

Progress towards a global nuclear liability regime

During its April 2014 meeting, the Steering Committee for Nuclear Energy held a policy debate on “Progress towards a Global Nuclear Liability Regime”. The Steering Committee heard presentations from several experts on nuclear liability issues. To prepare the delegates to the Steering Committee for the policy debate, the NEA Secretariat prepared a background note on the status of the nuclear liability regimes, as well as on current issues and challenges in implementing the regimes.

This article is based on the background note and is intended to provide basic information on the relevant international conventions and an overview of recent developments to enhance the understanding of the legal framework in which policymakers and practitioners are engaging to respond to the call for broader adherence to the international liability instruments.

Introduction

As the production and use of nuclear energy for peaceful purposes developed in the 1950s, a specific legal framework for third party nuclear liability was established to ensure adequate compensation for damage to persons and property resulting from a nuclear accident, but also to encourage the industry to develop nuclear technology and assume responsibility without being exposed to an uncertain and potentially ruinous liability burden.

Significant attention has been understandably placed at the international and national levels on fostering strong programmes to achieve safety, security and safeguards at a high level. Notwithstanding best efforts to achieve a high level of safety, the possibility remains that accidents may occur within a nuclear installation (i.e. not only nuclear power plants but also any installation in which there are nuclear fuel, nuclear substances, radioactive products or waste) or during the transportation of nuclear substances to or from a nuclear installation. As the experience shows from the accidents that occurred at Three Mile Island (United States) in 1979, Chernobyl (former USSR) in 1986, and Fukushima Daiichi (Japan) in 2011, severe accidents can have varying and potentially far-reaching consequences affecting both people and property.

In the wake of the Fukushima Daiichi nuclear power plant accident, the General Conference of the International Atomic Energy Agency (IAEA) endorsed in September 2011 an Action Plan on Nuclear Safety (“IAEA Action Plan”)¹ to strengthen the global nuclear safety framework. The IAEA Action Plan calls upon member states “to work towards establishing a global nuclear liability regime that addresses the concerns of all states that might be affected by a nuclear accident with a view to providing appropriate compensation for nuclear damage”, and “to give due consideration to the possibility of joining the international nuclear liability instruments as a step towards achieving such a global regime”. As directed by the plan, the International Expert Group on Nuclear Liability (INLEX) made recommendations in June 2012 to facilitate the achievement of such a global

1. IAEA document GOV/2011/59-GC (55)/14 available at: www.iaea.org/About/Policy/GC/GC55/Documents/gc55-14.pdf.

regime.² More recently, the Joint Statement on Liability for Nuclear Damage signed by France and the United States in August 2013,³ the G20 Leaders' Declaration of September 2013,⁴ and the Franco-Russian Nuclear Power Declaration signed in November 2013 encourage multilateral co-operation towards achieving a global nuclear liability regime.⁵

The original nuclear liability regimes

The Paris-Brussels regime

The 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy⁶ ("Paris Convention"), the first international nuclear liability instrument to be established, was adopted under the auspices of the Organisation for Economic Co-operation and Development (OECD), and more particularly its Nuclear Energy Agency (NEA). The government of any member or associate country of the OECD may accede to the Paris Convention, and the government of any other country may also do so with the unanimous assent of the contracting parties. The Paris Convention entered into force on 1 April 1968 and includes today 16 states, mostly members of the European Union (EU): Belgium, Denmark, Finland, France, Germany, Greece, Italy, the Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom. The latest state to have acceded to the Paris Convention is Switzerland, which deposited its instruments of ratification on 9 March 2009.⁷

The Paris Convention states recognised that the liability amount provided in the Paris Convention would not likely be adequate to cover the damage suffered in the event of a serious nuclear accident. To remedy that deficiency, most of those states adopted the 1963 Brussels Convention Supplementary to the Paris Convention ("Brussels Supplementary Convention") under which additional compensation beyond that provided under the Paris Convention would be made available to victims through the establishment of a three-tier system: the first tier is provided by the operator; the second tier is provided by the state in which the nuclear installation of the liable operator is situated (unless the national law transfers the obligation to the operator); and the third tier is contributed jointly by all contracting parties to the Brussels Supplementary Convention. The convention, which entered into force on 4 December 1974, is only open to Paris Convention states and has been ratified by all of them, except Greece, Portugal and Turkey.

The Vienna regime

In 1963, member states of the IAEA adopted the Vienna Convention on Civil Liability for Nuclear Damage ("Vienna Convention"), which came into force on 12 November 1977. All members of the United Nations, or of any of the specialised agencies or of the IAEA, may accede to the Vienna Convention. Its 40 contracting

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2. Available at: ola.iaea.org/ola/documents/ActionPlan.pdf.
 3. Available at: www.oecd-nea.org/ndd/workshops/nuclearcomp/presentations/documents/document2013-08-28-185401.pdf.
 4. Available at: www.g20.org/sites/default/files/g20_resources/library/Saint_Petersburg_Declaration_ENG.pdf.
 5. Available in English and French in the *Nuclear Law Bulletin*, No. 92, OECD/NEA, Paris.
 6. All the international conventions on nuclear liability are available at: www.oecd-nea.org/law/legal-documents.html#agreements.
 7. The ratification of the Paris Convention by Switzerland is effective only with respect to the Paris Convention as amended by all its amending protocols, including the 2004 Protocol to amend the Paris Convention (discussed later in this note). The entry into force for Switzerland of the Paris Convention will therefore only take place once the 2004 Protocol to amend the Paris Convention has itself entered into force.

parties come from all geographical regions, except Oceania. The latest state to have acceded to the Vienna Convention is Jordan, which deposited its instruments of ratification on 27 January 2014. The Vienna Convention regime, in contrast to the Paris-Brussels regime, does not provide for a supplementary funding mechanism.

Enhancing the liability regimes

Just as the 1986 Chernobyl accident provided the catalyst for adoption of the 1994 Convention on Nuclear Safety and other international instruments focusing on emergency response and assistance, the accident also provided impetus to further improve the nuclear liability regimes by modernising the Paris-Brussels and Vienna regimes. In 1988, the Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention (“Joint Protocol”) was adopted, which linked the Conventions in the event a nuclear accident occurring in a state party to one regime caused damage in a state party to the other regime. Nine years later, a new nuclear liability instrument was adopted – the 1997 Convention on Supplementary Compensation for Nuclear Damage (“CSC”). The Joint Protocol and the CSC are discussed in more detail later in this note.

The Protocols amending the Vienna Convention and the Paris-Brussels Conventions

When the international community realised the extent of the consequences of the Chernobyl accident, it was clear that the original nuclear liability regimes needed to be improved in order to strengthen the protection that they provided to the victims. The improvements sought, among other things, to increase the operator’s liability amount, to compensate a broader range of damage (including for the first time the environmental and economic costs of an accident), to compensate more victims by widening the geographical scope of the regimes, and to extend the time (or prescription period) in which the victims may make their claims taking into account the latent effects of radiation on human health. A synopsis of the main improvements is provided in Appendix 1.

The 1997 Protocol to Amend the Vienna Convention (“1997 Protocol”) was the first to be adopted, and entered into force on 4 October 2003. There are 12 contracting parties, Jordan being the latest to have acceded in January 2014. The 1963 Vienna Convention and the 1997 Protocol, together referred to as the Vienna regime, exist concurrently: states may accede to i) the Vienna Convention only, ii) the Vienna Convention and the 1997 Protocol, or iii) the 1997 Protocol and not to the Vienna Convention. In case a state accedes to the 1997 Protocol only, it shall be bound by the provisions of the Vienna Convention as amended by the 1997 Protocol in relation to other states parties to the 1997 Protocol, and absent an expression of a different intention by that state, it shall be bound by the Vienna Convention in relation to states which are only parties to the Vienna Convention.⁸

The parties to the Paris-Brussels regime, which participated in the discussions regarding the 1997 Protocol, adapted the improvements made therein within their own regime. On 12 February 2004, the Protocol to Amend the Paris Convention and the Protocol to Amend the Brussels Supplementary Convention were signed. These Protocols have not yet entered into force, mainly because a decision of the Council of the EU of 8 March 2004⁹ requires that the contracting parties to the Paris Convention that are also members of the EU “take the necessary steps to deposit simultaneously

8. Article 7 (6) of the 1997 Protocol.

9. Council Decision 2004/294/EC of 8 March 2004 authorising the member states to ratify, in the interest of the European Community, the Protocol of 12 February 2004 amending the Paris Convention, *Official Journal of the European Union* (OJ) L 97/53 (1 April 2004).

their instruments of ratification of the Protocol, or accession to it”.¹⁰ At the time, this requirement did not seem to be a constraint, but it ultimately became one. The Council had to authorise the member states that are contracting parties to the Paris Convention to ratify the 2004 Protocol to amend the Paris Convention because some of its provisions concern the judicial resolution of disputes, a subject that according to EU law falls under the exclusive competence of the EU. It is, however, important to note that the requirement to deposit simultaneously the instruments of ratification or accession was not required of the Republic of Slovenia when it joined the Paris-Brussels regime,¹¹ nor of certain member states when ratifying or acceding to the 1997 Protocol amending the Vienna Convention,¹² which also addresses judicial matters. The contracting parties to the 2004 Protocol amending the Paris Convention that are subject to the 2004 Council decision are now striving to deposit their ratification instruments in the near future.

The Convention on Supplementary Compensation for Nuclear Damage

During the 1997 Vienna Protocol deliberations, negotiating states decided to establish a mechanism for mobilising supplementary funds to compensate nuclear damage, in addition to the funds to be provided by the operator under the Paris and Vienna Conventions. One of the favoured approaches to this idea was to establish a system of supplementary state funding at both national and international levels, modelled in part on the Brussels Supplementary Convention. The result was the adoption of the 1997 Convention on Supplementary Compensation for Nuclear Damage (“CSC”), which is open to all states, including those already parties to the Paris-Brussels or Vienna regimes. At this date, the CSC has not yet entered into force.¹³ Canada, which signed the CSC on 3 December 2013, is expected to ratify the CSC soon, and Japan has announced that it intends to ratify the CSC. Ratification by these two countries would allow the CSC to come into force.

The CSC provides for a two-tier compensation system: the first tier is provided by the operator and, if necessary, the state where its installation is situated; and the second tier is provided by the CSC states. The CSC allows a state to establish at its option a third tier of compensation. The CSC was also intended to form the basis for a global liability regime to supplement and enhance the measures provided in the Paris and Vienna Conventions, as well as in national legislation consistent with the provisions of the Annex to the CSC, which reflects the nuclear liability principles set forth in those conventions. Finally, the CSC allowed the United States to join an international nuclear liability convention without amending its national law, the 1957 Price-Anderson Act, which provides for an economic channelling to the operator instead of the legal channelling approach provided in the conventions, as explained later in this note.

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10. Article 20 of the Paris Convention requires that two-thirds of the contracting parties deposit their instruments for the 2004 Protocol to come into force.
 11. Council Decision 2007/727/EC of 8 November 2007 authorising the Republic of Slovenia to ratify, in the interest of the European Community, the Protocol of 12 February 2004 amending the Paris Convention, OJ L 294/23 (13 November 2007).
 12. Council Decision 2013/434/EU of 15 July 2013 authorising certain member states to ratify, or to accede to, the Protocol amending the Vienna Convention, in the interest of the EU, and to make a declaration on the application of the relevant internal rules of Union law, OJ L 220/1 (17 August 2013).
 13. The CSC will enter into force when ratified by at least five states with a minimum of 400 000 units of installed nuclear capacity. CSC, Article 20(1). As of July 2014, Argentina, Morocco, Romania, the United Arab Emirates and the United States have ratified the CSC, but the minimum installed capacity level has not been reached.

The nuclear liability principles: The common basis underlying all the regimes

The development of the nuclear liability regimes stemmed in part from the viewpoint that ordinary rules of tort law, while appropriate for conventional risks, could hamper rather than help victims of nuclear damage in obtaining adequate compensation in a timely manner. Typically, tort law requires that:

- The victim identifies the person(s) responsible for the accident: i.e. proves which of the many potential parties involved in a nuclear accident (operator, designers, constructors, suppliers etc.) is legally liable and proves its fault (i.e. its intentional or negligent failure to exercise the prescribed standard of care). Given the potential technical complexities of such a task, litigants could be subject to a costly and time-consuming legal procedure before the courts.
- In case of transboundary damage, the question of the applicable law and competent court, as well as the question of the recognition and enforceability of court decisions may arise if the concerned states (i.e. the states where the accident or the damage occurred) do not have treaty relations which address these questions.

Notwithstanding the above, some countries consider that the ordinary rules of tort law could put victims in a more favourable position and have not adhered to any of the nuclear liability regimes, mainly because under the ordinary rules of tort law:

- The liability of the entity proven to be responsible would be unlimited.
- The victims may bring a claim against any entity that they may consider liable for the accident, as long as they can prove the causal link between such entities' fault or negligence and the accident. Such an approach could significantly increase the financial capacity to compensate the victims if several entities are considered liable.
- Under international conventions that address determination of the competent tribunal,¹⁴ victims may submit their claims before the court of their residence; the victims would thus benefit from the ordinary rules of tort law applicable in their country of residence.

The foundation for today's international conventions on civil nuclear liability takes into account these considerations as well as other aspects of the potential exceptional risks involved in nuclear energy production. The main principles common to the international conventions, which are also reflected in most national nuclear liability laws worldwide, may be summarised as follows:

- *The exclusive liability of the operator*: the operator of a nuclear installation is exclusively liable for damages suffered by third parties resulting from a nuclear accident occurring at its installation or during the course of transport of nuclear materials to or from its installation. No other person may be held liable for the damages caused by the nuclear accident as all liability for damage suffered by third parties is "channelled" directly to the operator.

14. See for example the Convention on jurisdiction and the enforcement of judgments in civil and commercial matters, done on 27 September 1968, 1262 UNTS 153, and Council Regulation (EC) No. 44/2001 of 22 December 2000 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters, OJ L 12/1 (16 January 2001) or the Convention on jurisdiction and the enforcement of judgments in civil and commercial matters, done on 16 September 1988, OJ L 319/9 (25 November 1988).

There are two approaches to channelling: “legal” channelling, which is provided in the international nuclear liability conventions (i.e. all liability is channelled to the nuclear operator and to no other entity), and “economic channelling”, which is provided, for example, under the United States’ Price-Anderson Act, 42 USC 2210 (i.e. any entity, such as a supplier, may be held legally liable for the damage incurred, but the economic consequences of that liability are channelled to the operator of the nuclear installation where the accident occurred, which shall have to indemnify any person held legally liable for related damages, such as suppliers). Furthermore, the operator incurs no liability outside the nuclear liability conventions for nuclear damage caused by a nuclear accident.

- *The strict (absolute) liability of the operator*: victims need not prove fault or negligence in seeking compensation, but only a causal link between the nuclear accident and the damage suffered.
- *The minimum liability amount borne by the operator*: the contracting parties to an international nuclear liability convention shall provide under their legislation a liability amount which shall not be less than the minimum amount provided by the international convention. In most countries (whether they have adhered to a nuclear liability regime or not), the operator’s nuclear liability is limited to a specified amount. Only a few countries at present have provided for unlimited liability under their nuclear liability legislation: e.g. Finland (only for those damages suffered within its territory), Germany, Switzerland and Japan. It is important to note that, at the beginning, the nuclear liability regimes (particularly the 1960 Paris Convention) provided for a cap on the operators’ liability, but the enhanced regimes only provide for a minimum amount, thereby allowing the contracting parties to provide for greater or even unlimited liability at their option.
- *The obligation for the operator to have and maintain financial security*: to ensure availability of funds, the operator is required to maintain financial security up to its liability amount or, in case of unlimited liability, up to the amount required by law, which cannot be less than the minimum liability amount required under the international convention adopted by the state where the operator’s installation is situated. The conventions, and usually national laws, do not require a specific form of financial security; thus, the operator may satisfy its obligation among the different options available, such as private insurance, self-insurance, a guarantee (whether a corporate guarantee or one provided by the state or a bank) or an operators’ pool (available in Germany and the United States). However, the financial security mechanism must be acceptable to the competent public authority.¹⁵
- *The obligation of the victims to file claims within a certain period*: because health-related damage caused by the emission of ionising radiation may not be perceptible for an extended time after the nuclear accident occurred, the legal period during which an action may be brought is a matter of great importance for the victims. Over time, the revised Paris and Vienna Conventions have generally extended the period to the benefit of the victims as illustrated in Appendix 1.

15. See for example Article 10(a) of the Paris Convention.

The conventions also incorporate two additional principles, which are designed to address the complexities posed by the potential transboundary scope of nuclear damage and cross-border compensation claims:

- *Competent jurisdiction and enforcement of judgments*: jurisdiction over nuclear damage claims lies only with the courts of the state in which the accident has occurred, and more precisely only one court should be competent pursuant to the modernised regimes. The judgments rendered by the competent court are enforceable in any contracting party.
- *Applicable law and equal treatment*: the courts having jurisdiction will apply the relevant convention (if the state has adhered to one of them) and their own national law over claims arising out of a nuclear accident, and that law shall apply to all matters both substantive and procedural and to all victims, without any discrimination based upon nationality, domicile or residence.

There is currently a debate as to whether India's nuclear liability legislation adopted in 2010¹⁶ is wholly consistent with the internationally accepted nuclear liability principles, and more specifically with the channelling principle under which only the operator of the installation where the nuclear accident occurred is held liable under the nuclear liability regime, to the exclusion of any other law which may potentially apply. The Indian regime provides for the operator's right of recourse against a supplier when "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".¹⁷ This provision induces each supplier to have and maintain financial security up to the same amount of liability as required of the operator under the Indian legislation, i.e. the Indian rupee equivalent of SDR 300 million¹⁸ or such higher amount as the central government may specify. This approach has raised concerns among potential suppliers, whether Indian or foreign, because it will increase their risks and costs; and some small or medium enterprises may not be able to bear the financial burden. Given the number of suppliers for a given nuclear project, this approach will likely require a greater financial capacity from the insurance market.

The Fukushima Daiichi nuclear power plant accident has demonstrated the effectiveness of the basic principles set forth in the international regimes which have been transposed into the Japanese nuclear liability regime. Of course, there are still areas for improvement.¹⁹ Although much attention is understandably given to emergency preparedness and response arrangements to deal with and mitigate the

16. The Civil Liability for Nuclear Damage Act, No. 38, 2010, Gazette of India, No. 47, pt. II, sec. 1 (21 September 2010) and the Civil Liability for Nuclear Damage Rules, 2011, Gazette of India, No. 2112, pt. II, sec. 3, p. 17 (11 November 2011).

17. Article 17(b) of the Civil Liability for Nuclear Damage Act, 2010.

18. Special Drawing Right or SDR is a unit of account defined by the International Monetary Fund (IMF) based upon a basket of key international currencies. The currency value of the SDR is calculated daily and the valuation basket is reviewed and adjusted every five years. The current value is available at: www.imf.org/external/np/fin/data/rms_sdrv.aspx. On 10 July 2014, one SDR was equivalent to about USD 1.54 and EUR 1.13.

19. The NEA Secretariat, in co-operation with the Permanent Delegation of Japan to the OECD, prepared the publication *Japan's Compensation System for Nuclear Damage: As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, available at: www.oecd-nea.org/law/fukushima/7089-fukushima-compensation-system-pp.pdf. This publication gathers in one volume the translations in English of the major acts, ordinances and guidelines issued in Japan for the implementation of the nuclear liability compensation scheme in response to the accident, as well as several related commentaries. The third supplement to the interim guidelines, issued in January 2013, was published in *Nuclear Law Bulletin* No. 92, OECD/NEA, Paris.

consequences of an accident, the Fukushima Daiichi accident has shown that it is also necessary to be prepared to deal with the legal consequences of a nuclear accident in a timely and financially adequate manner. A clear and comprehensive legal framework is needed to deal with compensating the victims of a nuclear accident, which allows the government and the operator to quickly adapt to the specific circumstances arising from the accident. Some of the lessons to be learnt from the accident at this stage may be summarised as follows:

- The exclusive and strict liability of the operator under the Japanese legislation has allowed the victims to concentrate their applications for indemnification on the Tokyo Electric Power Company (TEPCO), the operator of the damaged nuclear power plant units. As of 20 June 2014, TEPCO had received approximately 2.2 million applications from individuals and corporations.²⁰ To expedite the handling of such a large number of applications, it is imperative that nuclear states establish the basis for an effective claims handling procedure in advance, to ensure that the victims may be timely compensated and the nuclear liability legislation may be implemented as expected. This is even more important due to the fact that victims have a limited period of time to claim compensation before the courts should they disagree with the compensation offered by the operator.
- To facilitate the compensation procedure and minimise potential disputes, the operator and the victims must have guidance on defining the particular damage entitling the victims to receive compensation, and the appropriate compensation amount for a given type of damage. Pursuant to the Japanese nuclear liability act, a committee of experts²¹ was responsible for issuing guidelines to determine the scope of and financial compensation for the nuclear damage, which it did in a fairly short time frame (mostly between 28 April 2011 and 16 March 2012). Supplementary guidance was also issued in 2013. Even though such guidelines are not legally binding, they have not been challenged and can be invoked before the courts by the operator or the victims.
- Under the Japanese legislation, the operator bears unlimited liability, but in case the compensation amounts exceed the financial security required by law, the government is required to provide, with prior approval of the National Diet, such aid as may be necessary to allow the operator to fully compensate the victims. Japanese operators are legally required to maintain a financial security of JPY 120 billion, but the compensation amounts paid by TEPCO as of June 2014 equal approximately JPY 4 trillion. The government provided its aid primarily by acquiring a controlling stake in TEPCO and setting up, together with the Japanese nuclear operators, the Nuclear Damage Compensation Facilitation Corporation (the “Corporation”). The Corporation’s purpose is to provide, under certain conditions, financial support to any nuclear operator that may face nuclear damage compensation obligations beyond the required financial security amount. Such financial support is provided either through the “reserves” that are funded by the compulsory annual contributions to be paid by all Japanese nuclear operators to the Corporation and are not required to be reimbursed if called upon or, if certain prior

20. According to the table summarising the “Records of Applications and Payouts for Indemnification of Nuclear Damage” posted by TEPCO on its website at: www.tepco.co.jp/en/comp/images/jisseki-e.pdf.

21. The Dispute Reconciliation Committee for Nuclear Damage Compensation.

conditions are met,²² through government bonds granted to the Corporation which amounts will have to be reimbursed by the operator that receives the financial support and, in turn, by the Corporation to the government.

As of June 2014, TEPCO had received approximately JPY 4.547 trillion through the Corporation.²³ The Japanese government decided to provide such financial aid²⁴ because it considered, among other reasons, that it was necessary to avoid TEPCO's liquidation, in which case: i) the victims of nuclear damage would have been unable to receive sufficient compensation (i.e. they would have had no special treatment and would have received their pro rata share of the operator's remaining property after the preferential creditors have been paid; and damage arising after the liquidation procedure would not have been compensated) and would only receive compensation after the conclusion of the legal liquidation; ii) it would probably have been difficult to gain sponsors and carry out corporate reorganisation procedures; and iii) it would have compromised the stable supply of electricity by TEPCO, which provides power to 35.1% of the Japanese population.²⁵ The scheme set up by the Japanese government to provide financial aid to nuclear operators is intended to put the financial burden primarily on the latter and to minimise the impact on the public.

Towards a global nuclear liability regime

Whether a nuclear accident affects only the territory of the installation state, as with the Fukushima Daiichi accident, or has transboundary effects, such as the Chernobyl accident, it is important that victims are adequately and timely compensated. Adhering to a nuclear liability regime provides the necessary treaty relations between the states that may be affected by a nuclear accident (e.g. on which territory an accident may occur or damage may be suffered) to clarify which law applies or which court is competent, to establish the recognition and enforcement of judicial decisions and, depending on the applicable convention, to increase the funds available to compensate the victims by contributing to an international fund.²⁶ In addition, because contracting states should ensure that their national legislation reflects the nuclear liability regime to which they adhere, a

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22. The operator requesting the financial support will have to prepare, in co-ordination with the Corporation, a special business plan that must demonstrate business rationalisation and management accountability, and reach pre-agreements with other interested parties who may have benefited from its liquidation.
 23. According to the TEPCO press release dated 23 June 2014, available at: www.tepco.co.jp/en/press/corp-com/release/2014/1238203_5892.html.
 24. See "The financial support by the Nuclear Damage Compensation Facilitation Corporation", by Mr. Yasufumi Takahashi, and the Japanese Cabinet Decision of 14 June 2011 on the Framework of government support to TEPCO, both published in (2012), OECD (ed.), *Japan's Compensation System for Nuclear Damage: As Related to the TEPCO Fukushima Daiichi Nuclear Accident*, OECD/NEA, Paris, available at: www.oecd-nea.org/law/fukushima/7089-fukushima-compensation-system-pp.pdf.
 25. As of 31 March 2013, according to TEPCO's "Annual Report 2013", available at: www.tepco.co.jp/en/corpinfo/ir/tool/annual/pdf/ar2013-e.pdf.
 26. As noted by INLEX, "The nuclear liability conventions considerably improve the protection of victims in comparison to most national laws. Quite a number of the advantages, like procedural channelling, recognition and enforcement of judgements, liability for damage caused by state-run nuclear activities, free transferability of payable sums and contributions of other states to compensation funds can only be achieved by international agreements. National laws are unable to achieve these advantages", in "Civil liability for nuclear damage: Advantages and disadvantages of joining the International Nuclear Liability Regimes – A paper by the International Expert Group on Nuclear Liability (INLEX)" (undated), available at: ola.iaea.org/ola/treaties/documents/liability_regime.pdf.

broader adhesion to the Paris-Brussels regime, the Vienna regime or the CSC should lead to the harmonisation of the nuclear liability legislation and thus promote similar treatment to victims and operators worldwide.

It is important to note that greater globalisation and harmonisation of nuclear liability is not only to the benefit of the potential victims of an accident, but also has beneficial effects on nuclear trade. Although the Fukushima Daiichi accident led to a number of reviews of the role of nuclear power, it is noteworthy that at the end of 2013 there were 72 reactors under construction, the largest number in 25 years. Participants in an increasingly globalised market understandably want greater legal clarity and certainty to understand the risks to which they will be exposed when participating in a nuclear project, whether for the construction, refurbishment or decommissioning of nuclear installations. The nuclear liability principles set forth in the nuclear liability regimes help meet those objectives.

A global nuclear liability regime may be achieved if all states with nuclear installations and as many states as possible that may be affected by a nuclear accident establish treaty relations. Given the options currently available, states may consider ratifying or acceding to:

- the Paris or the Vienna Convention and the Joint Protocol, or
- the CSC, with the possibility of previously adhering to the Paris or Vienna Convention.

As the Paris-Brussels regime, the Vienna regime and the CSC reflect the same basic principles, the regimes are fundamentally compatible in ensuring similar legal treatment of victims and the operator even though there are certain differences (some of which are explained in Appendix 1), such as in the prescribed liability amount or the prescription period. Nonetheless, the differences and potential areas for further improvement with regard to their compatibility do not detract from the overarching goal of achieving a global liability regime through broader adherence to the international liability instruments.

The Joint Protocol

The Joint Protocol came into force on 27 April 1992 and is open to all states that have previously adhered to the Paris-Brussels or the Vienna regimes. It has 28 contracting parties; the latest state to have acceded to the Joint Protocol is France, which deposited its instruments of accession on 30 April 2014.

The Joint Protocol acts like a “bridge” between the Paris Convention and the Vienna Convention to determine which of them would apply in case that they are both potentially applicable and to extend their respective scope of application to embrace the contracting parties of the other convention. Its main principle is that “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”²⁷ and the applicable convention shall be applied, with respect to the contracting parties to the Joint Protocol which are parties to the other convention, in the same manner as between parties to the applicable convention.²⁸

The CSC

The CSC aims to gather under its “umbrella” the contracting parties to the existing Paris-Brussels and Vienna regimes, as well as any state that has not ratified either but has declared that its national law complies with the provisions of the

27. Article III (2) of the Joint Protocol.

28. Article IV of the Joint Protocol.

Annex to the CSC, which reflects the common nuclear liability principles. The CSC thereby “encourage[s] regional and global co-operation to promote a higher level of nuclear safety in accordance with the principles of international partnership and solidarity”.²⁹ As noted by INLEX, “the CSC establishes treaty relations among States that belong to the Paris Convention, the Vienna Convention or neither, while leaving intact the Joint Protocol that establishes treaty relations among States that belong to the Paris Convention or the Vienna Convention”.³⁰ As mentioned above, the CSC also provides for supplementary funding contributed by all its contracting parties upon notification that nuclear damage shall exceed the operator’s nuclear liability amount provided in the convention.

Challenges and the path forward

Although progress toward extending the reach of the international liability conventions has at times been slow, recent developments reflect a renewed commitment in the international community to improve the prospects towards greater adherence to the modernised regimes. The path forward will be a product of a greater commitment by states to the following actions:

Encouraging more countries to adhere to one of the nuclear liability regimes and adopt consistent legislation. All states with nuclear installations, and as many states as possible that may be affected by a nuclear accident, should adhere to one of the enhanced nuclear liability regimes. Although there are compelling arguments in favour of a more global nuclear liability regime, today more than half of the reactors in operation or under construction worldwide are not currently subject to any of the international nuclear liability regimes in force (see Appendix 2). Nonetheless, there are signs of progress: several new entrants or potential new entrants into nuclear power generation (i.e. Jordan, Kazakhstan, Saudi Arabia and the United Arab Emirates) have acceded to one of the regimes.

Bringing the CSC and the 2004 Protocol to Amend the Paris Convention into force. With regard to the CSC, Canada recently signed the convention and may conclude the necessary steps for ratification in 2014, while Japan has indicated that it intends to sign the CSC. Ratification by these two countries would allow the CSC to come into force. The contracting parties to the Paris Convention are making their best efforts to have the 2004 Protocol to amend the Paris Convention enter into force in the near future.

Encouraging parties to the Vienna Convention to adhere to its enhanced form, the 1997 Protocol, and to adopt consistent legislation. All countries that have joined the Vienna regime since 2010³¹ (except Mauritius, which is a non-nuclear country) have acceded to the 1997 Protocol, which provides for an enhanced protection of the victims, including a higher minimum amount of compensation.

Encouraging the contracting parties to the Paris-Brussels regime or the Vienna regime to join the efforts to establish a global nuclear liability regime. States can improve the prospects of a more global liability regime by adhering to the Joint Protocol and/or the CSC, if they have not already done so.

29. Preamble to the CSC.

30. INLEX (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: ola.iaea.org/ola/documents/ActionPlan.pdf.

31. Bosnia and Herzegovina (2013), Jordan (2014), Kazakhstan (2011), Mauritius (2013), Montenegro (2011), Poland (2010), Saudi Arabia (2011) and the United Arab Emirates (2012).

Continuing the efforts to maintain the compatibility of the Paris-Brussels regime, the Vienna regime and the CSC.

Ensuring that states provide for an adequate legal framework to ensure that funds will be available to compensate the victims in case of a nuclear accident, especially when the operator is subject to unlimited liability.

Drawing lessons from the Japanese experience in order to improve states' respective nuclear liability legislation. The Fukushima Daiichi accident revealed that good practices and improvements in the implementation of the nuclear liability principles should be considered in order to ensure legislative preparedness and response arrangements.

Appendix 1. Improvements brought by the enhanced regimes in case an accident occurs at a nuclear power plant

Victims will have access to larger amounts of compensation

Paris Convention (PC)	SDR 15 million maximum SDR 5 million minimum (In 1990, the NEA Steering Committee [NE/M(90)1] recommended a minimum of SDR 150 million)
PC as amended by the 2004 Protocol	EUR 700 million minimum
Brussels Supplementary Convention (BSC)	<i>1st tier (operator's tier)</i> : SDR 15 million maximum <i>2nd tier (operator's state tier)</i> : between 1 st tier and SDR 175 million <i>3rd tier (BSC contracting parties' fund)</i> : between SDR 175 million and SDR 300 million Total amount available: SDR 300 million
BSC as amended by the 2004 Protocol	<i>1st tier (operator's tier)</i> : EUR 700 million minimum <i>2nd tier (operator's state tier)</i> : between 1 st tier and EUR 1.2 billion <i>3rd tier (BSC contracting parties' fund)</i> : between EUR 1.2 billion and EUR 1.5 billion Total amount available: EUR 1.5 billion minimum
Vienna Convention (VC)	Minimum USD 5 million, based on USD gold value on 29 April 1963 (i.e. USD 35 per one troy ounce of fine gold)
VC as amended by the 1997 Protocol	SDR 300 million minimum
Convention on Supplementary Compensation for Nuclear Damage (CSC)	<i>1st tier (operator/state's tier)</i> : SDR 300 million <i>2nd tier (CSC contracting parties' fund)</i> : Not fixed: depends on number of nuclear power plants in the contracting parties. Amount expected: SDR 300 million

Victims may claim compensation for a wider range of damage suffered

Paris Convention (PC)	Damage to or loss of life of any person. Damage to or loss of any property.
PC as amended by the 2004 Protocol	Loss of life or personal injury, Loss of or damage to property, Economic loss arising from i) or ii) Costs of measures of reinstatement of impaired environment, Loss of income deriving from a direct economic interest in any use or enjoyment of the environment, Costs of preventive measures, and further loss or damage caused by such measures.
Vienna Convention (VC)	Same as PC <i>plus</i> - Any other loss or damage so arising or resulting if and to the extent that the law of the competent court so provides.
VC as amended by the 1997 Protocol	Same as PC as amended by the 2004 Protocol <i>plus</i> Any other economic loss, other than any caused by the impairment of the environment.
Convention on Supplementary Compensation for Nuclear Damage (CSC)	Same as VC as amended by the 1997 Protocol.

Victims will generally have more time to make their claims

Paris Convention (PC)	For all nuclear damage: 10 years from the date of the nuclear accident.
PC as amended by the 2004 Protocol	For loss of life and personal injury: 30 years from the date of the nuclear accident. For other nuclear damage: 10 years from the date of the nuclear accident.
Vienna Convention (VC)	For all nuclear damage: 10 years from the date of the nuclear accident.
VC as amended by the 1997 Protocol	Same as PC as amended by the 2004 Protocol.
Convention on Supplementary Compensation for Nuclear Damage (CSC)	For all nuclear damage: 10 years from the date of the nuclear accident.

More victims will be entitled to compensation

Paris Convention (PC)	Only applies to damage suffered in the territory of a PC state
PC as amended by the 2004 Protocol	Applies to nuclear damage suffered in the territory, or maritime zones, of: a PC state, a non-PC state which, at the time of the nuclear accident, is a contracting party to the Vienna regime <i>and</i> the Joint Protocol, if the state of the operator liable is also a party to the Joint Protocol, a non-PC state which, at the time of the accident, has no nuclear installation in its territory or in any maritime zones, any other non-PC state which, at the time of the nuclear accident, has in force nuclear liability legislation which affords equivalent reciprocal benefits and is based on the nuclear liability principles.
Brussels Supplementary Convention (BSC)	Only applies to damage suffered in the territory of a BSC state, provided that the courts of a contracting party have jurisdiction pursuant to the PC.
BSC as amended by the 2004 Protocol	Applies when an operator is liable under the PC, and only to nuclear damage suffered: in the territory of a BSC state, in or above a BSC state's exclusive economic zone, under specified circumstances, or in or above maritime areas beyond the territorial sea of a BSC state, under specified circumstances. Because the funds to be provided under the 2 nd and 3 rd tiers are considered "public" money, compensation is only available to compensate victims in BSC states.
Vienna Convention (VC)	No express provision, but generally considered as only applying to damage suffered in the territory of a VC state.
VC as amended by the 1997 Protocol	Applies to nuclear damage wherever suffered, but national legislation may exclude nuclear damage suffered in a non-contracting state which, at the time of the accident, - has a nuclear installation in its territory or maritime zones, - does not afford equivalent reciprocal benefits.
Convention on Supplementary Compensation for Nuclear Damage (CSC)	1 st tier: covers nuclear damage wherever suffered with option by the installation state to exclude damage in territory of a non-CSC state subject to its obligations under the PC or the VC. 2 nd tier: compensation is limited to damage suffered within the territory of a CSC state (similar approach as in the BSC).

Appendix 2. Ratification status of countries with reactors in operation or under construction
Status of ratification of international nuclear liability conventions (as of 10 July 2014)

Country	Plants: operating + under construction (UC)*	Conventions ratified/ [signed]	Country/Economy	Plants: operating + under construction (UC)*	Conventions ratified/ [signed]
Argentina	2 + 2 UC	VC; RVC; [JP]; CSC	Mexico	2	VC
Armenia	1	VC	Netherlands	1	PC; BSC; JP; [RPC; RBSC]
Belarus	1 UC	VC, RVC	Pakistan	3 + 2 UC	
Belgium	7	PC; BSC; [JP]; [RPC; RBSC]	Romania	2	VC; RVC; JP; CSC
Brazil	2 + 1 UC	VC	Russian Federation	33 + 10 UC	VC
Bulgaria	2	VC; JP	Slovak Republic	4 + 2 UC	VC; JP
Canada	19	[CSC]	Slovenia	1	PC; BSC; JP; [RPC; RBSC]
China	21 + 28 UC		South Africa	2	
Czech Republic	6	VC; [RVC]; JP [CSC]	Spain	7	PC; BSC; [VC]; [JP]; [RPC]; RBSC
Finland	4 + 1 UC	PC; BSC; JP [RPC; RBSC]	Sweden	10	PC; BSC; JP; [RPC; RBSC]
France	58 + 1 UC	PC; BSC; JP [RPC; RBSC]	Switzerland**	5	PC; BSC; [JP] RPC; RBSC
Germany	9	PC; BSC; JP; [RPC; RBSC]	Ukraine	15 + 2 UC	VC; [RVC]; JP [CSC]
Hungary	4	VC; [RVC]; JP	United Arab Emirates	2 UC	RVC; JP; CSC
India	21 + 6 UC	[CSC]	United Kingdom	16	PC; BSC; [VC]; [JP] [RPC; RBSC]
Iran, Islamic Republic of	1		United States	100 + 5 UC	CSC
Japan	48 + 2 UC	[intention to sign CSC]			
Korea, Republic of	23 + 5 UC		Chinese Taipei	6 + 2 UC	

Notes: PC: 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy.
 BSC: 1963 Brussels Convention Supplementary to the Paris Convention.
 RPC: 2004 Protocol to Amend the Paris Convention (Revised Paris Convention – not in force).
 RBSC: 2004 Protocol to Amend the Brussels Supplementary Convention (not in force).
 VC: 1963 Vienna Convention on Civil Liability for Nuclear Damage (Vienna Convention).
 RVC: 1997 Protocol to Amend the Vienna Convention (Revised Vienna Convention).
 JP: 1988 Joint Protocol Relating to the Application of the Vienna and Paris Conventions.
 CSC: 1997 Convention on Supplementary Compensation for Nuclear Damage (not in force).

* Source: IAEA Power Reactor Information System (PRIS), www.iaea.org/pris/ (as of 10 July 2014).

** Switzerland deposited its instrument of ratification of the PC and BSC as amended by the 2004 Protocols; the conventions will only enter into force for Switzerland upon the entry into force of the 2004 Protocols.