a ship or an aircraft, the ship or aircraft is registered in the territory of a contracting party. [188] The Vienna Convention is silent on the geographical scope of its application. [189] The Joint Protocol extends to states adhering to it the coverage that is provided under the relevant convention (either the Paris Convention or the Vienna Convention) to which they are not contracting parties. In creating a "bridge" between the conventions, it also provides that only one of the conventions will be applicable to a nuclear incident to the exclusion of the other.[190]

The Revised Vienna Convention provides that it applies to nuclear damage "wherever suffered".[191] However, the legislation of the installation state may exclude from the application of the Convention damage suffered in a non-contracting state which, at the time of the nuclear incident: (a) has a nuclear installation in its territory, or in any maritime zones established by it in accordance with the international law of the sea; and (b) does not afford equivalent reciprocal

or to damage suffered on the high seas." Another Steering Committee Recommendation of 22 April 1977 [NE/M(71)1] further specifies that "The scope of application of the Paris Convention should be extended by national legislation, to damage suffered in a Contracting State, or on the high seas on board a ship registered in the territory of a Contracting State, even if the nuclear incident causing the damage has occurred in a non-Contracting State". See NEA (1990), *Paris Convention: Decisions, Recommendations, Interpretations*, OECD Publishing, Paris. *Secretariat note:* It is worth noting that this latter Recommendation became obsolete following the entry into force of the Revised Paris Convention for all contracting parties. See NEA (2020), *Exposé des Motifs of the Paris Convention as amended by the Protocols of 1964, 1982 and 2004*, adopted by the Contracting Parties to the Paris Convention on 18 Nov. 2016, NEA Doc. NEA/NLC/DOC(2020)1/FINAL (*Exposé des Motifs of the Revised Paris Convention*) and NEA (n.d.), *Paris Convention on Third Party Liability in the Field of Nuclear Energy – Compilation of the Decisions, Recommendations and Interpretations Concerning the Paris Convention*, available at: www.oecd-nea.org/jcms/pl_79153/dri-compilation-english (accessed 31 Aug. 2023).

188 See Article 2 of the Brussels Supplementary Convention.

189 Section 2.2.3 of *Explanatory Texts of the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage*, further explains that, unlike the Paris Convention (see Article 2 of the Paris Convention), the Vienna Convention does not expressly state that its scope is limited to nuclear incidents occurring in the territory of contracting states, or to nuclear damage suffered in such territory, unless the national legislation of the operator liable so provides. It further specifies the following: "In respect of **the place of a nuclear incident**, there can be no doubt that, under Article II, read in conjunction with the definitions of terms such as 'operator' and 'Installation State' in Article I, the 1963 Vienna Convention principally applies to nuclear incidents occurring in the territory of Contracting Parties; on the other hand, in the case of incidents occurring in the course of transport of nuclear material, it follows from the same definitions that the Vienna Convention does apply even to nuclear incidents occurring outside the territory of a Contracting Party, provided that the installation of the operator liable is located within such territory; moreover, if that installation is not situated within the territory of any State, the Convention applies if it is operated by a Contracting Party or under its authority. […] As for **the place where damage is suffered**, the absence of an express limitation of its territorial scope leaves it open to question whether or not the 1963 Vienna Convention allows for coverage of damage suffered outside the territory of the Contracting Parties and, in particular, in the territory of non-Contracting States under the applicable substantive law, which will usually be the law of the Installation State. […] The major argument against covering damage suffered outside the territory of the Contracting Parties is that, with limited insurance funds to call on, adding more claimants would reduce the share available for victims in the Contracting Parties, without reciprocal benefits. On the other hand, damage outside the territory of Contracting Parties may well be suffered by their nationals or by, or on board, ships or aircraft flying their flags. Moreover, it may be questioned whether leaving victims in non-Contracting States without compensation is in line with public international law." IAEA (2020), *The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage – Explanatory Texts*, *supra* note 110.

190 See Articles II and III of the Joint Protocol.

191 See Article I.A of the Revised Vienna Convention.

benefits". [192] Therefore, the Revised Vienna Convention opts for the opposite approach compared to the one provided in the Paris Convention: a state should either join the Vienna Convention or afford reciprocal benefits if it wishes to avail of coverage.

The Revised Paris Convention states that the Convention applies to nuclear damage suffered in the territory of a contracting party or a non-contracting state (including its territories and maritime zones) if: (a) it is a party to the Vienna Convention and the Joint Protocol (on the condition that the concerned Revised Paris Convention state is also a party to the Joint Protocol); or (b) it has no nuclear installations on its territory at the time of the nuclear incident; or (c) it is any other non-contracting state whose nuclear liability legislation affords equivalent reciprocal benefits and is based on principles identical to those contained in the Revised Paris Convention (i.e. liability without fault of the operator liable, exclusive liability of the operator or a provision to the same effect, exclusive jurisdiction of the competent court, equal treatment of all victims of a nuclear incident, recognition and enforcement of judgements, free transfer of compensation, interest and costs).[193] The Revised Brussels Supplementary Convention does not follow the same expansion of the geographical scope of the Revised Paris Convention, as the claimants from non-contracting states will not have access to the additional fund established by the Revised Brussels Supplementary Convention.[194]

192 See Article I.A.2 and 3 of the Revised Vienna Convention. Section 2.2.3 of *Explanatory Texts of the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage* further explains that, "[…] under Article I A.2, the legislation of the Installation State may exclude coverage of damage suffered not only (a) in the 'territory' of nuclear non-Contracting States but also (b) in 'any maritime zones' established by such States 'in accordance with the international law of the sea.' The term 'territory' used under (a) can be taken to include a coastal State's internal and territorial waters. Therefore, the 'maritime zones' referred to under (b) are those zones, such as the continental shelf and the exclusive economic zone (EEZ), which are not subject to a coastal State's territorial sovereignty but rather to more limited 'sovereign rights' and/or 'jurisdiction'. In view of the fact that such 'maritime zones' can extend to a considerable distance from the coast, it seems important to point out that, under Article I A.4, any exclusion of damage suffered in such zones 'shall not extend to damage on board or to a ship or an aircraft'. An exclusion pursuant to Article I A.2, could, however, prevent compensation of damage suffered on or by artificial islands, installations and structures constructed within a coastal State's EEZ or on its continental shelf, as well as other damage not suffered by or on board a ship or aircraft. As for damage suffered in the territory of a non-nuclear non-Contracting State, or in the maritime zones established by that State in accordance with the law of the sea, there can be no doubt that the 1997 Vienna Convention applies thereto. Moreover, inasmuch as the Convention applies to damage 'wherever suffered', damage suffered on the high seas, or in the maritime zones established by the Contracting Parties, is also covered." IAEA (2020), *The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage – Explanatory Texts, supra* note 110.

193 See Article 2 of the Revised Paris Convention. Unlike Article I.A of the Revised Vienna Convention, Article 2 of the Revised Paris Convention does not allow the installation state to exclude damage suffered in nuclear non-contracting parties based on the fact that nuclear damage is covered wherever suffered. Rather, it directly lists categories of non-contracting states in which nuclear damage suffered is covered by the Revised Paris Convention.

194 According to paragraph 6 of the *Exposé des Motifs of the Revised Brussels Supplementary Convention*, "[…] since public funds under the Revised Brussels Supplementary Convention are being made available to compensate nuclear damage and given the nature and origin of those funds, they should only be allocated to victims in States which have agreed to participate in the supplementary funding system. […] The Brussels Supplementary Convention will apply to nuclear damage only if it is suffered in any one of the following three situations and subject to the Court of a Contracting Party having jurisdiction according to the Paris Convention: (a) first, it will apply to damage that is suffered in the territory of a Contracting Party; (b) secondly, it will apply to damage that is suffered in or above maritime areas beyond the territorial sea of a Contracting Party, as long as it is suffered (i) by a national of a Contracting Party, (ii) on board or by a ship flying the flag of Contracting Party, (iii) on board or by an aircraft registered in the territory of a Contracting Party or (iv) on or by an artificial island, installation or structure under the jurisdiction of a Contracting Party, excluding damage suffered in or above the territorial sea of a State not Party to this Convention; (c) finally, it will apply to damage that is suffered in or above the exclusive economic zone (EEZ) of a Contracting Party or on the continental shelf of a Contracting Party in connection with the exploitation or exploration of natural resources of that zone or shelf." NEA (2020), "Exposé des Motifs of the Brussels Supplementary Convention as amended by the Protocols of 1964, 1982 and 2004", adopted by the Contracting Parties to the Brussels Supplementary Convention on 23 Dec. 2010, NEA Doc. NEA/NLC/DOC(2017)4/FINAL (*Exposé des Motifs of the Revised Brussels Supplementary Convention*).

As regards the CSC, it is silent as to the place of a nuclear incident. Consequently, "its scope of application depends entirely on the scope of application of the relevant nuclear liability convention or, in the case of an 'Annex' operator, on the scope of application of the Annex."[195] Concerning the place where the nuclear damage is suffered, the CSC "creates an obligation on the part of all the Contracting Parties to make public funds available in order to compensate damage exceeding a given amount which the Installation State must make available at the national level. As far as the national compensation amount is concerned, Article III.2(a) of the Convention allows the law of the Installation State, subject to obligations of that State under other conventions on nuclear liability, to exclude damage suffered in a non-contracting State. […] As for the 'geographical scope' of the additional funds to be provided by all the Contracting Parties, in cases where the damage exceeds the national compensation amount, Article V of the CSC states that those additional funds cannot be used to cover damage suffered in the territory of non-Contracting States."[196] Application of the CSC is determined by reference to the two different compensation tiers. As to the first tier, the law of the installation state determines to what extent nuclear damage suffered in a non-contracting state will be covered, while for the second tier, the Convention prohibits its distribution to compensate nuclear damage suffered in a non-contracting state, a restriction which is also found in the Brussels Supplementary Convention. This is in line with the philosophy that a fund comprising public money should be distributed only to victims in states which contribute to that fund.

All nuclear liability conventions provide that they, and the national law applicable thereunder, shall be applied without any discrimination based on nationality, domicile or residence.[197] This means that, provided damage is suffered within the geographical scope of the conventions, claims can be brought by nationals of non-contracting states also. Conversely, if damage is suffered outside that geographical scope of application, claims cannot be brought even by nationals of the contracting parties. In the absence of treaty relations between states, victims would most likely take action before their domestic courts on the basis of their national legislation. Judgements entered by such courts will then be subject to the rules of private international law as regards their execution. With regard to non-nuclear states, the risk remains that victims in such countries will attempt to make use of the conventions both before the courts of the installation state and before the courts of the place where the damage occurred, if they would have not received full satisfaction under the relevant convention system.

The execution of judgements of courts that do not have jurisdiction under the relevant nuclear liability convention may be prevented in the territory of the contracting parties to such convention. On the other hand, if the operator has assets in the territory of non-contracting states, such assets could be seized. Nuclear industry has serious difficulties in dealing with the

195 See Section 3.5.3 of the *Explanatory Texts of the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage*, which further clarifies that "there can be no doubt that the Convention applies if the incident causing damage occurs in an installation situated in the territory of a Contracting Party, irrespective of whether the operator is liable under the Vienna Convention, the Paris Convention or the Annex. However, doubts may arise if the incident occurs in the course of transport of nuclear material; depending on the scope of the applicable nuclear liability regime, the Convention may or may not apply." IAEA (2020), *The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage – Explanatory Texts*, *supra* note 110.

196 See Section 3.5.3 of the *Explanatory Texts of the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage*, which further provides that "[…] the supplementary funds envisaged in the Convention are to be used to compensate: (a) all damage suffered 'in the territory of a Contracting Party', including its territorial sea; (b) damage suffered by nationals of the Contracting Parties, or on board or by ships or aircraft registered in such Parties, or on or by an artificial island, installation or structure under the jurisdiction of a Contracting Party 'in or above maritime areas beyond the territorial sea of a Contracting Party', but 'excluding damage suffered in or above the territorial sea of a State not Party' to the Convention; and (c) damage suffered 'in or above the exclusive economic zone of a Contracting Party or on the continental shelf of a Contracting Party in connection with the exploitation or exploration of the natural resources of that exclusive economic zone or continental shelf'." *Ibid.*

197 See Article 14(a) of the Paris Convention, Article XIII of the Vienna Convention, Article 14(a) of the Revised Paris Convention, Article XIII of the Revised Vienna Convention, Article III.2 of the CSC.

absence of treaty relations as regards to writing contractual clauses. Nuclear damage suffered in states that are outside the scope of application of the respective nuclear liability conventions are generally not covered by insurance policies, which leads to lengthy negotiations with contractors as to who would bear nuclear liability in case of a nuclear incident. Specific contractual clauses are put in place to attribute such liability for damage outside the scope of application of the respective nuclear liability conventions for the duration of the contract.

Proving the causal link: Practical methods to establish the causal link

Prof. Taro Hokugo, **Director for Investigation and Planning of R&D Projects, Atomic Energy Division, Research and Development Bureau, MEXT, Japan**, and Prof. Shinsuke Toyonaga, **Attorney at Law, Advisor, Nuclear Damage Compensation and Decommissioning Facilitation Corporation, Japan**, reported on the practical methods to establish the causal link based on the lesson learnt from the Fukushima accident.

At the time of the Fukushima accident, Japan was not party to any of the nuclear liability conventions. However, the Compensation Act[198] was consistent with the main principles of the international nuclear third party liability regime(s). Japan deposited its instrument of ratification of the CSC on 15 January 2015 without amending the basic provisions of the Compensation Act.

Section 2.2 of the Compensation Act defines "nuclear damage" as damage "caused by the effects of the fission process of nuclear fuel, or of the radiation from nuclear fuel, etc., or of the toxic nature of such materials […]." Section 3.1 of the Compensation Act further specifies that "where nuclear damage is caused as a result of reactor operation etc. during such operation, the nuclear operator who is engaged in the reactor operation etc. on this occasion shall be liable for the damage […]." This results in a no-fault liability borne by the nuclear operator.[199] Moreover, Section 4.1 of the Compensation Act excludes any liability for compensation of nuclear damage caused by the operation of a nuclear reactor of any party other than the nuclear operator liable for such nuclear damage. This corresponds to the principle of legal channelling, with the nuclear operator alone bearing liability for compensation of nuclear damage.

Apart from providing a definition of "nuclear damage", the Compensation Act does not specify the extent of liability for compensation to be borne by a nuclear operator. Consequently, Article 709 of the Japanese Civil Code, [200] which governs general tort liability, and its standard interpretations apply. Therefore, a nuclear operator is liable for damage caused by "the effects of the fission process of nuclear fuel, or of the radiation from nuclear fuel, etc., or of the toxic nature of such materials" and resulting from the operation of a nuclear reactor by such operator, based on the concept of "reasonable causation."[201] Taking into account that there are no specific rules governing the burden of proof with regard to the concept of reasonable causation, victims bear the burden of proof in accordance with the principles of general tort law.

198 Act on Compensation for Nuclear Damage, as amended (Act No. 147 of 1961, as amended by Act No. 19 of 17 April 2009).

199 However, the nuclear operator is exempted if the damage occurs due to a "grave natural disaster of an exceptional character" or "an insurrection" such as an armed attack from a foreign country or a civil war. *Ibid*., Section 3.1 of the Compensation Act.

200 Japanese Civil Code, 1896 (Act No. 89 of 27 Apr. 1896).

201 *Secretariat note*: The "reasonable causation" doctrine on tort liability in the Japanese Civil Code provides that the legal causation is proven only if the consequence is expected from the cause in light of conventional wisdom. Possibility or the scope of compensation of nuclear damage is decided in the civil proceedings by determining whether such damage was caused within reasonable causation or not, with its burden of proof borne by claimants.

The Guidelines issued by the Reconciliation Committee[202] following the Fukushima accident to facilitate voluntary out-of-court settlement of disputes (e.g. standards for determining the scope of nuclear damage to be compensated by the nuclear operator) proved themselves to be a "compensation standard that can be trusted by both victims and nuclear operators. […] the importance of an out-of-court settlement as a pragmatic means of dealing with the large number of compensation claims" filed within a short period of time was clearly recognised in the use of the Guidelines. [203] It was also demonstrated that "compensation standards decided neutrally by the experts can contribute to promoting an out-of-court settlement between victims and the nuclear operator."[204] In the Guidelines, the concerned stakeholders were provided with a tool to determine the extent of the reasonable causation, or methods for calculating compensation amounts based on the categories of damage. In a situation where numerous compensation claims are submitted in a short period of time, the Guidelines demonstrated that they constitute "effective measures aimed at avoiding confusion in the settlement negotiations, in promoting a fair compensation and in partially decreasing the burden of proof of causation on the victims"[205] by providing details on which the claimants can rely while proving causation, damage evaluation and related legal interpretation.

On 28 April 2011, the Reconciliation Committee issued the Preliminary Guidelines detailing the scope of damage subject to compensation. Shortly after, the Committee issued the Secondary Guidelines (on 31 May 2011) and the Supplement to the Secondary Guidelines (on 20 June 2011), thus further enlarging the scope of nuclear damage provided in the previous Guidelines. On 5 August 2011, the Reconciliation Committee issued the Interim Guidelines that gave an overview of nuclear damage to be compensated. [206] On 6 December 2011, the Supplement to the Interim Guidelines was issued to address certain difficulties in defining objective criteria to determine a sufficient causal relationship between the damage and the accident (it mostly concerned damage associated with voluntary evacuation). On 16 March 2012, the Reconciliation Committee issued the Second Supplement to the Interim Guidelines concerning Damage related to Review of Evacuation Areas by Government Instructions, etc. The Third Supplement to the Interim Guidelines issued on 30 January 2013, further specified rumour-related damage and compensation for mental anguish to victims requiring nursing care. On 26 December 2014, the Fourth Supplement to the Interim Guidelines was issued. It further detailed the scope of damage related to mental anguish and home relocation or prolonged evacuation.

In order to manage an important number of claims related to the Fukushima accident, the Nuclear Damage Compensation Dispute Resolution Centre (the "ADR Centre") was established under the auspices of the Reconciliation Committee to mediate settlements, and began receiving applications from September 2011.[207] TEPCO, the liable operator, also put in place an organisation to manage the compensation claims (e.g. compensation counselling office

202 For more information on the Reconciliation Committee and the Guidelines, see NEA (2012), *Japan's Compensation System for Nuclear Damage: As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, OECD Publishing, Paris.

203 See Nomura, T. et al. (2012), "Japan's nuclear liability system", in NEA (ed.), *Japan's Compensation System for Nuclear Damage: As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, OECD Publishing, Paris, pp. 15-27.

204 *Ibid*.

205 *Ibid*.

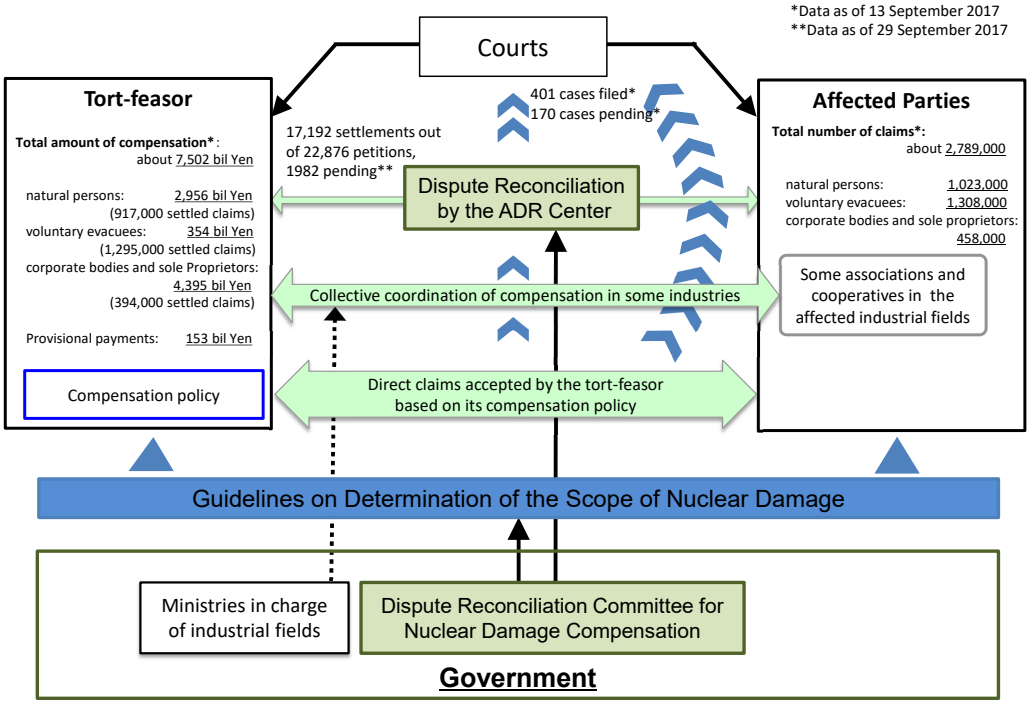
206 The categories of damage indicated in the Interim Guidelines are as follows: damage relating to government evacuation instructions, etc.; damage relating to the declaration by the government of marine exclusion zones, etc., and no-fly zones; damage relating to instructions issued by the government or a government agency restricting the shipment of agricultural, forest or fishery products; damage relating to any other government instructions, etc.; so-called "rumour-related" damage (general criteria, agriculture/forestry/fisheries, food industry, tourism, manufacturing, services, etc., exports); so-called "indirect damage"; damage from radiation exposure; measures for adjustments between government benefits paid to a victim, and compensation that the victim receives; property and other damage sustained by local government, etc. For more information, see Matsuura, S. (2012), "The current progress of relief of victims on nuclear damage caused by the Fukushima Daiichi nuclear power plant accident", in NEA (ed.), *Japan's Compensation System for Nuclear Damage As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, OECD Publishing, Paris, pp. 29-39.

207 *Secretariat note*: As of September 2020, 26 097 applications had been received, among which 20 376 cases had been settled, 2 870 cases had been withdrawn, and 2 208 cases had been terminated. Source: the ADR Centre.

established in Fukushima; compensation counselling and promoting units; public compensation unit; management and operation assistance unit).

The overall structure of compensation for nuclear damage caused by the Fukushima accident and respective data related to claims handling are summarised in the following diagram:

Figure 17. **Structure of compensation for nuclear damage caused by the Fukushima accident**



Source: Hokugo, T. (2017) "Practical Methods to Establish the Causal Link – Taking an Example of Compensation of 2011 Accident", presented at the Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident, Bratislava, October 2017.

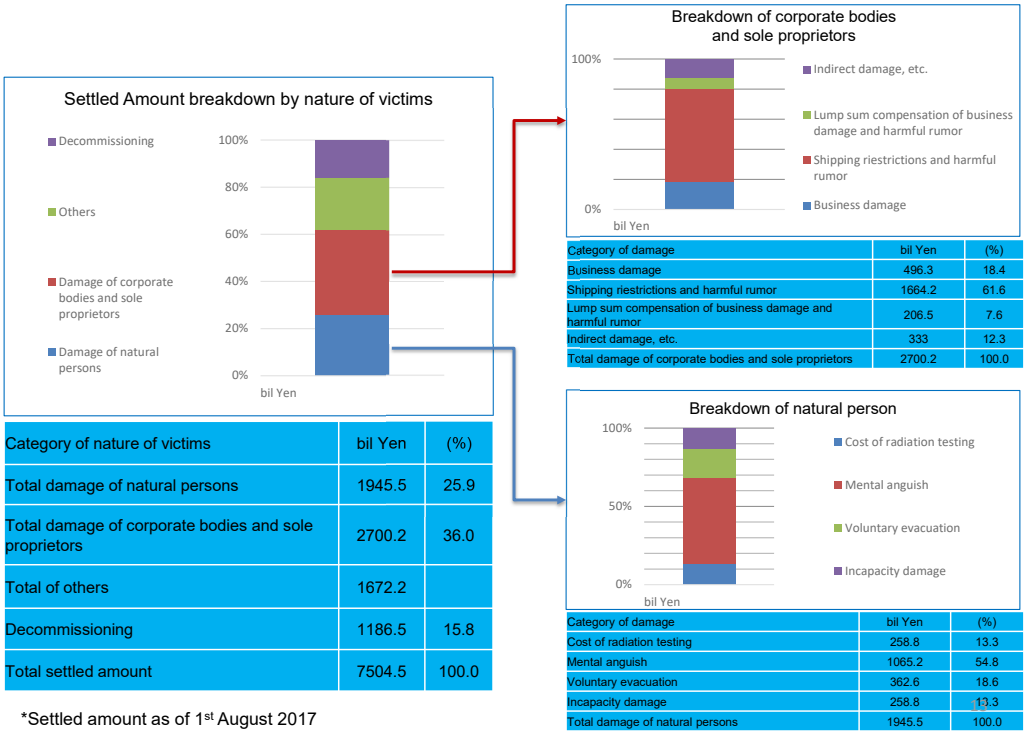
Pursuant to the Compensation Act, nuclear operators have a duty to secure funds (up to the established financial security amount) to allocate to the compensation of nuclear damage. According to Section 7.1 of the Compensation Act, financial security shall be provided by using one of the following options: (i) the conclusion of a liability insurance contract for nuclear damage with insurance companies (a "private liability insurance contract") and an indemnity agreement for compensation of nuclear liability with the government (a "government indemnity agreement"); (ii) a deposit of money for the compensation of nuclear damage; or (iii) other measures equivalent to the above.[208] TEPCO covered its nuclear liability for the Fukushima Daiichi nuclear power plant

208 As further explained in the report on *Japan's Compensation System for Nuclear Damage: As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, "There are no express provisions concerning the requirements for measures equivalent to (i) and (ii), but these might be a government guarantee, bank guarantee, or combinations of these measures, the set of a private liability insurance contract and a government indemnity agreement and a deposit of money. The financial security amount for specific types of nuclear operation is designated within the range under JPY 120 billion in the cabinet order, which specifies JPY 120 billion per site for reactor installations whose thermal output exceeds 10 000 kW, and consequently, all the nuclear power plants in Japan fall in this category. The financial security amount has been raised as far as possible in each review of the nuclear liability system, approximately every ten years, in light of factors such as the growth of the insurance market's underwriting ability. The current level of JPY 120 billion was raised from the previous level of JPY 60 billion at the time of the 2009 revision of the Compensation Act." For more information, see Nomura, T. et al. (2012), *supra* note 203, p. 19.

from private liability insurance together with a government indemnity agreement, allowing payments of up to JPY 120 billion. Taking into account that the Fukushima accident was caused by an earthquake and tsunami, compensation for nuclear damage was covered by the government indemnity agreement. After the accident, TEPCO claimed JPY 120 billion from the government based on the government indemnity agreement, and effectively received such payment. Finally, should the amount of compensation exceed the financial security amount (which was the case for the Fukushima accident), Section 16.1 of the Compensation Act stipulates that the government should provide the operator with the necessary assistance regarding compensation, provided that it is consistent with the purposes of the Compensation Act.

A breakdown of compensation for nuclear damage caused by the Fukushima accident (as of August 2017) is demonstrated on the following diagram:

Figure 18. **Breakdown of compensation for nuclear damage caused by the Fukushima accident**



Category of nature of victims	bil Yen	(%)
Total damage of natural persons	1945.5	25.9
Total damage of corporate bodies and sole proprietors	2700.2	36.0
Total of others	1672.2	
Decommissioning	1186.5	15.8
Total settled amount	7504.5	100.0

*Settled amount as of 1st August 2017

Category of damage	bil Yen	(%)
Business damage	496.3	18.4
Shipping riestrictions and harmful rumor	1664.2	61.6
Lump sum compensation of business damage and harmful rumor	206.5	7.6
Indirect damage, etc.	333	12.3
Total damage of corporate bodies and sole proprietors	2700.2	100.0

Category of damage	bil Yen	(%)
Cost of radiation testing	258.8	13.3
Mental anguish	1065.2	54.8
Voluntary evacuation	362.6	18.6
Incapacity damage	258.8	13.3
Total damage of natural persons	1945.5	100.0

Source: Hokugo, T. (2017) "Practical Methods to Establish the Causal Link – Taking an Example of Compensation of 2011 Accident", presented at the Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident, Bratislava, October 2017.

Most of the compensation was dedicated to business damage, shipping restrictions and harmful rumours. Regarding natural persons, compensation of mental anguish that accompanied the evacuation took the lead.

Prof. Shinsuke Toyonaga provided a brief analysis of some of the decisions by Japanese courts that applied the Guidelines. Although the Guidelines are not legally binding, they were elaborated on a neutral ground, and therefore serve as a reference for the damage compensation negotiations between victims and the nuclear operator. They facilitate settlement negotiations between the parties and promote a fair compensation of damage. In addition, the procedure before the ADR Centre does not constitute a mandatory step in the process of settling claims because victims of nuclear damage caused by the Fukushima accident are entitled, at their own discretion, either individually or as part of a group, to file a claim: (i) directly to the nuclear operator liable, TEPCO; (ii) before the ADR Centre; or (iii) before the Japanese civil courts. Victims can freely choose between these three options, with no priority among them.

In total, there have been 404 lawsuits brought against TEPCO before the courts (as of July 2017), 235 lawsuits were resolved, and 169 lawsuits were pending.[209] Establishing a causal link between the accident and damage suffered is one of the main issues regarding all these cases. For the settlements before the ADR Centre, the Guidelines are used on regular basis as a reference standard to determine the damage subject to compensation and establish the causal link. Courts have different positions with regard to the Guidelines. In some cases, they confirmed the Guidelines' approach; in other cases, they expressly stated that they are not bound by the Guidelines and would rule regardless of what is provided therein. In many cases, they decided to uphold the amount of claimed compensation in excess of the amount provided in the Guidelines. However, almost all courts adopted the Guidelines approach regarding the establishment of the causal link.

The following examples of court decisions can be provided to illustrate how the Japanese courts applied the Guidelines:

- Tokyo District Court Decision of 2 June 2015: This case concerned a claim from a plaintiff who lived within the evacuation area and evacuated under the government's evacuation order. The plaintiff returned to his home once the evacuation order was lifted. The plaintiff decided to sue TEPCO and claimed: (i) compensation for pain and suffering during evacuation exceeding the respective amounts for compensation provided in the Guidelines; (ii) compensation for pain and suffering from living under high dose radioactivity; and (iii) compensation for pain and suffering from living near the Fukushima Daiichi nuclear power plant. The court had to rule on the following issues: whether compensation for pain and suffering experienced during a non-voluntary evacuation exceeding the threshold established in the Guidelines could be allocated to the plaintiff and whether the plaintiff is entitled to claim compensation for items (ii) and (iii) above, provided that such compensation is not allowed in the Guidelines. The court decided to apply the Guidelines, which were considered as being "reasonable" and rejected the claim as a whole. The court also assumed that the causal link concept provided in the Guidelines was reasonable and ruled on the basis of the approach to establish the causal link provided in the Guidelines;
- Chiba District Court Decision of 22 September 2017: This case related to one of the mass tort lawsuits (46 people). The plaintiffs lived within the evacuation area and evacuated under the government's evacuation order. The plaintiffs returned to their homes after the order was lifted. The plaintiffs decided to sue TEPCO and claimed: (i) compensation for pain and suffering during evacuation exceeding the threshold form compensation established in the Guidelines; and (ii) compensation for pain and suffering from losing their local community due to the Fukushima accident even though the evacuation order was lifted. The court had to rule on the following issues: whether compensation for pain and suffering experienced during a non-voluntary evacuation exceeding the threshold established in the Guidelines could be allocated to the plaintiffs, and whether there was a causal link between the pain suffered due to the loss of the local community and the accident, provided that the plaintiffs were entitled to return to their homes once the evacuation order was lifted. The court decided that pain and suffering experienced under (i) do not exceed what is provided in the Guidelines. With regard to item (ii), the court ruled that there was a causal link between the accident and pain and suffering experienced by the plaintiffs due to the loss of the local community. Therefore, for item (i) the court decided to apply the Guidelines approach regarding the causal link; for item (ii), the court ruled that although the Guidelines do not clearly establish a causal link between the accident and the damage suffered, there was a causal link between the damage under item (ii) and the accident that had to be compensated.

209 As of February 2023, TEPCO has received in total approximately 3 million claims and has paid about JPY 10.731.9 billion. Source: TEPCO (2023), *Records of Applications and Payouts for compensation of Nuclear Damage*, available at: www.tepco.co.jp/en/hd/responsibility/revitalization/pdf/comp_result-e.pdf (accessed 31 Aug. 2023). As of November 2020, in total 573 lawsuits have been brought against TEPCO before the courts, 410 lawsuits were resolved, and 163 lawsuits were pending.

As a conclusion, the Guidelines are commonly used as reference standards in court procedures to establish the causal link. Based on the example of several court decisions, establishing the causal link beyond what is provided in the Guidelines seems to be possible, although difficult, and depends on each plaintiff's situation. Finally, the alternative dispute resolution mechanism and use of the Guidelines for resolving disputes proved to be excellent tools to provide quick and smooth compensation to victims in case of a nuclear accident.

Discussion session

A question arose as to whether the lessons learnt from the Fukushima accident were taken into account to amend the Japanese national legislation, especially given the accession of Japan to the CSC. In this regard, it appeared that the main changes to the national legislation are related to the area of civil procedures (e.g. enforcement of foreign judgement, limitation of the court's jurisdiction). Concerning the intention to keep the knowledge and the experience that has been gained in the frame of the organisation set up to deal with compensation claims following the Fukushima accident, it was explained that the policies, rules and regulations developed to manage the compensation process would remain, while the human resources employed by TEPCO may be reduced in the future.

Clarification was requested on whether Article XI of the CSC, which provides that only 50% of the public funds shall be allocated to transboundary damage, can be considered as discriminatory.[210] It appeared that this system of allocation of public funds was designed to compensate transboundary damage (i.e. damage suffered outside the territory of the installation state) and was meant to attract both nuclear and non-nuclear states. In addition, the reciprocal benefits principle might also be considered as discriminatory, since a state could decide to offer as much compensation as it is offered on an equivalent basis. Article III.2 of the CSC makes it clear that, as a general rule, both the national compensation amount and the supplementary funds to be made available under the CSC are to be distributed "equitably without discrimination on the basis of nationality, domicile or residence." As a consequence, provided that damage is suffered within the "geographical scope" of the Convention, compensation can be obtained by nationals of non-contracting states also. Conversely, if damage is suffered outside that "geographical scope", compensation cannot even be obtained by nationals of contracting parties.

With regard to the Fukushima accident, it was inquired why the tsunami was not treated as a "grave natural disaster of an exceptional character" that would exempt the operator from liability for compensation.[211] It appeared that the Japanese government considered that the earthquake and tsunami did not correspond to "a grave natural disaster of an exceptional character", and concluded that TEPCO should not be exempted from its liability for nuclear

210 *Secretariat note*: Under Article III of the CSC, compensation in respect of nuclear damage per nuclear incident must be ensured, up to a certain amount, at the national level by the operator liable, through insurance or other financial security, or by the installation state; beyond that amount, supplementary compensation is to be provided for by all the contracting parties through public funds to be made available in accordance with a specified formula according to Article IV of the Convention. Article XI of the CSC governs the allocation of the public funds and provides that (a) 50% of the funds will be used to compensate damage suffered both inside and outside the territory of the installation state, and (b) the remaining 50% will be exclusively used to compensate damage suffered outside the territory of the installation state, to the extent that it has not already been compensated under (a).

211 Section 3.1 of the Japanese Compensation Act provides that "Where nuclear damage is caused as a result of reactor operation etc. during such operation, the nuclear operator who is engaged in the reactor operation etc. on this occasion shall be liable for the damage". However, the nuclear operator is exempted if the damage occurs due to a "grave natural disaster of an exceptional character" or "an insurrection" such as an armed attack from a foreign country or a civil war (proviso to Section 3.1). See *supra* note 198.

damage.[212] The government's position was confirmed by several court decisions.

Finally, a question arose as to whether claims regarding radiation-related impacts on health (especially with long-term consequences, such as cancer) were already filled by victims, and whether the Guidelines provide some rules regarding the establishment of the causal link between the exposure to radiation and developing a cancer. It appeared that, since the evacuation was successful, no resident was exposed to radioactivity to the levels that might impact health; however, some exceptional cases may occur in the future.

Overview of responses to the questionnaire

Persons eligible to claim compensation for nuclear damage under national legislation

This part of the questionnaire covered the issue of determining the causal link between the nuclear incident and the nuclear damage suffered by victims who claim compensation, and more specifically the categories of persons who would be eligible to claim compensation (under the national law of the responding country) for nuclear damage suffered: (i) within the responding country's territory, or (ii) outside the responding country's territory.

In answering the question related to the persons eligible to claim compensation for nuclear damage suffered within the country's territory, all of the **29** responding countries reported that all natural and legal persons who suffered nuclear damage would be able to claim compensation under the relevant domestic law. Examples:

- China: The 2007 State Council Official Reply to Questions on the Liabilities of Compensation for Damages Resulting from Nuclear Accidents – Guo Han [2007] No. 64 stipulates in Section 10 that "(t)he natural persons, legal persons and other organisations that have suffered from damages caused by nuclear accidents are eligible to claim compensation for damages resulting from nuclear accidents";[213]
- Germany: Article 28 of the *Atomgesetz* provides that compensation claims may be addressed by the party that was injured, but in the event of the death of this person, eligibility to claim compensation shall be recognised to (i) the person liable to pay the funeral costs; (ii) those parties dependent upon the deceased; and (iii) survivors that were in a special personal relationship with the deceased; [214]
- India: According to Section 14 of the CLND Act, the victims, who may claim compensation for nuclear damage, subject to their application before the Claims Commissioner or the Commission, are defined as follows: (i) a person, who has sustained injury; or (ii) the owner of the property, to which damage has been caused; or

212 As further explained in the report on *Japan's Compensation System for Nuclear Damage: As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, "No clear standards have been established regarding what specific kind of situation would qualify for exemption due to 'grave natural disaster of an exceptional character', but it is interpreted that this exemption means that even if it exceeds the scale of disaster that operators should specifically envisage to prevent damage under the fault liability principle, this exemption will not apply unless it is evidently a case where it is totally inappropriate to make nuclear operators bear compensation liability. Even in the Diet deliberations when the acts were submitted in 1961, it was explained that the exemption was not equivalent to that for a simple 'act of God' but could be expressed as a 'super-act of God' or 'situations that are completely beyond all imagination'. In the light of such points, the government has expressed a view that 'a grave natural disaster of an exceptional character' is restricted to situations that are beyond all imagination, which have never been experienced by mankind in history, and that in consideration of the scale (magnitude) of the earthquakes and the run-up height of tsunami in the disasters that have previously occurred in the world, the 2011 Great East Japan Earthquake and the tsunami that occurred in conjunction with it ('the 2011 disaster') do not qualify on this basis." For more information, see Nomura, T. et al. (2012), *supra* note 203, p. 18.

213 See Section 10 of the Guo Han [2007] No. 64), *supra* note 155.

214 *Atomgesetz*, *supra* note 173.

(iii) the legal representatives of the deceased; or (iv) any agent duly authorised by such person or owner or legal representatives;[215]

- Poland: Only the competent minister for environmental matters will be entitled to claim compensation for nuclear damage to the environment.[216]

In answering the question related to the persons entitled to claim compensation in case nuclear damage is suffered outside the territory of the responding country, the **majority** of the responding countries reiterated that in such a case, all natural and legal persons could claim compensation. However, the national laws of **a few** countries provide differently. Examples:

- Austria: Even though no difference is made between victims in Austria or abroad, for nuclear damage suffered abroad and governed by Austrian law, claims for compensation may be eligible only if the national law of the claimant provides for compensation;[217]
- China: In case of a nuclear accident causing transboundary damage, claims would be handled on the basis of the international agreement entered into between China and the relevant countries. In the absence of such an agreement, the principle of reciprocity shall apply;[218]
- Portugal: Notwithstanding any issues which may arise in specific cases where the Paris Convention may be relevant, recourse to the general liability rules would be necessary. Requirements with regard to the causality are established in Article 563 of the Portuguese Civil Code,[219] establishing that the duty to compensate extends to damage, which the injured party would probably not have suffered if the injury had not taken place (i.e. adequate causality). This encompasses direct and indirect damage and, as a rule, there are no subjective limits related to the person who may claim compensation, as long as this test is met.

Mechanism to determine the causal link to nuclear damage

This question focused on clarifying whether under the national legislation of the responding country there is a mechanism to determine the causal link to nuclear damage. Existence of such a mechanism would enable victims to avoid bearing the burden of proof before the courts, especially with regard to latent damage (e.g. personal injury that appears between 10 and 30 years after the date of the nuclear accident).

The **majority** of the responding countries reported that such a mechanism is not foreseen under their national laws, while **a few** countries confirmed, to the contrary, that their national legislation provides for such a mechanism (see Figures 19.a and 19.b). Examples:

- Austria: Article 12(1) of AtomHG establishes a presumption of causality (i.e. if an injured party submits reasonable evidence of having been physically exposed to nuclear radiation originating from a nuclear installation, from nuclear material or radionuclides, it will be presumed that the injury was caused by nuclear radiation, provided that nuclear radiation is known to be a cause of such damage). This presumption can be rebutted by the defendant by proving that it is probable that the damage was not caused by nuclear radiation. For the rebuttal, it would be sufficient to show that in the case under consideration other causes were more probable than nuclear radiation;[220]

215 CLND Act, *supra* note 159.

216 See Article 105 of the Act of 29 November 2000 on Atomic Energy, *supra* note 66.

217 See Section 23(2) of the AtomHG, *supra* note 136.

218 See Section 3 of the Guo Han [2007] No. 64, *supra* note 155.

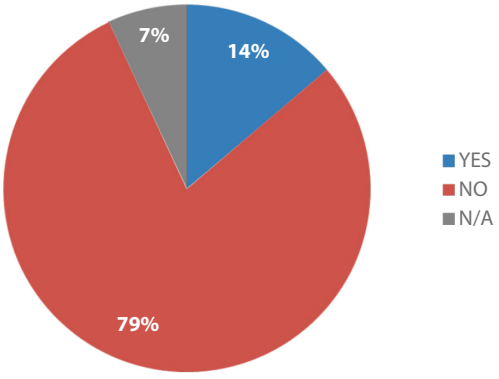
219 Portuguese Civil Code, 1966 (Decree-Law No. 47344, Official Gazette [Diário da República] No. 274/1966, Series I of 25 November 1966).

220 See Section 12 of the AtomHG, *supra* note 136.

- France: According to Article L. 597-12 of the Environmental Code, a non-restricted list of illnesses presumed to have been caused by the nuclear accident, unless evidence to the contrary is provided, shall be defined through specific regulation on the irradiation and contamination received and on the time elapsed before the illnesses were observed;[221]
- India: Section 12 of the CLND Act,[222] along with Rule 6 of the 2011 Civil Liability for Nuclear Damage Rules,[223] which both concern the adjudication procedure before the Claims Commissioner, incorporate in such procedures the matter of the burden of proof.

Finally, it is worth mentioning the response from Canada, according to which, notwithstanding the absence of a mechanism to determine the causal link to nuclear damage under the national legislation, a mechanism presumably based on the standard burden of proof of "more likely than ever" has been established by the insurers for damage within the 10-year claims limitation period. For bodily injuries beyond 10 years and up to the 30-year limitation period under the NLCA, the government would develop a mechanism to determine the causation of these damages for the purposes of assessing any claims made under the government's indemnity agreement with operators to cover such risk.[224]

Figure 19.a. **Does your national legislation provide a mechanism(s) to determine the causal link to nuclear damage so that victims avoid bearing the burden of proof before the courts?**



Source: NEA.

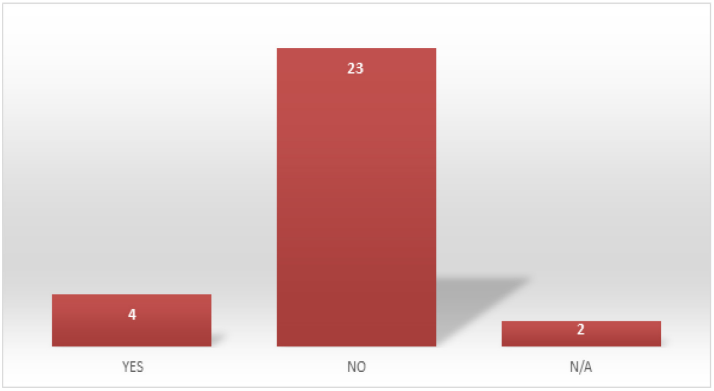
221 See Article L. 597-12 of the French Environmental Code issued by Order No. 2012-6 of 5 January 2012 (Official Journal of the French Republic of 6 Jan. 2012, p. 10).

222 See Section 12 of the CLND Act, *supra* note 159.

223 See Rule 6 of Civil Liability for Nuclear Damage Rules, 2011, No. 611 (The Gazette of India, Extraordinary, Section 3(i), 11 Nov. 2011) (2011 CLND Rules).

224 NLCA, *supra* note 124.

Figure 19.b. **Does your national legislation provide a mechanism(s) to determine the causal link to nuclear damage so that victims avoid bearing the burden of proof before the courts?**



Source: NEA.

Session 3 – Conclusions

i) *Victims* (natural and legal persons) entitled to be compensated under a nuclear liability convention are *identified in accordance with the convention's geographical scope of application*, which differ from one convention to another and has been extended in time to cover more victims. Some national laws have explicitly extended their application to damage wherever suffered (e.g. Germany, the Netherlands). In case of absence of treaty relations, several problems arise (e.g. non-covered victims do not benefit from the same compensation process as those under the relevant convention(s); issue of enforcement of foreign judgements);

ii) *Victims do not need to prove fault but only the causal link*, which may be an issue. Some national laws have provided for presumption of causality mechanisms (for instance, regarding certain bodily injuries or illnesses, e.g. Austria, Canada, France);

iii) In *Japan*, nuclear damage caused by the Fukushima accident was compensated based on non-binding Guidelines which established the causal link between the nuclear damage therein specified and the accident. It allowed for a prompt compensation of victims and avoided litigation before courts. Courts accepted the Guidelines as proof of the causal link and applied them.

Session 4

Identifying the liable entity

Mr Konstantin Kryazhevskikh, **Director Legal and Corporate, Rusatom Energo International and Chair of Session 4**, observed that nuclear lawyers are used to dealing with an assumption that there is a legal channelling of nuclear liability to the operator in case of a nuclear incident. However, there are several exceptions to this principle, not only with regard to the non-convention states, but also regarding the convention states (due to the exceptions provided either in the nuclear liability conventions themselves, or in the national legislation of certain convention states concerning, for example, a statutory right of recourse against suppliers). Therefore, and prior to entering into a contract for supply of goods or services to a particular country, nuclear lawyers always need to investigate the national nuclear liability regime in that country in order to assess the nuclear liability risks that may arise in case of a nuclear incident.

Identifying the liable entity: Different approaches to channelling

Mr Ben McRae, **Assistant General Counsel at the US Department of Energy and member of the NLC Bureau**, emphasised that from the beginning of the development of the nuclear industry, owners and operators of nuclear installations, as well as suppliers of nuclear goods, services and technology were concerned about the ruinous impact that liability claims in the event of a nuclear incident could have on their businesses and assets. To encourage investment in the nuclear business, governments introduced the concept of "channelling", which refers to the principle that responsibility for nuclear damage resulting from a nuclear incident is focused exclusively on the operator of a nuclear installation where a nuclear incident occurred. In other words, the operator of a nuclear installation is the only entity legally liable for such damage, regardless of which act or omission was the actual cause of the incident. Suppliers, investors and other persons potentially liable under normal tort law are held harmless and not responsible for compensating nuclear damage. Channelling is an essential element of the public policy decision to focus on compensating victims promptly, rather than litigating on fault-based liability.

Channelling of liability

There are two types of channelling – legal and economic. Legal channelling imposes all legal liability for nuclear damage exclusively on the operator and does not permit any lawsuits against suppliers, investors or any other persons that might otherwise be legally liable under the ordinary tort law. Economic channelling does not affect legal liability under the ordinary tort law, but does require the operator to pay for all monetary judgements resulting from legal liability for nuclear damage. In other words, while lawsuits can be brought against the operator, suppliers, investors or any other person, the operator pays for all the nuclear damage for which there is a legal liability.

All nuclear liability conventions include provisions on legal channelling.[225] All countries with nuclear power plants, except for the United States, tend to incorporate legal channelling into their national nuclear liability laws. An operator of a nuclear installation is the person designated or recognised by the state as the operator of the installation (usually, it refers to an

225 See Articles 3 and 6 of the Paris Convention and the Revised Paris Convention; Article II of the Vienna Conventions; Article 3 of the CSC Annex.

entity that holds the licence).[226] With respect to a nuclear incident at a nuclear installation, the liable operator is the operator of the installation. The benefits of the legal channelling are as follows:

- it promotes prompt compensation to victims with a minimum amount of litigation, as victims need to sue only the operator to get compensated; it also simplifies litigation by focusing proceeding on one entity – the operator;
- it facilitates the imposition of strict liability on the operator, eliminating the need to demonstrate intent, negligence and other elements necessary for liability under the ordinary tort law; victims only need to demonstrate causation between the nuclear incident and the damage suffered;
- it maximises the amount of insured compensation available and facilitates measures to ensure the availability of insurance and other financial resources to pay compensation;
- it allows insurance companies to concentrate their resources and thereby offer higher amounts of insurance coverage to the operator, since they do not have to set aside funds to pay potential claims from suppliers and other persons;
- it facilitates commercial arrangements related to design, construction and operation of nuclear installations; it also minimises potential liability, as there is an impediment to the participation of suppliers and investors in nuclear projects in the absence of legal channelling;
- it reduces prices of nuclear projects, since suppliers and investors do not need to include a cost component in the final price to cover potential legal liability for nuclear damage.

When it comes to economic channelling, the principle was introduced in the United States nuclear liability law, the Price-Anderson Act.[227] The Price-Anderson Act was enacted in 1957 and thus predates both the Paris Convention and the Vienna Convention. Adoption of the Price-Anderson Act sparked the discussion that resulted in the elaboration of the principle of legal channelling and other nuclear liability principles. However, it appeared that it was not politically feasible to change the Price-Anderson Act, therefore economic channelling was maintained in the United States nuclear law, and the "grandfather clause" referring to the use of economic channelling in the United States was embedded into the CSC Annex to allow the United States to participate in this regime without changing its national legislation.[228]

According to the Price-Anderson Act, the legal liability of operators, suppliers, investors and other persons is determined according to the tort law of the state where a nuclear incident occurs. An operator of a nuclear power plant must have insurance or other financial security of USD 450 million (the so-called "first tier" amount). If nuclear damage exceeds the "first tier" amount, operators of nuclear power plants must contribute up to USD 121.25 million per nuclear power plant to a retrospective pooling arrangement, which results in approximately

226 See Article 1(a)(vi) of the Paris Convention and the Revised Paris Convention; Article I.1(c) of the Vienna Conventions; Article 1.1(d) of the CSC Annex.

227 Price-Anderson Act, *supra* note 39.

228 As specified in Section 3.3.3 in the *Explanatory Texts of the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage*, "Under Article 2.1, the national law of a Contracting Party is deemed to be in conformity with the provisions of Articles 3, 4, 5 and 7 of the Annex if, on January 1995, it contained provisions that: (a) provide for strict liability for substantial off-site nuclear damage; (b) require the indemnification of any person other than the operator liable in so far as that person is liable to pay compensation; (c) ensure the availability for such indemnification of at least 1000 million SDRs in respect of a civil nuclear power plant and at least 300 million SDRs in respect of other civil nuclear installations. On the basis of this clause, the United States of America is allowed to derogate from the provisions of the Annex relating to the operator's liability (Article 3), the liability amounts (Article 4), the financial security which the operator is required to have and maintain (Article 5), and the liability of more than one operator (Article 7). Moreover, under Article 2.2 and 3, the 'grandfather' clause allows the United States of America to apply a definition of 'nuclear damage' wider than the one set forth in Article I.1(f) of the Convention, as well as a specific definition of 'nuclear installation'." IAEA (2020), *The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage – Explanatory Texts*, *supra* note 110.

USD 12.5 billion (the so-called "second tier" amount). The pooling arrangement constitutes a form of self-insurance by operators. First tier and second tier amounts are used to compensate nuclear damage. Public liability amount (i.e. the aggregate legal liability for nuclear damage) is limited to the combined first and second tiers amounts. The US government guarantees the availability of funds corresponding to the first and second tier. If nuclear damage exceeds the public liability amount (i.e. the total amount available under the first and second tiers), the Price-Anderson Act provides for the President and the Congress to develop and consider mechanisms to compensate remaining nuclear damage. In the event of a nuclear incident, all lawsuits are consolidated into one single class action before the Federal District Court, and the judge is entitled to appoint a claims commission in charge of deciding on how the money will be allocated.

Right of recourse

The right of recourse represents the legal right of a person (e.g. the operator) to be reimbursed by another person (e.g. the suppliers) with respect to compensation that the first person has paid to third parties because of the actions of the second person. Availability of a right of recourse has the potential to undermine channelling and its benefits, since it provides a possibility to effectively transfer responsibility for compensating nuclear damage from the operator to a supplier or another person. Thus, an important corollary to the channelling principle is that an operator's right of recourse is restricted within a narrow, well-defined range. In accordance with the nuclear liability conventions, an operator may exercise a right of recourse only: (i) against the individual physical person who acts or omits to act with intent to cause damage; or (ii) where and to the extent that such right is expressly provided for by contract.[229]

Therefore, at first, the nuclear liability conventions retain the operator's normal right of recourse against an individual where the individual acts or fails to act with the intention of causing nuclear damage. The right of recourse is limited to a right against an individual (i.e. a physical person) who acts or omits to act with intent to cause damage. There is no right of recourse against the employer of such person; the principle of *respondeat superior* is excluded. Secondly, the nuclear liability conventions recognise that contracts often use rights of recourse to allocate risks between the contracting parties and therefore they neither mandate nor prohibit such contractual rights of recourse. The nuclear liability conventions provide the opportunity for an operator and a supplier to negotiate and mutually agree to allocate risks between themselves through the inclusion of an explicit right of recourse provision in their contract. An operator can insist on a right of recourse and a supplier can insist on refusing a right of recourse, but there will be no contract unless they come to a mutual agreement as to whether and, if so, to what extent there will be a right of recourse.

However, some national laws provide for a statutory right of recourse (e.g. in India, Korea). Where the statutory language deviates from the language in the respective nuclear liability conventions, questions arise as to whether the statutory right of recourse is consistent with the basic nuclear liability principles. For example, the Korean nuclear liability law provides for a statutory right of recourse against a supplier or its employee that caused nuclear damage through intentional acts or gross negligence.[230] This statutory right may be waived or modified by a contractual provision. According to some experts, statutory rights of recourse that can be

229 See Article 6(f) of the Paris Convention and the Revised Paris Convention; Article X of the Vienna Conventions and Article 10 of the CSC Annex. It is worth noting that the Paris Convention and the Vienna Convention provide the right of recourse automatically, whereas the CSC requires entrenching the right of recourse into the national legislation.

230 Article 4 of the Korean Act on Compensation for Nuclear Damage, as amended (Act No. 2094 of 24 January 1969), provides: "1. Where nuclear damage is caused by the wilful act or gross negligence of a third party, a nuclear operator who has provided compensation for nuclear damage in accordance with Article 3 shall have a right of recourse against such third party, provided however, that where the nuclear damage occurs due to the supply of material or services (including labour) for the operation of a nuclear reactor (hereinafter referred to as 'supply of material'), the nuclear operator shall have a right of recourse only insofar as there has been a wilful act or gross negligence by the supplier of the materials concerned or by his employees. 2. If, in the circumstances described in Paragraph 1 of this Article, a special agreement has been made regarding rights of recourse, such agreement shall govern.".

waived or modified by contract are consistent with the objective of the nuclear liability conventions to preserve the ability of contracting parties to decide how to address this matter.

Regarding the Indian nuclear law, Section 17 of the CLND Act (Bill No. 19 of 2010) and Rule 24 of the 2011 CLND Rules contain provisions that may be construed as a statutory right of recourse.[231] When depositing its instrument of ratification of the CSC with the IAEA, India submitted a declaration that its national law was consistent with the CSC; the declaration cross-referenced a document by the Indian Ministry of External Affairs (MEA) that further explained these questions under Indian law.[232]

Identifying the liable entity: Applying in practice the exonerations from liability provided under the nuclear liability conventions

Mr Roland Dussart-Desart, **Chair of the NLC and Head of Legal Division at the Belgium FPS Economy, SMEs, Self-employed and Energy,** emphasised that according to the *Exposé des Motifs of the Paris Convention*, "the absolute liability of the operator is not subject to the classic exonerations such as force majeure, Acts of God or intervening acts of third persons, whether or not such acts were reasonably foreseeable and avoidable. Insofar as any precaution can be taken, those in charge of a nuclear installation are in a position to take them, whereas potential victims have no way of protecting themselves."[233] Therefore, the burden borne by the operator of a nuclear installation due to the regime of a strict and absolute liability and the principle of channelling, which denies him in most cases a right of recourse, is supplemented by the non-applicability of exonerations available under general liability laws.

However, the nuclear liability conventions provide for the following exceptions from the operator's liability:

1. Exemption regarding damage resulting from an act or omission of an individual with intent to cause damage

    - *Paris Convention*: According to Article 6(f)(i) of the Paris Convention, the operator shall have a right of recourse if the damage caused by a nuclear incident results from an act or omission done with intent to cause damage, against the individual acting or omitting to act with such intent. There are, however, no provisions exempting the operator from indemnifying such individual;
    - *Revised Paris Convention*: According to Article 6(e) of the Revised Paris Convention, and in addition to the right of recourse against the individual provided in Article 6(f), if the operator proves that the nuclear damage resulted wholly or partly either from the gross negligence of the person suffering damage or from an act or omission of such person with intent to cause damage, the competent court may, if national law so provides, relieve the operator wholly or partly from his obligation to pay compensation in respect of the damage suffered by such person;

231 Under Section 17 of the CLND Act, *supra* note 159, a right of recourse may be exercised by the operator against a supplier of goods or services under three separate conditions: a) when such right is expressly provided for in a contract; b) in cases where the incident is the result of an act of the supplier or his employee, which includes the supply of equipment or material with patent or latent defects or sub-standard services ; or c) where the incident resulted from an act of commission/omission with the intent to cause nuclear damage. See also 2011 CLND Rules, *supra* note 223.

232 For more information, see Ministry of External Affairs (2020), "Frequently Asked Questions and Answers on Civil Liability for Nuclear Damage Act 2010 and Related Issues", available at www.mea.gov.in/press-releases.htm?dtl/24766/Frequently_Asked_Questions_and_Answers_on_Civil_Liability_for_Nuclear_Damage_Act_2010_and_related_issues (for the 2015 edition) (accessed 31 Aug. 2023) and www.mea.gov.in/Speeches-Statements.htm?dtl/32911/FAQs_Version_20_on_CLND_Act_2010 (for the 2020 edition) (accessed 31 Aug. 2023).

233 See paragraph 48 of *Exposé des Motifs of the Paris Convention,* NEA (1982), *Exposé des Motifs of the Paris Convention, supra* note 109.

- *Vienna Convention*: Article IV.2 of the Vienna Convention states that if the operator proves that the nuclear damage resulted wholly or partly either from the gross negligence of the person suffering the damage or from an act or omission of such person with intent to cause damage, the competent court may, if its law so provides, relieve the operator wholly or partly from his obligation to pay compensation in respect of the damage suffered by such person;
- *Revised Vienna Convention*: Article IV.2 of the Revised Vienna Convention does not modify the provisions of Article IV.2 of the Vienna Convention and states that if the operator proves that the nuclear damage resulted wholly or partly either from the gross negligence of the person suffering the damage or from an act or omission of such person done with intent to cause damage, the competent court may, if its law so provides, relieve the operator wholly or partly from his obligation to pay compensation in respect of the damage suffered by such person;
- *CSC*: Article 3.6 of the CSC Annex provides that national law may relieve an operator wholly or partly from the obligation to pay compensation for nuclear damage suffered by a person if the operator proves that the nuclear damage resulted wholly or partly from the gross negligence of that person or an act or omission of that person done with the intent to cause damage.

2. Exonerations regarding damage caused by an act of armed conflict, hostilities, civil war, insurrections, etc.

- *Paris Convention*: Article 9 of the Paris Convention provides that the operator shall not be liable for damage caused by a nuclear incident directly due to an act of armed conflict, hostilities, civil war, insurrection or, except in so far as the legislation of the contracting party in whose territory the nuclear installation is situated may provide to the contrary, a grave natural disaster of an exceptional character;
- *Revised Paris Convention*: Article 9 of the Revised Paris Convention states that the operator shall not be liable for damage caused by a nuclear incident directly due to an act of armed conflict, hostilities, civil war, insurrection. It is worth noting that a grave natural disaster of an exceptional character is no more covered by the provisions of the Convention. The same approach was used for the Revised Vienna Convention (see below);
- *Vienna Convention*: According to Article IV.3 of the Vienna Convention, (a) no liability under this Convention shall attach to an operator for nuclear damage caused by a nuclear incident directly due to an act of armed conflict, hostilities, civil war or insurrection; (b) except in so far the law of the installation state may provide to the contrary, the operator shall not be liable for nuclear damage caused by a nuclear incident directly due to a grave natural disaster of an exceptional character;
- *Revised Vienna Convention*: There are no more provisions similar to the ones provided under Article IV.3(b) of the Vienna Convention (i.e. exoneration regarding a grave natural disaster of an exceptional character was removed). Article IV.3 of the Revised Vienna Convention provides that no liability under this Convention shall attach to an operator if it proves that the nuclear damage is directly due to an act of armed conflict, hostilities, civil war or insurrection;
- *CSC*: Article 3.5 of the CSC Annex provides that (1) no liability shall attach to an operator for nuclear damage caused by a nuclear incident directly due to an act of armed conflict, hostilities, civil war or insurrection; (2) except insofar as the law of the installation state may provide to the contrary, the operator shall not be liable for nuclear damage caused by a nuclear incident directly due to a grave natural disaster of an exceptional character.

As mentioned above, all nuclear liability conventions provide grounds for exonerating a nuclear operator from liability with regard to armed conflict, hostilities, civil war and insurrection. They do not, however, provide definitions of these terms. The explanatory texts of the respective conventions do not clarify this issue either. The concepts of armed conflict and hostilities refer to the use of force between states – a situation prohibited by the United Nations (UN), except in case of self-defence or when the UN Security Council takes a binding decision under chapter VII of the

UN Charter.[234] Such conflicts might start with or without a formal declaration of war: in both cases, the rules of international humanitarian law (e.g. the 1949 Geneva Conventions and their Protocols) will apply.[235] Most wars can be clearly identified by the use of traditional weapons and strategies. However, many states are currently developing new weapons that may supplement or replace the old ones, which creates additional difficulties regarding the qualification of a hostile act.[236] Moreover, an internal conflict may become international if (at least) one of the adversaries benefits from support of another state. Assessment of a degree of support or control by a state regarding an armed group required to re-qualify an internal conflict to an international one is subject to several conflicting decisions of the International Court of Justice or international criminal tribunals. The same level of uncertainty concerns "internal conflicts" commonly understood as civil war and insurrection. However, this question remains rather academic with regard to the application of exoneration provisions under the nuclear liability conventions, since the exonerations apply to both internal and international conflicts.

Regarding terrorism, there are many definitions of this phenomenon, but most of them refer to a number of criminal offences committed with intent to cause harm.[237] Terrorism is not covered by the exemptions provided in the nuclear liability conventions. The *Exposé des Motifs of the Revised Paris Convention* expressly states that "an operator is not, however, exonerated from nuclear damage caused by a nuclear incident directly due to an act of terrorism, whatever its scale, since terrorists acts are not covered by the events enumerated in Article 9."[238] The scope and the means of such attacks may however go beyond the imagination of the drafters of the nuclear liability conventions, which led to discussions as to whether nuclear damage resulting from an act of terrorism should remain covered by the nuclear liability conventions.

With regard to the "grave natural disaster of an exceptional character", there have been discussions as to whether this notion should be covered by the exemptions provided in the nuclear liability conventions, taking into account that it was removed from the scope of exemptions in the Revised Paris Convention and the Revised Vienna Convention. This exemption remains, however, applicable in the Paris Convention, the Vienna Convention and the CSC. There is no definition of a "grave natural disaster of an exceptional character" provided in the nuclear liability conventions. The gravity of a disaster is not a factor that relates exclusively to the size of the event, as its impact will depend on the strength and adequacy of the protections built up by the potential victims. The natural character of the disaster can be difficult to establish, as some natural disasters have proven to be provoked by human activities (e.g. the exploitation of mines or the extraction of gas can lead to earthquakes). The exceptional nature of a disaster depends on statistics and relies upon the probability of occurrence of an event, taking into account the number of events registered during a fixed period. As already mentioned,[239] the earthquake that triggered a tsunami that killed almost 30 000 people in Japan was not considered as a "grave natural disaster of an exceptional character" that could exonerate TEPCO from its liability for the Fukushima accident. The magnitude of this natural

234 For more information regarding the UN Charter, see United Nations (n.d.), *United Nations Charter*, available at: www.un.org/en/about-us/un-charter (accessed 31 Aug. 2023).

235 For more information on the 1949 Geneva Conventions and their Protocols, see ICRC (n.d.), *Geneva Conventions of 1949, additional protocols and their commentaries*, available at: https://ihl-databases.icrc.org/en/ihl-treaties/geneva-conventions-1949additional-protocols-and-their-commentaries (accessed 31 Aug. 2023).

236 *Secretariat note*: Malicious computer worm, STUXNET, which targeted SCADA systems and is believed to be responsible for causing substantial damage to Iran's nuclear program in 2010 demonstrated that hostilities between states take new forms. As a consequence, the notion of "armed conflict" might have evolved and reflect now a new scope.

237 *Secretariat note*: One of the definitions of "terrorism" is provided by the Directive (EU) 2017/541 of the European Parliament and of the Council of 15 March 2017 on combating terrorism and replacing Council Framework Decision 2002/475/JHA and amending Council Decision 2005/671/JHA, *Official Journal of the European Union* (OJ) L 88/6 (31 Mar. 2017). The Directive provides a list of criminal offences considered as being terrorist offences.

238 See paragraph 80 of the *Exposé des Motifs of the Revised Paris Convention*, NEA (2020), *Exposé des Motifs of the Revised Paris Convention*, *supra* note 187.

239 *Secretariat note*: See Session 3 - Proving the causal link of this report.

event was compared with similar events in the past, in Japan and in the rest of the world, and it appeared that, even within the borders of Japan, there were several precedents of a far higher scale. The fact that the scale of this natural event, which was not considered exceptional, could nevertheless lead to a major nuclear incident, prompted certain Japanese courts to challenge the channelling principle, as they ruled that the Japanese authorities may be held liable, along with TEPCO, for their actions and/or negligence in the areas of policy making or regulatory control (and more precisely, for not having obliged the nuclear operator to adequately protect its installations).[240]

As a conclusion, it could be asked whether grave natural disasters are really unforeseeable events. Earthquakes, tsunamis, tornados, etc. happen in areas that can be identified in advance, and a growing flow of statistics helps to evaluate the risk associated with the operation of a nuclear installation in these circumstances. Such statistics were of great help to support the stress tests of the nuclear power plants and define the upgrades needed in terms of safety after the Fukushima accident. People today seem to be unwilling to accept any gaps in their own protection and do not see why, as taxpayers, they should bear the costs of a nuclear installation which has not been built and is operating according to the safety standards which are "fit for purpose", taking into account the location of a nuclear power plant, risks of natural disasters and other parameters. This could explain why the exoneration regarding a "grave natural disaster of an exceptional character" was removed from the Revised Paris Convention and the Revised Vienna Convention. The fact that the CSC Annex still allows for such exoneration can be interpreted as an attempt to promote a wider adherence to this legal instrument. The exonerations granted to the nuclear operators in the event of an armed conflict, hostilities, civil war and insurrection seem to be more difficult to withdraw, mostly because of the scale of destruction involved and the likelihood of a simultaneous collapse of the financial capacities of the operators, the insurers and the installation state in such circumstances.

It is worth noting that paragraph 48 of the *Exposé des Motifs of the Paris Convention* gives a rationale for providing exonerations from nuclear liability to nuclear operators and states that "The only exonerations lie on the case of [*nuclear*] damage caused by a nuclear incident directly due to certain disturbances of an international character such as acts of armed conflict and hostilities, of a political nature such as civil war and insurrection […], on the grounds that all such matters are the responsibility of a nation as a whole"[241] *[Italic added by the Secretariat]*. One of the main concerns in this area is the exact definition of the concepts concerned. These concepts keep evolving nowadays and can comprise some new features and threats (e.g. cyberattacks) that were not taken into account by the drafters of the original nuclear liability conventions, which constitutes a real challenge.

240 *Secretariat note*: For example, the Maebashi District Court's Decision of 17 March 2017 and Fukushima District Court's Decision of 10 October 2017. These decisions refer to class action lawsuits of evacuees from the evacuation areas who sued TEPCO (on the ground of general tort liability provided by the Japanese Civil Code or the Compensation Act), and the state (on the ground of the Act Concerning State Liability for Compensation) for the compensation. The courts partially upheld the claims and decided that the state is jointly liable with TEPCO (at certain percentage of the total amount of liability), by ruling that negligence of the State contributed to the triple meltdown of the Fukushima Daiichi nuclear power plant as, according to the court, the nuclear meltdown could have been prevented. The ruling said that the government should have used its regulatory powers to force the operator (TEPCO) to take adequate preventive measures. The claims on the ground of general tort liability were rejected. Lately, both decisions were appealed. However, the Chiba District Court's Decision of 22 September 2017 rejected the State liability in similar circumstances by ruling that the failure to exercise regulatory actions is not illegal as predictability of a tsunami of this scale does not necessarily lead to the obligation of taking the same preventive measures as those put in place after the accident, and because the possible preventive measures might have been ineffective. For more information on these lawsuits, see NEA (2018), "District court decisions on lawsuits related to state liability following the Fukushima Daiichi nuclear power plant accident", *Nuclear Law Bulletin*, No. 100, OECD Publishing, Paris, pp. 87-89.

241 NEA (1982), *Exposé des Motifs of the Paris Convention*, *supra* note 109.

Identifying the liable entity: Terrorism as one of the exonerations from nuclear liability – arguments for further discussion

Dr Petr Záruba, **Independent Legal Advisor, Former Director of the Czech Nuclear Insurance Pool**, stressed that an act of terrorism is not, *per se*, a cause of exoneration from nuclear liability. As a consequence, a nuclear operator remains liable for nuclear damage resulting from an act of terrorism and has to find and provide an insurance coverage of its liability in this regard. However, the absence of common definitions for the terms "armed conflict", "hostilities", "civil war", "insurrection" and especially "terrorism" in the nuclear liability conventions may lead to confusion. Some may consider terrorism as an "act of war" with reference to a "war" or "armed conflict" that constitute exonerations under the nuclear liability conventions; others see the list of exonerations provided in the international nuclear liability conventions as an exhaustive one that therefore prohibits any "inclusive" interpretation aiming at including "terrorism" into this list. The absence of a unified definition of "terrorism" and of a clear understanding as to which category it belongs may also lead to a legal uncertainty regarding the identification of the entity liable for damage caused by an act of terrorism. This uncertainty could affect the coverage that the insurance market is ready to provide for terrorism,[242] and may create delays in the process of compensating victims, should it be up to a competent court to decide, in the end, whether "terrorism" is covered by the exemptions provided in the nuclear liability conventions.

In light of recent practice and increasing cases of terrorist attacks, a question may be raised as to whether it is still fair to hold an operator of a nuclear installation solely liable for nuclear damage caused by a terrorist act. Moreover, the unwillingness of some insurers to cover terrorist acts (partially or completely) creates additional complications, as the nuclear operators have to find alternative sources of financial security to cover their liability and guarantee compensation for damage suffered.

To remedy this situation, an amendment to provisions related to the definitions and exemptions in the international nuclear liability conventions may be considered. Taking into account that this may be a time-consuming process, at least a common interpretation of such provisions may be agreed. To do so, national and international discussions among lawyers and other experts can only be encouraged.

Identifying the liable entity: Is channelling at risk?

Ms Helena Kazamaki, **Senior Vice President – General Counsel Europe and France, Group Counsel Nuclear Industry Legal & Integrity, ABB**, elaborated on the topic of whether channelling is at risk from the perspective of a supplier. As nuclear liability refers to legal and financial consequences of a serious nuclear incident, notably involving the release of radioactive substances to the environment, related financial risks and protection measures have been discussed from the beginning of the development of the nuclear industry between different stakeholders involved in this business.

Suppliers are obviously concerned by the limits to put in place to reduce and/or minimise their liability in case of a nuclear incident. Even though the principle of channelling was designed to protect investors and suppliers from legal and financial consequences of a nuclear incident, nobody is protected from potential liability claims for negligence under certain tort laws, or for contractual liability when expressly accepted under a contract.

242 *Secretariat note*: As an example, the 11 September 2001 attacks at the World Trade Center in New York City and the Pentagon in the United States resulted in the largest loss in the history of insurance and led to concerns about nuclear damage coverage in case of potential future terrorist attacks targeting nuclear power plants or other nuclear installation. As a consequence, some insurers decided to exclude coverage for terrorism from their nuclear liability and property insurance policies beginning 2002. Other insurers maintained coverage for terrorism, but established aggregate limits or sub limits and increased premiums.

As already mentioned in this session, there are two types of right of recourse available to a nuclear operator under the nuclear liability conventions: (i) if the damage results from an intentional act or omission done with the intent to cause damage, the nuclear operator shall have the right of recourse against the individual acting or omitting to act with such intent; and (ii) if the parties have contractually agreed to entitle the operator to have a right of recourse by expressly providing it by contract. The impact of a contractual right of recourse can be minimised via several contractual limitations (e.g. liability can be capped per occurrence or event, with an amount per day, or with an overall agreement amount). However, a right of recourse by law (i.e. a statutory right of recourse) provided by certain national laws (e.g. India) is a real issue for suppliers.

The right of recourse against suppliers may lead to the following consequences/ impacts:

- absence of insurance coverage for nuclear incidents as a supplier (such coverage is available only in the United States according to the Price-Anderson Act,[243] and seems to be unavailable anywhere else for the time being);
- impossibility to protect the company even by setting up separate legal entities to deal with nuclear sales to limit financial risks: ultimately, nuclear liability would go up to the mother company;
- taking nuclear risks without putting the existence of a company at stake seems to be difficult due to the scale of a nuclear incident, which can easily lead to the bankruptcy or liquidation of a company;
- absence of protection of suppliers from third party claims, as it depends on the applicable law (e.g. Austria);
- difficulties to deal with property damage caused by a nuclear incident, as well as with certain new issues (e.g. cybersecurity);
- issue of unenforceability of hold harmless/indemnity clauses (i.e. the clauses by which a nuclear operator commits to bear financial responsibility for any claims whatsoever against the suppliers) in certain national legislations; the same risk exists with regard to waivers of right of recourse against suppliers, which may be considered as invalid in certain jurisdictions;
- important reputational risks in case of the involvement of a supplier company in a nuclear incident;
- different approaches to the risk assessment and the subsequent decision-making to proceed with a contract depending on the size of a company (i.e. big versus small companies).

As a result, suppliers will take into account all these potential consequences or impacts and be extremely cautious when doing business in the nuclear sector. In terms of a possible corporate approach to assess the nuclear-related risks, a legal assessment (external or internal) is usually performed prior to supply of nuclear goods or services to a country. In the frame of this legal assessment, the following topics are carefully checked: (1) Has the country ratified any international nuclear liability conventions? (2) Has the country put in place domestic legislation governing nuclear liability? (3) What is the third party liability regime established under the applicable law? (4) What is the status of the neighbouring countries regarding nuclear liability? (5) Is there any issue with enforceability of waiver clauses under the local legislation?

In addition, the suppliers also look at the criticality of supply, as well as the type and conditions of a nuclear power plant, its location and the intended final use of products and services supplied to a particular nuclear power plant. After all these reviews, it is up to each company to decide whether it is ready to take the risks that were identified through the assessment process and do business in a particular country.

243 Price-Anderson Act, *supra* note 39.

Discussion session

A question arose as to who would be liable if a nuclear operator is exonerated from nuclear liability, taking into account that the nuclear liability conventions seem to provide a "closed" system with no options (apart from few exceptions) regarding designation of a liable person or entity in case of exoneration of a nuclear operator from nuclear liability. It was clarified that in the event of application of exoneration clauses provided under the Paris Convention and Vienna Convention, there are indeed no provisions which could designate a liable person or entity, except in the specific cases expressly provided for in the conventions.[244] Therefore, in theory, nobody will be liable. In practice, however, victims would most probably try to sue the state. In some countries, an ad hoc national legislation would be adopted should the operator be exonerated from nuclear liability in case of armed conflict, hostilities, civil war, insurrections, etc. The issue here is that such legislation cannot be adopted in advance, as the states are unwilling to assume such a responsibility *per se*. In addition, according to the Paris Convention and the Vienna Convention, if there is no coverage available, the state would step in and eventually may have a right of recourse against the operator.[245]

Regarding terrorism, which is currently covered by the nuclear liability conventions, the state would have to intervene to compensate victims should the operator fail to find financial security. It appeared that the decision to provide insurance coverage for terrorism is based on certain criteria which are common to other types of industries and therefore are not specific to the nuclear industry. There is currently no specific issue regarding the provision of insurance coverage for terrorism – it is mainly a question of the acceptability of risks and managing the accumulation of capital in each particular situation.

It was inquired how the Price-Anderson Act[246] reconciles the non-discrimination principle provided in the CSC, specifically regarding the residence and domicile, with the fact that the plaintiffs' chance of success will depend on the tort law of a state where the claims will be instituted, as the proceedings may be taken against various defendants (primarily the operator, but also contractors, investors, etc.). It appeared that according to US law, anyone regardless of nationality, residence, domicile, etc., who suffered nuclear damage is entitled to sue on the same basis as the other victims. The claims commission to be set up by the judge will be empowered to decide who is entitled to claim compensation and how such compensation shall be distributed to victims.

Another question arose as to whether national legislation that provides a statutory right of recourse against suppliers, or the practice of certain operators who may succeed in contractually imposing a right of recourse against their supplier up to the limits of the operator's

244 *Secretariat note*: As an example, Article 6(f)(i) of the Revised Paris Convention provides that "The operator shall have a right of recourse only: (i) if the damage caused by a nuclear incident results from an act or omission done with intent to cause damage, against the *individual* acting or omitting to act with such intent […]." The same principle applies in the other nuclear liability conventions. *[Italic added by the Secretariat]*

245 According to the paragraph 49 of the *Exposé des Motifs of the Paris Convention*, "Whatever conditions are laid down by the competent public authority, something untoward could happen, such as where the financial guarantor is bankrupt, or where insurance is per installation for a fixed period and after a first incident it is impossible to reinstate the financial security up to the maximum liability of the operator. It was recognised that these circumstances could not set aside the obligation of the operator under Article 10 or that of the State which is required to ensure that the operator always holds financial security up to his maximum liability. The Contracting Parties may therefore be led to intervene in such a situation to avoid their international responsibilities being involved." Article VII.1 of the Vienna Convention states that "The operator shall be required to maintain insurance or other financial security covering his liability for nuclear damage in such amount, of such type and in such terms as the Installation State shall specify. The Installation State shall ensure the payment of claims for compensation for nuclear damage which have been established against the operator by providing the necessary funds to the extent that the yield of insurance or other financial security is inadequate to satisfy such claims, but not in excess of the limit, if any, established pursuant to Article V." NEA (1982), *Exposé des Motifs of the Paris Convention*, *supra*, note 109.

246 *Supra* note 243.

liability provided in the applicable national law, might be considered violations of the principle of legal channelling. Taking the example of India, some experts considered that the position taken by the Indian government seems to be consistent with the CSC, because the right of recourse against the suppliers provided by Section 17(b) of the CLND Act[247] shall be dealt with by contract negotiations, which is in line with the principles regarding the right of recourse established in the nuclear liability conventions. As a consequence, suppliers are free not to enter into a contract or to accept the risk linked to the right of recourse (which will most probably result in a significant increase of the contract price). The same approach is valid regarding the operators who insist in imposing a right of recourse on suppliers that would result in the suppliers bearing the full amount of the operators' liability for nuclear damage in case of a nuclear incident. Other experts commented that from the suppliers' perspective, the Indian nuclear legislation may remain an important challenge for suppliers who may refuse to take the risk to supply goods or services in that country. Moreover, and from the standpoint of victims, the right of recourse against the suppliers may put the process of compensation in some jeopardy, as the operator may be tempted to focus on getting the money from the suppliers at first, rather than proceeding to a quick and smooth indemnification of victims, even though the operator remains liable and should provide sufficient financial security coverage to indemnify victims for nuclear damage.

It was also pointed out that, in the absence of treaty relations, provisions of national legislation regarding the channelling principle should be studied carefully, as they may provide that the channelling principle does not apply in certain circumstances. For example, in the United States, the channelling principle does not apply if a US company is involved in a project outside the US territory, as the Price-Anderson Act does not apply in this situation. In case of a lawsuit initiated in the United States for a nuclear incident occurring outside the United States, and unless there are treaty relations, the lawsuit will be subject to the rules of ordinary tort law, which provide for unlimited liability.

Overview of responses to the questionnaire

Entity/ person primarily liable for nuclear damage caused by a nuclear incident

This part of the questionnaire focused on the identification of the liable entity, with the first question related to the entity or person that would be designated as primarily liable for nuclear damage caused by a nuclear accident under the national legislation of the responding country. The question encompasses both scenarios, according to which, the responding country may be the installation state or the affected state.

a) **Liable entity or person** designated as primarily liable for the nuclear damage caused by the nuclear accident under the national legislation in case the responding country is an installation state

   i) The **majority** of the responding countries reported that the principle of legal channelling applies and that the nuclear operator would be primarily liable under their national legislation. Examples:

      – China: According to Section 2 of the 2007 State Council Official Reply to Questions on the Liabilities of Compensation for Damages Resulting from Nuclear Accidents – Guo Han [2007] No. 64, the operator of a nuclear installation shall be liable;[248]

      – France: Relevant provisions of the Revised Paris Convention in regards to the identification of the operator would apply;

247 CLND Act, *supra* note 159.

248 See Section 2 of the Guo Han [2007] No. 64, *supra* note 155.

- Germany: According to the Paris Convention[249] and relevant domestic legislation, the operator of a nuclear installation shall be primarily liable;
- Hungary: Under Section 48(1) of the 1996 on Atomic Energy, the licensee of a nuclear facility shall be obliged to compensate nuclear damage defined pursuant to this Act.[250] It is worth mentioning that paragraph (3) of the same Section clarifies that the licensee shall be the operator;
- United Kingdom: the operator of a nuclear power plant holding a nuclear site licence under the nuclear legislation licensee is primarily liable for the nuclear damage caused by such installation.[251]

ii) **A few** responding countries reported that their national law does not provide for the legal channelling. Examples:

- Australia: Domestic law does not provide for the channelling of liability to the operator. The liable entity could therefore be not only the operator, but a contractor or manufacturer as well. The Australian government has entered into a Deed of Indemnity with the Australian Nuclear Science and Technology Organisation, which provides unlimited indemnity for the operator, which may include contractors, officers and employees. The consequence of this is essentially economic channelling of liability;[252]
- Austria: Compensation can be claimed from the operator of a nuclear installation, but the injured person can also take legal action against third parties (e.g. the supplier, the constructor, etc.). This is meant to make sure that the person injured can recover a maximum of damages, even if it is more than what the operator can pay;[253]
- United States: Any person may be potentially liable for public liability (i.e. potentially subject to legal liability arising out of or resulting from a nuclear incident or precautionary evacuation). However, any such person(s) would be indemnified for that liability by the nuclear operator of the installation that caused the nuclear incident.[254] In other words, the Price-Anderson Act system operates to channel all the economic liability, rather than the legal liability, to the nuclear operator as the primary entity liable for nuclear damage.

b) **Liable entity or person** designated as primarily liable for the nuclear damage caused by the nuclear accident under the national legislation in case the responding country is an affected state

i) **Some** responding countries reported that the operator is or would be the liable entity. Examples:

- Finland and Slovak Republic: The nuclear operator would primarily be the liable entity.

249 See Article 3(a) of the Revised Paris Convention.

250 See Section 48 of the 1996 Act on Atomic Energy, *supra* note 158.

251 See Article 7B of the NIA 65, *supra* note 149.

252 For more information on the Deed of Indemnity between the Commonwealth of Australia and the Australian Nuclear Science and Technology Organisation and ANSTO Nuclear Medicine Pty Ltd, see Australian Government (n.d.), "Australian Nuclear Science and Technology Organisation Annual Report 2018-2019, 6. Other information", available at: www.transparency.gov.au/annual-reports/australian-nuclear-science-and-technology-organisation/reporting-year/2018-2019-122 (accessed 31 Aug. 2023).

253 See Section 16 of the AtomHG, *supra* note 136.

254 See Section 11.t. and 11.w of the United States Atomic Energy Act of 1954, *supra* note 169.

ii) **Several** responding countries reported that, as affected states, the identification of a liable entity would depend on the existence of treaty relations with the installation state of the operator liable. Should this not be the case, general rules of tort law or other rules may apply. Examples:

- Germany: Article 38 of *Atomgesetz* provides for specific scenarios (both in case there are treaty relations with the installation state, and in case there are no such relations) where victims having suffered damage in Germany cannot, under the rule of a foreign legislation, obtain the same amount of compensation they would be entitled to under German law. In this case, the state shall grant compensation for nuclear damage suffered by such victims up to an amount of EUR 2.5 billion;[255]
- Netherlands: In the event that the installation of the operator liable is situated in a contracting party to the Paris Convention or in a country that is party to the Vienna Convention and the Joint Protocol, the operator of such installation would be liable if the damage was caused by a nuclear incident at its installation, according to Article 3 of the Paris Convention or Article II of the Joint Protocol. On the other hand, if the damage was caused by an incident in a country that is not party to either the Paris Convention or the Vienna Convention, general tort law would apply;
- United States: Where the CSC applies (i.e. in case the installation state is party to the CSC) only the nuclear operator would be liable for nuclear damage. In addition, the US courts would not have jurisdiction over such claims, since the installation state would have exclusive jurisdiction over nuclear incidents at nuclear power plants located within the installation state. In the event, however, that the CSC does not apply, any person may be potentially liable for public liability and the US courts could have jurisdiction. The Price-Anderson Act, however, would not apply.

Several and/or joint liability – Designation of a liable entity in addition or instead of the nuclear operator

National legislation may provide that, in case of a nuclear incident, more than one operator may be held liable for nuclear damage, or that another natural or legal person may be held liable in addition to or instead of a nuclear operator (e.g. a parent company or an entity jointly holding the operating licence of the nuclear power plant where the nuclear incident occurred).

a) Liability of **more than one operator** for nuclear damage

In answering the question related to the possibility for more than one operator to be held liable under the national law, **16** responding countries reported that their domestic legislation does not provide for such possibility. On the contrary, **11** responding countries mentioned that such possibility is provided under the domestic legislation (see Figures 20.a and 20.b). Examples:

- China: According to Section 5 of the Guo Han [2007] No. 64, "[i]n so far as damage attributable to more than two operators is not reasonably separable, the operators involved shall be jointly and severally liable";[256]
- Finland: According to Section 19 of the Nuclear Liability Act,[257] where nuclear damage gives rise to the liability of two or more operators, they shall be jointly and severally liable to pay compensation, provided that the liability of each operator shall be limited to the maximum amount of liability established with respect to the nuclear installation concerned pursuant to Section 18, subsection 1 of the Act. Moreover, where the damage has arisen in the course of transport of more than one consignment of nuclear substances carried on the same means of transport or where more than one

255 See Section 38 of the *Atomgesetz*, *supra* note 173. For more information, see also Raetzke, C. (2016) "Nuclear third party liability in Germany", *Nuclear Law Bulletin*, No. 97, OECD Publishing, Paris, pp. 30-31.

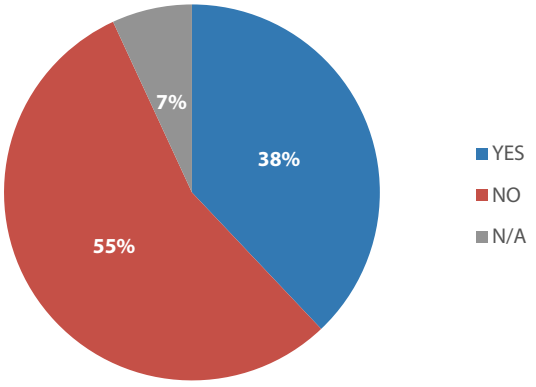
256 Guo Han [2007] No. 64, *supra* note 155.

257 See Article 19 of the Finnish Nuclear Liability Act (No. 484/1972), as amended.

consignment has been stored in the same nuclear installation incidentally to their carriage, the aggregate liability of the operators shall not exceed the highest amount established with respect to any of these nuclear installations;

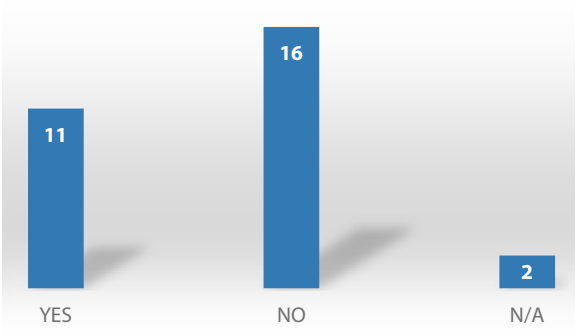
- Germany: Based on the assumption that a nuclear event has occurred in a nuclear installation with several operators, all operators would be held liable according to Articles 3 and 5(d) of the Paris Convention. This is reflected in paragraph 33(1) of the *Atomgesetz*, according to which, "[i]f several parties are legally liable to pay compensation to a third party for damage caused by a nuclear incident or otherwise by the effects of nuclear fission or radiation emitted by radioactive material or the effects of ionising radiation emitted by an accelerator, they shall be jointly and severally liable to such third party except as otherwise provided for in Article 5 paragraph (d) of the Paris Convention";[258]
- United Kingdom: according to Section 17(3) of the NIA 65, where liability is incurred by two or more "persons", for the purpose of any proceedings in the United Kingdom both or all can be treated as jointly and severally liable.[259]

Figure 20.a. **More than one operator may be held liable**



Source: NEA.

Figure 20.b. **More than one operator may be held liable**



Source: NEA.

258 *Atomgesetz*, *supra* note 173.

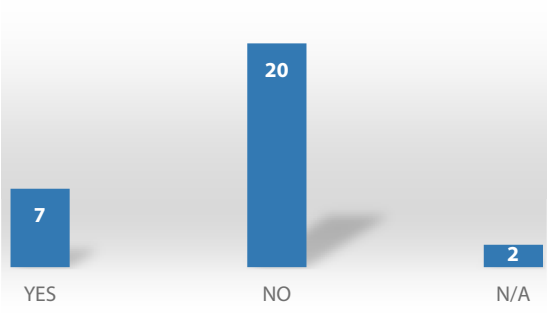
259 NIA 65, *supra* note 149.

b) Liability of **another natural or legal person that may be held liable** in addition to or instead of a nuclear operator

i) In answering the question related to the possibility under the domestic legislation of the responding country that another legal or natural person be held liable in addition to or instead of a nuclear operator, **20** responding countries reported that such provisions were not included under their domestic legislation (see Figure 21). Examples:

- Germany: Parent companies are obliged to conclude profit and loss transfer agreements, control agreements or "hard" letters of comfort with the subsidiaries operating the nuclear power plant. This implies that the entire assets of the group parent companies are available as liability assets. However, the legal liability remains with the operator liable;
- Slovak Republic: Section 4(3) of the Act No. 54/2015 Coll stipulates that "liability for nuclear damage cannot be transferred to another person, unless paragraph 4 provides otherwise".[260]

Figure 21. **Another natural or legal person that may be held liable in addition to or instead of a nuclear operator**



Source: NEA.

ii) **A few** responding countries confirmed that such a possibility exists under their domestic legislation. Examples:

- Australia: Australian law does not provide for channelling of liability to the operator. Therefore, the party that is liable is the party that is found negligent by the court. This could be a contractor, manufacturer, employee or the operator;
- Austria: The injured party can take legal action not only against the operator, but against third parties as well (e.g. the supplier, the constructor). In this regard, Section 18 of the AtomHG provides for joint and several liability insofar as the damage cannot be attributed to each individually;[261]
- Portugal: Under Portuguese general liability rules, a parent company may be deemed liable for its subsidiary (e.g. where a subsidiary is 100% owned by a parent company);
- United States: In addition to the nuclear operator, any person may be potentially liable for public liability, but any such person(s) would be indemnified for that liability by the nuclear operator of the installation that caused the nuclear incident. On the other hand, no natural or legal person instead of the nuclear operator would be held liable, because the funds allocated to pay compensation for public liability

260 Act No. 54/2015 Coll., *supra* note 156.

261 AtomHG, *supra* note 136.

are provided by the nuclear operator in accordance with the system established in the Price-Anderson Act.[262] Under the NRC regulations, the nuclear operator is the legal or natural person licensed to operate the plant and is required to enter into an indemnification agreement with the NRC to ensure that the financial protections provided under the Price-Anderson Act are available to compensate victims. An entity that is affiliated with the nuclear operator (e.g. a parent company or joint holding company of the operator) may be liable in addition to the nuclear operator, but not instead of the nuclear operator.

Exemptions from the obligation of the liable operator to pay compensation under the national law – Grounds for exonerations from liability

This part of the questionnaire was dedicated to: (i) the exemptions from paying compensation by the operator liable, and (ii) the exonerations of a nuclear operator from liability provided under the national legislation of the reporting countries, enquiring in addition as to who will be compensating the victims in case such exemptions or exonerations apply.

a) **Exemptions** from paying compensation by the liable operator

The following exemptions of the liable operator from paying compensation (or part of it) for nuclear damage were mentioned in the questionnaire: (i) with respect to nuclear damage suffered from a person whose own gross negligence wholly or partly caused the nuclear damage, (ii) with respect to nuclear damage suffered by a person who acted or omitted to act with the intent to cause damage, and (iii) any other scenario (see Figure 22). On the basis of the responses received:

i) A **large majority** of the responding countries reported that their national law provides for at least one or both of these exemptions. Examples:

- Philippines: Both exemptions are enshrined under the relevant domestic legislation;[263]
- Portugal: Even though both exemptions are provided under the domestic legislation, legal uncertainty exists with regard to the exemption rule provided in Article 10 of Decree-law 348/89. According to this Decree, the operator's liability is excluded if it can prove that, at the time the damage was caused, the facilities, equipment and material were operating and were used in accordance with technical rules in force and were perfectly well preserved. However, it is uncertain whether this specific provision could be considered enforceable and deemed constitutional in light of the international obligations of Portugal (i.e. as a contracting party to the Paris Convention);[264]
- Slovak Republic: The operator may be wholly or partly relieved from its obligation to pay damages, if it proves that the nuclear damage resulted wholly or partly from the gross negligence of the injured party, whether the negligent act or omission was done with intent to cause nuclear damage or not.[265]

ii) **Few** responding countries reported that under their national law, the liable operator may not be exempted from paying compensation based on the exemptions provided in the questionnaire. Examples:

- Austria: According to Section 15 of the AtomHG, the general rule of tort law on contributory negligence (i.e. Section 1304 of the Austrian Civil Code) applies.[266] In a case where a person who suffered damage, or another person for whose conduct

262 Price-Anderson Act, *supra* note 39.

263 See Section 40 of the Republic Act No. 5207 Providing For the Licensing and Regulation of Atomic Energy Facilities and Materials, Establishing the Rules on Liability for Nuclear Damage, and for Other Purposes, 1968 (Official Gazette vol. 65 no. 18).

264 See Decree-law 348/89, 1989 (Official Gazette [Diário da República] no. 235/1989, Série I)).

265 See Section 4(9) of the Act No. 54/2015 Coll., *supra* note 156.

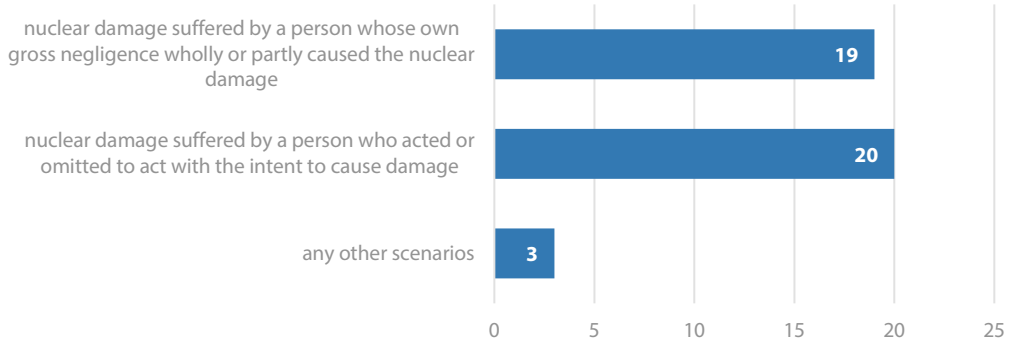
266 See Section 15 of the AtomHG, *supra*, note 136.

he/she is responsible, is at fault, he/she will only get a part of the compensation or will not be compensated at all;

- United States: The Price-Anderson Act does not provide for such exemptions.

iii) It should further be noted that **a few** countries reported that even though exemptions from paying compensation exist under the national law, other options may be available to the operator. In Japan, the operator can benefit from a suspension of compensation payments in respect of damage expected to be compensated under the Insurance Act for the Compensation of Work Accidents (Act No.50 of 1947).

Figure 22. **Under your national law, the liable operator may be exempt from paying compensation (or part of it) with respect to:**



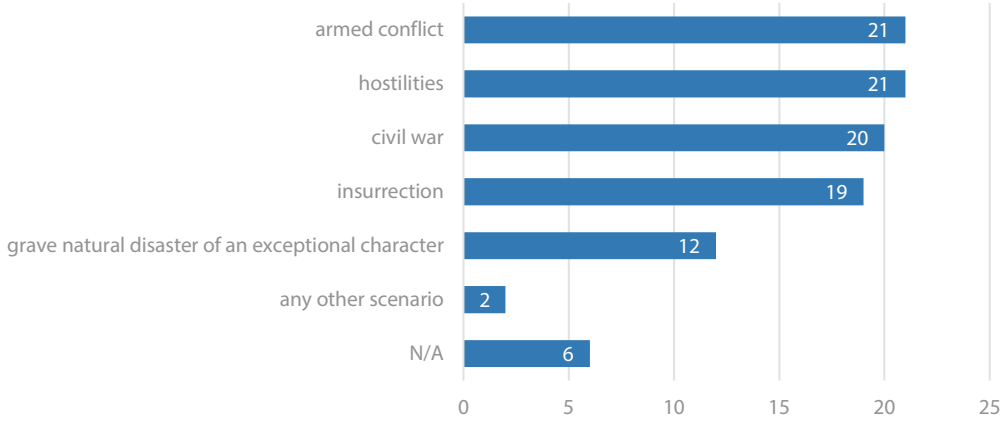
Source: NEA.

b) **Exonerations** of the operator from liability

The following exonerations from liability of the operator for nuclear damage were mentioned in the questionnaire: (i) armed conflict, (ii) hostilities, (iii) civil war, (iv) insurrection, (v) grave natural disaster of an exceptional character, and (vi) any other scenario (see Figure 23). On the basis of the responses received:

i) Approximately **two thirds** of the responding countries reported that their national law provides for one or more ground for exoneration of the operator from nuclear liability.

Figure 23. **Number of countries providing for each of the grounds for the exoneration of the liable operator**



Source: NEA.

ii) **Some** countries reported that their national legislation does not provide for cases of exoneration of the operator from nuclear liability as mentioned in the questionnaire. Examples:

- Austria: The relevant national legislation does not provide for these grounds of exoneration for the operator of nuclear installations. However, they will play an important role for the determination of the liability of other persons (i.e. suppliers and constructors) as their liability is fault-based;
- Germany: National law does not provide for exoneration from liability mentioned in the questionnaire. However, if the damage occurs in another country, the liability shall only apply insofar as such other country, at the time of the nuclear incident, has provided for a system of compensation in relation to the Federal Republic of Germany which is equivalent as to nature, terms and amount.[267]

iii) **Two** responding countries reported that other possibilities might be taken into account under the national law in regard to the liable operator's exoneration circumstances:

- India: Terrorism constitutes a supplementary ground for exoneration from the operator's liability;[268]
- Portugal: Article 10 of Decree-Law 348/89 might be interpreted by the competent courts as providing a supplementary ground for exoneration for the operator's liability.[269]

c) **Entity or person that will be compensating the victims** in case the operator is exempted from the obligation to compensate or exonerated from nuclear liability.

A **variety of answers** have been provided to this question.

i) **Some** responding countries reported that the state would have to step in, should such a situation occur. Examples:

- Australia*:* Even though there is no provision in the law covering such situations, it is likely that compensation would be provided by way of special government emergency funds;
- China*:* The state would be liable to compensate victims on the basis of national disaster relief law and regulations;
- India*:* According to Section 7(1) of the CLND Act, the Central government would be compensating victims in case the liable operator is exonerated;
- Italy: The state would be compensating the victims in these circumstances.

ii) Canada and the United Kingdom: It is up to the Parliament's discretion to decide who will compensate nuclear damage in these cases.

iii) For **some** other countries, general law provisions would apply. Examples:

- Poland and Slovenia: Civil tort law would apply;
- United States: When the Price-Anderson Act does not apply, customary Federal law or the law of the state in which the nuclear incident occurred, would apply to determine who and how victims would be compensated.

267 See Section 25, para. 3 of *Atomgesetz*, *supra* note 173.

268 See Section 5 of CLND Act, *supra* note 159.

269 *Supra* note 264.

iv) **Some** responding countries reported that the losses would be borne by victims. Examples:

- Austria: If victims cannot get compensation under tort law, they must bear their own loss. However, an exception may be provided by public law rules concerning indemnification in case of catastrophes;
- Netherlands: National legislation provides only for exemptions from the operator's obligation to pay compensation, leaving aside any grounds of exoneration; in the case of exemption, the persons having caused the nuclear damage will have to bear the costs related to their own damage.

v) However, in case the operator is exempted from the obligation to compensate, **several** responding countries reported that either there will be no entity stepping in to compensate victims, or the obligation to compensate will remain with the operator. Examples:

- Belgium and Slovenia: Compensation may not be applicable in the case of the operator's exemption, should nuclear damage be caused by a person (other than the operator) acting with gross negligence. In regard to nuclear damage caused by a person's action or omission to act with the intent to cause damage, Belgium reported that authorities are expected to take the appropriate measures, while Slovenia pointed out that general tort law will apply;
- Canada and Poland: National legislation provides for the operator's exemption from the obligation to compensate only for nuclear damage suffered by a person, who acted or omitted to act with the intent to cause damage. In this case, no one will compensate such person for nuclear damage, to the extent that the operator is exempted from providing compensation;
- Romania: Should the operator be exempted from the obligation to pay compensation in cases provided in the questionnaire, the person that caused nuclear damage will have to pay. Similarly, in Ukraine the legal or natural person found guilty for causing damage will have to compensate such damage.

Liable operator's right of recourse

This part of the questionnaire focused on the liable operator's rights of recourse allowed under the relevant national law. Three options were provided in the questionnaire: (i) a right of recourse against the individual (natural person) who acted or omitted to act with the intent to cause damage; (ii) a right of recourse expressly provided by contract; and (iii) any other scenario (see Figure 24).

a) The **majority** of the responding countries reported that under their national law, the operator liable is entitled to exercise a right of recourse (i) against the individual (natural person) who acted or omitted to act with the intent to cause damage, and/or (ii) if such right is expressly provided by contract.

i) For **some** countries, such rights of recourse can be exercised according to the relevant provisions of the international nuclear liability convention to which the responding country is party. Examples:

- Czechia: Express provisions may not be found under the national law, but the relevant provisions in the Vienna Convention could apply;
- France and Germany: The relevant provisions of the Paris Convention would be applicable.

ii) **Several** responding countries reported that such rights of recourse are expressly provided under their national law, but not necessarily under the nuclear liability-related legislation. Examples:

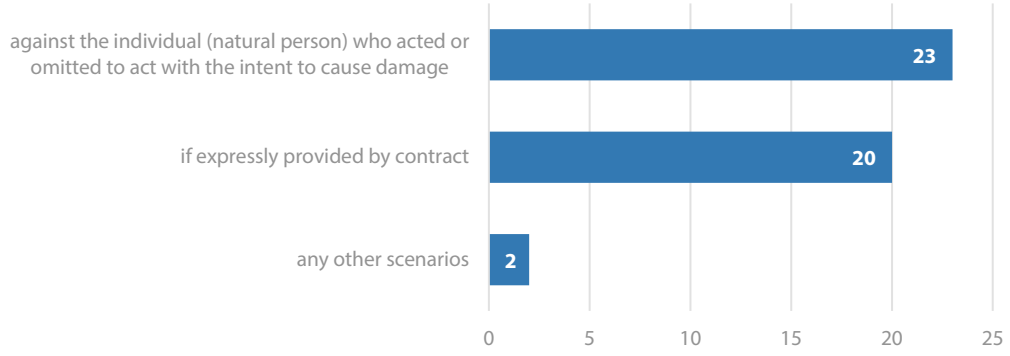
- Austria: The right of recourse for the liable operator is provided in Section 19(3) of the AtomHG;

- Philippines: Rights of recourse are provided under Section 39 of the relevant domestic legislation;[270]
- United Kingdom: The NIA 65 does not give an operator any automatic rights of recourse, but common law of tort and/or contract may provide such rights in certain scenarios.[271] Similarly, Poland reported that there are no relevant provisions under the Polish Atomic Energy Act, but provisions under the Polish Civil Code would apply.

iii) **A few** responding countries reported that other scenarios may be envisaged under national law, allowing thus the operator to have rights of recourse. As an example:

- India: According to Section 17(b) of the CLND Act, the operator shall have a right of recourse if the nuclear incident has resulted as a consequence of an act of the supplier or his employee, which includes supply of equipment or material with patent or latent defects or sub-standard services.[272]

Figure 24. **Under your national law, the liable operator is entitled to have a right of recourse**



Source: NEA.

Session 4 – Conclusions

i) *Legal channelling/economic channelling*: An important principle of nuclear liability that ensures prompt compensation (e.g. no litigating fault, liable entity pre-identified) and certainty to investors/suppliers during contractual negotiations;

ii) *Right of recourse* of the operator against suppliers has the potential to undermine channelling and increases suppliers' prices. All conventions limit this right to a narrow range (intentional tort and mutually agreed contractual provision). Some national laws provide for a statutory right of recourse (e.g. India, Korea). If the operator and the supplier cannot reach a mutual agreement, suppliers may opt not to sign contracts due to the financial risk and the lack of insurance;

iii) Concepts triggering *exonerations* under nuclear liability conventions need to be further specified, especially as technology evolves (e.g. a cyberattack may be considered an act of war). This also applies to terrorism, for which an operator is liable (should it still be the case, as some may consider terrorism an act of war and there might be sporadic problems to find insurance?).

270 See Section 39 of the Republic Act No. 5207 Providing For the Licensing and Regulation of Atomic Energy Facilities and Materials, Establishing the Rules on Liability for Nuclear Damage, and for Other Purposes, 1968 (Official Gazette, vol. 65 no. 18).

271 NIA 65, *supra* note 149.

272 See Section 5 of the CLND Act, *supra* note 159.

Session 5

Claims handling

Mr Juraj Chochol, **Chair of the Slovak Nuclear Insurance Pool, Head of Non-life Department, KOOPERATIVA poisťovňa, a.s. and Chair of Session 5**, noted that the revised nuclear liability conventions provide for higher liability limits for nuclear operators, introduce new heads of damage and establish other additional requirements, such as the extended prescription period for loss of life or personal injury. This may create some difficulties for nuclear operators as, depending on the country, adequate financial securities to comply with these new requirements may or may not be available on the private insurance market. Existing insurance gaps force the operators to look for alternative sources of financial security. The first part of this session focused on the alternative forms of such financial security and their impact on claims handling, while the second part covered certain issues of management of transboundary claims by the insurance pools.

Claims handling: Is it always the insurer?

Mr Marc Beyens, **General Counsel Energy BeLux, ENGIE Electrabel,** emphasised that it is widely acknowledged that the nuclear industry would not have developed to its current state were it not for the important contribution nuclear insurers made, and continue to make, in providing financial security that the operators of nuclear installations must have and maintain to cover their nuclear third party liability according to the international nuclear liability conventions. However, in certain countries nuclear insurers may be reluctant to commit themselves to cover some of the risks, which may lead to a situation where the operators have to seek for alternative means of financial coverage.

The obligation for the nuclear operators to have and maintain financial security(ies) is one of the cornerstones of the protection mechanisms provided under the international nuclear liability conventions.[273] Moreover, the conventions require that the installation state provide the necessary funds to the operator if insurance or other financial security is not available or sufficient to satisfy nuclear damage claims, up to the operator's nuclear liability amount.[274]

273 Article 10(a) of the Paris Convention and the Revised Paris Convention requires the operator "[…] to have and maintain insurance or other financial security […]" for the nuclear liability amount established by the Convention. Article VII. 1 of the Vienna Conventions provides that "The operator shall be required to maintain insurance or other financial security covering his liability for nuclear damage in such amount, of such type and in such terms as the Installation State shall specify." Article 5 of the CSC Annex contains similar provisions. For information on the conventions ratified by the concerned states and the currently applicable nuclear liability amounts and financial security limits, see the *Nuclear Operators' Third Party Liability Amounts and Financial Security Limits* table, available at: www.oecd-nea.org/liability-amounts (accessed 31 Aug. 2023). For information on financial cover available in the respective Contracting Parties to the Paris Convention, see the *Contracting Parties to the Paris Convention: Availability of Financial Security to Cover Heads of Damage as Required Under the Paris Convention,* available at: www.oecd-nea.org/cppc-financial-security (accessed 31 Aug. 2023).

274 See Article 10(c) of the Revised Paris Convention, Article VII.1 of the Vienna Convention, Article VII.1.(a) of the Revised Vienna Convention, Article 5 of the CSC Annex.

It is worth noting that the entry into force of the Revised Paris Convention has been delayed, among other factors, due to the reluctance of the private insurance industry to provide coverage for: (i) the extended prescription period (i.e. for actions brought with respect to loss of life or personal injury from 10 to 30 years from the nuclear incident); and (ii) some of the new heads of damage, such as the costs of measures of reinstatement of a significantly impaired environment, a risk the insurance industry found difficult to assess. Consequently, nuclear operators may not be able to fully comply with their financial security obligations by means of private insurance only, and alternative solutions for providing financial security would therefore be needed. For instance, when the Belgian legislation on nuclear liability was amended in 2014 in anticipation of the entry into force of the Revised Paris Convention, the Belgian nuclear industry was required by law to conduct a worldwide market inquiry to find the necessary financial security coverage for the revised nuclear liability amounts provided under the Revised Paris Convention and the Revised Brussels Supplementary Convention. However, the worldwide inquiry did not yield sufficient results; therefore, the only alternative for the Belgian nuclear operators was to apply for a financial guarantee from the Belgian state.

The following alternatives to the private insurance may be considered:

1) Alternative financial securities from the private sector

- Operators pooling system:[275] This was successfully implemented in Germany[276] and the United States.[277] However, it requires that a sufficiently large number of operators comply with the same national nuclear safety regulations;
- Mutual insurance companies (or mutuals): Such as the European Liability Insurance for the Nuclear Industry (ELINI), whose ownership and control are vested in the policyholders (i.e. the insured nuclear operators). The mutuals offer coverage for the new heads of damage that the nuclear insurance pools refuse to cover, but they may lack the financial capacity to cover the total amount of nuclear liability of all their members combined;
- Self-insurance: Such a system may be difficult to accept for the public authorities as they may fear potential solvency problems of an operator following a nuclear accident;
- Captive insurance (an insurance coverage provided by an insurance company owned by the operator's company or a group of companies) or corporate guarantees (a promise by a guarantor, such as a parent company, to pay specific debts or satisfy specific obligations of another party). Similar to self-insurance, the potential solvency problems for these two types of alternative financial securities are also an issue;
- Private bank alternatives (e.g. bonds, letters of credit): Subject to their availability, such solutions may be very expensive.

2) Alternative financial securities from the public sector

As a last resort to cover non-insurable risks with alternative financial securities, the following kinds of state intervention may be considered:

- State insurance: The state acts as a commercial insurer and an insurance contract is concluded directly between the state and the operator. By contrast, under a state re-insurance mechanism, the state provides reinsurance to the operator's insurer(s) (e.g. pools, mutuals or captives) either directly or through a state-owned reinsurer;[278]

275 For more information, see Pelzer, N. (2013), "Operators' pooling arrangement: a national and international perspective", paper presented at the OECD/NEA Workshop on Nuclear damages, liability issues and compensation schemes, 10-11 December 2013.

276 For more information on the German pooling system, see Raetzke, C. (2016), *supra* note 255, pp. 26-28.

277 The Price-Anderson Act establishes a tiered system, where the second tier is provided by pooling contributions from all US power plant operators. See Price-Anderson Act, *supra* note 39.

278 *Secretariat note*: Under such re-insurance mechanism, an insurer lays off risk(s) via the re-insurance to limit its exposure to a particular loss or series of losses. The re-insurer is not in direct contact with the operator, the nuclear insurer is the one to manage the commercial relationship with the original insured entity.

- State guarantee: The state provides a guarantee to an operator and therefore bears the risk of the operator's insolvency, should it be required to reimburse the funds. This mechanism does not therefore operate a transfer of nuclear liability risk from the operator to the state, but rather guarantees victims that compensation will be paid in case of default of the operator, which remains ultimately financially responsible for nuclear damage. When the state has to pay compensation to victims for damage suffered, it has the right of recourse against the operator for payments made and the related costs. The challenge with regard to the state guarantee is the calculation of the fee that has to be paid by the operators to the state for such financial security (especially with regard to the state aid regulations).[279]

As evidenced, many alternative forms of financial security have been investigated to remedy certain insurance market gaps. The nuclear operators may need to cover their liability with more than one type of financial security, in a simultaneous or complementary way.[280] What is the impact of the co-existence of different possible financial coverage solutions on the process of claims handling?

Claims handling by other stakeholders than the insurance companies

In a situation where the chosen option includes private insurance, the legal system may leave it up to the insurers to handle claims (e.g. Canada). In the United States, the insurers would initially handle the claims, but in case of insufficiency of funds to compensate victims, Congress will have to take necessary appropriate action. However, in many countries there are no explicit legal provisions on claims handling. Moreover, the insurers are not necessarily the only party that can be in charge of claims handling. The operator, public authorities and/or competent courts can be responsible for handling compensation claims for nuclear damage.[281]

State reinsurance mechanism to avoid direct intervention of the state in the claims handling process

The 2011 report by INDECS Consulting to the UK Department of Energy and Climate Change[282] "Structure, and Pricing of Suggested Solutions to Gaps Arising from Paris and Brussels Implementation" underlines the complexity of the state insurance mechanism due to the need to involve, at least implicitly, direct commercial relationship with multiple nuclear operators, as well

279 The Belgian state guarantee elaborated to cover the non-insurable heads of damage provided under the Revised Paris Convention has been cleared by the EC Directorate-General for Competition ("DG Competition") on 14 July 2017. It considered that the proposed Belgian state guarantee for nuclear operators that do not find sufficient civil liability coverage on private insurance markets does not constitute state aid. Authorisation for State aid pursuant to Articles 107 and 108 of the Treaty on the Functioning of the European Union – Cases where the Commission raises no objections, OJ C 380 (10 Nov. 2017), pp. 1-6.

280 For example, the Belgian nuclear insurance pool "Syndicat Belge d'Assurances Nucléaires" (SYBAN) has historically covered in full the nuclear liability of the Belgian nuclear operator, Electrabel. However, since the entry into force of the Belgian law to implement the 2004 Protocol to amend the Paris Convention, Electrabel had to make a worldwide inquiry to find the necessary financial securities to cover its nuclear liability. This led Electrabel to become a member of ELINI in addition to purchasing insurance from SYBAN. Moreover, since there was no private insurance available to cover the insurance gaps, Electrabel had to apply for a state guarantee. The requested state guarantee became effective upon the entry into force of the Revised Paris Convention and the Revised Brussels Supplementary Convention. Before, Electrabel had two financial security providers: SYBAN and ELINI, who were supposed co-operate with regard to the claims handling process. The issue in this respect is how they would interact in case a nuclear accident occurs and requires a claims handling process to be put in place. This problem is hardly unique to Belgium, as the operators from other Paris Convention states may also need to find the necessary alternative financial security(ies) to cover the insurance gaps (if any) following the entry into force of the Revised Paris Convention.

281 For more information, see an overview of the replies to the questionnaire provided later in this Session.

282 INDECS (2011), *Report to Department of Energy and Climate Change on Structure and Pricing of Suggested Solutions to Gaps Arising from Paris and Brussels Implementation*, London.

as multiple direct relationships and contracts. The report states that "[…] in order to provide an insurance contract, it would be necessary for Government to put in place a structure to document and invoice insurances, and manage claims brought by the Insureds. This could be done via an insurance and claims management agreement with a third party administrator, but ultimately the decision as to whether a claim was payable would have to rest with Government. As well as the risk of potential conflict with Operators, there would also be a significant hurdle in dovetailing the insurance provided by insurers for the heads of claim they cover with that provided by Government. The risk of conflict between Government, Operators and insurers is high."

The report points out potential difficulties that may arise when state and private insurance co-exist. The main finding of the report is that reinsurance is advantageous for the government for the following reasons: (i) government provides a standard contract to be entered into directly by insurers, pools, mutual or captives; (ii) government has no direct relationship with the operators; (iii) government does not need to put in place a direct claim management process with the operators; and (iv) reinsurance is only triggered if the insurer had a liability to pay the insured and has paid him/her for the loss (i.e. reinsurance contracts are on a "pay to be paid" basis). Consequently, the choice for a state reinsurance mechanism makes it possible to side-step the risk of interference between the state and insurers with respect to the claims handling procedure.

Interaction between the nuclear insurance pool, the mutual and the state acting as a guarantor in Belgium

The Belgian nuclear liability legislation does not provide for a state insurance mechanism, but for the possibility to apply for a state guarantee as a last resort after consulting the international market for insurance and other financial securities available within the private sector. In practice, such state guarantee became necessary only after the entry into force of the Revised Paris Convention and the Revised Brussels Supplementary Convention. Consequently, the issue of how to manage the interaction between the state, as a guarantor, and the private insurance, was raised.

The 2017 Royal Decree establishing the guarantee scheme[283] provides the conditions for obtaining a state guarantee and contain provisions on claims handling. In accordance with the Royal Decree, the operator has an obligation to inform the Minister of Finance or his delegate as soon as he has knowledge regarding the existence, the nature and the financial consequences of a nuclear accident, of the extent of the nuclear damage, of a claim or risk of claims related to alleged nuclear damage, in so far as this relates to the nuclear installation. Furthermore, it is stated that the Minister of Finance organises the claims handling in the framework of the guarantee programme. The Minister can especially conclude any agreement with the insurers to jointly handle claims, or entrust the insurers to handle claims for the account of the state. The Minister or his delegate can participate in any claims handling committee established for this purpose by the insurers. The operator shall provide assistance and co-operation to handle claims efficiently, and bears the costs of claims handling for the portion of claims falling under the state guarantee.

The operator must also ensure that the Minister or his delegate can participate as an observer in each procedure by which the insurers determine together the expected maximum value of nuclear damage, with a view to determining and later adapting the amount of their own provisions. A probable maximum loss (PML) is thus determined, representing the expected maximum value of nuclear damage caused by a nuclear accident for which the operator might be responsible. The PML is binding on the operator and the state, except if the Minister declares that this amount is or has become manifestly unreasonable. If no PML is determined or if the Minister declares that the PML is manifestly unreasonable, the Minister determines the amount of the PML and adapts it afterwards, in good faith and if necessary by appointing one or more experts. All the costs thereof are borne by the operator. The operator cannot conclude any settlement with any insurer without the prior written agreement of the Minister or his delegate. However, such agreement can be refused only if the proposed settlement could negatively influence the interests of the Belgian state.

283 Royal Decree of 10 December 2017 (Belgian Official Journal of 20 December 2017, n° 2017040919).

In conclusion, there is no "one size fits all" solution for the organisation of claims handling. Private insurance companies are not the only ones that have a role to play in the handling of liability claims for nuclear damage after a nuclear incident. This will become even truer when nuclear risk expands beyond the amount of coverage that the insurers can provide, making alternative solutions, including state intervention, unavoidable. However, lawmakers should think ahead when deciding to extend the state intervention to partially cover the risk of third party nuclear damage borne by the operator, as the impact of the co-existence between private and public financial securities on the management of claims in case of a nuclear accident should be taken into account.

Claims handling: How to manage transboundary claims?

Mr Alain Quéré, **Head Nuclear Energy Risks, Swiss Re/ Pool Manager, Swiss Nuclear Pool (SPN)**, explained that the issue of cross-border claims is not specific to the nuclear industry. Natural catastrophic events (e.g. earthquakes, storms, floods) result in hundreds of claims, the handling of which the insurers have already experienced.[284] In each case there will be one or two insurers in charge of each event-related case who will implement their own approach with regard to the claims handling. Concerning chemical accidents, the situation is slightly different, as many insurers may be potentially involved in the handling of claims initiated by a variety of victims (e.g. private persons, companies, public authorities) on the grounds of third party liability. In addition, there are several international legal instruments which are designed to govern the transboundary impact of an accident and the related claims.[285]

Nevertheless, the management of nuclear claims remains somehow special, as a nuclear incident may involve risks which, "[…] because of their potential magnitude and peculiar characteristics, could lead to far greater damage being suffered in the case of an accident than would normally be the case with conventional industrial activities."[286] At the beginning, insurers were reluctant to provide cover for such risks, therefore groups of insurers were formed – nowadays the insurance pools – in order to share these risks. However, the capacity of the nuclear insurance pools remains limited, compared to the capacity available for non-nuclear activities.

If one compares management of non-nuclear (conventional) and nuclear claims, the following differences may be observed:

- General liability: In a non-nuclear claims regime, rules and product (e.g. general liability, product liability) differ, while liability could be fault-based or strict; for nuclear claims, the principles embodied in the international nuclear liability conventions apply, with strict liability and channelling to the operator;
- Jurisdiction: In conventional claims, there are several possibilities regarding the choice of a competent court; according to the nuclear liability conventions, the principle of exclusive jurisdiction applies to nuclear claims;

284 *Secretariat note*: According to common insurance practice, personal lines insurance policies are in place to cover property and casualty insurance products that protect individuals from losses they could not afford to cover on their own. Personal lines insurance includes products such as homeowner's insurance, flood insurance, earthquake insurance, renter's insurance, automobile insurance, life insurance, disability insurance, umbrella insurance and health insurance. These insurance products protect individuals and families against potentially crushing financial losses caused by fire, theft, natural disasters, death, accidents, lawsuits, illness, etc.

285 See for example the 2003 UN Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes and to the 1992 Convention on the Transboundary Effects of Industrial Accidents (UN Doc. ECE/MP.WAT/11-ECE/CP.TEIA/9).

286 For more information, see Schwartz, J. (2022), "Liability and compensation for third party damage resulting from a nuclear incident", in NEA (ed.), *Principles and Practice of International Nuclear Law*, OECD Publishing, Paris, p. 409, p. 409.

- Limitation periods and limits of liability: There are no standard rules that apply to non-nuclear claims; options for nuclear claims are limited by the nuclear liability conventions (however, national laws may differ);
- Insurance/reinsurance industry: Players for conventional claims are many; however, there are few specialist players for nuclear claims, with concentration of know-how and experience within the nuclear pools;
- Cross-border claims: Handling of cross-border conventional claims benefits from extensive experience, compared to a very limited nuclear-claims related experience.

It could be expected that, based on the above analysis as well as on a long experience of nuclear insurance, the known impact of major nuclear incidents (e.g. the Chernobyl or Fukushima accidents), a wide adherence to nuclear liability conventions, a common understanding of the main principles that should be implemented if a nuclear incident occurs (e.g. adequate compensation, non-discrimination, procedures for registering claims, claims handling procedures, bilateral agreements with neighbouring countries that address transboundary claims handling issues), there should be a coherent perspective on cross-border claims management. However, only certain countries have effective claims handling procedures in place, with very few countries having bilateral agreements on transboundary claims handling. There is a patchwork of national legislations with regard to the person or entity in charge of claims handling.[287]

For insured persons, the most important feature in an insurance policy is knowing what happens if a loss occurs. With regard to the non-nuclear insurance solutions offered to the industry, there are important insurance programmes with different layers of insurance ultimately provided by one primary insurer that will be dealing with the insured person. Regarding nuclear insurance, there are different players (e.g. private insurance, nuclear insurance pools, states, mutuals, banks) that have to agree on the claims handling if a nuclear incident occurs.

To organise effective cross-border claims management, multiple challenges need to be addressed, among them:

- Well-organised communication between media, the liable operator, competent public authorities, etc. on the basis of a clearly organised communication strategy; in case of transboundary damage, co-ordination may also include translation, interaction with foreign authorities (if possible, with the help of agreements concluded with foreign insurance pools);
- A claims registration system that can be activated quickly; to deal with a large number of claims, establishing a common platform or a unified system composed of different common platforms in different countries based on an international network could be very helpful;
- Claims handling as such requires the availability of large claims teams composed of claims specialists delivering fast and proactive advice and solutions;
- Claims settlement procedures should be established in advance. The experience gained from the past major nuclear incidents demonstrates that the available nuclear coverage may not be sufficient to compensate all the claims. Therefore, the way of sharing the insurance payments needs to be established beforehand (e.g. priority rules to distribute compensation) with a decision-maker clearly identified, and a common understanding of how to manage settlement beyond the liability limits;
- Testing is important with all involved parties, including the neighbouring countries;
- There is also the need to have pre-defined procedures, monitoring of regulatory changes, fraud detection, innovation in claims management (e.g. leveraging digital experience

287 *Secretariat note*: For more information, see an overview of the replies to the questionnaire provided later in this Session.

and process, operating model) and sharing of claims and customer experience, with preparation being key in the success of the whole process.[288]

Regarding the overall organisation within the nuclear insurance pools, agreements on standard rules and bilateral agreements between the pools concerning cross-border claims handling, as well as continuous co-operation between pools and improvement in the established processes would facilitate compensation in case of a nuclear incident with transboundary effects.

In conclusion, there is a need for co-operation and preparation regarding a nuclear incident in terms of claims management among all the stakeholders. Insurers are well prepared to take the lead and be responsible for communication, registration, claims and settlement handling in such a difficult context as a nuclear incident with transboundary effects.

Discussion session

A question arose as to how insurers deal with a situation where victims from an affected state should file their claims for compensation when they do not speak the language, do not know or understand the rules of claims handling of the installation state and do not have financial resources to travel to the installation state to submit their claims. It appeared that if there is a bilateral agreement between the countries – at least at the level of the concerned insurance pools – victims can contact the local insurance pool to file claims for compensation. In the absence of a local insurance pool, victims can contact their local authorities. However, with the current development of new technologies, victims can also file their claims through a dedicated website. Indeed, the pools that have developed their own claims handling system have usually established so-called "dark websites", which are to be activated and become accessible should a nuclear incident occur.

It is also worth mentioning that, in order to address the issue of access of foreign victims to the competent courts, the Revised Paris Convention and the Revised Vienna Convention provide that the contracting party whose courts have jurisdiction to hear and determine nuclear damage compensation claims shall ensure that any state may bring an action for compensation on behalf of persons who are its nationals or who are domiciled or resident in that state, as long as those persons have agreed to be represented by that state.[289]

Regarding the possibility of persuading the government to become a co-insurer of a nuclear operator, it was explained that in Belgium the operators participated in discussions regarding different options of financial security to cover nuclear third party liability (among them a state

288 In 2011, the EC, in its effort to explore "common ground amongst the stakeholders on the areas that could be improved at the EU level in the field of nuclear third party liability", instituted an informal working group that discussed, among other issues, transboundary claims handling. The final deliverable included a set of seven recommendations covering the entire process. This was divided into three parts: 1) claims registration; 2) claims handling; and 3) claims settlement, involving matters as the establishment of a "one stop shop" for claims registration and recording, and "one single desk" at a national level for claims handling. Communication, assessment of insurers' capacities, bearing of the procedural costs and advance payments were also tackled in the recommendations. For more information on the recommendations elaborated by this working group and on the topics presented during the international workshop on nuclear liability, co-organised by the EC (DG ENERGY), the European Economic and Social Committee (EESC) and the Brussels Nuclear Law Association (BNLA) in Brussels on 20-21 January 2014, see European Commission (n.d.), "Energy", available at: https://ec.europa.eu/energy/en/content/international-workshop-nuclear-liability-files (accessed 31 Aug. 2023).

289 Article 13 (g) of the Revised Paris Convention states that: "The Contracting Party whose courts have jurisdiction shall ensure that in relation to actions for compensation of nuclear damage: (i) any State may bring an action on behalf of persons who have suffered nuclear damage, who are nationals of that State or have their domicile or residence in its territory, and who have consented thereto; and (ii) any person may bring an action to enforce rights under the Convention acquired by subrogation or assignment." Article XI A of the Revised Vienna Convention provides that "the Contracting Party whose courts have jurisdiction shall ensure that in relation to actions for compensation of nuclear damage: (a) any State may bring an action on behalf of persons who have suffered nuclear damage, who are nationals of that State or have their domicile or residence in its territory, and who have consented thereto; and (b) any person may bring an action to enforce rights under this Convention acquired by subrogation or assignment."

guarantee), with no possibility to persuade the government regarding each particular option. In addition, a number of national elements need to be taken into account in this regard: in Belgium, there is no public reinsurance available, this is why among the options given to the Belgian operators, a state guarantee mechanism was chosen to cover non-insurable risks. It is worth noting, however, that the Belgian state guarantee mechanism is considered a last resort; therefore, the operators are required to appoint an insurance broker and actively look for insurance or other financial securities (in Belgium and abroad) to replace the state guarantee, and to report to the authorities on a monthly basis until they can fully cover their liability with a private sector product provided under the terms and conditions acceptable to the state.

Overview of responses to the questionnaire

Part I – Financial securities

Financial security option(s) available for the operator to cover its nuclear liability

A **large majority** of the responding countries reported that various options are open to the operator to cover third party nuclear liability (see Figure 25). **All** responding countries indicated that the insurance option is available under their national legislation. A state guarantee seems to be the second most available financial security option, with **eight** responding countries reporting that it is provided under their national legislation. **Eight** responding countries reported that other options of financial security were made available under their national legislation, more specifically:

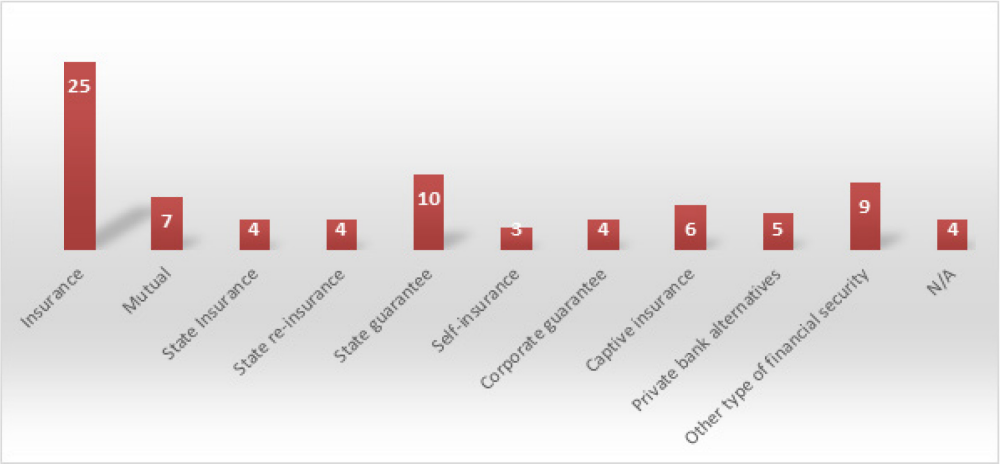
- Belgium: Article 8 of the Law of 22 July 1985 on civil liability in the field of nuclear energy does not provide an exhaustive list of the financial security options available to the operators. However, the Minister has the mission to assess the quality and the reliability of the proposed coverage;[290]
- Canada: The NLCA provides the possibility for the operator to use both, an insurance provided by an approved insurer and an approved "alternate financial security" for up to 50% of its liability. Possible forms of "alternate financial security" include letters of credit, self-insurance, and provincial government guarantees. The insurance must be obtained from an insurer approved by the Minister of Natural Resources, containing only the terms and conditions set out in a standard insurance policy that is approved by the Minister. Any form of "alternate financial security" used by the operator must be through an agreement entered into between the Minister and the operator. The agreement must identify the financial instrument being used as the alternate financial security, specify its dollar value and set out any conditions that the Minister considers appropriate, including a requirement that the operator submit reports or allow the Minister to undertake financial audits in respect of the security or that the operator pay a fee for the authorisation of the security or for the audits;[291]
- Germany: Cover of nuclear third party liability to the amount of EUR 2.5 billion is provided by two elements: the operator's mandatory insurance or other financial security. The first tier of cover corresponding to EUR 256 million is provided by insurance. The remaining amount of approximately EUR 2.244 billion (i.e. the second tier) is provided by way of a so-called "solidarity agreement" of the parent companies of the German nuclear power plant operators;[292]

290 See Article 8 of the 1985 Law of 22 July 1985, *supra* note 168.

291 See Article 28 of the NLCA, *supra* note 124.

292 For more information on the financial security cover in Germany, see Raetzke, C. (2016), *supra* note 255, pp. 20-31.

Figure 25. **Number of countries providing for each of the financial security options**



Source: NEA.

- India: According to Section 8 of the CLND Act, "the operator […] may take out insurance policy or such other financial security or combination of both, covering his liability under subsection 2 of Section 6, in such manner as may be prescribed";[293]
- Italy: Article 22(2) of the Law 1860/1962 on the Peaceful Uses of Nuclear Energy as amended by the Law No.97 of 23 July 2020, provides that "the general conditions of the insurance policy must be approved by decree of the Minister of Economic Development, in conjunction with the Minister of Infrastructure and Transport and the Minister of Economy and Finance. In the case of another financial security, this should be recognised as suitable by a decree issued by the Minister of Economic Development, in conjunction with the Minister of Economy and Finance and the services of the Attorney-General"[294] [*unofficial translation by the Secretariat*];
- Slovak Republic: Section 6(2) of the 2015 Act on Civil Liability for Nuclear Damage and on its Financial Coverage and on changes and amendments to certain laws describes the types of financial security available to the operator. In this regard, financial security may be provided by (i) a domestic legal entity or foreign legal entity associating funds of several operators; (ii) bank guarantees; (iii) deposit; and/or (iv) any other form of financial security providing equal coverage;[295]
- United Kingdom: The NIA 65 requires the operator to make provision "either by insurance or by some other means" as approved by the appropriate authority with the consent of HM Treasury. Accordingly, the options ticked in the list above are options that have been or would be considered acceptable, but other options may be proposed by an operator;[296]
- United States: The NRC regulations implementing the Price-Anderson Act allow nuclear plant operators to provide financial protection in the form of: (i) an effective policy of liability insurance from private sources; (ii) adequate resources to cover the required financial protection; (iii) such other type of financial protection as may be approved by

293 See Section 8 of the CLND Act, *supra* note 159.

294 See Law on the peaceful use of nuclear energy adopted on 31 December 1962 (Official Journal, *GU Serie Generale* n.27 of 30 Jan. 1963) (Law of 31 December 1962, no. 1860) and Law for ratification and implementation of the 2004 Protocols to amend the Paris Convention and the Brussels Convention Supplementary to the Paris Convention adopted on 23 July 2020 (Official Journal, *GU Serie Generale* n.196 of 6 Aug. 2020) (Law of 23 July 2020, no. 97).

295 See Section 7 of theAct No. 54/2015 Coll., *supra* note 156.

296 See Section 19 of the NIA 65, *supra* note 149.

the NRC; or (iv) any combination of the foregoing. An approval to get another type of financial protection may also be submitted to the NRC, giving a plant operator the possibility to avail itself of any of the above options to cover its nuclear liability.[297]

In answering the question on the existence of a legal obligation for state-owned operators to have insurance or other financial security to cover their nuclear liability (see Figures 26.a and 26.b), **almost two thirds** of the responding countries reported that such an obligation is provided under their national legislation.[298] Examples:

- Australia: The obligation for state-owned operators to contract financial security for third party nuclear liability is provided through a Deed of Indemnity entered into between the Australian government and the operator of Australia's nuclear facilities (i.e. the Australian Nuclear Science and Technology Organisation, an Australian government agency);[299]
- Canada: All operators, whether they are federal or provincial crown corporations or privately-owned, are subject to the financial security requirements of the NLCA. Only operators that form part of a federal government department or agency are exempt from the NLCA's financial security requirement, as the federal government self-insures their risk. Currently, the only nuclear installation to which this exemption applies is the SLOWPOKE-2 research reactor at the Royal Military College of Canada, owned by the Department of National Defence of Canada;[300]
- Czechia: There is no difference between state-owned and private operators. All operators shall arrange insurance covering their liability for nuclear damage with a duly authorised insurer, if no other financial security is stipulated to cover the nuclear damage liability. Similarly, in Hungary, the Act on Atomic Energy[301] does not differentiate on the basis of the public or private nature of the relevant operator;
- Japan: Although the government itself, as a legal person, is not compelled to have financial security cover, organisations with an independent legal personality have to obtain one, irrespective of their public or private nature;
- United Kingdom: The state-owned operators are required to have insurance or other financial security to cover their nuclear third party liabilities with the form of cover varying depending on the operator;[302]
- United States: The Price-Anderson Act does not distinguish between commercial or publicly owned reactors (with the limited exception of the Department of Energy), and provides the NRC the discretion to set the amount of nuclear liability insurance as it deems reasonable. If the reactor operator is some form of publicly owned power plant (e.g. a plant owned by a local or municipal government, or an entity that is a public corporation, but in neither case a Federal agency), financial protection is required at

297 Price-Anderson Act, *supra* note 39.

298 Under paragraph 2 of Article VII of the Vienna Convention, Revised Vienna Convention, and paragraph 2 of Article 5 of the CSC Annex it is provided that: "Nothing [….] shall require a Contracting Party or any of its constituent sub-divisions, such as States or Republics, to maintain insurance or other financial security to cover their liability as operators."

299 The Deed of Indemnity specifically provides for "any loss or liability incurred or suffered by them arising from any proceedings or claim by any person against them for injury to persons or damage to property caused by Ionising Radiation, whether directly or indirectly." For more information on the Deed of Indemnity between the Commonwealth of Australia and the Australian Nuclear Science and Technology Organisation and ANSTO Nuclear Medicine Pty Ltd, see Australian Government (n.d.), "Australian Nuclear Science and Technology Organisation Annual Report 2018-2019, 6. Other information", available at: www.transparency.gov.au/annual-reports/australian-nuclear-science-and-technology-organisation/reporting-year/2018-2019-122 (accessed 31 Aug. 2023).

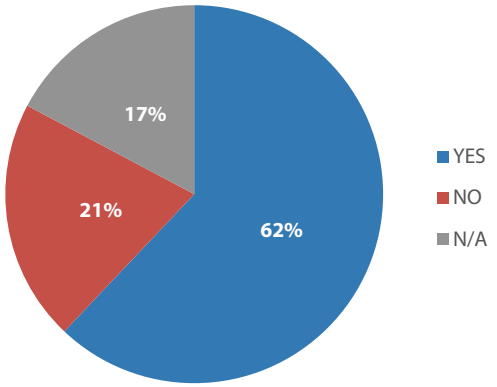
300 See Article 27(1) of the NLCA, *supra* note 124.

301 1996 Act on Atomic Energy, *supra* note 158.

302 See Section 19(1) of the NIA 65, *supra* note 149.

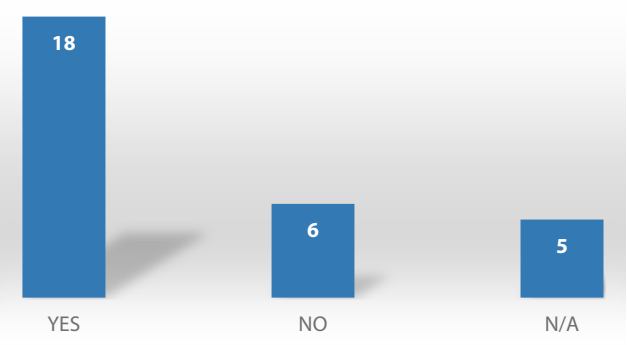
amounts set by the NRC in its implementing regulations. If the operator is a Federal agency, the amount set for insurance is zero; however, the Federal agency is still required to provide financial security in the form of an indemnity agreement with the NRC to cover potential damages for nuclear liability.[303]

Figure 26.a. **Are state-owned operators legally compelled to have insurance or other financial security to cover their nuclear liability? (Percentage)**



Source: NEA.

Figure 26.b. **Are state-owned operators legally compelled to have insurance or other financial to cover their nuclear liability? (Number of countries)**



Source: NEA.

On the contrary, **a few** responding countries reported that state-owned operators would not be subject to the obligation of providing financial security coverage for third party nuclear liability, and among them:

- Austria: Section 6(3) of the AtomHG provides that "[t]here is no obligation to insure where the Federal government (Bund) or State (Land) itself is liable or has assumed the liability of the operator of a nuclear installation for an amount not less than those amounts indicated in Paragraphs 1 and 2";[304]
- Slovenia: In accordance with Article 11 of the 2010 Act on Liability for Nuclear Damage, "the insurance of liability for nuclear damage shall not be obligatory for the Republic of

303 See NRC Regulations Title 10, Code of Federal Regulations.

304 See Section 6(3) of the AtomHG, *supra* note 136.

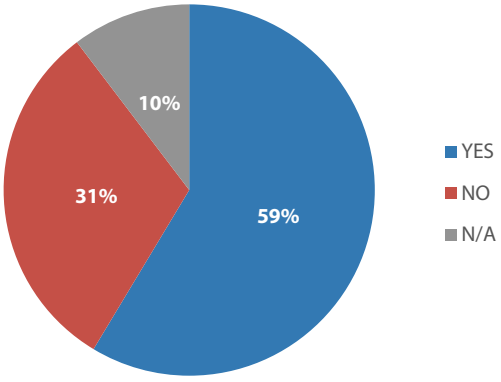
Slovenia and all those legal entities under public law, which were established by the Republic of Slovenia and determined as such by the regulation of the Government of the Republic of Slovenia".[305]

Existence of national nuclear insurance pools

In answering the question regarding the existence of national nuclear insurance pools, **more than half** of the responding countries reported that such pools were established (see Figure 27). Examples:

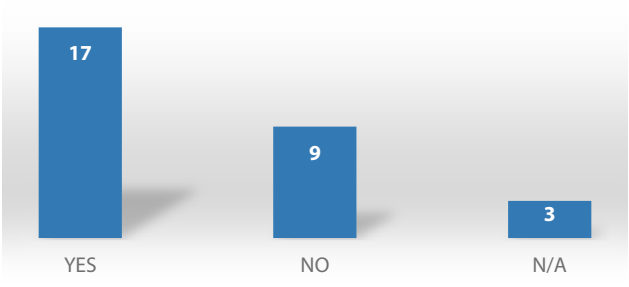
- France: The French nuclear insurance pool, created in 1957, is an association which became an economic interest group called "GIE" ("groupement d'intérêt économique") in 1969 and was renamed into "Assuratome" in 1995. Assuratome members are insurance and reinsurance companies that provide the GIE with financial resources allocated to the insurance of nuclear risks;
- Slovak Republic: The Slovak Nuclear Insurance Pool was established as a free association of insurance companies on the basis of the Slovak Insurance Association on 31 July 1997 for the purpose to insure and reinsure nuclear risks.

Figure 27.a. **Does your country have a national nuclear insurance pool?**



Source: NEA.

Figure 27.b. **Does your country have a national nuclear insurance pool?**



Source: NEA.

305 See Article 11 of the 2010 Act on Liability for Nuclear Damage, *supra* note 126.

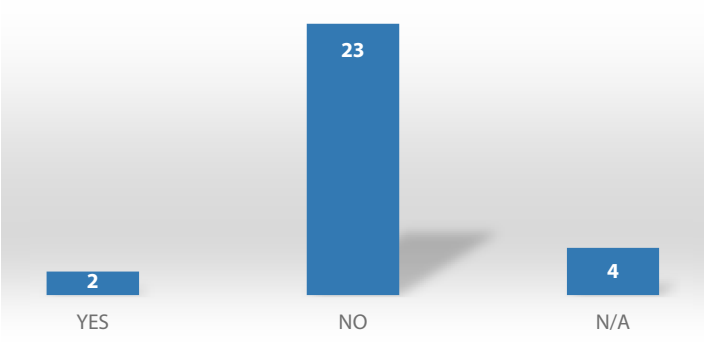
National nuclear operators' pooling arrangement

In answering the question related to the existence of a national nuclear operators' pooling arrangement, a **very large majority** of the reporting countries said that such arrangements are not in place, with only **two** responding countries confirming the existence of such an arrangement (see Figures 28.a and 28.b). Specifically:

- Japan: The operation of the Nuclear Damage Compensation and Decommissioning Facilitation Corporation can be assimilated to a pool;[306]
- United States: The Price-Anderson Act establishes a tiered system of financial protection and indemnification for operators of nuclear power plants. The operator provides the first tier of compensation from private insurance, currently set at approximately USD 450 million in damage. The second tier is provided by pooling contributions from all US power plant operators, with each operator's contribution currently set at up to roughly USD 131 million, totalling about USD 13.4 billion. The amount of this liability limit may change, depending upon the number of nuclear reactors in operation. It is also possible, if this total liability limit is exceeded, for the US Congress to act to provide additional compensation as determined necessary.

It is worth noting that in Germany, there is a so-called "solidarity agreement" established between the parent companies of the German nuclear power plant operators with the aim of providing them with the second tier of compensation amounting roughly to EUR 2.244 million, with the total financial security required at EUR 2.5 billion. The solidarity agreement is binding for all operators of nuclear installations, which are listed in its annex 1. Each partner shall bear a partial debt in the form of a percentage quota calculated for each individual nuclear installation from the square root of the thermal reactor output. The percentage quotas of the individual nuclear installations are allocated to the partners on the basis of their participation in the respective nuclear installation, either in full or in part, and together they form the scope of the guarantee commitment of an individual partner.[307]

Figure 28.a. **Does your country have a national nuclear operators' pooling arrangement**

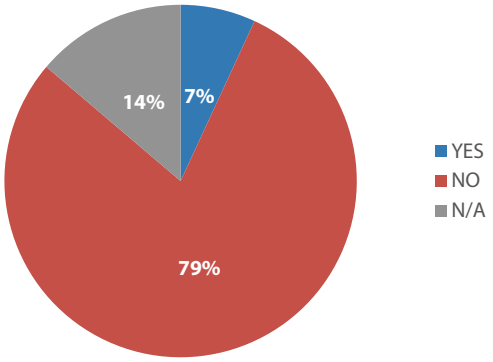


Source: NEA.

306 For more information on the Nuclear Damage Compensation and Decommissioning Facilitation Corporation, see NEA (2012), *Japan's Compensation System for Nuclear Damage: As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, OECD Publishing, Paris.

307 For more information on the "solidarity agreement", see Raetzke, C. (2016), *supra* note 255, pp. 20-31.

Figure 28.b. **Does your country have a national nuclear operators' pooling arrangement**



Source: NEA.

Part II – Claims Handling

Claims handling procedure set up

Among the responding countries, **ten** countries reported that a claims handling procedure has been set up in their national legal order. Examples:

- Canada: Insurers are obliged to have their own protocol and are collaborating on agreements for claims administration, with the Nuclear Insurers Association of Canada (NIAC) taking the lead. In respect of claims related to nuclear damage eligible for the 10-30 years' prescription period, the claims handling procedure is being developed by the federal government;
- India: Rules related to the claims handling procedure are contained in the CLND Rules. These rules extensively describe the information that should be included in the claimant's application for compensation, as well as the duties and the procedure that the competent organ (i.e. the claims adjudication authority) should follow in adjudicating the liability and awarding compensation. Moreover, relevant rules on the registration of claims, the preservation of records and the necessary staff are also included in these rules;[308]
- Netherlands: Articles 22 to 29 of the Act of 17 March 1979 Containing Rules on Liability for Damage Caused by Nuclear Accidents describe the procedure that should be followed if the total number of claims surpasses the amount of liability of the operator, involving judicial authorities, the government, insurers and the operator. More precisely, in such a case, the competent court (i.e. the Hague District Court) may forbid payment in respect of compensation for the damage and appoint a delegated judge to lay down distribution lists for the available amounts as well as a committee of liquidators, to which all claims for compensation shall be submitted; [309]
- Poland: Articles 102, 104 and 106 of the Atomic Energy Act concern the claims handling procedure. Article 102 provides for the establishment of a limited liability fund by the operator, when claims for damage exceed the amount of the operator's liability. Article 104 stipulates that claims may be filed directly against the insurance company. Finally, Article 106 determines the competent court depending on whether nuclear damage caused by nuclear accident occurred on the territory or outside the territory of Poland.

308 See 2011 CLND Rules, *supra* note 223.

309 See Articles 22 to 29 of the Act of 17 March 1979 Containing Rules on Liability for Damage Caused by Nuclear Accidents, as amended (Stb. 2008, No. 509).

The same Article also states that cases related to damage claims proceedings shall be regulated by the provisions of the Civil Proceedings Code;[310]

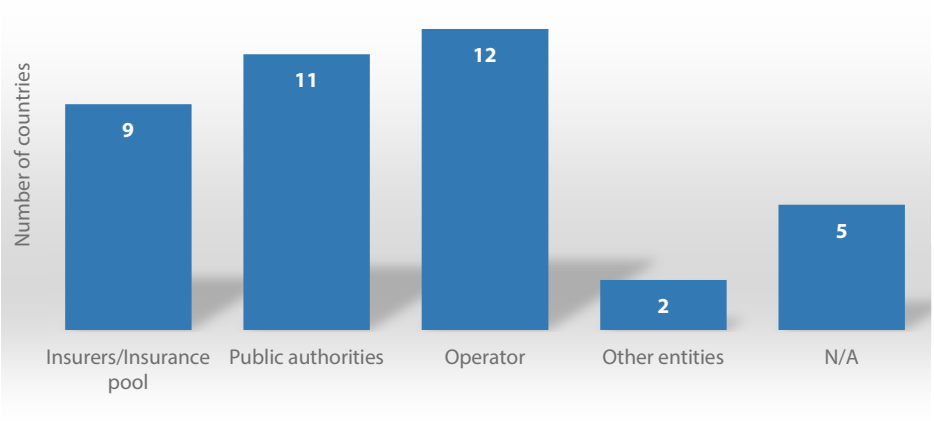
- Slovak Republic: The Act on Civil Liability for Nuclear Damage and on its Financial Coverage and on changes and amendments to certain laws contains provisions relevant to the claims handling (e.g. requirement on the establishment of a causal link between the nuclear damage and the nuclear incident as well as rules on the allocation of funds for compensation);[311]
- Slovenia: National legislation provides a set of general rules guiding the claims compensation procedure, with provisions on the submission of claims, the assessment of the nuclear damage to be compensated, the costs related to the management and payment of compensation claims as well as the relevance of alternative dispute settlement method.[312]

Overall, the responses indicate that, on the one hand, there are countries that enshrine in their national legislation general principles that may guide the establishment of a claims handling procedure, providing a general legal framework. On the other hand, provisions included in the domestic legislation of some countries focus on a more detailed description of administrative procedure to be followed when administering a claims handling procedure.

Entity responsible for handling compensation claims for nuclear damage in accordance with national legislation

With regard to the question concerning the entity responsible for handling compensation claims for nuclear damage under the relevant national legislation, it appeared that the answer to this question largely depends on the relevant national legislation, as each of the three specific options provided in the questionnaire (the insurers, public authorities, and operator) were chosen by approximately the same number of responding countries (see Figure 29).

Figure 29. **Responsible for handling compensation claims for nuclear damage**



Source: NEA.

310 See Articles 102, 104 and 106 of the Act of 29 November 2000 on Atomic Energy, *supra* note 66.

311 See Section 7 of the Act No. 54/2015 Coll., *supra* note 156.

312 See Articles 12 to 15 of the 2010 Act on Liability for Nuclear Damage, *supra* note 126.

It should be noted that **several** responding countries said that more than one entity would be responsible for the claims handling. Examples:

- Austria, Canada and Finland: Insurers or insurance pools, public authorities and the operator would hold responsibility for handling compensation claims for nuclear damage. More specifically, in Canada, the insurers are responsible for handling claims for all heads of damage except bodily injuries from 10 to 30 years and routine emissions claims, which are covered by separate indemnity agreements between the federal government and the operators. In this case the federal government (a public authority) is acting as the insurer;
- Hungary and Poland: Claims for compensation would be handled by insurers/insurance pools and the operator;
- Netherlands and Slovenia: Under the national legislation, insurers/insurance pools and public authorities would be responsible for the claims handling.

Two responding countries highlighted that their national legislation provides for other types of entities, and more precisely:

- France: The operator would be responsible for handling compensation claims to the amount provided under the Revised Paris Convention (i.e. EUR 700 million), while the installation state would be in charge of the second and third tiers under the Revised Brussels Supplementary Convention (i.e. between EUR 700 million and EUR 1.5 billion);
- India: A Claims Commissioner would be appointed by the government of India after a nuclear incident occurred to handle relevant claims for compensation.[313]

Finally, **one** country, the United Kingdom, replied that the operator would be responsible for handling claims for nuclear damage compensation, highlighting, however, that the expectation would be that the financial security provider would be responsible for handling compensation claims, including through a third party provider, in accordance with normal insurance practice.

Principles/Rules of co-ordination between different financial security providers, where applicable

Answering the question concerning the existence of any principles or rules of co-ordination between different entities in case they are providing financial security(ies) to the liable operator, **a few** responding countries reported that their national legislation provides for such principles or rules (see Figure 30). Examples:

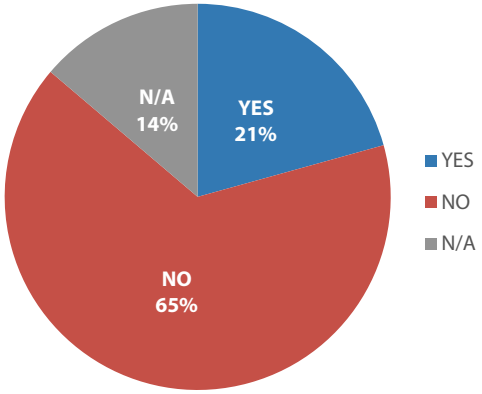
- Australia: In terms of the co-ordination between different financial security providers, the liable operator should first recover from their insurance before invoking the Deed of Indemnity from the Australian government;[314]
- Canada: A "Claims Administration Agreement" (CAA) has been entered into by the NIAC, the operator and other approved insurers, whereby the NIAC as the lead insurer administers the claims administration process for the stakeholders in the agreement. The CAA sets out the roles and responsibilities for each stakeholder in the contract, including the planned contribution of funds to a trust fund for the payment of claims following an incident. The CAA also lays out the requirement to convene a "Claims Group" following an incident;

313 See Section 9 *et seq*. of the CLND Act, *supra* note 159.

314 *Secretariat note*: As already mentioned, in the absence of specific nuclear liability legislation, the Australian government and the operator of Australia's nuclear facilities, the Australian Nuclear Science and Technology Organisation (ANSTO, an Australian Government agency), have entered into a Deed of Indemnity. The Deed provides for unlimited indemnity from the Australian Government for any loss or liability caused by ionising radiation, including indemnity for contractors and employees.

- Finland: Even though the Finnish Insurance Contracts Act (543/1994)[315] does not apply to statutory insurances (i.e. insurance that is mandatory by law), such as the insurance for nuclear damage, some of the provisions of this Act are, however, referred to in the insurance terms of the Nordic Nuclear Insurers' nuclear insurance. More precisely, Articles 59 and 60 apply to insurance for nuclear damage accordingly, regulating the liability relationship between the insurers and the policyholder (i.e. the nuclear operator) as well as the issue of the mutual liability of insurers in case the total amount of damage exceeds the insured amount.[316]

Figure 30. **Existence of principles/rules of co-ordination between different financial security providers**



Source: NEA.

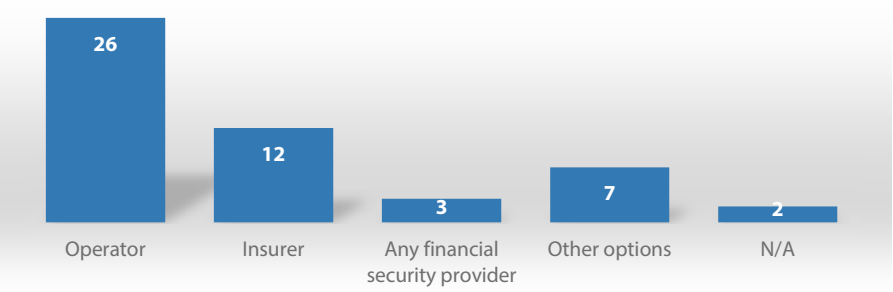
Against whom can the victims directly claim compensation

As shown in Figure 31 (see below), the **large majority** of the responding countries reported that victims may address their claims for compensation to the operator. Furthermore, **approximately one third** of the responding countries provide in their national legislation for direct claims for compensation to the insurers, while only a few countries allow for such claims to be addressed to any financial security provider. Moreover, it is worth noting that a **significant number** of responding countries specified that other options are available under their domestic legislation.

315 See the Finnish Insurance Contracts Act No. 543/1994 of 28 June 1994 (*Författningssamling* 1450) (Finnish Insurance Contracts Act).

316 According to Article 59 of the Finnish Insurance Contracts Act, "if several insurers have issued insurance policies to cover the same interest against the same damage or loss each of the insurers is liable to the policyholder as if it had issued the insurance alone. If the interest is overinsured, measured by the total amount of the insurance policies taken out, the insured shall not, however, be entitled to compensation higher than the cost of the damage or loss sustained under the insurance policies, unless otherwise provided in Section 57 Subsection 2". Article 60 stipulates that if several insurers are liable for the same damage or loss and the total of amount of compensation due from the insurers together exceeds the amount of compensation due to the insured, the insurers' mutual liability is determined on a *pro rata* basis. *Ibid.*

Figure 31. **Against whom can the victims directly claim compensation**



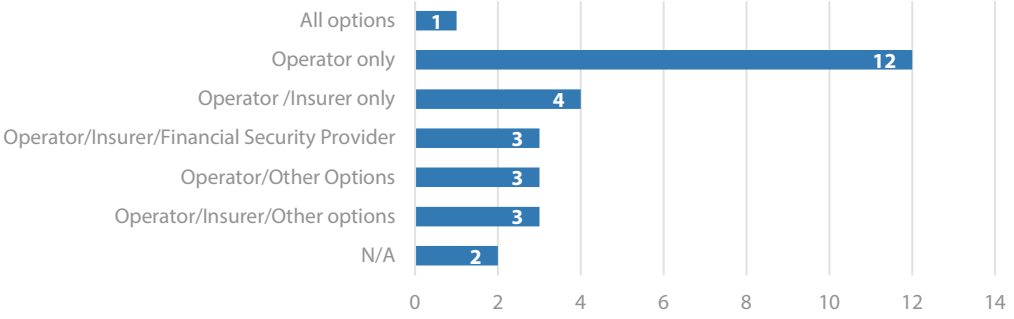
Source: NEA.

Among the responding countries having reported that other options are available, such options represent a variety of relevant entities. Examples:

- Australia: Claims for compensation may also be addressed to suppliers, manufacturers and constructors. In a similar vein, Ireland highlighted that aside from the operator, claims may be addressed to the person that is liable for the nuclear damage caused;
- For some countries, it is the state that represents this other option. This is the case for Austria, the Netherlands and the United Kingdom. Japan stated that the Act on Emergency Measures Related to Damage Caused by the 2011 Nuclear Accident (Act No. 91 of 2011), enacted specifically for the Fukushima accident, mandated the government to proceed with provisional payment on behalf of the operator liable;[317]
- Ukraine indicated that local authorities would be another entity against whom victims may directly claim compensation, while the United States put forward that such claims may be directly addressed against any person potentially liable for public liability, meaning they may potentially be subject to legal liability arising out of or resulting from a nuclear incident or precautionary evacuation.

For an overview of the different combinations of options based on the responses received, see Figure 32 below:

Figure 32. **Combination of different options of entities against whom victims may directly claim compensation**



Source: NEA.

317 For more information on the Act on Emergency Measures Related to Damage Caused by the 2011 Nuclear Accident (Act No. 91 of 2011), see NEA (2012), *Japan's Compensation System for Nuclear Damage: As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, pp. 237 *et seq.*, OECD Publishing, Paris.

Applicable time limitation for bringing compensation claims

The time limitation that applies to filing claims for compensation of nuclear damage is crucial to the claims handling process. All nuclear liability conventions provide for such a limitation, and leave at the discretion of each contracting party the right to extend them. The right to compensation is prescribed or extinct if no action is brought before a competent court within a certain period of time, and is also subject to the "discovery rule" pursuant to which any claim must be made within a certain period of time from the moment the victim has knowledge of, or should have had knowledge of, the nuclear damage and the identity of the operator liable.[318]

Several responding countries reported that their domestic legislation complies with the relevant provisions of the conventions to which they are parties. Examples:

- Belgium, the Netherlands, Sweden and the United Kingdom reported that their domestic legislation follow Article 8 of the Revised Paris Convention;
- Czechia, Hungary and Slovak Republic pointed out that, according to Article IV of the Vienna Convention, the ten-year prescription period is applicable under their domestic legislation;
- Canada and Romania reported that the applicable time limitations are consistent with Article 9 of the CSC Annex and Article VI of the Revised Vienna Convention.

Some other responding countries reported that their domestic legislation complements the applicable time limitations provided under the conventions to which they are parties. Examples:

a) Paris Convention countries

   – France: In the event of an accident occurring within the territory of the French Republic and being recognised by the Paris Convention as falling within the jurisdiction of a French court, the French state shall likewise pay compensation for damage which, having manifested itself more than 10 years after the accident, cannot be claimed. Claims for compensation must be brought against the French state no more than five years after expiration of the ten-year period after the accident;[319]

   – Germany: Domestic legislation contains provisions related to the precedence before courts of claims for death or personal injury under specific circumstances and the suspension of the limitation period in case of negotiations taking place between the operator and the claimant.[320]

b) Vienna Convention countries

   – Poland: Claims for redressing nuclear damage suffered by an individual do not expire throughout the concerned individual's lifespan;[321]

318 *Secretariat note*: According to the Paris Convention and the Vienna Convention, the right for compensation is extinguished if no action is brought within ten years from the date of the nuclear incident (see Article 8 of the Paris Convention and Article VI of the Vienna Convention). Furthermore, both Conventions contain provisions stating that the law of the competent court may establish a period of not less than two years (for the Paris Convention) or three years (for the Vienna Convention) for the extinction of the right or as a period of limitation either from the date at which the person suffering damage has knowledge or from the date at which he ought reasonably to have known of both the damage and the operator liable. The Revised Paris Convention and the Revised Vienna Convention provide for an extended prescription period of 30 years for nuclear damage claims for loss of life or personal injury (see Article 8 of the revised Paris Convention and Article VI of the revised Vienna Convention). Furthermore, the "discovery period" provided in both conventions is not less than three years. With regard to the CSC, Article 9 of the CSC Annex provides for a general ten-year period of extinction for rights of compensation, and a "discovery period" of not less than three years.

319 See Article L. 597-17 of the French Environmental Code issued by Order No. 2012-6 of 5 January 2012 (Official Journal of the French Republic of 6 Jan. 2012, p. 10).

320 See Section 32 of the *Atomgesetz*, *supra* note 173.

321 See Article 105 of the Act of 29 November 2000 on Atomic Energy, *supra* note 66.

- Ukraine: Claims related to loss of life of personal injury are not barred by the limitation period.

c) CSC countries

- India: The "right to claim compensation for nuclear damage shall extinguish, if such claim was not made within a period of (i) 10 years in the case of damage of property; (ii) 20 years in the case of personal injury to any person from the date of occurrence of the incident";[322]
- United States: There is no single applicable time limitation. The statute of limitations on compensation claims for public liability under the Price-Anderson Act would be determined based on the law of the state within the United States in which the nuclear incident occurred.

Finally, among the responding **countries that have not adhered to any international nuclear liability conventions**, the applicable time limits may vary in accordance with the respective national legislation. Examples:

- Australia: As a general rule, the limitation period for property damage cases is six years in all Australian jurisdictions, while the limitation period for personal injury matters is between three and six years from the cause of action. However, there are certain exceptions and extensions for when the injury remains latent for a period after the cause of action;
- Austria: Section 20 of the AtomHG claims for compensation have to be brought within three years from the date on which the person entitled to compensation learned of the damage and the identity of the person liable. Irrespective of this knowledge, the limitation period shall be thirty years from the date on which the damage was incurred. Beyond this period, the right of compensation (i.e. the limitation or prescription period) shall be extinguished, if a claim is not brought before the courts;[323]
- China: According to Section 6 of the 1986 State Council's Written Reply Relating to Nuclear Third Party Liability – Guo Han [1986] No. 44, claims for compensation must be made within three years after the victim has knowledge or should have had knowledge of the nuclear damage arising therefrom and, in any event, such claims must be filed within ten years from the date of the nuclear incident.[324]

Class Actions

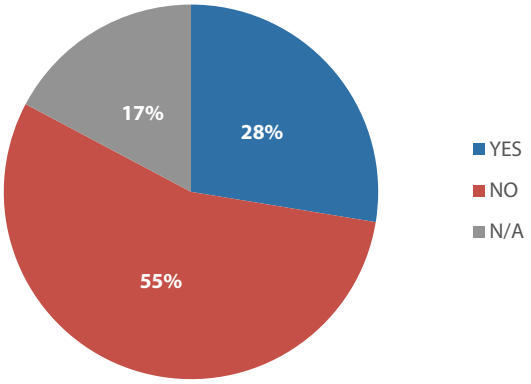
Answering the question regarding the possibility of grouping compensation claims ("class actions") under the national legislation, **more than half** of the responding countries reported that that their domestic legislation does not provide for class actions, while approximately one third of the countries confirmed that relevant provisions exist under national law (see Figures 33.a and 33.b).

322 See Section 1 of the CLND Act, *supra* note 159.

323 See Section 20 of the AtomHG, *supra* note 136.

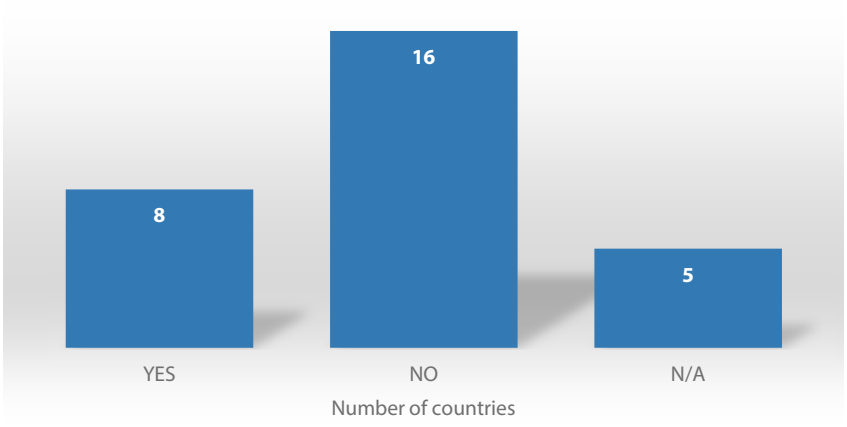
324 See Section 6 of the State Council's Written Reply Relating to Nuclear Third Party Liability – Guo Han [1986] No. 44 (Guo Han [1986] No. 44).

Figure 33.a. **Possibility of grouping compensation claims ("class actions") under domestic legislation**



Source: NEA.

Figure 33.b. **Possibility of grouping compensation claims ("class actions") under domestic legislation**



Source: NEA.

Among **a few** responding countries whose national legislation provide for class actions, the following examples can be given:

- Australia: Representative proceedings (i.e. class actions) are provided under Part 10 of the Civil Procedure Act 2005 (NSW).[325] In New South Wales, the Supreme Court has jurisdiction for class actions. Proceedings are generally brought by seven or more persons where the claims arise out of the same, similar or related circumstances and which give rise to a substantial common question of law or fact;

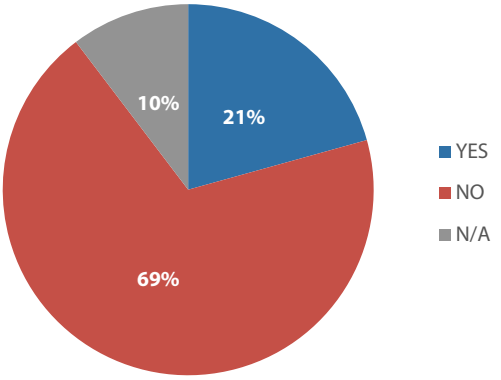
325 See Part 10 of the Civil Procedure Act 2005 (NSW) No. 28, as amended (NSW Government Gazette No. 100 of 10 August 2005).

- Netherlands: The main mechanism in relation to class action is laid down in Article 7:907 of the Dutch Civil Code;[326]
- Poland: According to the Act of 17 December 2009 on Pursuing Claims in Group Proceedings,[327] at least ten persons can claim compensation as a group in the civil court. For each member of the group, the amount of compensation must be the same, unless the group is divided into several sub-groups (then the amounts must be the same within these sub-groups). In the proceedings, the group is represented by one person (a member of the group or a local consumers' spokesman), but the lawsuit must be presented in the court by a professional lawyer;
- Sweden: Such type of action is allowed according to the Group Proceedings Act, which organised the institution of a class action, the conditions that need to be fulfilled as well as procedural rules related to the proceedings before the court.[328]

It is worth mentioning that for the United States, Section 170.n(2) and (3) of the Atomic Energy Act may direct towards class actions.[329]

Regarding the possibility for the concerned state to organise a class action, **approximately two thirds** of the responding countries acknowledged that domestic legislation does not provide for such a possibility, while almost one fifth of the responding countries confirmed the existence of relevant provisions under national law (see Figures 34.a and 34.b).

Figure 34.a. **Possibility of a class action organised by the state**



Source: NEA.

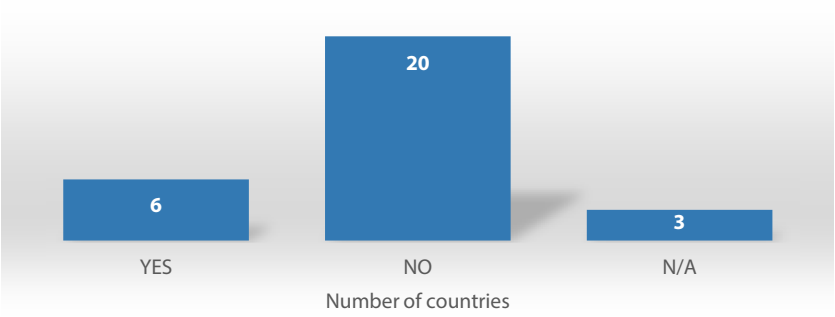
326 According to Article 7:907(1) of the Dutch Civil Code (Stb. 2005, No. 340), "An agreement for the purpose of compensating damage caused by an event or by similar events, concluded between one or more foundations or associations with full legal capacity and one or more other parties, who have engaged themselves under this agreement to pay compensation for that damage may, upon the joint request of these foundations, associations and the other parties, be declared binding by the court for (other) persons to whom the damage was caused, provided that the foundations or associations represent the interests of those persons pursuant to its articles of association (articles of incorporation). Persons to whom the damage was caused, shall be deemed to include persons who have acquired a debt-claim with respect to that damage under universal or particular title".

327 Act of 17 December 2009 on Pursuing Claims in Group Proceedings (*Journal of Laws* 2010.7.44 of 18 January 2010).

328 According to Section 8 of the Group Proceedings Act (SFS 2002:599), "A group action may only be considered if 1. the action is founded on circumstances that are common or of a similar nature for the claims of the members of the group, 2. group proceedings do not appear to be inappropriate owing to some claims of the members of the group, as regards grounds, differing substantially from other claims, 3. the larger part of the claims to which the action relates cannot equally well be pursued by personal actions by the members of the group, 4. the group, taking into consideration its size, ambit and otherwise is appropriately defined, and 5. the plaintiff, taking into consideration the plaintiff's interest in the substantive matter, the plaintiff's financial capacity to bring a group action and the circumstances generally, is appropriate to represent the members of the group in the case".

329 United States Atomic Energy Act of 1954, *supra* note 169.

Figure 34.b. **Possibility of a class action organised by the state**



Source: NEA.

Only **six** responding countries confirmed that their national legislation provides that the state may organise class actions, and among them:

- Belgium: Article 28/2 of the Law of 22 July 1985 on civil liability in the field of nuclear energy allows the Belgian state to act on the behalf of the victims situated on the Belgian territory in case of a nuclear accident abroad for which a Belgian tribunal is not competent, as far as those victims have agreed to be represented by the Belgian state;[330]
- Slovenia: Article 13(g) of the Revised Paris Convention would apply directly;[331]
- United Kingdom: The Secretary of State may bring proceedings (and represent UK claimants with their consent) for claims in the court of a relevant territory in case a nuclear incident gives rise to liability under relevant foreign law and it is a claim which is to be determined by a court in a relevant territory.[332]

Transboundary claims handling

Answering the questions regarding the existence of any specific procedure for handling transboundary claims under the domestic legislation, only **two** responding countries confirmed that a specific procedure related to the handling of claims for transboundary nuclear damage has been set up (see Figure 35), more specifically:

- Canada: The NIAC, as lead insurer administering a centralised claims administration process for stakeholders, may settle transboundary claims that are insured claims under the approved Operator's Policy form, subject to the limit of liability and/or the establishment of a Tribunal;
- United Kingdom: According to Section 17D of NIA 65, any person may claim but also the government of a foreign country may bring and conduct proceedings for qualifying claimants – those who are nationals of that country or domiciled or resident in that country.[333]

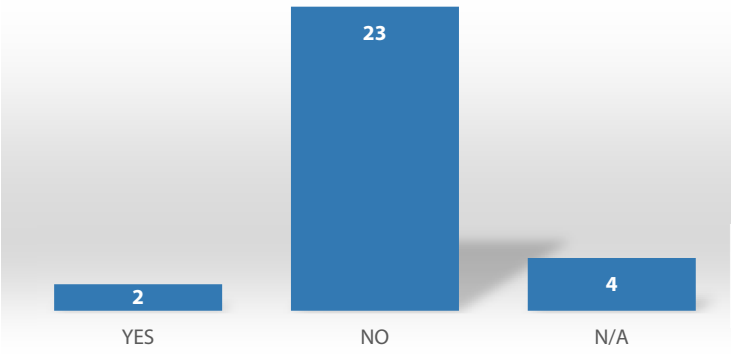
330 See the 1985 Law, *supra* note 168.

331 See Article 13(g) of the Revised Paris Convention, which provides that "If a Contracting Party is of the opinion that a communication required in accordance with this Article has not been made within the time prescribed in this Article, it may raise objections only by addressing them to the Belgian Government within three months from the date on which it knew of the facts which, in its opinion, ought to have been communicated."

332 See Section 17E of the NIA 65, *supra* note 149.

333 See Section 17D of the NIA 65. *Ibid*.

Figure 35. **Transboundary claims handling procedure already set up**



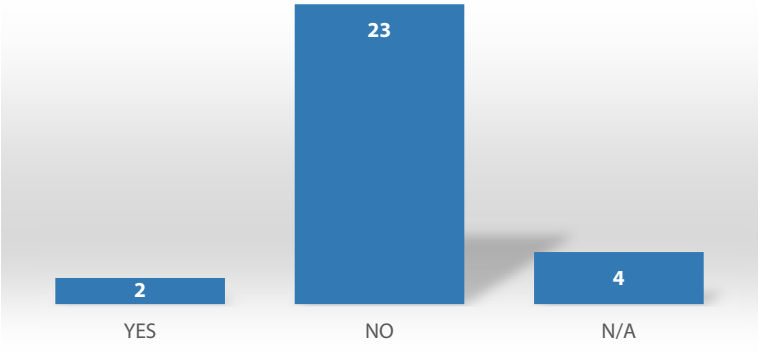
Source: NEA.

Moreover, among the countries that confirmed the absence of any provisions relevant to transboundary claims handling procedure, the Unites States clarified that the absence of such a procedure is explained by the fact that the Price-Anderson Act does not differentiate among damage claims on the basis of where or by whom damage is suffered. Instead, it covers damage wherever suffered on the same basis without discrimination.

Bilateral (or multilateral) agreement with neighbouring countries that addresses transboundary claims handling issues

Concerning the existence of bilateral or multilateral agreements with neighbouring countries addressing transboundary claims handling issues, a **very large majority** of responding countries reported that they have not signed such agreements. On the contrary, **only two** countries (Austria and the United Kingdom) confirmed that they are bound by such agreements (see Figure 36).

Figure 36. **Bilateral (or multilateral) agreement with neighbouring countries that addresses transboundary claims handling issues**



Source: NEA.

Session 5 – Conclusions

i) *As nuclear insurance pools are cautious regarding all new heads of damage* (and more specifically the 10-30 years prescription period), operators need to find alternative financial securities, such as mutuals and state reinsurance or guarantees, which require that co-ordination be specified beforehand to avoid impacting smooth claims handling;

ii) *Transboundary claims handling is not exclusive to the nuclear industry*, but has its particularities (e.g. specific liability regime, very limited number of precedents, responsible entities for claims handling, if identified, may differ from one country to another, and victims may direct claims to different entities according to their applicable national law). Based on these specifics, transboundary claims handling requires a more harmonised framework. Other potential challenges to be faced are: the language barriers and communication issues, and the registration process. Therefore, it is vital to establish predefined procedures and hold preparatory exercises with all concerned parties;

iii) *Nuclear insurance pools address transboundary claims handling*: Whether bilaterally (for some) or within the Nuclear Pools' Forum, existing shadow websites will be made operational in case of an accident. However, there are outstanding questions that need to be fully addressed: who is responsible for communication, registration, claims handling or making settlement decisions?

Session 6

Resolving disputes

Prof. Yvonne Scannell, **Trinity College Dublin, Judge of the European Nuclear Energy Tribunal and Chair of Session 6**, highlighted the main subjects of discussion for this session: (i) how to resolve disputes; (ii) the appropriate forum; and (iii) how to enforce the decisions.

Resolving disputes: Alternative Dispute Resolution mechanisms

Prof. Vanda Lamm, **President of the Section of Economics and Law, Hungarian Academy of Sciences and member of the NLC Bureau**, reported on the alternative dispute resolution (ADR) mechanisms and their particularities, with a focus on their procedural aspects. The main features of ADRs can be summarised as follows: (i) they offer alternatives to litigation; (ii) only the parties to the ADR mechanism have a control over the resolution of their dispute (negotiation); (iii) agreed-upon neutral third party or parties are involved to help the concerned parties to come to an agreement (mediation, conciliation, arbitration); and (iv) there are no plaintiff or defendant; in most cases dispute end with win-win situation and a compromised solution.

There are two kinds of general dispute resolution provisions in the nuclear liability conventions:

1) Interstate disputes

They represent the disputes between the contracting parties concerning the interpretation or application of the relevant conventions. It is worth noting that the Vienna Convention does not have provisions on the resolution of interstate disputes, which have been introduced in the Revised Vienna Convention. However, the 1963 Optional Protocol to the Vienna Convention provides for compulsory settlement of disputes by the International Court of Justice, unless the parties agree to resort to an arbitral tribunal or to adopt a conciliation procedure.[334] The Revised Vienna Convention provides for an interstate dispute resolution mechanism, which contains different stages, including an ADR option (amicable settlement, and then if unsuccessful, settlement by arbitration or by the International Court of Justice).[335]

334 See Article I, II and III of the Optional Protocol Concerning the Compulsory Settlement of Disputes (1963), IAEA Doc. INFCIRC/500/Add.3, entered into force on 13 May 1999.

335 Article XX.A of the Revised Vienna Convention states that "1/. In the event of a dispute between Contracting Parties concerning the interpretation or application of this Convention, the parties to the dispute shall consult with a view to the settlement of the dispute by negotiation or by any other peaceful means of settling disputes acceptable to them. 2/. If a dispute of this character referred to in paragraph 1 of this Article cannot be settled within six months from the request for consultation pursuant to paragraph I of this Article, it shall, at the request of any party to such dispute, be submitted to arbitration or referred to the International Court of Justice for decision. Where a dispute is submitted to arbitration, if, within six months from the date of the request, the parties to the dispute are unable to agree on the organization of the arbitration, a party may request the President of the International Court of Justice or the Secretary-General of the United Nations to appoint one or more arbitrators. In cases of conflicting requests by the parties to the dispute, the request to the Secretary-General of the United Nations shall have priority. 3/. When ratifying, accepting, approving or acceding to this Convention, a State may declare that it does not consider itself bound by either or both of the dispute settlement procedures provided for in paragraph 2 of this Article. The other Contracting Parties shall not be bound by a dispute settlement procedure provided for in paragraph 2 of this Article with respect to a Contracting Party for which such a declaration is in force. 4/. A Contracting Party which has made a declaration in accordance with paragraph 3 of this Article may at any time withdraw it by notification to the depositary."

Identical provisions are contained in the CSC.[336]

It is worth mentioning that there is an open issue left by the provisions of Article XX.A of the Revised Vienna Convention, which provides that in the event of a failure to reach an agreement on the designation of arbitrators between the parties within six months, a party may request the President of the International Court of Justice or the Secretary-General of the United Nations to appoint one or more arbitrators (provided that the Secretary-General of the UN shall have priority in case of conflicting requests). Indeed, even if the parties can agree on the organisation of the arbitration, Article XX.A does not specify what would happen should the parties fail to agree on the rules or the place of arbitration.

The Paris Convention and the Brussels Supplementary Convention also contain provisions on settlement of disputes.[337] The Revised Paris Convention and the Revised Brussels Supplementary Convention brought certain changes to the dispute settlement mechanism provided in the respective original conventions to further streamline and clarify the process.[338] The dispute settlement provisions of the Revised Paris Convention and the Revised Brussels Supplementary Convention contain a particular kind of settlement (mediation-like) providing that where a dispute between the contracting parties which was not settled through negotiation or other amicable means within six months from the date upon which such dispute is acknowledged to exist by any party thereto, all the contracting parties to the Convention shall meet to assist the parties to the dispute to reach a friendly settlement.

It should be noted that the Joint Protocol contains no provisions on dispute settlement.

336 See Article XVI of the CSC.

337 Article 17 of the Paris Convention states that "Any dispute arising between two or more Contracting Parties concerning the interpretation or application of this Convention shall be examined by the Steering Committee and in the absence of friendly settlement shall, upon the request of a Contracting Party concerned, be submitted to the Tribunal established by the Convention of 20th December 1957 on the Establishment of a Security Control in the Field of Nuclear Energy". Article 17 of the Brussels Supplementary Convention provides that "Any dispute arising between two or more Contracting Parties concerning the interpretation or application of this Convention shall, upon the request of a Contracting Party concerned, be submitted to the European Nuclear Energy Tribunal established by the Convention of 20th December 1957 on the Establishment of a Security Control in the Field of Nuclear Energy."

338 Article 17 of the Revised Paris Convention states that "a) In the event of a dispute arising between two or more Contracting Parties concerning the interpretation or application of this Convention, the parties to the dispute shall consult with a view to settling the dispute by negotiation or other amicable means. b) Where a dispute referred to in paragraph (a) is not settled within six months from the date upon which such dispute is acknowledged to exist by any party thereto, the Contracting Parties shall meet in order to assist the parties to the dispute to reach a friendly settlement. c) Where no resolution to the dispute has been reached within three months of the meeting referred to in paragraph (b), the dispute shall, upon the request of any party thereto, be submitted to the European Nuclear Energy Tribunal established by the Convention of 20 December 1957 on the Establishment of a Security Control in the Field of Nuclear Energy". Article 17 of the Revised Brussels Supplementary Convention provides that "*a*) In the event of a dispute arising between two or more Contracting Parties concerning the interpretation or application of this Convention, the parties to the dispute shall consult with a view to settling the dispute by negotiation or other amicable means. *b*) Where a dispute referred to in paragraph (*a*) is not settled within six months from the date upon which such dispute is acknowledged to exist by any party thereto, the Contracting Parties shall meet in order to assist the parties to the dispute to reach a friendly settlement. c) Where no resolution to the dispute has been reached within three months of the meeting referred to in paragraph (*b*), the dispute shall, upon the request of any party thereto, be submitted to the European Nuclear Energy Tribunal established by the Convention of 20th December 1957 on the Establishment of a Security Control in the Field of Nuclear Energy. *d*) Where a nuclear incident gives rise to a dispute between two or more Contracting Parties concerning the interpretation or application of the Paris Convention and of this Convention, the procedure for resolving such dispute shall be the procedure provided for under Article 17 of the Paris Convention."

2) Disputes connected with compensation for nuclear damage

These are disputes between natural or legal persons who have suffered nuclear damage and those who are providing funds for compensation, such as the operator, insurers, reinsurers, other financial guarantors or the installation state; or, disputes between the state bringing actions on behalf of persons suffering nuclear damage and those who are providing funds for compensation. With regard to nuclear liability claims, the nuclear liability conventions provide, as a general rule, that jurisdiction over nuclear damage claims lie only with the courts of the contracting party in whose territory the nuclear incident has occurred. Where a nuclear incident occurs outside the territory of the contracting parties or where the place of the incident cannot be determined with certainty, jurisdiction shall lie with the courts of the state where the liable operator's nuclear installation is located (i.e. the installation state). Furthermore judgements rendered by such courts are to be enforceable in any contracting party.[339]

The following ADR mechanisms currently exist under the international legal framework:

- Negotiation: Sometimes referred to as a means of settlement and sometimes as a preliminary resort to other means of settlement. Negotiation includes consultation and exchange of views between the parties, with no third party involved in the resolution process. Parties decide together not only on the resolution of a dispute, but also on the implementation of such resolution and its monitoring. It is worth noting that negotiation, as a preliminary step to other means of settlement, cannot usually delay the legal proceedings. As already mentioned, some nuclear liability conventions allow negotiations in case of dispute on the interpretation and application of the conventions, before submitting the dispute to arbitration or to the decision of an international judicial fora;
- Mediation: It involves an independent mediator who facilitates the resolution process by assisting the parties to negotiate a settlement of a dispute. There are two types of mediation: the conventional mediation where the parties agree to nominate a third person to facilitate the process of resolving a dispute; and the court (judicial) mediation, which is ordered by a judge either upon his/her own initiative (with however an agreement of the parties) or at the request of the parties. Mediation requires the consent and co-operation of the disputing parties. The mediator's proposed agreement or resolution must be accepted by them. This kind of ADR is widely used for dispute resolution in legal, diplomatic and civil law matters;
- Conciliation: A conciliator meets with the parties, both separately and together, to help them improve their communication, and encourage and assist them in finding a mutually acceptable solution. Conciliation combines the characteristics of an inquiry and a mediation, and is sometimes laid down as an alternative to arbitration in international treaties;[340]
- Arbitration: This kind of dispute resolution mechanism is widely used for interstate and commercial disputes. Arbitration implies involvement of one or more arbitrators – an arbitral tribunal – who impose a resolution. Arbitration proceedings may be based on ad hoc rules agreed for each particular case, which might take time and requests a

339 See Article 13 of the Paris Convention and the Revised Paris Convention; Articles XI and XII of the Vienna Convention and the Revised Vienna Convention; and Article XIII of the CSC. The Conventions further provide that judgments entered by the competent court shall, when they have become enforceable under the law applied by that court, become enforceable in the territory of any of the other contracting parties, with the merits of the case not the subject of further proceedings. Moreover, the Revised Vienna Convention, the CSC and the Revised Paris Convention provide an obligation for the contracting party whose courts have jurisdiction to ensure that only one single court is competent to rule on compensation for nuclear damage. Further, they also extend the single court's jurisdiction where the nuclear incident occurs within the exclusive economic zone of a contracting party.

340 Several multilateral conventions contain provisions on conciliations: the 1969 Vienna Convention on the Law of Treaties; the 1978 Convention on Succession of States in Respect of Treaties; the 1982 UN Convention on the Law of the Sea; and 1966 Permanent Court of Arbitration Optional Conciliation Rules.

preliminary phase, or may be based on existing arbitration rules.[341] Arbitrations may also be "mixed" (i.e. arbitration between two parties, with only one party being a state), and dealt with by institutions specifically created to resolve such types of disputes (e.g. the Iran-US Claims Tribunal and the United Nations Compensation Commission). The experience of these institutions may be relevant to nuclear-related claims, as there are a lot of similarities (such as the way of handling the claims, the composition of the institution and management of different heads of damage). In most cases, arbitral awards are final; however, it may be possible to review the award based on the application of one of the parties. The important issue in this regard is the enforceability of arbitral awards. Usually, domestic legislation governs the relationship between the arbitral tribunals and the national courts; therefore, it is necessary that arbitral awards be supported by the national law of the parties. The national legislation may also provide for the recognition and enforcement of domestic and foreign arbitral awards by the national courts.[342]

As a conclusion, the procedures to settle claims according to normal courts practice may be rigid, slow and expensive. With regard to the settlement of nuclear liability claims, national judges might not be experts in nuclear liability law, which is a real issue in several countries. In addition, the competent courts under the law of the installation state might be remote to the victims who might face, among other issues, linguistic problems. The ADR mechanisms are less formal, more flexible, confidential, quicker and less expensive. In the case of nuclear liability disputes, the ADR mechanisms might be more acceptable, especially in the absence of treaty relations between the concerned states. Finally, it is preferable to have predetermined rules for each ADR mechanism to which the parties can swiftly and easily resort to in order to resolve their dispute.

Resolving disputes: Identifying the competent court

Mr Omer F. Brown, II, **Partner, Omer F. Brown, II Law Office,** reported on the issues related to the identification of the competent court and factors that might lead to forum shopping. International nuclear liability conventions provide, as a general principle, that jurisdiction over nuclear damage actions lies only with the courts of the contracting party within whose territory the nuclear incident occurred (i.e. "channelling of jurisdiction"). Particularly for transboundary damage, having a single competent court to adjudicate nuclear claims would facilitate an equitable distribution of compensation, as well as prompt and affordable access to justice, in comparison to claims made and judgements rendered by courts of different countries to compensate damage caused by the same incident.[343] This is also important to ensure that the total amount of financial security to cover liability, if any, is not exceeded, and that damage is covered to the fullest extent possible. Having only one forum of jurisdiction would help to minimise litigation, and facilitate a consistent application of the enhanced definitions of "nuclear damage" under the revised nuclear liability conventions, which provide that the new heads of damage (such as the impairment of the environment, preventive measures and economic loss) are covered to the extent determined by the law of the competent court.

However, referral of nuclear liability disputes to a single competent court in one country is mandatory only when treaty relations exist between the concerned countries. Although non-

341 Such as the 1958 UN Model Rules on Arbitral Procedure; ICC Arbitration Rules and the UNCITRAL Arbitration Rules.

342 For the states parties to the 1958 Convention on the Recognition and Enforcement of Foreign Arbitral Awards (the "New York Convention"), this Convention governs recognition and enforcement of arbitral awards rendered in foreign countries. See New York Arbitration Convention (n.d.), "United Nations Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York, 10 June 1958)".

343 Following the *IAEA Action Plan on Nuclear Safety*, INLEX affirmed that states should "ensure that all claims arising from a nuclear incident are dealt with in a single forum in a prompt, equitable and non-discriminatory manner with minimal litigation, which could include a claims handling system (which may be set up in close co-operation with insurers or other financial guarantors) in order to deal equitably and expeditiously with all claims." IAEA (2011), "Draft IAEA Action Plan on Nuclear Safety", *supra* note 22 and 2012 "Recommendations on how to facilitate achievement of a global nuclear liability regime, as requested by the IAEA Action Plan on Nuclear Safety", *supra* note 24.

convention states may have domestic nuclear liability laws providing for a single competent court, such rules cannot bind the courts of other countries where claims might be brought, which could result in forum shopping and, potentially, competing lawsuits in different jurisdictions.

1) Impact of the absence of treaty relations on the unity of jurisdiction: the US lawsuits related to the Fukushima Daiichi accident

It seems that foreign nuclear operators and suppliers may be concerned about being sued in the United States courts given that it could be more beneficial to the plaintiffs for several reasons (e.g. potentially higher nuclear liability limits, generous attitude of the US juries, potential availability of punitive damages, liberal discovery, contingency fees and large damage awards). With regard to the Fukushima accident, although Japan's nuclear liability law channels liability for nuclear damage exclusively to the operator of the nuclear installation where the incident occurred and provides for unlimited liability, there have been several lawsuits brought before the US Federal courts beginning in 2012.[344] They have been allowed to proceed because the United States and Japan had no treaty relations according to the CSC at the time of the Fukushima accident.

These lawsuits confirm what can occur when there are no treaty relations providing for a single competent court in the territory where the nuclear incident occurred. Litigants engage in forum shopping when they think they can get more favourable outcome in another court, especially in the event of nuclear damage due to a nuclear incident occurring at a nuclear installation which has transboundary damage. Therefore, there is a need for treaty relations between countries that are engaged in nuclear activities to avoid lawsuits before multiple fora and especially in the United States, as the US courts have demonstrated that they are willing to take jurisdiction over nuclear incidents that occur outside the United States and cause no damage within the United States. Finally, in the case of litigation without the benefit of the channelling and strict liability principles provided under the conventions, it can take years before a final decision is made, which means that victims are not compensated in due time.[345]

2) Conventions' geographical scope

344 *Cooper et al. v. Tokyo Electric Power Company, Inc.* et al., No. 12CV3032 JLS-WMO (S.D. Calif., San Diego Div.); *Bartel et al. v. Tokyo Electric Power Company, Inc. et al.*, No. 17CV1671 DMS KSC (S.D. Calif., San Diego Div.); *Imamura et al. v. General Electric Company and "Does 1-100,"* No. 1:17CV12278-FDS (D. Mass.); *Holland et al. v. Tokyo Electric Power Company, Inc.* et al., No. 18CV000573 (DDC); *Park et al. v. Tokyo Electric Power Company, Inc. and General Electric Company,* No. 18CV2121 (S.D. Calif., San Diego Div.). For more information on these lawsuits, see: NEA (2017), "Cooper v. Tokyo Electric Power Company, No. 15-56426 (9th Cir. 2017)", *Nuclear Law Bulletin*, No. 99, OECD Publishing, Paris, pp. 73-74; NEA (2019), "Cooper v. Tokyo Electric Power Company, Imamura v. General Electric Company, and other US lawsuits related to the TEPCO Fukushima Daiichi NPP accident", *Nuclear Law Bulletin*, No. 102, OECD Publishing, Paris, pp. 84-87; NEA (2020), "United States lawsuits related to the TEPCO Fukushima Daiichi NPP accident", *Nuclear Law Bulletin*, No. 104, OECD Publishing, Paris, pp. 12-14.

345 *Secretariat note*: As of December 2021, all of the US lawsuits related to the Fukushima Daiichi accident have been dismissed after almost ten years of litigation. On 22 May 2020, the US Court of Appeals for the Ninth Circuit affirmed the 4 March 2019 decision of the US District Court for the Southern District of California dismissing the *Cooper v. TEPCO & GE* lawsuit on grounds of the following: (i) international comity as to TEPCO, and (ii) that Japanese law with its channeling provision should apply as to GE. Plaintiffs filed a petition for a writ of *certiorari* with the US Supreme Court on 25 November 2020. On 29 March 2021, the US Supreme Court denied without comment the *certiorari* petition filed by Plaintiffs in *Cooper v. TEPCO & GE*, seeking to overturn the May 2020 decision of the US Court of Appeals for the Ninth Circuit dismissing this Fukushima-related lawsuit. This effectively ended the Plaintiffs' lead lawsuit first commenced in 2012. On 20 May 2021, the parties agreed to dismissals without prejudice of the last two lawsuits that had been unresolved in the US District Court for the Southern District of California and the US District Court for the District of Columbia. Earlier, on 24 April 2020, the US Court of Appeals for the First Circuit affirmed the 9 April 2019 decision of the US District Court for the District of Massachusetts dismissing the separate Fukushima-related *Imamura v. General Electric Company* lawsuit on grounds of *forum non conveniens*. The deadline for Plaintiffs to seek US Supreme Court review in that case expired on 21 September 2020. That finally ended the lawsuit brought in Boston by all Japanese plaintiffs on 17 November 2017. For more information, see NEA (2021), "United States lawsuits related to the TEPCO Fukushima Daiichi NPP accident", *Nuclear Law Bulletin*, No. 106, OECD Publishing, Paris, pp. 31-32.

Another factor that could result in forum shopping is the scope of application of the convention(s) to which the installation state of the operator liable is a party in case damage is suffered outside the territory of its contracting parties.[346] Where compensation is not available for foreign victims under any of the applicable nuclear liability conventions, they could be tempted to engage in forum shopping. Alternatively, even where compensation would be available to victims in non-convention states, such victims would not be required to sue in the court of the installation state of the liable operator. Therefore, in the absence of treaty relations, victims could seek an alternative forum, particularly in a situation where such forum may offer a higher amount of compensation for nuclear damage.

3) Joint Protocol and reciprocity

According to the *Explanatory Text of the Joint Protocol*, the Protocol was designed to create a treaty link or a "bridge" between the contracting parties to either the Vienna Convention or the Paris Convention in order to extend "the benefit of the special regime of civil liability for nuclear damage set forth under each Convention and to eliminate conflicts arising from the simultaneous application of both Convention to a nuclear incident."[347]

The Joint Protocol provides that "either the Vienna Convention or the Paris Convention shall apply to a nuclear incident to the exclusion of the other." According to Article III of the Joint Protocol, the applicable nuclear liability convention will be that to which the installation state of the operator liable is a party to. Liability for nuclear damage shall be determined in accordance with the national law of such installation state.[348]

However, the 2004 Joint Declaration on reciprocity adopted by the contracting parties to the Revised Paris Convention[349] could impact the application of the Joint Protocol extending full financial benefits of the Paris Convention to victims in the Vienna Convention/Joint Protocol states with nuclear installations only conditionally. If the Vienna Convention/Joint Protocol states were subject to strict reciprocity requirements, their victims' compensation rights may be limited. This too could result in forum shopping.

346 *Secretariat note*: As a reminder, Article 2 of the Paris Convention contains provisions stating that the Convention does not apply to nuclear incidents occurring in the territory of non-contracting states or to damage suffered in such territory, unless the national legislation of the operator liable otherwise provides. There is no corresponding provision in the Vienna Convention, which is silent on the geographical scope of its application. The Revised Vienna Convention provides in its Article I.A that it applies, in principle, to nuclear damage "wherever suffered", with an important exception to this principle reflected in Article I. A.2 and Article I. A.3 of the Convention, which provides a possibility for the national legislation of the installation state to exclude damage suffered in a non-contracting nuclear state which does not afford equivalent reciprocal benefits. The Revised Paris Convention extends its geographical scope of application to nuclear damage suffered in the territory of countries mentioned in its Article 2 (a) (i)-(iv), provided that damage suffered in non-contracting states with nuclear installations which are not parties to the Joint Protocol, is covered subject to the existence in such countries of national legislation affording equivalent reciprocal benefits and based on principles identical to those contained in the Revised Paris Convention.

347 See the Preamble of the Joint Protocol. See also IAEA (2013), *The 1988 Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention — Explanatory Text*, IAEA International Law Series No. 5, IAEA, Vienna (*Explanatory Text of the Joint Protocol*).

348 Article III of the Joint Protocol provides that: "1. Either the Vienna Convention or the Paris Convention shall apply to a nuclear incident to the exclusion of the other. 2. In the case of a nuclear incident occurring in a nuclear installation, the applicable Convention shall be that to which the State is a Party within whose territory that installation is situated. 3. In the case of a nuclear incident outside a nuclear installation and involving nuclear material in the course of carriage, the applicable Convention shall be that to which the State is a Party within whose territory the nuclear installation is situated whose operator is liable pursuant to either Article II.1(b) and (c) of the Vienna Convention or Article 4(a) and (b) of the Paris Convention."

349 The Joint Declaration is further analysed in Session 7 – Amounts available of this report. See *infra* note 420.

4) Enforcement of judgements within Europe

Another important forum shopping incentive for victims of a nuclear incident may be the EU legislation on the enforcement of judgements. Certain EU member countries are not parties to any nuclear liability conventions, but at the same time, all EU member countries are bound by the Brussels I *bis* Regulation.[350] Article 7(2) of the Brussels I *bis* Regulation gives plaintiffs, "in matters relating to tort, delict or quasi-delict", the option to sue the defendant "in the courts for the place where the harmful event occurred or may occur" (i.e. both "the place where the damage occurred and the place of the event giving rise to it").[351] Some European states which are not EU member countries (Denmark, Iceland, Norway, and Switzerland) and the European Community are also parties to the Lugano Convention of 21 December 2007 on Jurisdiction and the Enforcement of Judgments in Civil and Commercial Matters.[352] Application of these instruments, for example, may result in the enforcement of an Irish or Austrian court judgement for nuclear damage (ruled under the Irish or Austrian law, which do not provide for channelling of liability exclusively to the operator) against a nuclear operator or supplier in another EU member state.

As a conclusion, litigants engage in forum shopping when they think they can get a more favourable outcome in another jurisdiction. Such a situation may be to the detriment of victims, who should be adequately and promptly compensated, which, in the absence of a unified system of channelling of nuclear liability to the operator, cannot be guaranteed. The preferable course is for more countries to come into treaty relations and gradually increase liability limits and wider access to supplementary compensatory funds. The IAEA Action Plan on Nuclear Safety called for a more global nuclear liability regime. The future of nuclear energy can be successful and responsible only on the basis of a truly unified nuclear liability regime based on equal compensatory rights, global financial solidarity and single court jurisdiction, allowing competition within the global nuclear industry to be focused on matters other than liability and the danger of forum shopping.

Resolving disputes: Enforcement of foreign judgements

Prof. Dr Ulrich Magnus, **University of Hamburg Professor Emeritus, former Judge at the Court of Appeal of the City of Hamburg**, reported on the international legal instruments governing the recognition and enforcement of foreign judgements in the area of civil liability for nuclear damage. A judgement is always a final point of a lengthy legal process and if it is not enforceable, it represents a waste of time and money. Therefore, the issue of enforcement of judgements is a crucial point.

350 The predecessor of the Brussels I *bis* Regulation – Brussels I Regulation No. 44/2001 – was the original reason for the delay of the entry into force of the Revised Paris Convention and the requirement that all the contracting parties to the Paris Convention that are also the EU member states deposit their instruments of ratification of the Revised Paris Convention simultaneously. See Council Regulation (EC) No 44/2001 of 22 December 2000 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters, *Official Journal of the European Union (OJ)* L 12 (16 Jan. 2001).The Council Decision 2004/294/EC of 8 March 2004 specifically mentioned that Austria, Ireland and Luxembourg will continue to base themselves on the Community rules contained in (then applicable) Regulation No. 44/2001 and to apply them in the area covered by the Paris Convention and by the 2004 Protocol amending that Convention. See Council Decision No 2004/294/EC of 8 March 2004 authorising the Member States which are Contracting Parties to the Paris Convention of 29 July 1960 on Third Party Liability in the Field of Nuclear Energy to ratify, in the interest of the European Community, the Protocol amending that Convention, or to accede to it, *Official Journal of the European Union (OJ)* L 097 (1 Apr. 2004).

351 According to the Judgment of the CJEU of 30 November 1976 Handelskwekerij G. J. Bier BV v Mines de potasse d'Alsace SA, "where the place of the happening of the event which may give rise to liability in tort, delict or quasi-delict and the place where that event results in damage are not identical, the expression "place where the harmful event occurred" […] must be understood as being intended to cover both the place where the damage occurred and the place of the event giving rise to it." Judgment of the Court of 30 Nov. 1976, Handelskwekerij G. J. Bier B.V. v Mines de Potasse d'Alsace S.A. (preliminary ruling requested by the Gerechtshof of The Hague), C-21/76, ECLI:EU:C:1976:166.

352 Convention on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters, OJ L 339/3 (21 Dec. 2007) (Lugano Convention).

The recognition and enforcement of foreign judgements is not automatic and usually requires a specific legal basis and justification, thus allowing a particular country to accept the rulings of courts of other countries and treat them like decisions of its own courts. The main basis for such recognition and enforcement is usually an international treaty or a supranational instrument (e.g. the Brussels I *bis* Regulation), which provides for a mutual acceptance of foreign court decisions among the countries adhering to the respective instruments. In the absence of a specific bilateral or multilateral treaty or a supranational instrument, the states decide themselves on the conditions under which they recognise and enforce foreign judgements.

1) Recognition and enforcement of foreign judgements under the nuclear liability conventions

All nuclear liability conventions contain provisions that govern the enforcement of foreign judgements. In principle, these provisions allow for the enforcement – and incidentally for the recognition – of judgements among the contracting parties to the relevant convention, although with certain differences among the conventions. With regard to the Paris Convention and the Vienna Convention, the differences between the two regimes were intended to be "bridged" by the Joint Protocol. Concerning the enforcement of foreign judgements, the Joint Protocol extends the enforcement possibility to the contracting parties of the relevant other convention.

Taking into account that nuclear liability conventions do not cover all the states with nuclear installations, and since nuclear damage may be suffered and adjudicated in countries without any nuclear installations, other international legal instruments relating to the recognition and enforcement of foreign judgements should be taken into account in this analysis, such as the Brussels I *bis* Regulation and the 2007 Lugano Convention. The Brussels/Lugano regime provides that judgements rendered in member states shall be recognised and enforced in all other member states. However, the recognition and enforcement can be refused on certain grounds. Judgements rendered in third states outside the Paris/Vienna and the Brussels/Lugano regimes may fall either under other bilateral or multilateral treaties (if any), or under the national legislation of the state where recognition and enforcement is sought.

Paris Convention

The Paris Convention provides in its Article 13(d) that "Judgments entered by the competent court under this Article after trial, or by default, shall, when they have become enforceable under the law applied by that court, become enforceable in the territory of any of the other Contracting Parties as soon as the formalities required by the Contracting Party concerned have been complied with. The merits of the case shall not be the subject of further proceedings. The foregoing provisions shall not apply to interim judgments."[353]

According to Article 13(d) of the Paris Convention, recognisable and enforceable judgements must meet the following requirements:

- Enforceable decision*:* A first requirement is that the foreign decisions must be "enforceable under the law applied by that court" (i.e. the court that rendered the judgement). Since this court usually applies its national procedural law, the judgement must be enforceable according to this law. Therefore, the requirements for enforceability to be met depend on the domestic law of the judgement state. Default judgements are treated in the same manner as judgements rendered after contradictory proceedings. However, "interim judgements" are excluded from enforceability under the Paris Convention, as well as settlements; [354]

353 *Secretariat note*: The same principles are provided in Article 13(i) of the Revised Paris Convention.

354 Paragraph 58 of the *Exposé des Motifs of the Paris Convention* and paragraph 99 of the *Exposé des Motifs of the Revised Paris Convention* mention that only "final judgments" may be enforceable. Therefore, even though some national laws may consider provisional decisions as enforceable, they are not enforceable under the Paris Convention. NEA (1982), *Exposé des Motifs of the Paris Convention*, *supra* note 109 and NEA (2020), *Exposé des Motifs of the Revised Paris Convention*, *supra* note 187.

- Jurisdiction of the judgement state: As a further precondition for the enforcement, Article 13(d) of the Paris Convention requires that the judgement court was competent "under this Article". Article 13(a) of the Paris Convention establishes the exclusive jurisdiction of the court(s) of the contracting state in whose territory the nuclear incident occurred.[355] If either the nuclear incident occurred outside the territory of the contracting parties or the place of the incident could not be determined with certainty, jurisdiction over such actions shall lie with the courts of the contracting party in whose territory the nuclear installation of the operator liable is situated.[356] If the incident occurred in two or more of the Paris Convention states, the European Nuclear Energy Tribunal could be asked to determine the competent court.[357] However, the geographical scope of the Paris Convention shall also be taken into account, as judgements which have been rendered by courts that are not competent according to these rules remain unenforceable in other contracting states;
- Formalities of the recognition/enforcement state: Judgements which are final, are enforceable in other contracting parties "as soon as the formalities required by the Contracting Party concerned have been complied with." The "Contracting Party concerned" is the state where enforcement is sought. Therefore, the "formalities" of this state must be complied with. It is questionable whether "formalities" include or exclude the general grounds of national law based on which the recognition and enforcement of a foreign judgement can be refused. On the one hand, Article 14(b) of the Paris Convention provides that where the Convention refers to "national law" or "national legislation", "that law or legislation shall apply to all matters both substantive and procedural not specifically governed by this Convention."[358] On the other hand, grounds for the refusal of enforcement (e.g. lack of being heard) can hardly be qualified as "formalities". They are substantive reasons to refuse the recognition and enforcement of a foreign judgement. "Formalities" should therefore include only those formal requirements which a contracting party requests as being necessary to enforce a foreign judgement (e.g. the institution of a special enforcement procedure). Neither the Paris Convention, nor the Revised Paris Convention provide for specific grounds to refuse the recognition and enforcement of foreign judgements. However, a general reservation of the "ordre public" (public order) of the enforcement state is probably inherent to all national enforcement rules;
- Effects: Contrary to many other international instruments, such as the Vienna Convention, and in contrast to most national laws, the Paris Convention does not state specific – negative – conditions which hinder the recognition and enforcement of foreign judgements. Therefore, if a final judgement is rendered by a court competent under the Paris Convention, it must be recognised and enforced in other contracting states (usually

355 The NEA Steering Committee recommended that the "Contracting Parties to the Paris Convention, when revising their national legislation, provide for a single court to be competent to rule on compensation under the Paris Convention for nuclear damage arising from any one nuclear incident; the criteria for this determination shall be decided by national legislation." The Recommendation of 3 October 1990 [NE/M(90)2] is available in NEA (1990), *Paris Convention: Decisions, Recommendations, Interpretations*, OECD Publishing, Paris. *Secretariat note*: It is worth noting that the Revised Paris Convention introduces the principle of a "single competent court" in Article 13(h) of the Convention. As a consequence, the 1990 Recommendation became obsolete following the entry into force of the Revised Paris Convention for all contracting parties.

356 See Article 13(b) of the Paris Convention. Article 13(c) of the Paris Convention provides even for the rare case where jurisdiction would lie in more than one state. Then, if the nuclear incident occurred partly in a Paris Convention state and partly in a non-contracting state, only the courts of the former would be competent. With regard to the Revised Paris Convention, those general rules have not changed. In addition, the Revised Paris Convention introduces in its Article 13(b) the principle of jurisdiction of the courts of the coastal state in case of nuclear incidents occurring in the exclusive economic zone of such state.

357 See Article 13 (c)(ii) of the Paris Convention and Article 13 (f)(ii) of the Revised Paris Convention.

358 *Secretariat note*: Article 14(b) of the Revised Paris Convention contains identical provisions.

through an exequatur procedure). Finally, Article 13 (d) of the Paris Convention [359] explicitly prohibits a "révision au fond" (substantive review) of the judgement – the courts of the enforcement state shall not investigate into the merits of the case.

Vienna Convention

The Vienna Convention regulates the recognition and enforcement of foreign judgements in its Article XII, which was slightly amended by the Revised Vienna Convention. The Article XII of the Convention provides that: "1/. A final judgement entered by a court having jurisdiction under Article XI shall be recognized within the territory of any other Contracting Party, except – (a) where the judgment was obtained by fraud; (b) where the party against whom the judgment was pronounced was not given a fair opportunity to present his case; or (c) where the judgment is contrary to the public policy of the Contracting Party within the territory of which recognition is sought, or is not in accord with fundamental standards of justice. 2/. A final judgment which is recognized shall, upon being presented for enforcement in accordance with the formalities required by the law of the Contracting Party where enforcement is sought, be enforceable as if it were a judgment of a court of that Contracting Party. 3/. The merits of a claim on which the judgment has been given shall not be subject to further proceedings."[360]

According to this Article XII, recognisable and enforceable judgements must meet the following requirements:

- Final decision: As a first condition for enforceability, Article XII of the Vienna Convention requires that the judgement be a final one; however, it does not define this term. Since Article XII does not mention "interim" or "provisional" judgements, it has been argued that the provision may allow their recognition and enforcement. However, Article XII of the Revised Vienna Convention removes the word "final" and provides that the judgement must be "no longer subject to ordinary forms of review". As a consequence, decisions which can be considered as "unappealable" must be recognised and can be enforced. Therefore, decisions that still can be challenged, even if they are provisionally enforceable, or settlements,[361] are not covered and cannot be recognised and enforced in other contracting states. Article XII of the Vienna Convention provision does not explicitly mention default judgements. They have to be dealt with in accordance with the general rule provided under Article XII (i.e. if they are still subject to an appeal, they are not recognisable and enforceable);

359 For the Revised Paris Convention, see Article 13(i).

360 Article XII of the Revised Vienna Convention states that: "1. A judgment that is no longer subject to ordinary forms of review entered by a court of a Contracting Party having jurisdiction shall be recognized, except - (a) where the judgment was obtained by fraud; (b) where the party against whom the judgment was pronounced was not given a fair opportunity to present his case; or (c) where the judgment is contrary to the public policy of the Contracting Party within the territory of which recognition is sought, or is not in accord with fundamental standards of justice. 2. A judgment which is recognized under paragraph 1 of this Article shall, upon being presented for enforcement in accordance with the formalities required by the law of the Contracting Party where enforcement is sought, be enforceable as if it were a judgment of a court of that Contracting Party. The merits of a claim on which the judgment has been given shall not be subject to further proceedings."

361 *Secretariat note*: In this regard, the CSC provides in its Article XIII.7 that "Settlements effected in respect of the payment of compensation out of the public funds referred to in Article III.1(b) in accordance with the conditions established by national legislation shall be recognized by the other Contracting Parties". As further explained in Section 3.9.4 of the *Explanatory Texts of the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage*, "This provision refers to settlements effected in respect of the payment of compensation out of the funds to be made available by the Contracting Parties in cases where the nuclear damage exceeds the national compensation amount; such settlements have to be recognized, just as judgements entered by the competent court (or courts) in respect of such compensation have to be recognized and enforced under Article XIII.5 and 6". Other provisions of the CSC on the recognition and enforcement of judgments provided in Article XIII are based on corresponding provisions in Article XII of the Vienna Convention. IAEA (2020), *Explanatory Texts of the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage*, *supra* note 110.

- Jurisdiction of the judgement state: In line with Article 13(d) of the Paris Convention, Article XII of the Vienna Convention requires that the judgement court must have had jurisdiction under the Convention;
- Grounds for refusal: Unlike the Paris Convention, Article XII of the Vienna Convention contains a list of three grounds, which exclude the recognition and enforcement of a foreign judgement in another contracting state, specifically: (i) judgement obtained by fraud (e.g. a judgement based on the wrong testimony of witnesses whom the judgement creditor had bribed); (ii) a situation where the adjudicated party had no fair opportunity to be heard (e.g. no reasonable steps were taken to inform this party of the institution of proceedings; this party was not given a realistic opportunity to present his/her own case in the proceedings); and (iii) a violation of the public order of the enforcement state or a violation of fundamental standards of justice;
- Formalities of the enforcement state: In the same manner as provided in the Paris Convention, the "formalities" of the enforcement state must be fulfilled in order to achieve enforcement of a foreign judgement in accordance with Article XII of the Vienna Convention. "Formalities" are the mere formal requirements under which a foreign judgement can be enforced in the enforcement state;
- Effects: A final judgement of a competent court has to be recognised and enforced in the other contracting states if no ground for refusal is identified. The recognition means that the foreign judgement must be given the same effects as if the judgement had been rendered in the enforcement state. In the same manner as provided in the Paris Convention, the merits of the claim on which the judgement has been given shall not be subject to further proceedings in the enforcement state (i.e. *révision au fond* is forbidden).

Joint Protocol

As mentioned in the *Explanatory Text of the Joint Protocol*, Article IV of the Joint Protocol provides that either the Vienna Convention or the Paris Convention "shall be applied" with respect to the Parties to the Protocol which are Parties to the other convention "in the same manner" as between Parties to that Convention.[362] Consequently, the Joint Protocol has the theoretical effect of expanding the circle of states where foreign judgements on civil liability for nuclear damage can be recognised and enforced, as if they were judgements of the enforcement state. However, the Joint Protocol does not stipulate any conditions for the recognition and enforcement of foreign judgements, but leaves this issue up to the Paris Convention or the Vienna Convention, whichever applies. Due to the fact that such conditions differ between the Paris and the Vienna Conventions, the question may arise as to which conditions should apply in a situation where a judgement is rendered in a state party to one convention, but shall be enforced in the state party to the other convention.

On the one hand, it could be inferred that the conditions for the enforceability should follow the convention in force in the state whose courts rendered the judgement, because both the Paris Conventions and the Vienna Convention provide that only the mere formalities of the enforcement state must be complied with. On the other hand, the enforceability must be assessed by the court of the enforcement state. Therefore, it could also be argued that the conditions of the convention in force in the state where enforcement is sought should apply. However, it seems that the application of the conditions in the judgement state would help to secure that the recognition and enforcement of a judgement is subject to the same conditions in all states that are bound by the relevant convention and the Joint Protocol. Otherwise, a judgement rendered, for instance, in a Paris Convention state would be enforced in the other Paris Convention states in accordance with Article 13(d) of the Paris Convention, but in the Vienna Convention states, it would be done in accordance with the Vienna Convention conditions. This solution would jeopardise the purpose of the Joint Protocol, and namely the mutual extension of the "benefit of the special regime of civil liability for nuclear damage set forth under each Convention".[363]

362 For more information, see Section 3.2 of IAEA (2013), *Explanatory Text of the Joint Protocol, supra* note 347.
363 *Ibid.*, Section 2.2.

Brussels I bis Regulation

The Brussels I *bis* Regulation applies to cases within the EU that are not covered by either the Paris Convention or by the Vienna Conventions (Article 71 Brussels I *bis* Regulation gives priority to these conventions).[364] The Brussels I *bis* Regulation aims at facilitating the free circulation of judgements within the EU. The formal requirements for the recognition and enforcement of judgements have therefore been reduced, but the following conditions shall however be met:

- Judgement: Unlike the Paris and the Vienna Conventions, under the Brussels I *bis* Regulation judgements, court settlements and authentic instruments can be enforced.[365] The Regulation provides for a wide definition of "judgement" which can be recognised and enforced (it includes "a decree, order, decision or writ of execution, as well as a decision on the determination of costs or expenses by an officer of the court").[366] Even provisional (including protective) measures ordered by the competent court can be enforced.[367] All such judgements are to be recognised "without any special procedure being required" [368] and are enforceable in the other member states. [369] Recognition and enforcement can only be refused if the interested party so requests, and specific grounds for refusal are identified;[370]
- Grounds for refusal: The grounds for refusal are listed in Article 45 (1) of the Regulation. They comprise the following: (1) the manifest violation of the public order of the enforcement state; (2) in case of default judgements that the defendant was not served in a way that he or she could arrange for a defense (unless the defendant failed to institute a possible remedy); (3) if the judgement is irreconcilable with a judgement between the same parties in the enforcement state; (4) if the judgement is irreconcilable with an earlier judgement between the same parties and on the same cause of action, provided that this judgement could be recognised in the enforcement state; (5) where the judgement disregarded either the exclusive jurisdiction [371] or the protective jurisdiction that the Regulation grants to consumers, employees or in connection with insurance contracts;
- Formalities for recognition and enforcement: The recognition of a judgement rendered in one of the EU member states in other member states does not require any formal procedure. It is sufficient that the interested party provide a copy of the original judgement and a special certificate issued by the judgement court, which gives the particulars of the judgement and certifies its enforceability. The enforcement does not require a separate procedure that would declare the decision enforceable (i.e. *exequatur*). The foreign judgement has to be enforced in the same way as a decision rendered in the enforcement state;

364 Article 71 of the Brussels I *bis* Regulation provides that: "1. This Regulation shall not affect any conventions to which the Member States are parties and which, in relation to particular matters, govern jurisdiction or the recognition or enforcement of judgments. 2. With a view to its uniform interpretation, paragraph 1 shall be applied in the following manner: (a) this Regulation shall not prevent a court of a Member State which is party to a convention on a particular matter from assuming jurisdiction in accordance with that convention, even where the defendant is domiciled in another Member State which is not party to that convention. The court hearing the action shall, in any event, apply Article 28 of this Regulation; (b) judgments given in a Member State by a court in the exercise of jurisdiction provided for in a convention on a particular matter shall be recognised and enforced in the other Member States in accordance with this Regulation. Where a convention on a particular matter to which both the Member State of origin and the Member State addressed are parties lays down conditions for the recognition or enforcement of judgments, those conditions shall apply. In any event, the provisions of this Regulation on recognition and enforcement of judgments may be applied."

365 See Articles 39, 58 and 59 of the Brussels I *bis* Regulation.

366 See Article 2 (a) subpara. (1) of the Brussels I *bis* Regulation.

367 See Article 2 (a) subpara. (2) of the Brussels I *bis* Regulation.

368 See Article 36 (1) of the Brussels I *bis* Regulation.

369 See Article 39 of the Brussels I *bis* Regulation.

370 See Article 45 and 46 of the Brussels I *bis* Regulation.

371 See Article 24 of the Brussels I *bis* Regulation.

- Effects: Like the Paris and the Vienna Conventions, the Brussels I *bis* Regulation forbids *révision au fond*.[372] Even the jurisdiction of the judgement court (including the facts on which jurisdiction is based) must not be reviewed, except insofar as the recognising or enforcing court has to examine whether the exclusive and protective jurisdiction rules of the Regulation have been observed.[373] When recognised, a judgement of an EU member state would have the same effect in the judgement state and in the other EU member states, as if it were rendered there. The effect of the original judgement is therefore extended to the country of recognition or enforcement.

2007 Lugano Convention

The Lugano Convention is very similar to the Brussels I *bis* Regulation in regard to most of its principles, in particular those concerning the grounds for refusal of recognition and enforcement of judgements. However, the Lugano Convention still provides for a specific procedure for the declaration of enforceability in the enforcement state (i.e. *exequatur*).[374]

Example of a domestic law on recognition and enforcement of foreign judgements: German law

In principle, under the German law, foreign judgements shall be recognised and enforced. However, recognition and consequently enforcement is excluded if certain grounds for their refusal exist.[375]

- Final judgements: Decisions of foreign (state) courts can be recognised and enforced. In order to be enforceable, the decision must be final and "unappealable" in the judgement state. Provisional decisions are unenforceable;
- Grounds for refusal of recognition and enforcement: The grounds under the German law are similar to the ones provided in the Brussels I *bis* Regulation, but not identical: (i) the foreign court that rendered the judgement had no jurisdiction (viewed from the perspective of the German law on jurisdiction); (ii) if the defendant who did not submit to the proceedings was not given orderly and timely notice of the proceedings; (iii) if the judgement is irreconcilable with a German judgement or if the proceedings on which such judgement is based are incompatible with proceedings that have become pending earlier in Germany, or if such judgement is incompatible with an earlier foreign judgement which is to be recognised in Germany; (iv) if the recognition of the judgement would manifestly violate essential principles of German law, in particular fundamental rights; (v) if there is no reciprocity of recognition and enforcement with the judgement state. Compared to the grounds for refusal in the Paris Convention and the Vienna Conventions, as well as in the Brussels I *bis* Regulation, the German domestic law narrows the possibility of recognition and enforcement in particular by the requirements of reciprocity. The requirement of full compliance with the own (German) jurisdiction provisions tends also to limit the recognition and enforcement of foreign judgements;
- Formalities: Unlike the recognition of foreign judgements, their enforcement requires a specific procedure which declares the judgement enforceable (i.e. *exequatur*). This procedure is governed by German law;
- Effects: The recognition and enforcement of a foreign judgement extends the effects this judgement has under the law of the country where it was rendered, to the country of recognition and enforcement. German law does not allow *révision au fond*.

As a conclusion, there is a variety of sources of law in the field of recognition and enforcement of judgements in the area of liability and compensation for nuclear damage. The

372 See Article 52 of the Brussels I *bis* Regulation.

373 See Article 45 (2) and (3) of the Brussels I *bis* Regulation.

374 See Article 38 of the Lugano Convention, *supra* note 352.

375 The grounds for refusal are listed in Section 328 ZPO (BGBl. I No. 72/2005) (German Civil Procedure Code).

conditions for the recognition and enforcement of judgements vary depending on the applicable international legal instrument and the relevant national legislation, even though there is a large consensus regarding certain conditions (e.g. the judgement can only be recognised and enforced if it does not manifestly violate public order of the enforcement state; *révision au fond* of the judgement in the enforcement state is prohibited). It is in the interest of victims of a nuclear incident to get a judgement rendered in one state and enforceable in other states under the same conditions. This is particularly true with regard to the recognition and enforcement of judgements in the state where the liable person has its assets. Therefore, further harmonisation concerning the recognition and enforcement of judgements in the area of liability for nuclear damage is desirable.

Discussion session

A question arose as to whether the differences in the liability regimes in force in the judgement state and the enforcement state (e.g. differences in establishing a causal link, or liability of a nuclear operator for a nuclear incident caused by a grave natural disaster of an exceptional character) could be used as a ground for refusal of recognition and enforcement of a foreign judgement in the enforcement state on the basis of violation of the public order. It appeared that that the public order argument may be raised in these circumstances, but most probably only if the enforcement state denies any liability of an operator in such cases and leaves victims without any compensation. If there are grounds for liability of an operator (and even though their respective contents differ in the judgement state and the enforcement state), the argument of public order would probably not be valid.

With regard to the absence of the recognition and enforcement provisions in the Joint Protocol, it was further discussed that one of the possible explanations of such omission is that the Joint Protocol directly refers to the recognition and enforcement provisions of the relevant applicable conventions (i.e. either the Paris Convention or the Vienna Convention) to deal with this issue. In this regard, the main concern is to identify under which conditions the rendered judgement would be recognised and enforced (i.e. under the conditions of the judgement state or under the conditions of the enforcement state), as there is no definitive answer to this question.

It was also discussed that in the absence of a universal legal instrument providing for, among other principles, a channelling principle, jurisdiction of one single court and common rules on the recognition and enforcement of judgements, there may be a legal uncertainty as to how the consequences of nuclear incident, and more specifically claims for nuclear damage, would be treated.[376] In this regard, a question arose as to whether a system with only regional nuclear liability regimes in place would be satisfactory to suppliers who nowadays supply worldwide, and to people who now travel around the world more and more frequently (and therefore could become potential victims of a nuclear incident).

Some emphasised that the real issue is not to attract as many states with nuclear installations as possible within the same international legal instrument, but rather to persuade the non-nuclear states to join one of the nuclear liability conventions in order to avoid a situation where these states establish their own specific nuclear liability regimes that would allow for forum shopping. In response to this situation, the installation state could raise the argument of the public order to refuse recognition and enforcement of foreign judgements rendered due to such forum shopping, which eventually could be detrimental to victims. From the standpoint of non-convention states, it appeared that the following reasons might attract such countries to join a nuclear liability convention: a common system governing nuclear liability in the neighbouring countries (e.g. in Europe) and an amount of compensation for nuclear damage which could be considered as appropriate based on the outcome of the total amounts of compensation paid for nuclear damage caused by past nuclear incidents (e.g. the Fukushima accident).

It was also pointed out that, generally, a global nuclear liability regime is often compared to several regional nuclear liability regimes, with a comparison between instruments that establish

376 As already mentioned, the *IAEA Action Plan on Nuclear Safety* expressly suggested establishment of a global nuclear liability regime as an action to improve the effectiveness of the international legal framework. See *supra* note 22.

those regimes and not between their respective contents. In this regard, the following questions may arise: Do we need similar principles when applying a nuclear liability regime? Do we need to encourage states to increase the amounts of funds available to compensate victims? If a global adherence to a single and universal nuclear liability instrument is not possible due to the variety of legal approaches among different countries, harmonisation among the existing regimes should be encouraged.

Finally, based on lessons learnt from the Fukushima accident, it appeared that in addition to the principle of a single competent court, a single policy should govern the consequences of a particular nuclear incident with a focus on compensation to victims. In this respect, resolution of nuclear liability claims through an ADR mechanism offers certain advantages. Such mechanism represents a tool that is able to provide compensation to victims as soon as possible, so they can re-start their lives with a minimum waste of time and money.

Overview of responses to the questionnaire

ADR mechanism(s) under national law

Almost two thirds of the responding countries reported that their national laws do not contain mechanisms providing for an out-of-court settlement of nuclear liability-related disputes. **A few** countries, however, provided some clarifications to their responses (see Figures 37.a and 37.b). Examples:

- Belgium: Even though the national law does not include provisions relating to ADR mechanisms, Article 30 of the Law of 22 July 1985 on civil liability in the field of nuclear energy empowers the King to organise a compulsory conciliation procedure, either administrative or judiciary;[377]
- Ireland: ADR mechanisms are not specifically provided under national law, but parties are free to agree upon an ADR mechanism to resolve their dispute in advance of court proceedings.

On the other hand, **few** reporting countries indicated that ADR mechanisms are provided under their national legislation. Examples:

- Australia: According to Section 56(1) of the Civil Procedure Act 2005 (NSW), the overriding principle for civil law matters is to "facilitate the just, quick and cheap resolutions of real issues in the proceedings." The Act also gives the courts power to order mediation under Section 26, and arbitration, in accordance Section 38;[378]
- Finland: The Act on mediation in civil matters and confirmation of settlements in general courts (394/2011) may be applicable in cases related to nuclear damage;[379]
- Japan: Relevant provisions on ADR mechanisms exist under the Act on Compensation for Nuclear Damage;[380]
- Romania: Procedures for mediation are contained in the Law 192/2006. According to Article 1 of this Law, mediation is a way of resolving conflicts amicably, with the help of a third party mediator, under conditions of neutrality, impartiality, confidentiality, and with the free consent of the parties. According to Article 43 of the Law, in civil and commercial matters, the parties may seek to settle the dispute through mediation before going to court. If one of the parties explicitly refuses, in writing, mediation or fails to respond to the

377 See Article 30 of the 1985 Law, *supra* note 168.

378 Civil Procedure Act 2005 No. 28, as amended (NSW) (NSW Government Gazette No. 100 of 10 August 2005).

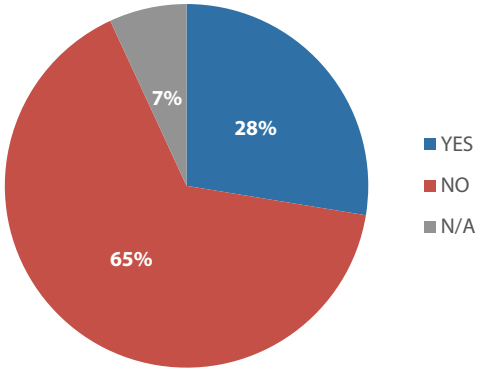
379 The Act on mediation in civil matters and confirmation of settlements in general courts (394/2011).

380 Act on Compensation for Nuclear Damage, as amended (Act No. 147 of 17 June 1961, as amended by Act No.19 of 17 April 2009).

invitation to mediation or does not appear twice in a row on the date set for signing the mediation contract, the mediation shall be considered unacceptable;[381]

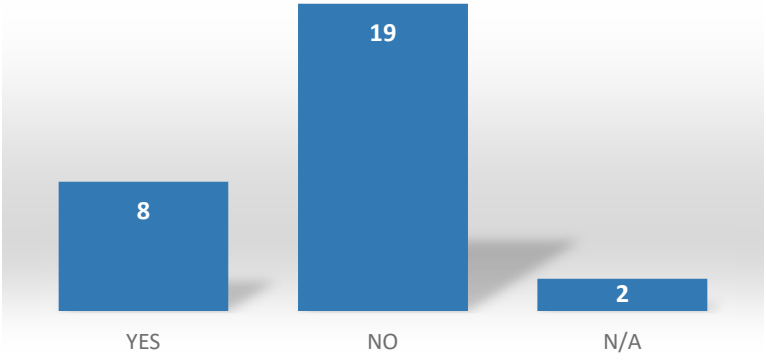
- Slovenia: Article 15(2) of the Act on Liability for Nuclear Damage provides for the possibility for an out-of-court settlement through arbitration or mediation. More specifically, according to this Article, "[i]n informing the injured parties of the procedure and manner of the enforcement of claims for compensation for nuclear damage, the insurer shall, at the same time, be obliged to provide them with the information on the possibility of the out-of-court settlement of disputes, which must include the jurisdiction of the Court".[382]

Figure 37.a. **Does your national law provide for an ADR mechanism in case the operator and victims disagree on the extent of the compensation to be paid for nuclear damage, as a first step before going to court?**



Source: NEA.

Figure 37.b. **Does your national law provide for an ADR mechanism in case the operator and victims disagree on the extent of the compensation to be paid for nuclear damage, as a first step before going to court?**



Source: NEA.

381 Law 192/2006 on mediation and the profession of mediators, as amended (Official Monitor [*Monitorul Oficial*] no. 441 of 22 May 2006).

382 See Article 15 of the 2010 Act on Liability for Nuclear Damage, *supra* note 126.

Competent court under the jurisdiction of the installation state

In answering the question related to the court of the installation state competent under the national law to rule on compensation for nuclear damage, **several** responding countries designated one single court having exclusive jurisdiction to hear claims related to nuclear damage arising from a nuclear incident.

a) In some cases, the court exclusively competent to rule on compensation for nuclear damage is **expressly designated by the national law**, irrespective of the place where the nuclear incident occurred or where the liable operator is situated. Examples:

   - Belgium: According to Article 26 of the Law of 22 July 1985 on civil liability in the field of nuclear energy, the competent court is the *Tribunal de première instance de Bruxelles*, the Brussels' tribunal competent for civil matters;[383]
   - Hungary: The Municipal Court of Budapest has exclusive jurisdiction to judge claims for compensation of nuclear damage submitted on the basis of the 1996 Act on Atomic Energy;[384]
   - Slovenia: According to Article 19 of the of the Act on Liability for Nuclear Damage, "[t]he District Court in Ljubljana shall have exclusive subject-matter and territorial jurisdiction over all compensation claims in relation to a nuclear incident";[385]
   - Sweden: According to Article 58 of the Act on Liability and Compensation for Nuclear Incidents, exclusive jurisdiction for actions related to this Act would lie with the Nacka District Court (Land and Environment Courts).[386]

b) In some other cases, the **territorial nexus determines the national court** having exclusive jurisdiction on matters related to nuclear damage. Examples:

   - Canada: Section 34(1) of the NLCA stipulates that "[a]n action involving damage that is caused by a nuclear incident is to be brought in the court in Canada that has jurisdiction in the place where the incident occurs". Furthermore, subparagraph 2 of the same Section states that "[t]he Federal Court has jurisdiction if the nuclear incident occurs (a) in more than one province; (b) partly within a province and partly within Canada's exclusive economic zone; or (c) within Canada's exclusive economic zone";[387]
   - Germany: After the entry into force of the Revised Paris Convention, §40a of the AtG became applicable. According to this new paragraph, "For actions for damages on the basis of the Paris Convention or on the basis of the Paris Convention in conjunction with the Joint Protocol, for which the courts of the Federal Republic of Germany have jurisdiction under the provisions of the Paris Convention, the district court in whose district the nuclear incident occurred or, in the cases referred to in Article 13(c) of the Paris Convention, the seat of the liable holder of the nuclear installation is situated shall have exclusive jurisdiction. If the nuclear incident occurs within the exclusive economic zone of the Federal Republic of Germany, the Hamburg District Court shall have exclusive jurisdiction";[388]
   - United States: According to Section 170.n(2) of the Atomic Energy Act, the US district court where the nuclear incident occurred would be the competent court; however, if the incident occurred outside the United States, the US District Court for the District of Columbia would have jurisdiction.[389]

383 See 1985 Law, *supra* note 168.

384 See Article 65 and Article 2(23) of the 1996 Act on Atomic Energy, *supra* note 158.

385 See 2010 Act on Liability for Nuclear Damage, *supra* note 126.

386 See Article 58 of the Act on Liability and Compensation for Nuclear Incidents, 2010 (SFS 2010:950).

387 See Section 34 of the NLCA, *supra* note 124.

388 *Atomgesetz*, *supra* note 173.

389 See Section 170.n(2) of the United States Atomic Energy Act of 1954, *supra* note 169.

Competent court under the jurisdiction of the affected state if no treaty relations exist with the Installation State

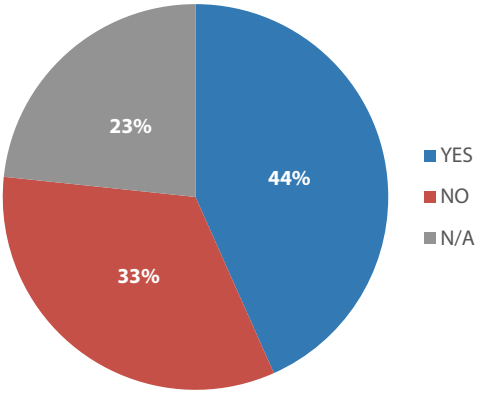
In answering the question on the courts having jurisdiction under the national law of the affected state to rule on compensation for nuclear damage in the absence of treaty relations with the installation state, **roughly half** of the responding countries reported that their national courts would have jurisdiction in such a case (see Figure 38). Examples:

- Australia: If the damage resulting from the tort was wholly or partly suffered in Australia, an Australian court will have jurisdiction to hear the claim;
- Canada: Treaty relations with another state are not required in order for Canadian courts to have jurisdiction under Canadian law to rule on compensation for nuclear damage. However, without treaty relations, the orders of Canadian courts would not be enforceable in the installation state;
- United States: US courts may assert jurisdiction over nuclear damage claims both when the US are or are not an affected state. It is also possible for a claim to be brought in the US for an incident occurring outside the United States, depending upon whether facts or circumstances exist to connect the nuclear damage to some person or entity within the United States according to the jurisdictional requirements of the US courts.

Responding countries that are also **EU member states** reported that relevant EU legislation should be taken into account in order to determine the competent court(s). Examples:

- Austria: According to Section 22 of the AtomHG, the plaintiff can choose between the court in the jurisdiction of which the damage was caused or the court in the jurisdiction of which the damage was suffered.[390] If the liable party is located within the EU, the competent court will be designated in accordance with the Brussels I *bis* Regulation. On the contrary, in the case where the liable person is located outside the EU, national jurisdiction rules as laid down in the Austrian national legislation will determine the competent court;
- Netherlands: If the installation state is an EU member state, the Brussels I *bis* Regulation would apply. If the installation state is a non-EU member state, relevant rules in the Dutch Code of Civil Procedure would apply.

Figure 38. **If you are an affected state and do not have treaty relations with the installation state, will your courts have jurisdiction under your national law to rule on compensation for nuclear damage?**



Source: NEA.

390 See Section 22 of the AtomHG, *supra* note 136.

Enforceability in the installation state of decisions by the affected state's competent courts in the absence of treaty relations between these states

In answering the question related to the enforceability in the installation state of decisions rendered by the competent courts of the affected state in the absence of treaty relations between the concerned states, **approximately half** of the responding countries reported that such decisions would not be enforceable under their jurisdiction. **Several** countries provided clarifications to their response (see Figures 39.a and 39.b). Examples:

- Canada: Treaty relations with another state would be required in order for decisions of the affected state's courts to be enforceable in Canada;
- Sweden: As a main rule, such decisions would not be enforceable in Sweden. However, the Brussels I *bis* Regulation would apply should the affected state be another EU member state;
- United Kingdom: Section 17(5) provides a defence against any claims in the United Kingdom to enforce a judgement from a foreign court if that country is not a relevant territory and is not subject to a relevant international agreement, unless there is an international agreement in place that allows for the judgement to be enforced.[391]

Several responding countries confirmed that even in the absence of treaty relations with an affected state, decisions rendered by the courts of such state would be enforceable under their jurisdiction. Examples:

- Belgium: For such decisions to become enforceable in Belgium, the procedure of recognition of foreign judicial decisions provided for by Article 23 et seq. of the Private International Law Code should be complied with. Furthermore, the *Tribunal de première instance de Bruxelles* (Brussels' tribunal for civil matters) is competent to hear and adjudicate on recognition of foreign judicial decisions;[392]
- Japan: If the decision of a foreign court satisfies the conditions for domestic enforcement as provided in the Code of Civil Procedure, such decision may be enforceable;[393]
- Romania: National legislation related to nuclear liability does not include any provisions in this regard. However, the procedure for the recognition and enforcement of judgements rendered in the EU member states is governed by Brussels I *bis* Regulation. In regard to non-EU member states, Romania's Code of Civil Procedure would apply. Article 1096 of the Code provides that the foreign decisions may be recognised in Romania to benefit from the authority of *res judicata*, if the following conditions are met cumulatively: (a) the judgement is final according to the law of the state where it was rendered; (b) the court that ruled had, under the law of the state in which territory it is located, jurisdiction to hear the proceedings, provided that the presence of the defendant or of his or her property not directly related to the dispute in the territory of such court is not the only nexus; (c) there is reciprocity regarding the effects of foreign judgements between Romania and the state of the court that rendered the judgement.[394]

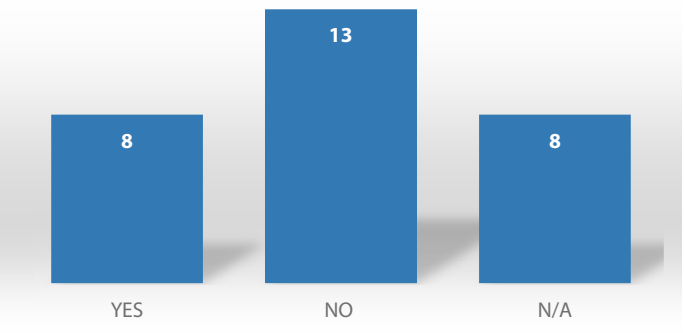
391 See Section 17(5) of the NIA 65, *supra* note 149.

392 See Article 22 *et seq.* of the Law of 16 July 2004 Holding the Code of Private International Law (Belgian Official Journal of 27 July 2004, n° 2004009511).

393 See Article 118 of the Japanese Code of Civil Procedure (*Kampo Gogai*, 26 June 1996, Vol. 1/3, 148, pp. 22-44).

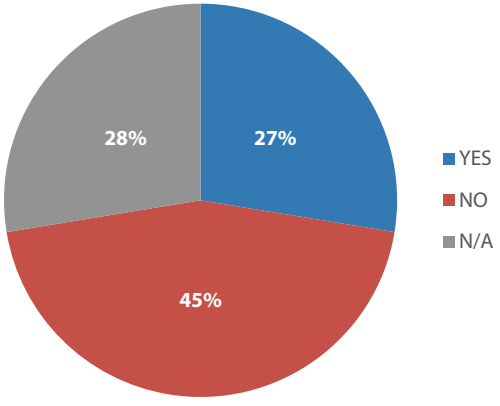
394 See Article 1096 of the Romanian Code of Civil Procedure (Official Monitor no. 247 of 10 Apr. 2015).

Figure 39.a. **If you are an installation state and do not have treaty relations with an affected state, will decisions by the affected state's competent courts (according to their respective national law) be enforceable in your country under your national law?**



Source: NEA.

Figure 39.b. **If you are an installation state and do not have treaty relations with an affected state, will decisions by the affected state's competent courts (according to their respective national law) be enforceable in your country under your national law?**



Source: NEA.

Session 6 – Conclusions

i) *Disputes* related to the compensation of nuclear damage under the international conventions (whether between states, or between the operator and the victims) *could be resolved by ADRs*, which are confidential, less formal, less time-consuming, less expensive, more flexible and more adaptable to the case and expectations of the parties. However, only arbitration awards may be easily enforceable in another country if the 1958 New York Convention applies;

ii) International nuclear liability conventions determine the competent court, but in the absence of treaty relations, victims may engage in *forum shopping*, which may also be induced if nuclear liability limits are too low and the country does not have access to supplementary compensatory funds;

iii) *Recognition and enforcement of judgements* on nuclear liability and compensation for nuclear damage are governed by a variety of sources which may cause confusion on the relevant applicable source, especially because they provide different conditions for the recognition and enforcement of judgements and there is no unanimity on the grounds for their refusal. It would be in the interest of the victims to further harmonise enforcement and recognition rules.

Session 7

Amounts available

Mr Roland Dussart-Desart, **Chair of the NLC and Head of Legal Division at the Belgium FPS Economy, SMEs, Self-employed and Energy, and Chair of Session 7**, mentioned that the availability of funds dedicated to the compensation of victims in an efficient, quick and, if possible, non-discriminatory manner is key to the success of the whole process of indemnification for nuclear damage. There are a variety of compensation amounts that may be available to victims: (i) "basic" liability amounts provided according to the nuclear liability conventions that are implemented in different ways by national legislation; (ii) reduced amounts for compensation in case of transport of nuclear substances or for low-risk installations; (iii) additional tiers of compensation amounts (sometimes from different origins and with different destinations); and (iv) "phasing-in" amounts and recommended amounts, etc. There are additional considerations to take into account while analysing the amounts available: capacity of the insurance market with different ranges of amounts available depending on each head of damage to be covered; capacity of mutuals; amounts available in the operators' pooling system(s); state intervention (i.e. state guarantee, state insurance, state reinsurance). These amounts can be fixed, but also variable. Sometimes there is only a minimum or a maximum amount which is fixed. Some amounts are dedicated to victims located in specific areas, some amounts can interact with others according to the reciprocity principle and other amounts are subject to certain priority rules. Finally, there are unlimited amounts according to certain national legislation. Session 7 focuses on the variety of amounts available and the rationale behind them, as well as the *modus operandi* of these amounts.

Amounts available: The difference between international nuclear liability conventions regimes

Ms Colleen Demerchant, **General Manager, Nuclear Insurance Association of Canada**, reported on behalf of Mr Jacques Hénault, **Nuclear Liability Advisor, Uranium and Radioactive Waste Division, Natural Resources Canada**, on the differences in the amounts available among the nuclear liability conventions, and provided practical suggestions on how the limits of liability and respective amounts could be calculated by explaining the Canadian approach to setting the nuclear liability limits and dealing with situations where nuclear damage claims exceed the available amounts.

The following compensation amounts may be available under the nuclear liability conventions:[395]

Paris Convention

- maximum liability limit (basic liability or "reference amount"): SDR 15 million;
- 1990 NEA recommended limit:[396] SDR 150 million;
- minimum liability limit: SDR 5 million;
- minimum reduced liability amounts:[397] (i) transport – SDR 5 million; (ii) low-risk installations – SDR 5 million.

Revised Paris Convention

- maximum liability limit: none;
- minimum liability limit ("basic" liability or "reference amount"): EUR 700 million;
- minimum reduced liability limits:[398] (i) transport of nuclear substances – EUR 80 million; (ii) low-risk installations – EUR 70 million.

Vienna Convention

- minimum liability limit: USD 5 million;[399]
- maximum liability limit: none.

395 *Secretariat note*: For information on the conventions ratified by the concerned states and the currently applicable nuclear liability amounts, see the *Nuclear Operators' Third Party Liability Amounts and Financial Security Limits* table available at: www.oecd-nea.org/liability-amounts (Accessed 31 Aug. 2023).

396 The NEA Steering Committee recommended that the contracting parties to the Paris Convention adopt as an objective the setting, to the extent possible, of the maximum liability of the nuclear operator at not less than SDR 150 million. The contracting parties were also invited to examine the possibility of providing simplified methods for adjusting the liability of the nuclear operator under their national legislation, so as to take into account the evolution in the capacity available on the insurance market. The NEA Steering Committee Recommendation of 20 April 1990 [NE/M (90)1] is available in NEA (1990), *Paris Convention: Decisions, Recommendations, Interpretations*, OECD Publishing, Paris,. *Secretariat note*: It is worth noting that this Recommendation became obsolete following the entry into force of the Revised Paris Convention for all contracting parties.

397 The OECD Council recommended that any contracting party to the Paris Convention which, having had regard to the nature of the nuclear installation or nuclear substances in question and to the likely consequences of a nuclear incident involving them, establishes, by virtue of Article 7(b)(ii) of the said Convention, the liability of certain nuclear operators at an amount lower than that established for nuclear operators generally, should take steps to make available public funds to satisfy any claim for compensation in excess of the lower amount so established, up to a total of the amount established for nuclear operators generally. The Recommendation of the OECD Council of 16 November 1982 [C(82)181] is available in NEA (1990), *Paris Convention: Decisions, Recommendations, Interpretations*, OECD Publishing, Paris. *Secretariat note*: It is worth noting that this Recommendation became obsolete following the entry into force of the Revised Paris Convention for all contracting parties.

398 According to Article 10(c) of the Revised Paris Convention, the contracting party within whose territory the nuclear installation of the liable operator is situated shall ensure the payment of claims for compensation for nuclear damage which have been established against the operator by providing the necessary funds to the extent that the insurance or other financial security is not available or sufficient to satisfy such claims, up to an amount not less than EUR 700 million.

399 Article V.1 of the Vienna Convention provides that "the liability of the operator may be limited by the Installation State to not less than US 5 million for any one nuclear incident." Subparagraph 3 of the same article further provides that "The United States dollar referred to in this Convention is a unit of account equivalent to the value of the United States dollar in terms of gold on 29 April 1963, that is to say US $35 per one troy ounce of fine gold."

Revised Vienna Convention

- minimum liability limit: SDR 300 million;
- maximum liability limit: none;
- minimum reduced liability limit:[400] SDR 5 million.

Brussels Supplementary Convention

- first tier (operator's liability amount according to the Paris Convention): maximum SDR 15 million (recommended: SDR 150 million);
- second tier (public funds): the balance between the first tier amount and SDR 175 million;
- third tier (international funds): between SDR 175 million and SDR 300 million.[401]

Total amount available: minimum SDR 300 million.

Revised Brussels Supplementary Convention

- first tier (operator's liability amount according to the Revised Paris Convention): minimum EUR 700 million;
- second tier (public funds): EUR 500 million;
- third tier (international funds): EUR 300 million.

Total amount available: minimum EUR 1.5 billion.

CSC

- first tier (operator/ State): minimum SDR 300 million;
- second tier (current CSC States): SDR 102.9 million;

Total amount available: minimum SDR 102.9 million.[402]

It is worth noting that there is an important difference in the liability amounts among the original nuclear liability conventions (i.e. the Paris Convention and the Vienna Convention) and the revised conventions.

400 Article V.2 of the Revised Vienna Convention provides that the installation state, having regard to the nature of the nuclear installation or the nuclear substances involved and to the likely consequences of an incident originating therefrom, may establish a lower amount of liability of the operator, provided that in no event shall any amount so established be less than SDR 5 million, and provided that the installation state ensures that public funds shall be made available up to the amount of not less than SDR 300 million.

401 With regard to the Brussels Supplementary Convention, the OECD Council adopted a Recommendation [C(92)166/FINAL] that the contracting parties to the BSC shall not invoke Article 3(b)(i) of the Brussels Supplementary Convention in cases where the amount of the insurance or other financial security of the operator is higher than SDR 175 million per incident (i.e. public funds tier) of the Brussels Supplementary Convention. As a consequence of the Recommendation, the third tier will be mobilised when the amount made available by the operator is exhausted. The third tier is "deferred". *Secretariat note*: It is worth mentioning that the "*deferment*" principle provided in this Recommendation became obsolete following the entry into force of the 2004 Protocol to amend the Brussels Supplementary Convention [see Article 9(c) of the Revised Brussels Supplementary Convention]. The revised Recommendation is available at: https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0272 (Accessed 31 Aug. 2023).

402 *Secretariat note*: Figures are provided as of May 2022. The CSC Online calculator to apply the formula for contributions provided in Article IV of the CSC according to which the CSC contracting parties shall make available the public funds referred to in Article III.1(b) of the CSC is available at: https://ola.iaea.org/ola/CSCND/index.html (Accessed 31 Aug. 2023).

Regarding the Canadian nuclear legislation, the NLCA[403], which entered into force on 1 January 2017, replaced the previous Nuclear Liability Act with stronger legislation to better deal with liability and compensation for civil damage resulting from a nuclear incident. The liability limit for operators of nuclear power plants was increased from CAD 75 million under the previous legislation to CAD 1 billion by way of phasing-in progressively over 4 years – from CAD 650 million at proclamation (2017), to CAD 750 million, CAD 850 million, and finally CAD 1 billion in 2020. The nuclear liability limit must be reviewed regularly and can be increased by regulation. The NLCA provides a prescription period of 30 years for bodily injury and loss of life from the date of the accident, while maintaining a 10-year prescription period for other heads of damage. The insurance market in Canada is insuring all new heads of damage according to the NLCA, with the exception of "routine" emission (e.g. authorised emissions permitted by the regulatory authorities) and the extended prescription period of 30 years, which are subject to indemnification by the Canadian government through an indemnity agreement concluded between the federal government and each of the operators.

The need to balance the requirements under the NLCA with the insurance of adequate compensation, as well as the commercial interest of the operators were seen as drivers in setting the nuclear liability limits, along with striving to be in line with the international norms. The government of Canada took into consideration that need for balance and used the following criteria in setting up the liability limits:

Rationale for the CAD 1 billion limit:

- sufficient to deal with consequences of controlled releases of radiation;
- within the capacity of insurers to provide insurance at reasonable costs;
- in alignment with the standards set in the revised international nuclear third party liability conventions.

The liability limit will be subject to:

- review on a regular basis (at least once every five years), and
- possible increase by regulation, having regard to factors such as inflation and international standards.

In the event where it appears that nuclear damage compensation claims would exceed the liability amounts established in the NLCA, the second tier of the CSC would be available to cover, at least partially, such claims.[404] Claims for these compensation amounts would be addressed by the insurers and the courts. However, should damage claims exceed the mentioned amounts, the NLCA provides that the government may establish a quasi-judicial tribunal to replace the courts in the event of a serious incident, where it is in the public interest to do so, having regard to the extent and the estimated cost of the damage, and the advantages of having the claims dealt with by an administrative tribunal. The NLCA elaborates the features and process of the tribunal that would replace the court: there will be minimum of five members, the majority of which should be judges or lawyers; claims will be heard by panels of the tribunal consisting of one or more members; and in order to process claims expeditiously, the tribunal may establish classes of claims that shall be determined by a claims officer designated by the tribunal.

Immediately following the government's declaration that claims from a nuclear incident are to be dealt with by a tribunal, the Minister of Natural Resources must report to Parliament on the estimated cost of the indemnification for damage arising from the nuclear incident. If further funds are appropriated by Parliament to provide compensation for damage arising from the nuclear incident, the tribunal is authorised to award those further funds for the damage. The government could make regulations respecting the compensation that may be awarded by the tribunal, including regulations establishing priorities for classes of damage,

403 NLCA, *supra* note 124.

404 On 4 September 2017, the CSC entered into force for Canada.

those reducing awards on a *pro rata* basis for specified classes of damage and fixing a maximum award within a specified class of damage, and regulations establishing classes of damage for which compensation is not to be awarded.

As a conclusion, in order to deal with the consequences of a nuclear incident, the installation state needs to have established well in advance of a nuclear incident an efficient system that would facilitate the process of compensation of nuclear liability claims to victims.

Amounts available: The reciprocity principle

Mr Patrick Reyners, **Former Head of the NEA Legal Affairs, Secretary General and Scientific Advisor of the International Nuclear Law Association**, reported on the reciprocity principle and its application in the framework of the nuclear liability conventions in relation to compensation amounts.[405]

The term "reciprocity" is used in international law to denote the relation existing between two states when one of them gives the subjects of another state certain privileges, on the condition that its own subjects shall enjoy similar privileges. Moreover, and as a general rule of Roman law, a country may wish to preserve a balance regarding the benefits afforded to other countries in the name of reciprocity.

Generally speaking, the reciprocity principle may be considered as a derogation from the normal application of the nuclear liability conventions, as it seems to contradict one of the basic principles of these conventions, namely the principle of non-discrimination.[406] The reciprocity principle may thus be regarded as a derogation from the normal application of the conventions due to specific circumstances. It is worth noting that a particular kind of derogation from the provisions of the convention was already introduced into the Paris Convention regarding the allocation of public funds.[407] However, the original conventions (i.e. the Paris Convention, the

405 For information on the application of the reciprocity principle in different countries, see *Principle of Reciprocity in National Legislation Relating to Compensation of Nuclear Damage* table, available at: www.oecd-nea.org/upload/docs/application/pdf/2022-06/reciprocity_principle_table_2021-05.pdf (Accessed 31 Aug. 2023).

406 Both the Paris Convention (Article 14) and the Vienna Convention (Article XIII) establish the principle of non-discrimination, specifying that the "[…] law and legislation [of the Contracting Party] shall be applied without any discrimination based upon nationality, domicile, or residence". The CSC states that compensation "…shall be distributed equitably, without discrimination based upon nationality, domicile, or residence" (Article III.2).

407 Article 15 of the Paris Convention states that "a. Any Contracting Party may take such measures as it deems necessary to provide for an increase in the amount of compensation specified in this Convention. b. In so far as compensation for damage involves public funds and is in excess of the 5 000 000 Special Drawing Rights referred to in Article 7, any such measure in whatever form may be applied under conditions which may derogate from the provisions of this Convention." The *Exposé des Motifs of the Paris Convention* provides in this regard in its paragraph 62 that "[…] a Contracting Party may take such measures as it deems necessary to provide for an increase in the amount of compensation specified in the Convention [Article 15(a)] whether within the third party liability of the operator or outside such liability. Where a Contracting Party takes measures to provide for compensation above 5 000 000 SDRs in so far as it is to be paid out of public funds, such measures, whether within the third party liability of the operator or outside such liability, may be applied under special conditions which derogate from the provisions of the Convention and in particular need not be applied without discrimination to all victims [Article 15(b)]. Hence, the Convention does not regulate the methods and means of application of State intervention and the availability of additional compensation above 5 000 000 SDRs out of public funds for foreign victims is left to be dealt with outside the Convention." It is worth noting that, unlike Article 15(b) of the Paris Convention which limits the effects of the derogation to the use of public funds in excess of a certain amount, Article 15(b) of the Revised Paris Convention allows the contracting parties to derogate from the provisions of the Convention in so far as compensation for nuclear damage is in excess of EUR 700 million, regardless of the nature of funds. NEA (1982), *Exposé des Motifs of the Paris Convention*, *supra* note 109. The *Exposé des Motifs of the Revised Paris Convention* provides in this regard (paragraph 105) that "Article 15(b) allows for deviation from the non-discrimination rule contained in Article 14 where additional funds are used to compensate nuclear damage in excess of the EUR 700 million liability amount provided for under Article 7. For Contracting Parties with unlimited liability regimes or States with limited liability in excess

Brussels Supplementary Convention and the Vienna Convention) do not contain express provisions on reciprocity, thus giving the competent national court the discretion to apply it, if relevant.

The following factors may be pointed out to explain the establishment of the reciprocity conditions in the revised nuclear liability conventions:

- the lack of harmonisation among the international nuclear liability conventions with regard to the amounts of compensation provided therein;
- the fact that a few countries (e.g. Germany, Japan, Switzerland) provide for unlimited liability or that some countries provide for higher nuclear liability amounts than others;
- the fact that a nuclear incident could have transboundary consequences, as demonstrated by the Chernobyl accident;
- the fact that if a state is a party to the Joint Protocol, the scope of application of the nuclear liability convention it is a party to (either the Paris Convention or the Vienna Convention, whether original or revised) will be expanded and the concept of "equivalent treatment" provided under the Joint Protocol will apply;[408]
- the extended geographical scope of the Revised Paris Convention and the Revised Vienna Convention, which would cover states that are not parties to such conventions.

All of the points above raise the issue of the adequate distribution of the amount of compensation available with regard to national and foreign victims in a situation where countries do not provide for reciprocal benefits.

It is worth remembering that the Joint Protocol links the operation of the Paris Convention and the Vienna Convention to allow victims of a nuclear accident in a party to one of the Conventions to benefit from the compensation regime established by the other Convention, and vice versa. It therefore realises a mutual extension of the protection provided to victims by the special regime under the Paris Convention and the Vienna Convention. However, the provisions of the Joint Protocol raised certain questions regarding their effects on the application of the Brussels Supplementary Convention, as well as the issue concerning the preservation of the international tier of compensation under this Convention in the case where the operator's financial security equals or exceeds the amount of the third tier.

To manage the consequences of the entering into force of the Joint Protocol, and in order to preserve the availability of the public funds provided pursuant to the Brussels Supplementary Convention, the contracting parties to the Paris Convention and the Brussels Supplementary Convention took certain measures that would apply among them:

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of 700 million EUR, these additional funds are, effectively, operator funds and would therefore be subject to distribution in accordance with the non-discrimination rule of Article 14, rather than in accordance with the provisions of Article 15(b). To remedy this situation, and to ensure that the same rules apply to the distribution of these additional funds regardless of their source, deviation from the non-discrimination rule is permitted regardless of whether public or private funds are used to compensate nuclear damage in excess of the liability amount established under Article 7." NEA(2020), *Exposé des Motifs of the Revised Paris Convention*, *supra* note 187. However, the provisions of Article 15(b) of the Revised Paris Convention should be read in conjunction with the *2004 Recommendation on the Application of the Reciprocity Principle to Nuclear Damage Compensation Funds* adopted in the frame of the Conference on the Revision of the Paris Convention and of the Brussels Convention Supplementary to the Paris Convention. This Recommendation (analysed in further detail later in this Session) reflects the agreement of the contracting parties to the Revised Paris Convention and the Revised Brussels Supplementary Convention in respect of deviations from the non-discrimination rule. NEA (2004), "Recommendation on the Application of the Reciprocity Principle to Nuclear Damage Compensation Funds", *infra* note 418.

408 Article IV of the Joint Protocol provides that "1/. Articles I to XV of the Vienna Convention shall be applied, with respect to the Contracting Parties to this Protocol which are Parties to the Paris Convention, in the same manner as between Parties to the Vienna Convention. 2/. Articles 1 to 14 of the Paris Convention shall be applied, with respect to the Contracting Parties to this Protocol which are Parties to the Vienna Convention, in the same manner as between Parties to the Paris Convention."

- the *1992 Declaration of the contracting parties' intention to consent to the early mobilisation of funds* under the Brussels Supplementary Convention;[409] and
- the *1992 OECD Council Recommendation on the Application of the Brussels Supplementary Convention* to take measures to ensure the uniform application of the Brussels Supplementary Convention.[410]

With regard to the geographical scope of application, the Revised Paris Convention and the Revised Vienna Convention adopted different approaches regarding its extension: the Revised Paris Convention offers a "conditional extension"[411], while the Revised Vienna Convention provides for an "opting out" clause.[412] Both conventions do make a distinction between "nuclear" and "non-nuclear" states, and refer to "equivalent reciprocal benefits" as a case for the possible exclusion of "nuclear" non-contracting states from their respective geographical scopes of application.[413] In addition, both conventions provide that, in respect of "nuclear" non-contracting states, there is a possibility to fix lower amounts in case such a state "does not afford

409 As provided in the Note by the Secretariat in NEA(2005), "Recommendations Concerning the Operation of the Brussels Supplementary Convention: Status of Notifications/Declarations made by Contracting Parties [First Revision of Document NEA/LEG/DOC(97)7]", OECD Doc. NEA/NLC/DOC(2005)2, "The practical result of the application of the Joint Protocol is an extension of the geographical scope of the Paris Convention to benefit Parties to the Vienna Convention and Joint Protocol. This may result in earlier exhaustion of the financial security of the operator liable under the Paris Convention and of the amount of public funds to be made available by the contracting party in whose territory the nuclear installation of the operator liable is situated under the Brussels Supplementary Convention. This, in turn, may lead to earlier mobilisation of public funds under the latter Convention. Taking into account that the prior consent of the contracting parties to the Brussels Supplementary Convention being necessary in such a case [Art. 14(b) of the Brussels Supplementary Convention], the BSC contracting parties were invited to state in advance their intention to give consent to this early mobilisation of funds. All contracting parties have made declarations to the Secretary General of the OECD to this effect. Contracting parties also stipulated in their declarations that this consent would be confirmed, in due course, to the Belgian government as Depository for the Brussels Supplementary Convention."

410 *Secretariat note:* One of the reasons behind the adoption of this Recommendation was the preservation of the international tier of compensation under the Brussels Supplementary Convention. See *supra* note 397.

411 See Article 2(a) of the Revised Paris Convention.

412 See Article I.A of the Revised Vienna Convention.

413 The *Exposé des Motifs of the Revised Paris Convention* provides in its paragraph 10 in this respect that "…any other non-Contracting [nuclear] State must have nuclear liability legislation in force that affords equivalent reciprocal benefits and that is based upon principles identical to those contained in the Paris Convention. Since such States pose a risk of nuclear damage in Paris Convention States, it is only logical that the benefits under the Paris Convention should accrue to victims in such States only if those States extend the benefits of their own legislation to victims in Paris Convention States. The additional requirement that such legislation be based upon principles identical to those contained in the Paris Convention is designed to ensure that victims in Paris Convention States who suffer damage as a result of a nuclear incident occurring in such a non-Contracting State will have the same basic rights with respect to claiming compensation against the liable operator in the non-Contracting State as will victims in the non-Contracting State when bringing their claims for compensation against the liable operator under the Paris Convention. The inclusion of this additional requirement thus transforms the principle of reciprocity into concrete terms." NEA (2020), *Exposé des Motifs of the Revised Paris Convention*, *supra* note 187.The *Explanatory Texts of the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage* mentions in its Section 2.2.3 that "[…] the idea behind this provision [Article I A.2] is that a nuclear State should either join the Vienna Convention or afford 'reciprocal benefits' if it wants the funds available under the Convention to cover damage suffered in its territory. The question may arise of the precise meaning of reciprocity in this context. It seems obvious that the exclusion of damage suffered in a non-Contracting nuclear State could be based on the fact that the legislation of that State does not provide for compensation of damage suffered by victims in States party to the Vienna Convention. It is less obvious that the exclusion could be based on the fact that the legislation of that State does not ensure the same amount of compensation or, a fortiori, that it does not conform with all the principles of nuclear liability embodied in the Vienna Convention." IAEA (2020), *The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage – Explanatory Texts*, *supra* note 110.

reciprocal benefits of an equivalent amount".[414] Article XIII.2 of the Revised Vienna Convention is, however, broader than the similar provisions of the Revised Paris Convention, as it covers not only "nuclear" non-contracting states but any "[other] State" (i.e. it applies to the contracting parties to Revised Vienna Convention as well).[415]

Concerning the effect of the right to derogate envisaged in Article XIII.2 of the Revised Vienna Convention in respect to the contracting parties to both the Paris Convention and the Joint Protocol, the *Explanatory Text of the Joint Protocol* provides further explanation as to "whether, under the terms of the Joint Protocol, the Contracting Parties to one Convention may limit the amount

414 See Article 7(g) of the Revised Paris Convention and Article XIII.2 of the Revised Vienna Convention. The *Exposé des Motifs of the Revised Paris Convention provides* in its paragraph 67 the following explanation in this respect "[…] by virtue of Article 2(a)(iv) the Convention applies to nuclear damage suffered in a non-Contracting State which has nuclear liability legislation in force that affords equivalent reciprocal benefits to those provided under the Convention and that is based on principles identical to those of the Convention. It may be the case, however, that the non-Contracting State's legislation provides for reciprocal benefits which are globally equivalent to those provided under the Convention without actually providing for liability amounts identical to those fixed by the Convention. In these cases, the Contracting Parties are permitted to establish liability amounts that are lower than those established by the Convention and equal to those offered by that non-Contracting State." NEA (2020), *Exposé des Motifs of the Revised Paris Convention*, *supra*, note 187.

415 Article XIII.2 of the Revised Vienna Convention provides that "Notwithstanding paragraph 1 of this Article, insofar as compensation for nuclear damage is in excess of 150 million SDRs, the legislation of the Installation State may derogate from the provisions of this Convention with respect to nuclear damage suffered in the territory, or in any maritime zone established in accordance with the international law of the sea, of another State which at the time of the incident, has a nuclear installation in such territory, to the extent that it does not afford reciprocal benefits of an equivalent amount." The *Explanatory Texts of the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage* mentions in this regard in its Section 2.8 that "[…] it must be recognized that the drafting of the new provision is not entirely satisfactory and could give rise to doubts as to its precise implications. Inasmuch as it refers to 'another State', as opposed to a 'non-Contracting State', Article XIII.2 is clearly intended to apply to a Contracting Party also. On the other hand, whereas the context of the new provision might be seen as implying that a derogation could only related to the non-discrimination principle, a broader interpretation is also possible, since reference is made to the possibility of derogating from 'the provisions' of the Convention. Under this broader interpretation, it could be argued, for example, that the legislation of the Installation State could establish lower amounts of compensation in respect of damage suffered in a State not affording reciprocal benefits; this interpretation may be seen as reinforced by the fact that the new provision is intended to apply to a nuclear State not affording 'reciprocal benefits of an equivalent amount', a language which clearly refers to the amount of compensation. In other words, when it comes to damage suffered in a nuclear Contracting party, lack of reciprocity, under the strict interpretation of Article XIII.2, would only allow for a derogation from the non-discrimination principle; for example, the Installation State could exclude damage suffered by nationals of that State. Under the broader interpretation of that provision, the Installation State could establish lower amounts of compensation in respect of damage suffered in a Contracting Party which does not provide reciprocal benefits of an equivalent amount, for example, because it has availed itself of the pashing-in provision in Article V.1(c). The same holds true as far as damage suffered in a non-Contracting nuclear State is concerned, but then only if the legislation of the Installation State chooses not to exclude that damage. In fact, since Article I A.2 and 3 allows the legislation of the Installation State to exclude such damage from "the application" of the Convention, it could be argued that Article XIII.2 would not even apply in such a case. On the other hand […] whereas there is no doubt that an exclusion under Article I A.2 and 3 could be based on the fact that the legislation of the third State concerned does not cover damage suffered in the States party to the Vienna Convention, it is not so obvious that such an exclusion could be based on the mere fact that the same amount of compensation is not made available. Therefore, if the Installation State opts for a strict interpretation of Article I A.2 and 3, it could still avail itself of the possibility envisaged in Article XIII.2." IAEA (2020), *The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage – Explanatory Texts*, supra, note 110.

of compensation available under their legislation to the lesser amount that may be available under the legislation of the Contracting Parties to the other Convention."[416]

Differences in the amounts of compensation according to the revised Paris Convention and the Revised Vienna Convention, amplified by the application of the Joint Protocol, may lead to a situation where victims of a nuclear incident for which a foreign operator is liable may be entitled to a higher or lower amount of compensation than the one to which they would be entitled in their own country. Under the revised Paris/Brussels regime, this issue is mitigated by the existence of an additional mechanism of compensation of public funds, which benefit the BSC states only. However, and taking into account that certain contracting parties to the Paris Convention opted for an unlimited liability for nuclear operators (e.g. Germany), a nuclear operator may remain liable for paying a compensation amount which goes beyond the liability limits provided under the Paris/Brussels regime (the so-called "excess" funds). This situation led to the adoption of a specific *Recommendation on the Application of Reciprocity Principle to Nuclear Damage Compensation Funds* by the Conference on the Revision of the Paris Convention and the Brussels Supplementary Convention on 12 February 2004.[417] It was recommended that contracting parties to the Brussels Supplementary Convention agree not to apply special conditions (as would be allowed under Article 15(b) of the Paris Convention) for the allocation of "excess funds" to compensate victims in certain "nuclear" states (i.e. other contracting parties to the Revised Paris Convention, contracting parties to both the Vienna Convention and to the Joint Protocol and non-convention nuclear states) provided that such states afford "reciprocal benefits of an equivalent amount", or in any "non-nuclear" state.[418] The main purpose of this non-binding instrument is to allow a compromised solution to protect potential victims in the contracting parties to the Paris Convention and the

416 The *Explanatory Text of the Joint Protocol* provides in its Section 3.2.3. that "Inasmuch as the new Article XIII.2 of the 1997 Vienna Convention refers to 'another State', it is clearly is intended to apply to both to the other Contracting Parties to the Vienna Protocol and to non-Contracting States, to the extent that damage suffered in such States is covered. In any event, if a Contracting Party to the Vienna Protocol ratifies or accedes to the Joint Protocol, it would have to cover damage suffered in the Contracting Parties to both the Paris Convention and the Joint Protocol, but Article IV of the Joint Protocol would allow it to apply to the new Article XIII.2 to these latter States 'in the same manner' as it applies between Contracting Parties to the Vienna Protocol. […] It appears, therefore, that, under the above interpretation of Article XIII, para. 2, of the 1997 Vienna Convention, the Contracting Parties to the Vienna Protocol may resort to reciprocity in respect of compensation available in excess of 150 million SDRs, but, for those of them that are party to the Joint Protocol, it is highly unlikely that they may in fact do so vis-à-vis the Contracting Parties to the Paris Convention that are also party to the Joint Protocol, in view of the much higher amount of compensation that will be available under this latter Convention once it is amended by the 2004 Protocol. On the other hand, despite the much lower amount of compensation available under the other Convention, the Contracting Parties to the amended Paris Convention that are also party to the Joint Protocol will only be allowed to resort to reciprocity vis-à-vis the Contracting Parties to the Vienna Convention in respect of compensation available in excess of €700 million." IAEA (2013), *Explanatory Text of the Joint Protocol*, *supra* note 347.

417 NEA (2004), "Recommendation on the Application of the Reciprocity Principle to Nuclear Damage Compensation Funds", Annex III to the Final Act of the Conference on the Revision of the Paris Convention and the Brussels Supplementary Convention, 12 Feb. 2004 (*Recommendation on the Application of Reciprocity Principle to Nuclear Damage Compensation Funds*), available at: www.oecd-nea.org/law/final-act-conference-revision-pc-bc.pdf (Accessed 31 Aug. 2023).

418 *Recommendation on the Application of Reciprocity Principle to Nuclear Damage Compensation Funds* states that"If a Contracting Party to the Brussels Supplementary Convention has satisfied its obligations under that Convention up to the amount referred to in Article 3(a) thereof [*i.e. EUR 1.5 billion*], if the amount of nuclear damage to be compensated exceeds the aforementioned amount and if funds remain available, whether provided by insurance or other financial security pursuant to Article 10 of the Paris Convention or by public funds pursuant to national legislation enacted prior to the nuclear incident which requires that a specified amount of public funds will be provided to compensate nuclear damage, it should not make use of the right provided for in Article 15(b) of the Paris Convention to apply special conditions to the compensation of nuclear damage using such remaining funds in respect of: a) a State referred to in Article 2(a)(i), (ii) or (iv) of the Paris Convention which, at the time of the nuclear incident, has a nuclear installation in its territory or in any maritime zone established by it in accordance with international law and which affords reciprocal benefits of an equivalent amount; b) any other State which, at the time of the nuclear incident, has no nuclear installation in its territory or in any maritime zone established by it in accordance with international law." [Italic added by the Secretariat]

Brussels Supplementary Convention against discriminatory treatment by restricting the use of reciprocity conditions. Although not legally binding, the recommendation is considered a strong policy commitment on the part of those states.

Given that there are important differences among the minimum liability amounts provided under the nuclear liability conventions, as well as among the amounts provided in national legislation, the contracting parties to the Revised Paris Convention in their effort to minimise the impact of such differences, adopted on 23 November 2004 a Joint Declaration whereby they approved in advance the deposit of a reservation regarding the reduction of compensation to be paid to victims in certain states,[419] unless and "to the extent such other State does afford reciprocal benefits of an equivalent amount."[420] The contracting parties to the Revised Paris Convention have subsequently confirmed their agreement both on the principle and the text of this Declaration. The effects the reservation suggested in the Joint Declaration would have on the Joint Protocol raised discussions on its legal validity, especially as to whether such reservation would defeat the object and purpose of the Joint Protocol. However, a legal opinion made by Professor Alain Pellet on this topic concluded that the reservation would be admissible since "in itself such a reservation would have no effect on the application of the 1988 Joint Protocol". Indeed, such a reservation would apply to the contracting parties to the Paris Convention and to the parties to both the Vienna Convention and the Joint Protocol, without discrimination, since "given the wording of Article IV of the Joint Protocol, the reserving State will have the benefit of such a reservation in its relations with the Contracting Parties to the Protocol which are not Parties to the Paris Convention. In other words, since 'the Parties to either convention are to be treated as if they were Parties to the other', the inescapable consequence is that a State Party to the Paris Convention which has made a reservation in keeping with the Joint Declaration, will have the benefit of its reservation in its relations with the Parties to the Joint Protocol."[421] Therefore, and based on the legal opinion of Professor Pellet, the reservation contained in the Joint Declaration would be opposable to the Vienna Convention states parties to the Joint Protocol.

In conclusion, the existing variety of compensation amounts provided in the nuclear liability conventions, combined with the application of the Joint Protocol, have resulted in the establishment of reciprocity conditions.[422] However, introducing reciprocity rules results in the

419 These states are listed in Article 2(a)(i), Article 2(a)(ii) and (iv), and Article 2(b) of the Revised Paris Convention (i.e. the contracting parties to the Revised Paris Convention; the contracting parties to both the Vienna Convention and to the Joint Protocol; certain non-Paris Convention nuclear states and states that are covered by the scope of application of the Revised Paris Convention according to the national legislation of a contracting party in whose territory the nuclear installation of the operator liable is situated). It is worth noting that "non-nuclear" states are not impacted by the Joint Declaration. See CPPC (2004), Summary Report, Meeting of the CPPCs, 23 Nov. 2004, Paris, France, NEA Doc. NEA/LEG/CPPC(2004)2, p. 8, Annex 2, "Draft Proposal for a Joint Declaration by the Signatories to the Protocol of 12 February 2004 to Amend the Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960, as amended by the Additional Protocol of 28 January 1964 and by the Protocol of 16 November 1982 (the "Paris Convention") (CPPC Restricted) (*Joint Declaration*).

420 The *Joint Declaration* states that "The Signatories to the Protocol of 12 February 2004 to amend the Paris Convention hereby declare that if the following reservation is made in accordance with Article 18 of the Paris Convention, such a reservation is accepted: "[Name of State making reservation], without prejudice to Article 2*(a)*(iii) *[i.e. non-nuclear States]*, reserves the right to establish in respect of nuclear damage suffered in the territory of, or in any maritime zones established in accordance with international law of, or on board a ship or aircraft registered by, a State other than [Name of State making reservation], amounts of liability lower than the minimum amount established under Article 7*(a)* to the extent that such other State does not afford reciprocal benefits of an equivalent amount." *[Italic added by the Secretariat] Ibid.*

421 Source: Pellet, A. (2011), "Legal Opinion Regarding the Effects of a Reservation proposed by the Signatories to the 2004 Paris Protocol on the 1988 Joint Protocol Relating to the Application of the Vienna and Paris Conventions" (unpublished).

422 *Secretariat note*: It is worth noting that the CSC also contains its own provisions related to reciprocity. Article XII.2 of the CSC provides that "Nothing in this Convention shall prevent any Contracting Party from making provisions outside the scope of the Vienna or the Paris Convention and of this Convention, provided that such provision shall not involve any further obligation on the part of the other Contracting Parties, and provided that damage in a Contracting Party having no nuclear installations within its territory shall not be excluded from such further compensation on any grounds of lack of reciprocity."

creation of an additional source of legal complexity. This is one of the examples of the fragmentation of the international nuclear liability regimes that needs to be remedied in the interest of victims of nuclear damage.[423] To remedy this situation, states should consider alignment of the minimum liability limits to remove one of the main causes of reciprocity (i.e. differences in the amounts of liability) and promote harmonisation of nuclear liability laws.

Amounts available: The impact of providing priority rules

Ms Beata Sparażyńska, **Chief Expert for EU and International Affairs, Nuclear Energy Department, Polish Ministry of Energy** and Mr Kamil Adamczyk, **Expert for Legal Affairs, Nuclear Energy Department, Polish Ministry of Energy**, reported on the impact of providing priority rules to the amounts available for compensation.

Priority rules are designed to mitigate the situation of insufficiency of compensation amounts available by streamlining their distribution. Under the original nuclear liability conventions (the Paris Convention and the Vienna Convention),[424] the distribution of compensation remains at the discretion of national courts. However, some states introduced priority rules into their national legislation, independently from the nuclear liability conventions. There are several possible models of distribution of compensation that may be used (e.g. "first come-first served" basis or the proportional compensation of all claims). There is a certain consensus that claims for loss of life or personal injury should take priority over claims for damage to property and other types of claims, even though they are usually lodged significantly later than other types of claims. Establishing priority rules for compensation of damage is one way to elevate claims for loss of life or personal injury to a more favourable position; another possibility is the extension of the prescription period for such claims. Since the nuclear liability conventions establish limits of liability, and even if according to certain national legislation liability of nuclear operators is unlimited, financial security is always limited. Therefore, in the case of a severe nuclear incident, the amounts available for compensation would likely be insufficient to cover all the damage suffered. If no priority rules are established, it may happen that severe personal injuries are compensated only partially or, in a worst case scenario, not compensated at all as the available funds would have already been used on claims filed earlier.

One of the lessons learnt from the Chernobyl accident was the effect of the lack of priority in the distribution of compensation for nuclear damage. Discussions on the need to include priority rules in the conventions revealed the difference in approach among the states regarding priority rules; some considered the need to provide a formula to clearly establish what part of the overall amount available for compensation should be dedicated to compensating loss of life or personal injury claims, as well as the period of time during which these claims could benefit from a priority treatment.

423 *Secretariat note:* As already mentioned (see the Introductory Session), an initiative in the area of harmonisation of nuclear liability amounts in Europe was launched in 2007 at the EC level and resulted in the establishment of Nuclear Liability Groups at the EU level (2011-2013) with the purpose of analysing different procedures to indemnify victims which are already in place in the EU member countries, and investigating possibilities of harmonising nuclear liability legislations within the EU to find, among other issues, appropriate solutions for non-nuclear countries which do not wish to become party to any international nuclear liability conventions. A set of recommendations of the Nuclear Liability Working Group 3 on liability amounts was issued, by the overall activities have been indefinitely suspended since 2014.

424 Article 11 of the Paris Convention and the Revised Paris Convention provides that "The nature, form and extent of the compensation, within the limits of this Convention, as well as the equitable distribution thereof, shall be governed by national law." Article VIII of the Vienna Conventions states that, "subject to the provisions of this Convention, the nature, form and extent of the compensation, as well as the equitable distribution thereof, shall be governed by the law of the competent court." Article 11 of the CSC Annex contains identical provisions.

In the end, a priority rule was only introduced in the Revised Vienna Convention.[425] Neither the Revised Paris Convention nor the CSC have similar provisions.[426] However, the risk of insufficient funds is to some extent mitigated in the Brussels Supplementary Convention, as well as in the CSC by the mobilisation of additional public funds. With regard to the priority rule provision of the Revised Vienna Convention, no precise formula was given, and it was left to the discretion of the relevant national legislation, which led to the lack of an adequate definition in some states. Finally, the priority rule established under the Revised Vienna Convention is inapplicable to the loss of life or personal injury claims brought 10 years after the nuclear incident.[427]

The following are examples of priority rules defined at the national level: [428]

Contracting parties to the Revised Paris Convention

- France: Article L. 597-14 of the French Environmental Code[429] provides that if, as a result of a nuclear accident, it appears that the maximum amounts available are likely to be insufficient to compensate all damage suffered, a decree adopted by the Council of

425 As further explained in Section 2.7 of the *Explanatory Texts of the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage*, the Revised Vienna Convention "[…] restricts the discretion given to the law of the competent court" by introducing a specification in Article I.1(k) of the Revised Vienna Convention whereby the law of the competent court is to determine the extent to which nuclear damage other than loss of life or personal injury and loss of or damage to property gives rise to compensation. In addition, a new paragraph relating to priority for claims for loss of life or personal injury was introduced in Article VIII.2 of the Revised Vienna Convention, which provides that "subject to application of the rule of sub-paragraph (c) of paragraph1 of Article VI, where in respect of claims brought against the operator the damage to be compensated under this Convention exceeds, or is likely to exceed, the maximum amount made available pursuant to paragraph 1 of Article V, priority in the distribution of the compensation shall be given to claims in respect of loss of life or personal injury." According to the *Explanatory Texts of the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage*, "[…] this provision aims at preserving the favourable status of the victims who are likely to suffer most as a result of a nuclear incident, thus ensuring a proper balance of fairness in compensation of nuclear damage." IAEA (2020), *The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage – Explanatory Texts*, *supra* note 110.

426 Although no express provisions on priority rules are contained in the CSC, Article 9.4 of the CSC Annex states that "If the national law of a Contracting Party provides for a period of extinction or prescription greater than ten years from the date of a nuclear incident, it shall contain provisions for the equitable and timely satisfaction of claims for loss of life or personal injury filed within ten years from the date of the nuclear incident." With regard to the Revised Paris Convention, the *Exposé des Motifs of the Revised Paris Convention* provides in its paragraph 90 that "It is for each State to decide whether measures for equitable distribution should be taken in advance or at the time when actions are brought. Measures may involve providing a limit on the amount of compensation paid to each person suffering nuclear damage or limits upon the amounts of compensation paid for injury or death of persons and all other types of nuclear damage. Similarly, where the nuclear damage to be compensated exceeds or is likely to exceed the amount available under Article 7 of the Convention, it is for each State to decide whether or not priority will be given to claims for loss of life or personal injury in the distribution of compensation. Nevertheless, the Contracting Parties agree that the concept of equitable distribution of compensation allows for the setting of priorities for compensating claims." NEA (2020), *Exposé des Motifs of the Revised Paris Convention*, *supra* note 187.

427 Article VI.1(c) of the Revised Vienna Convention provides that "Actions for compensation with respect to loss of life and personal injury or, pursuant to an extension under sub-paragraph (b) of this paragraph with respect to other damage, which are brought after a period of ten years from the date of the nuclear incident shall in no case affect the rights of compensation under this Convention of any person who has brought an action against the operator before the expiry of that period."

428 *Secretariat note*: For information on the priority rules on compensation for nuclear damage in national legislation, see *Priority Rules on Compensation for Nuclear Damage in National Legislation* table available at: www.oecd-nea.org/priority-rules (Accessed 31 Aug. 2023).

429 French Environmental Code issued by Order No. 2012-6 of 5 January 2012 (Official Journal of the French Republic of 6 Jan. 2012, p. 10).

Ministers, published within six months of the date of the accident, shall record this exceptional situation and determine the arrangements for distributing the amounts. In that case, the amounts available shall be allocated as follows:

1) priority shall be given to the compensation of bodily injuries in a manner to be determined by analogy with the legislation on occupational accidents and professional diseases;

2) the remaining amounts after this first compensation, if any, shall be allocated among the victims in proportion to any bodily injury still to be compensated and the other nuclear damage suffered.

- Netherlands: Pursuant to the Act of 17 March 1979 containing rules on liability for damage caused by nuclear accidents,[430] if the total amount of the claims submitted exceeds the maximum amount of liability of the operator according to the Act (the "nuclear liability amount"), the amount stated in Article 3(a) of the Brussels Supplementary Convention, or the amount to be provided by the state according to the Act, the following rules shall apply to the claims in each case in so far as they can be met out of these amounts:

  1) where the claims relate only to damage to persons, the claims shall be reduced proportionately;

  2) where the claims relate only to damage other than that referred to in paragraph (1) above, the claims shall be reduced proportionately;

  3) where the claims relate both to damage as referred to in paragraph (1) and to damage as referred to in paragraph (2):

     a) 2/3 of the nuclear liability amount shall be allocated solely for the payment of the claims as referred to in paragraph (1) (which claims shall, if necessary, be reduced proportionately),

     b) the remaining 1/3 shall be allocated for the payment of the claims as referred to in paragraph (2) and of the claims as referred to in paragraph (1), in so far as the latter claims would otherwise not be paid,

     c) if an amount is left over after full payments of the claims referred under (1) it will be used for the payments for claims referred to under (2) if not already compensated.

  Pursuant to Section 18(1) of the Act, if on the territory of the Netherlands as a result of a nuclear accident damage is suffered for which compensation is required to be paid under the Brussels Convention or the Act, and the funds available are inadequate to compensate for damage, the state shall make available public funds required to pay compensation for that damage up to an amount of EUR 2,268,901,080.45. Pursuant to Section 27(2) of the Act, "[w]hen applying the Section 18 the compensation for claims in respect of damage to persons instituted after a period of ten years has elapsed since the date of the nuclear accident shall be at least ten per cent of this additional amount to be made available by the State";

- Norway: Under Section 32(1) of the Act on Nuclear Energy Activities of 1972,[431] if the amount of liability available under the Paris Convention and the Brussels Supplementary Convention does not cover the claims of all victims, the compensation shall be reduced proportionally. Under Section 32(2), the Minister of Health and Care Services may decide that loss of life and personal injury shall be given priority over other types of claims if the available funds cannot fully cover all claims;

430 Act of 17 March 1979 Containing Rules on Liability for Damage Caused by Nuclear Accidents, as amended (Stb. 2008, No. 509).

431 1972 Act on Nuclear Energy Activities, No. 28, as amended.

- Slovenia: Under Article 16 of the Act on Liability for Nuclear Damage,[432] if the amount of the operator's liability for nuclear damage is not sufficient to provide for the full compensation to the injured parties, the following must be taken into account in the settlement of compensation claims:

  1) if the claims relate in part to damage arising from the loss of life or a personal injury and in part to other damage;

     a) 2/3 of the available resources shall be allocated immediately to cover the damage arising from the loss of life or a personal injury in its entire amount or in proportion to the available resources,

     b) 1/3 shall be allocated to cover the claims for other damage,

  2) if the damage arising from the loss of life or a personal injury is fully or in part compensated for by the resources of the social or health insurance, the right of recourse of those paying the compensation shall be considered as claims for other damage;

- Spain: The implementing law of the Revised Paris Convention [433] provides for the following priority rules for compensation of nuclear damage:

  Death or bodily injury to persons. Claims must be lodged within the first 3 years from the date on which the incident occurred;

  1) Cost of measures of reinstatement of impaired environment, the cost of preventive measures and any loss or harm caused by such measures. Claims must be lodged within the first 3 years calculated from the date on which the incident occurred. Compensation will be payable without further priority between such claims;

  2) Loss of any property; financial losses arising out of damage to persons or loss of life and damage to or loss of property; and loss of income directly related to the use or enjoyment of an environment that has been significantly impaired. Claims must be lodged within the first 3 years from the date on which the incident occurred. Compensation will be payable without further priority between such claims;

  3) Claims lodged after 3 years from the date on which the incident occurred will elapse. Compensation will be payable without further priority between such claims and up to the maximum limit of liability established.

Contracting parties to the Vienna Convention

- Bulgaria: The Bulgarian Act on the Safe Use of Nuclear Energy (Article 132 paragraph 5) provides that loss of life and physical injury shall be compensated first: "When satisfying claims for compensation for nuclear damage, claims for loss of life or physical injury shall be compensated with priority"; [434]
- Mexico: In accordance with Article 18 of the Act on Third Party Liability for Nuclear Damage, the following cases of nuclear damage should be compensated on a priority basis: a) loss of life; b) loss of total capacity; and c) partial disability. [435]

432 See Article 16 of the 2010 Act on Liability for Nuclear Damage, *supra* note 126.

433 Law 12/2011 of 27 May 2011 on Civil Liability for Nuclear Damage or Damage Caused by Radioactive Materials (BOE no. 127 of 28 May 2011).

434 Act on the Safe Use of Nuclear Energy, as amended (State Gazette No. 63 of 28 June 2002).

435 Act on Third Party Liability for Nuclear Damage (Official Gazette [Diario Oficial de la Federación], no. 41 of 31 December 1974).

Contracting parties to the Revised Vienna Convention

- Poland: The priority rules on compensation for nuclear damage are established under Articles 102 and 103 of the Atomic Energy Act.[436] In accordance with the Act, the operator's liability for nuclear damage is limited to the amount equivalent to SDR 300 million (Article 102.1). In the event the claims for nuclear damage exceed this amount, the operator shall establish a limited liability fund, of which the procedures for the establishment and distribution shall be regulated, as appropriate, by the provisions of the Sea Code on the limited liability for sea claims subject to Articles 102(3) to (5) of the Atomic Act. If, apart from the damage to property or the environment, nuclear incident causes also loss of life or personal injury, 10% of the corresponding insurance guarantee shall be earmarked for settling the claims involving nuclear damage resulting in loss of life or personal injury (Article 103c.1). If within five years from the date of nuclear incident the claims against the operator involving nuclear damage resulting in loss of life or personal injury do not exceed the total amount of the guarantee earmarked exclusively for settling such claims, the remainder of this guarantee shall be used for settling the claims involving damage to the property or environment, and also the claims for loss of life or personal injury brought up not later than within 10 years from the date of the nuclear incident (Article 103.2). If the corresponding financial security is not available or is insufficient to satisfy all nuclear damage claims, the National Treasury will guarantee the payment up to the limit of SDR 300 million. Claims for the compensation of personal injury shall not be barred by limitations in time (Article 105.1).

Another possible approach regarding the establishment of the priority rules can be found in German law, where, on the one hand, Section 32(3) of the *Atomgesetz* [437] provides that priority is given to claims for loss of life or personal injury brought within 10 years over any claims brought after expiration of this period. In addition, Section 35 of the Act provides that the government can issue a provisional ordinance – until Parliament passes an act – which may establish other criteria for the distribution of compensation in case of a nuclear incident that exhausts the means for compensation available. On the other hand, according to the "solidarity agreement",[438] parent companies of German nuclear power plants agreed that claims of victims have priority over rights of recourse against the operator that parent companies may have according to the solidarity agreement.

Having priority rules in place before a nuclear incident occurs offers strong advantages in a situation where compensation for nuclear damage shall be provided with no delay. Proportionate distribution of claims may lead to a partial compensation of severe personal injuries, to the same extent as other types of damage. Should nuclear liability claims be distributed on a "first come-first served" basis, there is an issue of allocating funds among early and late claimants in a situation where there may be little remaining of available funds for victims who became ill several years after the accident. On the other hand, if payment is delayed until all the claims are judged, victims may have to wait many years to receive their compensation.

Based on the examples provided above, priority rules would likely give claims for loss of life or personal injury an advantage over other types of claims. However, it is likely that such priority would cease to apply over a certain period of time (e.g. ten years after a nuclear incident according to the Revised Vienna Convention). At the same time, many radiation-related injuries may become evident at a later stage, so that it would be impossible for them to benefit from priority. On the other hand, extending priority rules to the whole period of prescription would result in the withholding of a portion of the compensation amount for a very long period of time (30 years according to the Revised Paris Convention and the Revised Vienna Convention), with additional complications regarding establishing the causal link between the damage and the nuclear incident. In addition, this would not serve the interests of victims who bring claims within the ten-year period, as they could only expect a reduced amount of compensation. Therefore, the most equitable solution appears to be to give priority to claims for personal injury or loss of life only for

436 Act of 29 November 2000 on Atomic Energy, *supra* note 66.

437 *Atomgesetz*, *supra* note 173.

438 For more information on the "solidarity agreement", see Raetzke, C. (2016), *supra* note 255, pp. 20-31.

a certain period of time. Moreover, having priority rules in place should trigger the introduction in the national legislation of a mechanism of damage assessment to determine whether the damage will or is likely to exceed the amounts available. Unfortunately, this is not always the case.

From the insurers' point of view, having priority rules in place may be irrelevant, as far as the amount of compensation to be paid is concerned, but it would however have a significant impact on how the claims for compensation need to be handled. Priority rules impose an order of claims settlement, which is usually the exact opposite of the order in which the claims are lodged. All this adds more difficulties to the task of handling a large number of claims over a large period of time.

As a conclusion, despite the unanimity of views regarding the general principles of nuclear liability, there are still differences among states as to how to approach priority rules (i.e. whether they should be included in the nuclear liability conventions, national laws, or whether it is enough if they are established after a nuclear incident occurs). Some states oppose the inclusion of priority rules with regard to loss of life or personal injury by arguing that these claims could be compensated under the social security system.[439] Certain states question the necessity to provide priorities in the case of insufficiency of available funds as the state would most likely step in, especially when it comes to personal injuries. As important as priority rules appear, it may be equally important for a state to have in place a mechanism of damage assessment and a proper claims handling system.

Discussion session

A question arose as to whether there are priority rules at the international or national levels that apply to the time allocated to pay compensation for nuclear damage. It appeared that one of the consequences of a system which provides priority rules would be the constant existence of a delay in dealing with the portion of funds allocated to certain types of claims according to the established priorities, because some of the money needs to be reserved. Regarding the time period for which the money has to be reserved, approaches vary among states. The same holds true for the time frame allocated to the payment of claims subject to priority rules.

It was observed that the amounts of compensation for nuclear damage provided in the nuclear liability conventions seem to be far from being sufficient should a major nuclear incident occur. When the original nuclear liability conventions were drafted, the extensive consequences (including financial) of a major nuclear incident were unknown. However, based on the lessons learnt from past nuclear incidents, a question may be raised as to whether the current nuclear liability conventions are still fit to deal with the risks of an exceptional character and far-reaching consequences of a large-scale nuclear incident, or whether they are better suited for small or medium size incidents. Even though the amounts of compensation currently available under the nuclear liability conventions seem to be unfit to deal with the consequences of a major nuclear incident, they can however cope with small and medium-sized incidents. In addition, taking the example of the priority rules provided in some international and national legal instruments, establishing a causal link between the incident and the damage suffered several years after the accident may constitute a significant issue that could heavily impact the process of compensating victims who need to get emergency payments immediately after the accident. The same observation may be relevant to reciprocity conditions which, in the case of a nuclear incident having transboundary effects in several countries with different levels of reciprocity, would add difficulties to the process of compensation in practice.

It was also observed that the existence of priority rules may impact the implementation of urgent preventive measures (such as evacuation or decontamination), should the compensation for preventive measures be subject to the availability of funds that would remain after the money is put aside to cover prioritised heads of damage. However, even though such a risk exists, it should be considered together with the advantages to the compensation process that priority rules may offer. Indeed, the solutions to manage the issue of amounts available for compensating

439 See Article 6(h) of the Paris Convention and the Revised Paris Convention; Article IX.1 of the Vienna Convention and the Revised Vienna Convention; and Article 8.3 of the CSC Annex.

victims (reciprocity and priority rules) have both advantages and disadvantages. In order to avoid complications that such solutions may create in the process of compensating for nuclear damage, harmonisation of nuclear liability amounts should be sought and encouraged.

Overview of responses to the questionnaire

Operator's nuclear liability amount

This part of the questionnaire focused on the amounts that would be available under the national legislation of the responding country to compensate victims suffering nuclear damage.

There is a **variety** of operator's nuclear liability amounts provided under the national legislation of the responding countries:

i) **Six** responding countries reported that their national law provides for an unlimited amount of nuclear liability. Examples:

- Australia: Should third party liability be determined based on general tort law, the amount for liability would be unlimited. However, for some types of economic loss, particularly future economic loss and non-economic loss, liability would be capped;
- Austria and Japan: Liability imposed on the operator of a nuclear installation is unlimited;
- Finland: Section 18 of the Act (No. 493/2005) amending the Nuclear Liability Act (No 484/1972) stipulates that "[…] the liability of an operator of a nuclear installation situated in Finland in respect of nuclear damage caused by any single nuclear incident and suffered in Finland shall be unlimited". However, for nuclear damage suffered outside Finland, the liability shall not exceed EUR 700 million;[440]
- Germany: In accordance with Section 31(1) of the *Atomgesetz*, "The liability of the operator of a nuclear installation under the Paris Convention in conjunction with § 25, paras. (1), (2) and (4), and also under the Paris Convention and the Joint Protocol in conjunction with § 25, paras. (1), (2) and (4), shall be unlimited";
- Sweden: According to Section 27 of the Law on Liability and Compensation of Nuclear Damage, the operator's nuclear liability is unlimited for damage suffered in Denmark, Finland, Norway and Sweden, and in other states with no nuclear installations. However, for nuclear damage suffered in states with nuclear installations other than those above, the amount of nuclear liability will be calculated based on reciprocity. [441]

ii) **Several** responding countries mentioned that national legislation provides for lower liability amounts depending on the type of nuclear installation or nuclear substance involved. Examples:

- Czechia: Liability for nuclear damage would be "[…] limited in the case of (a) nuclear installations used for power generation purposes, storage facilities and repositories of spent nuclear fuel assigned to these installations, or nuclear materials generated by processing of this fuel, to the sum of CZK 8 000 million; (b) other nuclear installations and shipments, to the sum of CZK 2 000 million";[442]
- India: National legislation provides for different amounts of nuclear liability depending on the type of installation and the thermal power capacity. More specifically, Section 6(2) of the CLND Act stipulates that "the liability of the operator in each nuclear incident shall be: (a) in respect of nuclear reactors having thermal

440 Act (No. 493/2005) amending the Nuclear Liability Act (No. 484/1972).

441 See Articles 27 and 29 of the Act on Liability and Compensation for Nuclear Incidents, 2010 (SFS 2010:950).

442 See Section 35 of the 2010 Act on Liability for Nuclear Damage, *supra* note 126.

power equal to or above 10 MW, INR 1.5 billion; (b) in respect of spent fuel reprocessing plant INR 300 million; (c) in respect of research reactors having thermal power below 10 MW, fuel cycle facilities other than spent fuel reprocessing plants and transportation of Nuclear Materials, INR 100 million; provided that the Central Government may review the amount of operator's liability from time to time, and specify, by notification, a higher amount in this sub section[…];"[443]

– Netherlands: The amount of nuclear liability for nuclear power plants is EUR 1.2 billion. However, for other type of reactors, significantly lower amounts are applicable.[444]

Amount of compensation for nuclear damage higher than the amount of the operator's nuclear liability or the amount provided by the international funds

The second question in this part of the questionnaire enquired about how the national legislation addresses a situation where the amount of compensation of nuclear damage exceeds the amount of the operator's nuclear liability or the amount provided by the international funds established by the Revised Brussels Supplementary Convention or the CSC. Based on the responses provided:

a) **Some** responding countries reported that the state would have to step in assuming the obligation to provide funds for the compensation of nuclear damage. Examples:

- Australia: The government and the operator of Australia's nuclear facilities, the Australian Nuclear Science and Technology Organisation (ANSTO, an Australian Government Agency), have entered into a Deed of Indemnity.[445] The Deed provides for unlimited indemnity from the Australian government for any loss or liability caused by ionising radiation, including indemnity for contractors and employees;
- India: If the compensation amounts exceed the amount of the operator's nuclear liability, Section 7(1) of the CLND Act would be applicable. According to this Section, "[t]he Central Government shall be liable for nuclear damage in respect of a nuclear incident: (a) where the liability exceeds the amount of liability of an operator specified under subsection 2 of Section 6, to the extent such liability exceeds such liability of the operator."[446]

b) **Some** responding countries reported that under the scenarios described in this part of the questionnaire, the installation state would have to release funds with a view to compensating victims. The state's obligation to step in providing funds may be related to different situations. This would be the case in the event that the operator's nuclear liability amount was established at a lower amount than the general nuclear liability amount provided for under the national legislation. However, in many cases, it was also noted that there were no provisions governing the scenario where the amount for compensation is higher than the maximum amount of liability under national legislation. Examples:

- Hungary: According to Section 52 of the 1996 Act on Atomic Energy, the amount for compensation that exceeds the operator's nuclear liability amount under national legislation (i.e. SDR 100 million) will be provided by the State. However, "the total amount devoted to compensation of nuclear damage shall not be greater than SDR 300 million even in this case";[447]
- Romania: Article 8(2) of the 2001 Law on Civil Liability for Nuclear Damage stipulates that "[…] the liability of the operator for any one nuclear accident may be limited to less

443 See Section 6(2) of the CLND Act, *supra* note 159.

444 See Section 5 of the Act of 17 March 1979 Containing Rules on Liability for Damage Caused by Nuclear Accidents, as amended (Stb. 2008, No. 509).

445 See the Deed of Indemnity between the Commonwealth of Australia and the Australian Nuclear Science and Technology Organisation and ANSTO Nuclear Medicine Pty Ltd, signed by the Minister for Industry, Innovation and Science on 21 April 2016.

446 See Section 7(2) of the CLND Act, *supra* note 159.

447 See Section 52 of the 1996 Act on Atomic Energy, *supra* note 158.

than the equivalent in ROL of SDR 300 million, but not less than the equivalent in ROL of SDR 150 million, provided that the difference up to at least the equivalent in ROL of SDR 300 million shall be made available by the State from public funds, with a view to covering nuclear damage under the terms of this Law";[448]

- Sweden: According to Section 42 of the Liability and Compensation of Nuclear Damage Act, the state would provide funds for compensation up to EUR 1.2 billion, which corresponds to the amount of financial security required for nuclear power reactor in operation for the production of nuclear energy under the Swedish law. There are no relevant provisions in the event that the amount for compensation exceeds EUR 1.2 billion.

c) In **some** other responding countries, a mechanism to distribute the available funds may be established when it is estimated that such funds may not be sufficient to compensate all nuclear damage. Examples:

- Belgium: Article 20 of the Law of 22 July 1985 on civil liability in the field of nuclear energy addresses the situation where the amount of compensation for nuclear damage exceeds the amount of the operator's nuclear liability or the amount provided by the international funds established by the Revised Brussels Supplementary Convention, by empowering the King to set up the criteria of an equitable repartition of the funds available if those funds are not sufficient to compensate all the damage suffered;[449]
- Canada: Payment of claims cannot exceed the operator's liability amount, but if further funds are appropriated by Parliament to provide compensation for damage arising from the nuclear incident, the Nuclear Claims Tribunal may award those further funds to compensate damage. In the event that no further funds are appropriated, the government may make regulations for the Nuclear Claims Tribunal to compensate damage on a priority or *pro rata* basis, or exclude certain categories of damage;[450]
- France: Article L. 597- 14 of the French Environmental Code provides for priority rules for the compensation of nuclear damage should funds provided pursuant to the Brussels Supplementary Convention appear to be insufficient;[451]
- Poland: When the claims exceed the amount of compensation for nuclear damage, the operator may establish a limited liability fund. The proceedings for establishment and distribution of this fund are governed by relevant regulations in the Sea Code on the limited liability for sea claims.[452] In addition, pursuant to Article 103c(3) of the 2000 Atomic Energy Act, the National Treasury guarantees compensation payment up to SDR 300 million to the extent that compensation could not be settled by the insurers alone, or by the insurers and the Insurance Guarantee Fund.[453]

Reciprocity principle under national legislation

Answering the question related to the existence of the reciprocity principle under national legislation (see Figure 40), **approximately one fourth** of the countries reported that a reciprocity principle is provided under their national legislation. Examples:

- Germany: Reciprocity is required under Sections 25(3) and 31(2) of the *Atomgesetz*. According to Section 25(3) of the Act, "[t]he provisions of Article 9 of the Paris Convention relating to the exclusion of liability for nuclear damage caused by a nuclear incident which is a direct consequence of acts in an armed conflict, hostilities, civil war or insurrection shall not apply. If the nuclear damage occurs in another country, the first sentence shall

448 See Article 8(2) of the Law no. 703/2001 on civil liability for nuclear damage (Official Gazette of Romania, Part I, no. 818 of 19 December 2001) (2001 Law on Civil Liability for Nuclear Damage).

449 See Article 20 of the 1985 Law, *supra* note 168.

450 See Section 68 of the NLCA, *supra* note 124.

451 See Article L. 597.14 of the French Environmental Code, *supra* note 179.

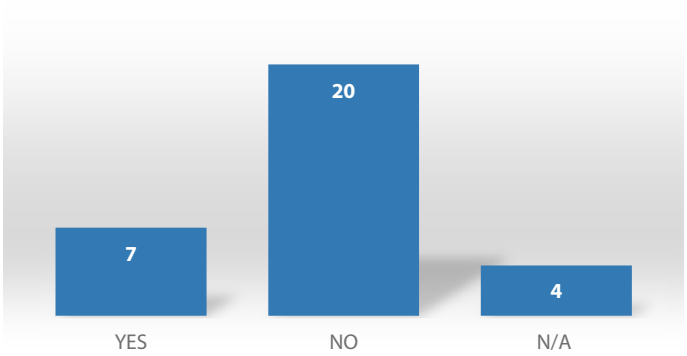
452 See Article 102(2) of the Act of 29 November 2000 on Atomic Energy, *supra* note 66.

453 See Article 103(3) of the 2000 Atomic Energy Act, *Ibid*.

only apply insofar as such other country, at the time of the nuclear incident, has provided for a system of compensation in relation to the Federal Republic of Germany which is equivalent as to nature, terms and amount." Furthermore, Section 31(2) of the Act clarifies that "[i]f the nuclear damage occurs on the territory of another State or in its maritime zones established in accordance with international law, para. 1 [i.e. unlimited liability amount] shall apply only insofar as, at the time of the nuclear incident, such other State has made provisions with the Federal Republic of Germany pursuant to para. 1, which are equivalent with regard to nature, terms and amount. Otherwise, if the nuclear damage occurs on the territory of another State or in its maritime zones established in accordance with international law, the liability of an operator of a nuclear installation for the compensation of nuclear damage caused by nuclear incidents, including any additional compensation on the basis of international conventions, shall be limited to the amount envisaged by the other State in relation to the Federal Republic of Germany at the time of the nuclear incident";[454]

- United Kingdom: The NIA 65 allows claims for damage from persons in "a qualifying territory", a definition that includes also any "relevant reciprocating territory".[455] To be a "reciprocating territory", the law of the country must confer benefits on a basis that corresponds to those conferred by the Revised Paris Convention and must be based on identical principles. The amount of compensation payable in respect of claims from a reciprocating territory is capped at the limit on liability set by the law of the reciprocating territory.[456]

Figure 40. **Is there a reciprocity principle provided under your national legislation?**



Source: NEA.

Among the responding countries whose national legislation does not provide for a reciprocity principle, Austria clarified that according to Section 23 of the AtomHG, if damage is caused by ionising radiation and if Austrian law is applicable according to the national law of the competent court, the plaintiff will only be able to benefit from the Austrian law insofar as its national law would provide for compensation as well.

Priority rules under national legislation

Answering the question related to the existence of priority rules under the national legislation, **10** responding countries reported that such rules exist in their national legal order. Examples:

454 *Atomgesetz*, *supra* note 173.

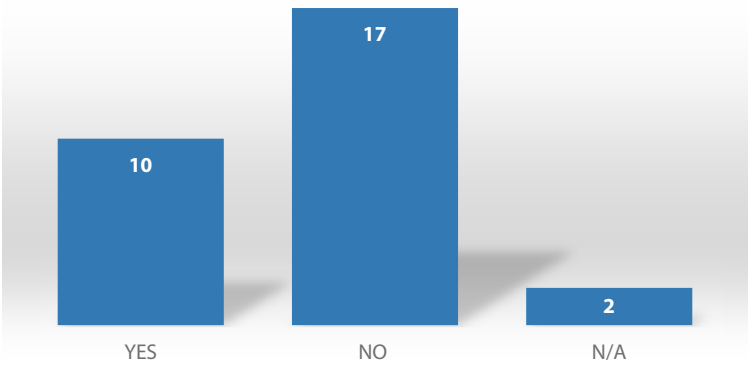
455 For the definition of "qualifying territory", see Section 26 (1B) of the NIA 65, *supra* note 149. For the definition of "reciprocating territory", see Section 26 (1A) of NIA 65.

456 For more information, see Section 16 (1ZB) and (3) to (3E) of the NIA 65, *Ibid.*

- Canada: Priority rules would apply in accordance with Section 80 of the NLCA. According to this Section, the Governor in Council may make regulations respecting the compensation that may be awarded by the Nuclear Claims Tribunal, including regulations (a) establishing priorities for classes of damage; (b) reducing awards on a *pro rata* basis for specified classes of damage and fixing a maximum award within a specified class of damage, for the purposes of paragraph 60(2)(b); and (c) establishing classes of damage for which compensation is not to be awarded;[457]
- Ukraine: If the damage exceeds the liability limit insured, the order of compensation shall be established according to the nature of damage, as follows: (i) death; (ii) categorised disability; (iii) health disorders; (iv) property of physical persons; and (v) property of legal entities.[458]

Among the responding countries reporting that there are no priority rules under their national legislation, the United States clarified that a prioritisation of amounts for claims may be operated. More precisely, the Price-Anderson Act provides that, when a plan of distribution is required because the liability limit may be exceeded, the NRC must propose a distribution plan, including an allocation and prioritisation of appropriate amounts for personal injury claims, property damage claims, and possible latent injury claims. The court can approve, modify or disapprove the NRC distribution plan and prioritisation. Moreover, and while this is not an express rule for prioritisation of nuclear damage claims, this requirement suggests some prioritisation of claims based on the type of nuclear damage contemplated in the Price-Anderson Act.[459]

Figure 41. **Does your national law provide for priority rules for compensation of nuclear damage?**



Source: NEA.

457 See Section 80 of the NLCA, *supra* note 124.

458 See Government Resolution No. 953 of 23 June 2003 "On Compulsory Insurance Of Civil Liability for Nuclear Damage".

459 See Section 170.o(1)(C) of the United States Atomic Energy Act of 1954, *supra* note 169.

Legislation or regulation providing for emergency assistance payments to be paid, or the establishment of a mechanism to determine such payments

In answering the question related to the existence of national legislation or regulation providing for emergency assistance payments to be paid, or the establishment of a mechanism to determine such payments, only **a few** responding countries confirmed that relevant measures for emergency assistance payments have been adopted in the national legislation or regulation. Examples:

- Austria: Under general private law, the liable person also has to compensate expenses, which the victim had to meet in order to avoid or reduce the damage. Furthermore, according to Section 11(3) of the AtomHG, the obligation to compensate comprises also the costs of reasonable preventive measures taken to avoid an imminent threat of ionising radiation from a nuclear installation, nuclear material or a radionuclide;[460]
- Canada: The insurers have an initial incident assessment process where case-specific evaluations may be made, enabling the urgent payment of claims. Moreover, Section 39 of the NLCA provides that, following the declaration of the establishment of a Nuclear Claims Tribunal, and up until the tribunal is fully functional, the Minister may pay interim financial assistance to persons who, in the Minister's opinion, have suffered damage as a result of the nuclear incident. The maximum amount that the Minister can pay out in interim financial assistance cannot exceed 20% of the difference between the operator's liability and the total amount of compensation paid by insurers before the declaration for the establishment of the tribunal (i.e. 20% of what remains of the operator's liability);[461]
- Netherlands: Advance payments may be granted by the delegated judge before a distribution list for the compensation of claims has been established;[462]
- United States: In respect of immediate payment to injured persons, the Price- Anderson Act provides that the NRC or the insurer may make payments to claimants for the purpose of providing "immediate assistance" following a nuclear incident and that funds appropriated to the NRC are to be made available for such payments. Furthermore, the Act provides for payment of reasonable state or local government costs of a precautionary evaluation, which would provide for the immediate needs of the affected community in the aftermath of a nuclear incident or precautionary evacuation. [463]

While the **large majority** of the responding countries reported that national legislation or regulation does not provide for measures related to emergency assistance payments, **several** countries clarified their answers, putting forward that relevant measures could be eventually adopted. Examples:

- Belgium: Even though there is no relevant provision under national legislation or regulation, the common practice of the insurers dealing with catastrophic events would be to make advance payments to cope with the urgent needs of the victims;
- Finland: The Act on Social Assistance (1412/1997) may apply in the case of nuclear accidents. According to Section 1 of the Act, "social assistance is last-resort financial assistance under social welfare, the purpose of which is to ensure a person's or family's living and help them to cope independently. Social assistance is used to ensure the person or family at least the minimum income needed for a life of human dignity";
- Germany: In the event of a nuclear incident, the government may decide to provide emergency assistance payments;

460 See Section 11(3) of the AtomHG, *supra* note 136.

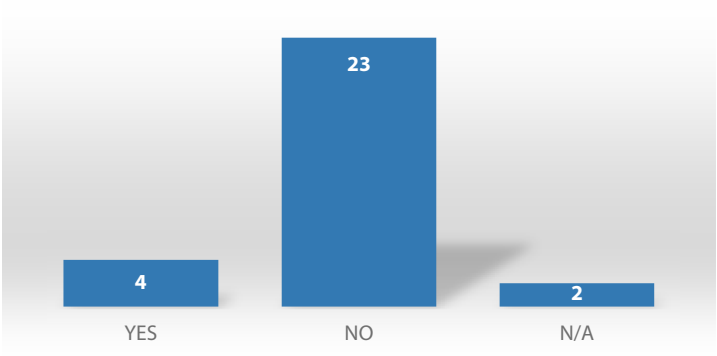
461 See Section 39 of the NLCA, *supra* note 124.

462 See Section 30 of the Act of 17 March 1979 Containing Rules on Liability for Damage Caused by Nuclear Accidents, as amended, (Stb. 2008, No. 509).

463 See Section 170.m and Section 11.w of the United States Atomic Energy Act, *supra* note 169.

- Slovenia: The government has an option to adopt an Interventional Act and determine emergency assistance payments. However, there is no common practice established in this field.

Figure 42. **Does your legislation or regulation provide for emergency assistance payments to be paid, or establish a mechanism to determine such payments?**



Source: NEA.

Session 7 – Conclusions

i. *A variety of (minimum) nuclear liability amounts* under the nuclear liability conventions were established according to the then available insurance capacity. National laws may also take into account that funds must be sufficient to deal with consequences of controlled releases of radiation (as in Canada); may provide for review mechanisms to increase liability amounts by simple regulation; may set up a specific process in case the overall amount of compensation exceeds the liability cap or, in the case of unlimited liability, if the operator cannot bear the burden (which was the case in Japan);

ii. The extension of the geographical scope of application (as per the Joint Protocol, the Revised Paris Convention and the Revised Vienna Convention) and divergence of liability amounts and financial security limits led the contracting parties to the Paris Convention and the Brussels Supplementary Convention to introduce among themselves a *non-binding reciprocity mechanism* regarding the allocation of funds beyond the operator's nuclear liability cap. The 2004 Joint Declaration of the contracting parties to the Paris Convention established a reciprocity principle with regard to the parties to the Vienna Convention, the Revised Vienna Convention and the Joint Protocol. Reciprocity rules are against the spirit of international conventions and may lead to practical issues if they have to be applied to more than one country;

iii. *Priority rules* in favour of bodily injury and loss of life are considered by some countries as necessary when nuclear liability is capped (and is compulsory under the Revised Vienna Convention), but not necessary by others where the social security system takes over bodily injuries. The national law should also set up a mechanism of damage assessment to determine whether amounts available will be sufficient, and a proper claims handling to ensure the application of priority rules. However, priority rules might have an adverse effect on the availability of funds to cope with the immediate relief of victims (e.g. preventive measures such as evacuation may prevent bodily injury).

Annex 1

Programme of the Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident

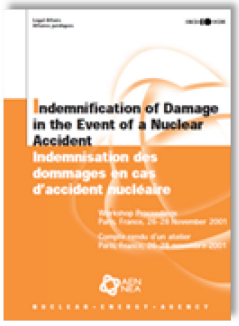
About the workshop

Organisers

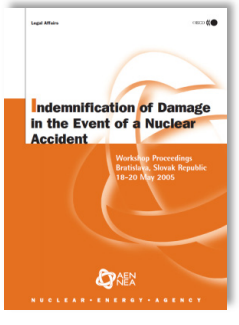
The *OECD Nuclear Energy Agency* (NEA) is an intergovernmental agency that facilitates co-operation among countries with advanced nuclear technology infrastructures to seek excellence in nuclear safety, technology, science, environment and law. The current membership of the NEA consists of 33 countries in Europe, North and South America and the Asia-Pacific region.

The *Nuclear Regulatory Authority of the Slovak Republic* is a central government authority of the Slovak Republic for nuclear regulation. It exercises state supervision over the safety of nuclear installations (in all stages of the fuel cycle including radioactive waste management and spent fuel management), nuclear materials and the physical protection of nuclear installations; and performs assessments of plans for use of nuclear energy, the quality of classified equipment and nuclear technology devices, and the commitments of the Slovak Republic arising from international treaties on nuclear safety of nuclear installations and nuclear materials management.

Background



The *First International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident* was organised by the NEA in co-operation with the French authorities and held in November 2001 in Paris, France. Its purpose was to integrate third party liability and compensation issues into an essentially technical emergency exercise (INEX-2000, a simulated nuclear accident at the Gravelines nuclear power plant in France). The emphasis of the workshop was placed on the manner in which the Paris Convention on Third Party Liability in the Field of Nuclear Energy and the Brussels Convention Supplementary to the Paris Convention would apply to the indemnification of damage incurred by victims in those convention countries as a result of a nuclear accident scenario.



The *Second International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident* was held in May 2005 in Bratislava, Slovak Republic. This workshop, co-organised by the NEA and the Nuclear Regulatory Authority of the Slovak Republic, was based on two fictitious scenarios aimed to test the implementation of various third party liability regimes with a special focus on an assessment of the indemnification measures that would be taken if a nuclear accident occurred in a state party to the Vienna Convention on Civil Liability for Nuclear Damage, and more specifically a state party to both the Vienna Convention and the Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention.

Programme

The Third Workshop will focus on an assessment of the implementation of currently applicable international nuclear liability conventions in conjunction with, *inter alia*, non-convention states regimes, assuming all the modernised international instruments have come into force. The exercise will therefore assess the implementation of the following instruments: i) the Paris Convention on Third Party Liability in the Field of Nuclear Energy and the Brussels Supplementary Convention, both as amended by the 2004 Protocols; ii) the Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Protocol to amend the Vienna Convention; iii) the Joint Protocol relating to the application of the Vienna Convention and the Paris Convention; and iv) the Convention on Supplementary Compensation for Nuclear Damage.

Workshop participants will be invited to discuss the legal aspects of compensating victims having suffered nuclear damage due to a nuclear incident occurring at a nuclear installation, which has transboundary damage. Even though experts from the public and private sectors will be invited to speak on the different topics addressed in the programme, the workshop should leave enough time for all the participants to contribute to the discussion, to encourage a real exchange of experience and point of views.

View of Bratislava, Slovak Republic (SEGHIZZI, CC BY-NC 2.0).

Wednesday, 18 October 2017

08:30	Registration
09:00	**Opening session – Welcome addresses** • Mr William D. Magwood, IV, Director-General, Nuclear Energy Agency • Ms Marta Žiaková, Chair of the Nuclear Regulatory Authority of the Slovak Republic and Chair of the NEA Steering Committee for Nuclear Energy • Ms Zora Mistríková, Manager of Legal and Corporate Affairs, Slovenské elektrárne, Slovak Republic • Mr Juraj Chochol, Chair of the Slovak Nuclear Insurance Pool, Head of Non-life Department, KOOPERATIVA poisťovňa, a.s. • Ms Ingrid Brocková, Director-General, Directorate-General for Economic Cooperation, Ministry of Foreign and European Affairs of the Slovak Republic • Mr Anton Masár, Vice-chairman of the Board of Directors, Director of the Finances and Services Division, JAVYS, a.s. • Mr Roland Dussart-Desart, Chair of the NEA Nuclear Law Committee and Head of the Legal Division at the Belgian FPS Economy, SMEs, Self-employed and Energy
10:00	**Introduction by the moderators of the workshop:** • Mr Martin Pospíšil, Director of the Division of Legislation and Legal Affairs, Nuclear Regulatory Authority of the Slovak Republic, and • Dr Christian Raetzke, Independent Lawyer and Consultant, CONLAR Law Firm
10:10	Break
10:30	**Setting the scene**: Overview of challenges of a nuclear incident at a nuclear power plant with transboundary effects and status of ratification of the international nuclear liability conventions and national legal frameworks *Ms Ximena Vásquez-Maignan, Head of the NEA Office of Legal Counsel*
	Discussion session
11:25	**Insurance of nuclear risks**: Overview of nuclear insurance pools system *Mr Mark Tetley, insurance expert, lecturer at the NEA nuclear law educational programmes*
	Discussion session
12:30	Lunch

14:00 **Notification of an accident**

Chair: Ms Florence Touïtou-Durand, Head of Legal Affairs, French Alternative Energies and Atomic Energy Commission (CEA) and member of the NEA Nuclear Law Committee Bureau

- International legal framework

  Mr Andrea Gioia, Senior Legal Officer at the Office of Legal Affairs, International Atomic Energy Agency

- A practical approach

  Commissioner Stephen G. Burns, US Nuclear Regulatory Commission

Discussion session

14:50 **Evacuation process**

Chair: Ms Florence Touïtou-Durand, Head of Legal Affairs, French Alternative Energies and Atomic Energy Commission (CEA) and member of the NEA Nuclear Law Committee Bureau

- Overview of the applicable frameworks

  Dr Patricia Milligan, Senior Technical Advisor, Division for Emergency Preparedness and Response, Office of Nuclear Security and Incident Response, US Nuclear Regulatory Commission and member of the NEA Working Party on Nuclear Emergency Matters Bureau

- A practical approach

  Mr Toshimitsu Homma, Senior Advisor for Emergency Preparedness and Radiation Protection Technical Coordinator, Radiation Protection Policy Planning Division, Radiation Protection Department, Japanese Nuclear Regulation Authority

Discussion session

15:40 Break

16:00 **Determining the damage to be compensated**

Chair: Mr Ben McRae, Assistant General Counsel at the US Department of Energy and member of the NEA Nuclear Law Committee Bureau

- Evolution of the international nuclear liability conventions

  Mr Andrea Gioia, Senior Legal Officer at the Office of Legal Affairs, International Atomic Energy Agency

- National legal systems

  Ms Ximena Vásquez-Maignan, Head of the NEA Office of Legal Counsel

  Prof. Monika Hinteregger, Institute of Civil Law, Foreign Private Law and Private International Law, Karl-Franzens-University of Graz,

- How detailed is detailed enough?

  Mr Will Morris, Underwriting Manager, Nuclear Risk Insurers Ltd.

Discussion session

18:00 End of Day 1

19:00 Dinner at the Bratislava Castle

Thursday, 19 October 2017

09:00 **Proving the causal link**

Chair: Prof. Vanda Lamm, President of the Section of Economics and Law, Hungarian Academy of Sciences and member of the NEA Nuclear Law Committee Bureau

- Identifying the persons entitled to claim compensation

  Ms Fiona Geoffroy, Senior Legal Adviser, Électricité de France (EDF)

- Practical methods to establish the causal link

  Prof. Taro Hokugo, Director for Investigation and Planning of R&D Projects, Atomic Energy Division, Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT)

  Prof. Shinsuke Toyonaga, Attorney at Law, Advisor, Nuclear Damage Compensation and Decommissioning Facilitation Corporation, Japan

Discussion session

10:15 Break

10:30 **Identifying the liable entity**

Chair: Mr Konstantin Kryazhevskikh, Director Legal and Corporate, Rusatom Overseas Energo International

- Different approaches to channelling

  Mr Ben McRae, Assistant General Counsel at the US Department of Energy and member of the NEA Nuclear Law Committee Bureau

- Applying in practice the exonerations from liability provided under the nuclear liability conventions

  Mr Roland Dussart-Desart, Chair of the NEA Nuclear Law Committee and Head of Legal Division at the Belgian FPS Economy, SMEs, Self-employed and Energy

- Terrorism as one of the exonerations from nuclear liability – arguments for further discussion

  Dr Petr Záruba, Independent Legal Advisor, Former Director of the Czech Nuclear Insurance Pool

- Is channelling at risk?

  Ms Helena Kazamaki, Senior Vice President - General Counsel Europe and France, Group Counsel Nuclear Industry, Legal & Integrity, ABB

Discussion session

12:30 Lunch

14:00 **Claims handling**

Chair: Mr Juraj Chochol, Chair of the Slovak Nuclear Insurance Pool, Head of Non-life Department, KOOPERATIVA poisťovňa, a.s.

- Is it always the insurer?

  Mr Marc Beyens, General Counsel Energy BeLux, ENGIE Electrabel

- How to manage transboundary claims?

  Mr Alain Quéré, Head Nuclear Energy Risks, Swiss Re / Pool Manager, Swiss Nuclear Pool (SPN)

Discussion session

15:15 Break

15:35 **Resolving disputes**

Chair: Prof. Yvonne Scannell, Trinity College Dublin, judge of the European Nuclear Energy Tribunal

- Alternative Dispute Resolution mechanisms

  Prof. Vanda Lamm, President of the Section of Economics and Law, Hungarian Academy of Sciences and member of the NEA Nuclear Law Committee Bureau

Discussion session

- Identifying the competent court

  Mr Omer F. Brown, II, Omer F. Brown, II Law Office

Discussion session

- Enforcement of foreign judgements

  Prof. Ulrich Magnus, University of Hamburg Professor Emeritus, former judge at the Court of Appeal of the City of Hamburg

Discussion session

18:00 End of Day 2

19:00 Closing reception at the Holiday Inn Bratislava

Friday, 20 October 2017

09:00 **Amounts available**

Chair: Mr Roland Dussart-Desart, Chair of the NEA Nuclear Law Committee, Head of Legal Division at the Belgian FPS Economy, SMEs, Self-employed and Energy

- The differences between international nuclear liability conventions regimes

  Mr Jacques Hénault, Nuclear Liability Advisor, Uranium and Radioactive Waste Division, Natural Resources Canada

- The reciprocity principle

  Mr Patrick Reyners, Former Head of the NEA Legal Affairs, Secretary General and Scientific Advisor of the International Nuclear Law Association

- The impact of providing priority rules

  Ms Beata Sparażyńska, Chief Expert for EU and International Affairs, Nuclear Energy Department, Polish Ministry of Energy

  Mr Kamil Adamczyk, Expert for Legal Affairs, Nuclear Energy Department, Polish Ministry of Energy

Discussion session

10:35 Break

11:00 **Closing session:** Conclusions by the Session Chairs and workshop organisers

- Ms Florence Touïtou-Durand – Session on Notification of an accident & Evacuation process
- Mr Ben McRae – Session on Determining the damage to be compensated
- Prof. Vanda Lamm – Session on Proving the causal link
- Mr Konstantin Kryazhevskikh – Session on Identifying the liable entity
- Mr Juraj Chochol – Session on Claims handling
- Prof. Yvonne Scannell – Session on Resolving disputes
- Mr Roland Dussart-Desart – Session on amounts available
- Mr Martin Pospíšil, on behalf of the Nuclear Regulatory Authority of the Slovak Republic
- Ms Ximena Vásquez-Maignan, on behalf of the Nuclear Energy Agency

12:00 Workshop adjourned

Annex 2

Questionnaire of the Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident

Purpose of the questionnaire

The Secretariat has developed this questionnaire to prepare the discussion sessions that will take place during the workshop and to gather information for the preparation of the presentations and final report on the implementation of the international nuclear liability instruments and the national legislations from convention and non-convention States.[464]

The international nuclear liability instruments that will be assessed are the following:

i) the Paris Convention on Third Party Liability in the Field of Nuclear Energy (the "Paris Convention" or "PC") and the Brussels Supplementary Convention (the "Brussels Supplementary Convention" or "BSC"), both as amended by the 2004 Protocols (respectively the "Revised Paris Convention" and the "Revised Brussels Supplementary Convention", or "RPC" and "RBSC");[465]

ii) the Vienna Convention on Civil Liability for Nuclear Damage (the "Vienna Convention" or "VC");

iii) the 1997 Protocol to amend the Vienna Convention (the "Revised Vienna Convention" or "RVC");

iv) the Joint Protocol relating to the application of the Vienna Convention and the Paris Convention (the "Joint Protocol" or "JP"); and

v) the Convention on Supplementary Compensation for Nuclear Damage (the "CSC").

While the competent courts will have the final say on the matters mentioned below, the purpose of this questionnaire is to identify the laws and regulations applicable in each country in case a nuclear accident occurs at a nuclear power plant and to have an overview of how the legal systems are designed and would operate, especially when there are no treaty relations between the State in which territory the nuclear accident occurred (the "Installation State") and the State in which territory nuclear damage is suffered (the "Affected State").[466] The workshop will not address matters relating to transport of nuclear substances (or nuclear material).

464 "Convention States" means States that are parties to one or several nuclear liability conventions; and "non-convention States" means States that are not parties to any of the nuclear liability conventions.

465 The contracting parties to the Paris Convention who have adopted the relevant law(s) to implement the Paris Convention, and as applicable the Brussels Supplementary Convention, as amended by the 2004 Protocol(s) are invited to fill in the questionnaire taking into account the provisions provided in the implementing law(s). Please do not provide information based on draft laws, but only on adopted ones.

466 To "have treaty relations" means that your country (i) is a party to the same nuclear liability convention(s) as the Affected State; or (ii) is a party to the Joint Protocol and so is the Affected State.

The accident scenario

You are kindly invited to fill in this questionnaire keeping in mind the following scenario:

OPTION 1 / Your country has at least one nuclear power plant

A nuclear accident has occurred at a land-based nuclear power plant located in your country's territory that was caused by a grave natural disaster of an exceptional character (such as a large earthquake or flood). Your country is the Installation State.

This nuclear accident caused nuclear damage within your national territory and in the territory of Affected States, such as loss of life and personal injury, loss of and damage to property, and damage to the environment. No damage was suffered in the airspace or maritime /high sea areas.

Your country has treaty relations only with some of the Affected States.

OPTION 2 / Your country has no nuclear power plants

Your country is one of the Affected States of the accident described above.

Please confirm which option your country corresponds to *[Please tick the appropriate box]*

☐ Option 1: your country is the Installation State

☐ Option 2: your country is one of the Affected States

1. National legal regime – General information

a. Has your country adopted a nuclear liability law? *[Please tick the appropriate box]*

☐Yes ☐No

[Please provide reference to the law that would apply to compensate victims of a nuclear accident and send a copy (if possible in English) to the Secretariat for information, and potentially translation and publication in the Nuclear Law Bulletin]

[If your country has not adopted a nuclear liability law, please continue filling the questionnaire adapting your responses as necessary; e.g. considering "nuclear damage" as "damage"]

b. Has your country ratified an international nuclear liability instrument? *[Please tick the appropriate box(es)]*

☐ PC/RPC ☐ BSC/RBSC ☐ VC ☐ RVC ☐ CSC ☐ JP

c. Under your legal system, is your country required to have an implementation law or is an international instrument directly applicable? *[Please tick the appropriate box]*

☐ An implementing law is required

☐ The international instrument is directly applicable

d. Does your country have bilateral agreements with other States that include provisions on nuclear liability that would apply in case a nuclear accident causes transboundary nuclear damage? *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, please provide reference to the relevant instrument and, if possible, a copy to the Secretariat for information)]

2. Notification of an accident

a. Is your country party to the 1986 Convention on Early Notification of a Nuclear Accident? *[Please tick the appropriate box]*

☐Yes ☐No

b. Does your country have bilateral agreements in the area of notification that would apply in case a nuclear accident has transboundary effects? *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, please provide reference to the relevant instrument and, if possible, a copy to the Secretariat for information)]

c. Does your country have a notification system and/or an emergency preparedness and response scheme that would apply in the case of a nuclear accident with potential transboundary effects (whether your country is the Installation State or an Affected State)? What are the main principles/rules of such system/scheme? *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, please provide reference to the relevant law(s)/regulation(s) and give a brief description]

d. In accordance with your national law, what is the applicable procedure (if any) and what means would be used for disseminating information in the case of a nuclear accident (whether your country is the Installation State or an Affected State)? Who will be responsible for such dissemination? *[Please specify as relevant]*

3. Evacuation process

Who is responsible in your country for making decisions with respect to evacuation measures and imposing restrictions (on harvesting, production and consumption of food products, etc.) following a nuclear accident (whether your country is the Installation State or an Affected State)? *[Please specify and provide the relevant legal/regulatory basis]*

4. Determining the damage to be compensated

***a.* Does your national legislation provide for a definition of "nuclear damage"?** *[Please tick the appropriate box]*

☐Yes ☐No

If yes, does it reflect the one provided in any of the following international nuclear liability conventions? *[Please tick the appropriate box]*

☐ RPC ☐ VC ☐ RVC ☐ CSC ☐ No

[If no, please provide the definition that would apply in your national legislation]

b. Does your national legal system provide for definition(s) of heads of damage that would entitle victims to receive compensation that are more detailed than those provided under the international nuclear liability convention(s)? *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, please list the heads of damage and provide reference to the relevant law/regulation that defines them]

c. Does your national legal system designate an authority/commission to provide for a mechanism to further specify which damage shall be compensated?[467] *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, what are the main principles / rules of such mechanism? Please provide a brief description of the mechanism]

***d.* In accordance with your national legislation, for which of the following types of damage would victims of a nuclear accident be compensated?** *[Please tick the appropriate box]*

☐ direct damage ☐ indirect damage ☐ both

If "indirect damage" is compensated under your national legislation, is there a legal or judicial definition of that term? *[Please specify]*

***e.* Is there a system to assess the extent of compensation to be paid in order to determine whether the nuclear damage caused by a nuclear accident on your country's territory appears to exceed or is likely to exceed a certain threshold, or to provide the operator, the insurer(s), the competent court and/or the Installation State to have a rough estimate of compensation to be paid?**[468] *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, please provide a brief description]

f. Which authority is entitled to take measures of reinstatement (i.e. measures to reinstate or restore damaged or destroyed components of the environment) and/or is competent to approve them?

[If more than one authority, please specify how they are expected to co-ordinate]

467 For example, the Japanese Compensation Act provides that a Dispute Reconciliation Committee for Nuclear Damage Compensation may be established to, among other functions, draft guidelines establishing the scale of the nuclear damage to be compensated in case of a nuclear accident, as well as other general instructions to help operators reach a voluntary settlement.

468 This system should allow the states parties to the BSC or the CSC to inform the other contracting parties if it appears that the nuclear damage caused exceeds or is likely to exceed, the threshold that would trigger the international tier; and may help States with priority rules and a limited nuclear liability amount to manage payments.

5. Proving the causal link

a. In accordance with your national law, who may claim compensation for nuclear damage suffered:

[Please specify hereunder]

(i) within your territory?

[Installation States and Affected States, please consider natural or legal persons]

(ii) outside your territory?

[Installation States, please consider natural or legal persons from Affected States with which your country has no treaty relations]

b. Does your national legislation provide a mechanism(s) to determine the causal link to nuclear damage so that victims avoid bearing the burden of proof before the courts (especially with regard to latent damage, such as personal injury that would appear between 10 to 30 years after the date of the nuclear accident)? *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, what are the main principles/rules of such mechanism? Please specify hereunder]

6. Identifying the liable entity

a. Under your national law, who is or may be primarily liable for the nuclear damage caused by the nuclear accident, if

(i) your country is the Installation State?

(ii) your country is an Affected State?

[Please specify here above]

[Please take into consideration whether your country has, or does not have, treaty relations with the Affected State or the Installations State (as appropriate) if it raises a difference in treatment]

b. Under your national law, is it possible that in the case of a nuclear accident occurring at a nuclear power plant:

(i) more than one operator may be held liable for nuclear damage? *[Please tick the appropriate box]*

☐Yes ☐No

(ii) another natural or legal person may be held liable in addition to or instead of a nuclear operator (e.g. a parent company or an entity jointly holding the operating licence of the nuclear power plant where the nuclear accident occurred)? *[Please tick the appropriate box]*

☐Yes ☐No

[Please specify further if you have ticked any of the "Yes" boxes above]

c. Under your national law, may the liable operator be:
[Please tick the appropriate box(es)]

(i) exempt from paying compensation (or part of it) with respect to:

☐ nuclear damage suffered by a person whose own gross negligence wholly or partly caused the nuclear damage;

☐ nuclear damage suffered by a person who acted or omitted to act with the intent to cause damage;

☐ any other scenarios? [*If yes, please specify*]

(ii) exonerated from liability in case of:

☐ armed conflict;

☐ hostilities;

☐ civil war;

☐ insurrection;

☐ grave natural disaster of an exceptional character;

☐ any other scenarios? [*If yes, please specify*]

In cases (i) and (ii) above, who will be compensating the victims? *[Please specify]*

d. Under your national law, is the liable operator entitled to have a right of recourse:
[Please tick the appropriate box]

☐ against the individual (natural person) who acted or omitted to act with the intent to cause damage;

☐ if expressly provided by contract;

☐ any other scenario? *[If yes, please specify]*

7. Financial securities

a. Under your national legislation, what are the option(s) available for the operator to cover its nuclear liability?
[Please tick the appropriate box(es)]

☐ insurance;

☐ mutuals;

☐ State insurance;

☐ State re-insurance;

☐ State guarantee;

☐ self-insurance;

☐ corporate guarantee;

☐ captive insurance (i.e. insurance company owned by the operator's company or company group);

☐ private bank alternatives (bonds, letter of credit, etc.);

☐ other type of financial security [*Please specify hereunder such other types*]

If the operator is State owned, is it still legally compelled to have insurance or other financial security to cover its nuclear liability? *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, please specify under which conditions]

b. **Does your country have a national nuclear insurance pool?** *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, please provide reference]

c. **Does your country have a national nuclear operators' pooling arrangement?** *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, please provide an overview of the arrangement (e.g. whether it is compulsory for all nuclear operators, how the contributions to the pool are calculated, etc.)]

8. Claims handling

a. **Does your country have a claims handling procedure set up?** *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, please provide reference to the relevant legislation and a brief description of the procedure]

b. In accordance with your national legislation, who is (are) responsible for handling compensation claims for nuclear damage:
[*Please tick the appropriate box(es)*]

☐ insurers / insurance pool;

☐ public authorities;

☐ operator;

☐ other entities [*Please specify*]

c. **In case different entities are providing financial security(ies) to the liable operator, are there any principles/rules to co-ordinate between these different financial security providers?** *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, what are the main principles/rules applicable?]

d. **Under your national law, against whom can the victims directly claim compensation?** *[Please tick the appropriate box(es)]*

- ☐ the operator;
- ☐ the insurer;
- ☐ any financial security provider;
- ☐ other options? [*Please specify*]

e. **What is the applicable time limitation for bringing compensation claims?** *[Please specify]*

f. **Under your national law, is there a possibility of grouping compensation claims ("class actions")?** *[Please tick the appropriate box(es)]*

☐Yes ☐No

[If yes, what are the main principles/rules of such a mechanism?]

May your State (whether the Installation State or an Affected State) organise a class action?[469]

☐Yes ☐No

[If yes, what are the main principles/rules of such a mechanism?]

g. **Is there any specific process already set up in your country to handle transboundary claims?** [Please tick the appropriate box]

☐Yes ☐No

[If yes, what are the main principles/rules of such a mechanism?]

h. **Does your country have a bilateral (or multilateral) agreement with neighbouring countries that addresses transboundary claims handling issues?** *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, please provide reference to the relevant instrument]

469 For example, see Article 13(g) of the RPC, which provides that "any State may bring an action on behalf of persons who have suffered nuclear damage, who are nationals of that State or have their domicile or residence in its territory, and who have consented thereto; […]".

9. Resolving disputes

a. Does your national law provide for an alternative dispute resolution (ADR) mechanism(s) in case the operator and victims disagree on the extent of the compensation to be paid for nuclear damage, as a first step before going to court? *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, please provide reference to the relevant law/regulation and describe the type of ADR that is available]

b. If your country is an Installation State, which court will have jurisdiction under your national law to rule on compensation for nuclear damage? *[Please consider, among others, the situation where your country has no treaty relations with some Affected States]*

c. If you are an Affected State and do not have treaty relations with the Installation State, will your courts have jurisdiction under your national law to rule on compensation for nuclear damage? [Please tick the appropriate box]

☐Yes ☐No

[If yes, please specify]

d. If you are an Installation State and do not have treaty relations with an Affected State, will decisions by the Affected State's competent courts (according to their respective national law) be enforceable in your country under your national law? *[Please tick the appropriate box]*

☐Yes ☐No

[In either case, please specify]

10. Amounts available

a. **Under your national law, what is the operator's nuclear liability amount?** *[Please specify]*

b. **How does your national law address the situation where the amount of compensation for nuclear damage exceeds the amount of the operator's nuclear liability or the amount provided by the international funds established by the RBSC or the CSC?** *[Please specify as relevant]*

c. Is there any reciprocity principle provided for in your national legislation? [Please tick the appropriate box]

☐Yes ☐No

[If yes, please explain how such reciprocity principle would apply when compensating foreign victims]

d. **Does your national law provide for priority rules for compensation of nuclear damage?**[470] *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, what are the main principles/rules of such mechanism? For instance, does your national legislation provide for funds to be set aside to compensate damage that manifests itself in the medium and long term? If not, will the State provide funds to compensate these heads of damage?]

e. **Does your legislation or regulation provide for emergency assistance payments to be paid, or establish a mechanism to determine such payments?** *[Please tick the appropriate box]*

☐Yes ☐No

[If yes, what are the main principles? Which are the entities that will pay the emergency assistance payments (e.g. the liable operator, insurers, the State, etc.) and who will receive such payments (e.g. the victims directly, the operator, the insurers, etc.? In the absence of legislation or regulation providing for such payments, would such payments take place anyway based on common practice)?]

470 Please note that Article VIII of the consolidated version of the RVC provides that "where in respect of claims brought against the operator the damage to be compensated under [the RVC] exceeds, or is likely to exceed, [the operator's nuclear liability amount], priority in the distribution of the compensation shall be given to claims in respect of loss of life or personal injury".

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An NEA monthly electronic bulletin is distributed free of charge to subscribers, providing updates of new results, events and publications. Sign up at www.oecd-nea.org/tools/mailinglist/register.

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Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident

The Third International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident was held in Bratislava, Slovak Republic in October 2017. It was organised in co-operation with the Nuclear Regulatory Authority of the Slovak Republic. The workshop offered a unique opportunity to explore the practical application of international nuclear liability instruments and the potential consequences with regard to non-convention states in the case of a nuclear incident. Discussions focused on the legal aspects of compensating victims who suffered nuclear damage due to a nuclear incident that occurred at a land-based nuclear power plant and caused transboundary damage.

The workshop was attended by more than 170 participants from 33 countries (of residence), including non-NEA member countries such as China, Croatia, India, Nigeria, Philippines, Singapore, South Africa, Ukraine and the United Arab Emirates. Participants came from public and private sectors representing governments, regulatory authorities, academia, the judiciary, operators, suppliers, law firms, the European Commission and the International Atomic Energy Agency.

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