

# Civil liability for nuclear damage in countries developing nuclear new build programmes

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## ABSTRACT

An established, predictable legal framework and the availability of appropriate insurance for an operator's civil liability for nuclear damage are essential parts of the operation of a nuclear programme for all stakeholders, including national governments, operators, supply chain contractors and the populations concerned. Appropriate insurance will depend on the underlying legal liabilities of the operator in the jurisdiction concerned. The underlying legal regime is a function of the applicable international nuclear liability regime, if any, and the national nuclear liability regime. This article establishes the global context by identifying the volume and geographic distribution of nuclear new build programmes across the world, the established nuclear power states and the new entrants to that market. Civil liability for nuclear damage is a function of the potential liabilities in the relevant legal jurisdictions. In the nuclear liability sector, the potential civil liabilities for nuclear damage originate in both international law and in national law. This article discusses the relative merits of the various international nuclear liability regimes: the Vienna Convention on Civil Liability for Nuclear Damage of 1963 (as amended); the Paris Convention on Third Party Liability in the Field of Nuclear Energy of 1960 (as amended); the Brussels Convention 1963 and IAEA's Convention on Supplementary Compensation for Nuclear Damage (CSC) with particular emphasis on the CSC and its potential to establish a global nuclear liability regime. It identifies the Seven Basic Legal Principles from the competing international nuclear liability regimes and contrasts these generally accepted principles with the legal diversity demonstrated by number of relevant national regimes including the USA, China, Russia, India, UK and the United Arab Emirates.

## 1. INTRODUCTION

### Legal issues

This article addresses the topic of insurance for civil liability arising from nuclear damage on the operator of a nuclear installation in countries with active nuclear new build programmes.<sup>1</sup> The analysis focusses on countries presently active in nuclear new build, including China, Russia, India, UK and new entrants such as the United Arab Emirates (UAE).

An established, predictable legal framework and the availability of appropriate insurance for an operator's civil liability for nuclear damage are essential parts of the operation of a nuclear programme for all stakeholders, including national governments, operators, supply chain contractors and the populations concerned. Being liability cover, the appropriate insurance will depend on the underlying legal liabilities of the operator in the jurisdiction concerned. The underlying legal regime is a function of the applicable international nuclear liability regime, if any, and the national nuclear liability regime.

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<sup>1</sup> It excludes analysis of civil liabilities arising from the transport of nuclear materials.

The principal drivers for an international nuclear liability regime have been and remain the potential transnational effects of a nuclear incident and the uncertain position in general international law in relation to legal liabilities as between states, state immunity and jurisdiction. An illustration of this uncertainty is the fact that, following the nuclear incident in 1986 at Chernobyl, then situated in the USSR, which caused neighbouring nation states to incur substantial clean-up costs, no claims were made against the USSR in international law. A non-nuclear power state that may be affected by a nuclear incident in a neighbouring nuclear state has an obvious direct interest in a robust international nuclear liability regime to which both states are party.

This article identifies the volume and geography of current nuclear new build programmes in the world, the key legal principles from the competing international nuclear liability regimes and focusses on the legal diversity of a number of relevant national regimes.

## 2. NUCLEAR NEW BUILD PROGRAMMES

### Volume

In the last decade, the number of civil nuclear reactors operable in the world has remained at a figure between 434 and 450. At the time of writing, there are globally 450 operable reactors, 58 reactors under construction and 153 in the planning stage. The constancy in the figures is explicable because, during this period, the number of reactors retired from service has approximately equalled the number of reactors constructed and becoming operable. In the extended 20-year period 1996–2016, globally, 80 reactors were retired and 96 started operation.

As Table 1 below indicates, at any given time during the last decade, there have been between 47 and 73 nuclear reactors under construction. In the last five years, the figure for reactors under construction has been between 58 and 73. In the last decade, the number of reactors in the planning stage has been between 133 and 172. In the last five years, that range has been between 153 and 172.

### Geographic distribution

A significant number of countries with established operable nuclear programmes do not at present have a new build programme. In some such countries, eg Germany, it is unlikely, for reasons of public and political opinion, that any new reactors will be constructed in the foreseeable future. In others, such as the UK, there is now an active new build programme, albeit currently in the planning stage.

**Table 1. Nuclear New Build: Global Figures: June 2018**

<i>Year</i>	<i>Reactors operable</i>	<i>Reactors under construction</i>	<i>Reactors planned</i>
2018	450	58	153
2017	446	59	160
2016	444	62	172
2015	437	66	168
2014	434	73	172
2013	434	67	159
2012	441	60	155
2011	441	60	155
2010	439	57	151
2009	436	47	133

Source: World Nuclear Association: Facts & Figures June 2018 ([www.world-nuclear.org/information-library/facts-and-figures/world-nuclear-power-reactors-and-uranium-requireme.aspx](http://www.world-nuclear.org/information-library/facts-and-figures/world-nuclear-power-reactors-and-uranium-requireme.aspx)).

Definitions: 'Operable': connected to the grid; 'Under construction': first concrete for the reactor poured; 'Planned': approvals, funding or commitments in place, most expected to be in operation in 2020s.

The political and economic drivers for nuclear build programmes are various and include increased energy demands from rising populations in developing countries, energy security, reduction of dependence on foreign suppliers of energy (eg natural gas), diversification of energy source and carbon emission reduction.

As Table 2 below demonstrates, there are presently 29 countries with active nuclear new build programmes; defined for this purpose and in this article as being a country with one or more new nuclear reactors under construction or in planning (as those terms are defined earlier).

These data show that, at the present time, five countries account for over 70% of the number of new reactors under construction; being (in descending order of significance): China, Russia, India, Republic of Korea and the UAE. Of these reactors, over 50% are in the most active three countries: China, Russia and India. Neither the Republic of Korea nor the UAE have further new reactors in planning at the present time. Over 50% of the new reactors under construction are in Asia.

In addition, six countries account for over 75% of new nuclear reactors in planning being (again in descending order of significance): China, Russia, India, USA, UK and Japan. Of these reactors, over 50% will be in three countries: China, Russia and India.

#### New entrants

The data in Table 3 below shows that at the present time about 1 in 7 new nuclear reactors under construction have been commissioned by new entrants into the civil nuclear power sector. If one excludes new reactors under construction in China, Russia and India, the figure for new entrants would be about 30% of the global total.

The data also shows that at the present time about 1 in 10 new nuclear reactors in the planning stage will be commissioned by new entrants into the civil nuclear power sector. Again, the figure for new entrants excluding new reactors in planning in China, Russia and India the figure would be over 20%.

### 3. THE INTERNATIONAL NUCLEAR LIABILITY REGIMES

#### Regimes

From the legal perspective, the scope and requirements of insurance cover for civil liability for nuclear damage is a function of the potential liabilities in the relevant legal jurisdictions. In the nuclear liability sector, the potential civil liabilities for nuclear damage originate in both international law and in national law. Insurance cover for nuclear activity in any given jurisdiction must, therefore, take in account potential liabilities from both.

There is no single international legal regime, even among countries that have developed nuclear programmes. Several of the most important civil nuclear powers, including the USA and China, rely on their own national legislation to set out civil liabilities and insurance obligations on nuclear operators. A second group of countries, including many with established nuclear programmes, are party to the Vienna Convention on Civil Liability for Nuclear Damage of 1963 ('the Vienna Convention') made under the auspices of the International Atomic Energy Agency ('IAEA'). In 1997, a Protocol to amend the Vienna was passed, which a small number of Vienna Convention countries have joined.

A third group of countries, also including many with established nuclear programmes, are party to the Paris Convention on Third-Party Liability in the Field of Nuclear Energy of 1960 ('the Paris Convention'), a treaty made under the auspices of the Organisation for Economic Co-Operation and Development ('OECD'). The Paris Convention was supplemented in 1963 by the Brussels Convention.

Parties to the Paris Convention are not parties to the Vienna Convention and vice versa. Some, but by no means all, of the parties to each of these conventions are parties to the Joint Protocol relating to the application of the Vienna Convention and the Paris Convention.

**Table 2. Nuclear New Build Programmes: By Country Figures: June 2018**

Country	Reactors operable	Reactors under construction (Percentage of total where >5%)	Reactors planned (Percentage of total where >5%)	International liability conventions applicable
Argentina	3	1	2	VC, RVC, CSC
Armenia	1	0	1	VC
Bangladesh	0	1	1	
Belarus	0	2	0	VC
Brazil	2	1	0	VC
Canada	19	0	2	CSC
China	39	19 (33.8%)	41 (26.8%)	
Czech Republic	6	0	2	VC, JP, CSC
Egypt	0	0	2	VC, JP
Finland	4	1	1	PC, BSC, RPC, RBSC
France	58	1	1	PC, BSC, JP, RPC, RBSC
Hungary	4	0	2	VC, JP
India	22	6 (10.3%)	15 (9.8%)	CSC
Indonesia	0	0	1	CSC
Iran	1	0	4	
Japan	42	2	9 (5.9%)	CSC
Jordan	0	0	2	
Korea, (South)	24	5 (8.6%)	0	
Pakistan	5	2	1	
Poland	0	0	6	VC, RVC, JP
Romania	2	0	2	VC, JP, RVC, CSC
Russia	37	6 (10.3%)	25 (16.33%)	VC
Slovakia	4	2	0	VC, JP
Turkey	0	1	3	PC, JP
Ukraine	15	0	2	VC, JP, CSC
UAE	0	4 (6.9%)	0	RVC, JP, CSC
UK	15	0	11 (7.2%)	PC, BSC, RPC, RBSC
USA	99	2	14 (9.15%)	CSC
Vietnam	0	0	4	

Source: World Nuclear Association: Facts & Figures June 2018 ([www.world-nuclear.org/information-library/facts-and-figures/world-nuclear-power-reactors-and-uranium-requireme.aspx](http://www.world-nuclear.org/information-library/facts-and-figures/world-nuclear-power-reactors-and-uranium-requireme.aspx)).

International liability conventions applicable:

PC: Paris Convention on Third-Party Liability in the Field of Nuclear Energy of 1960

RPC: Revised Paris Convention: 2004 Protocol (not yet in force)

BSC: Brussels Supplementary Convention of 1963

RBSC: Revised Brussels Supplementary Convention of 2004

VC: Vienna Convention on Civil Liability for Nuclear Damage of 1963

RVC: 1997 Revised Vienna Convention on Civil Liability for Nuclear Damage

JP: 1988 Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention

CSC: IAEA Convention on Supplementary Compensation for Nuclear Damage.

A fourth group of countries have joined the IAEA's Convention on Supplementary Compensation for Nuclear Damage ('CSC'), which entered into force in April 2015 following ratification by Japan. The CSC enjoys the support of the USA. At the present time, no Paris Convention state is a party to the CSC or vice versa. The CSC is an instrument open to all States regardless of whether they are parties to any existing

**Table 3. Nuclear New Build Programmes: New Entrant Figures: June 2018**

Country	Reactors operable	Reactors under construction	Reactors planned	International liability conventions
Bangladesh	0	1	1	
Belarus	0	2	0	VC, RVC
Egypt	0	0	2	VC, JP
Indonesia	0	0	1	RVC, CSC
Jordan	0	0	2	VC, RVC
Poland	0	0	6	VC, RVC, JP
Turkey	0	1	3	PC, JP
UAE	0	4	0	RVC, JP, CSC
Total	0	8	15	
Global Total	450	58	153	
% Total	0	13.8%	9.8%	

Source: World Nuclear Association: Facts & Figures June 2018 (It excludes analysis of civil liabilities arising from the transport of nuclear materials.).

nuclear liability conventions or have nuclear installations on their territories. A State that is not party to either the Paris Convention or the Vienna Convention is obliged to implement national laws consistent with an Annex to the CSC. It has been said that the CSC has been developed as ‘an umbrella for the other international liability conventions and to provide the basis for a global nuclear liability regime that could attract broad adherence from countries with and without nuclear power plants’.<sup>2</sup>

#### Key legal principles

Under both the Paris Convention and the Vienna Convention, the following legal principles (‘the Seven Basic Principles’) are central:

- Liability is channelled exclusively to the operator of the nuclear installation (‘channelization’). The principle of channelization imposes liability on an operator to the exclusion of any other parties, such as suppliers, who would otherwise be potentially liable.
- Liability of the operator is absolute, ie the operator is held liable irrespective of fault, except for ‘acts of armed conflict, hostilities, civil war or insurrection’.
- Liability of the operator is limited in amount. Under the Vienna Convention, the upper ceiling for operator liability is not fixed but may be limited by legislation in each State. The lower limit may not be less than USD 5 million. Under the 1997 Revised Vienna Convention, the lower limit was raised for members to not less than 300 million Special Drawing Rights (SDRs).<sup>3</sup> Under the 1960 Paris Convention, liability is limited to not more than 15 million SDRs and not less than SDR 5 million. This figure was increased by the Brussels Supplementary Convention to a total of 300 million SDRs, including contributions by the installation state of up to SDR 175 million and other Parties to the Convention collectively on the basis of their installed nuclear capacity for the balance. By the 2004 Protocol, the parties to the Paris Convention have agreed an amending protocol that will increase

2 The International Expert Group on Nuclear Liability (INLEX): *Civil Liability for Nuclear Damage: Advantages and Disadvantages of Joining the International Nuclear Liability Regime*.

3 An SDR is the unity of currency of the International Monetary Fund, approximately equal to 1.5 US dollars.

- the upper limit for liability as follows: Operators (insured) €700 million, Installation State (public funds) €500 million and collective state contribution (Brussels) €300 million being €1500 million.
- Liability is limited in time. Generally, compensation rights are extinguished under both Conventions if an action is not brought within 10 years. In addition, States may not limit the operator's liability to less than two years under the 1960 Paris Convention, or three years under 1960 Vienna convention, from the time when the damage is discovered.
  - The operator's liability must be guaranteed by insurance or other financial security for an amount corresponding to his liability or the limit set by the Installation State. Beyond this level, the Installation State may not only provide public funds but may also have recourse to the operator.
  - Non-discrimination of victims on the grounds of nationality, domicile or residence.
  - Jurisdiction over actions lies exclusively with the courts of the Contracting Party in whose territory the nuclear incident occurred.

### Convention on supplementary compensation for nuclear damage

The CSC was formulated to address criticisms of the original Paris and Vienna Conventions regarding low liability limits, the lack of a supplementary compensation fund, short statutes of limitations, overly restrictive types of covered damages and limited territorial scope.

There are presently 10 parties to the CSC. As [Table 2](#) indicates, these parties comprise: Argentina, Canada, Czech Republic, India, Indonesia, Japan, Romania, Ukraine, UAE and USA. These parties account for almost 50% of the operable nuclear reactors and 25% of the nuclear reactors under construction in the world. It is now a global rather than a regional treaty.

By the definition of Nuclear Damage in Article 1, the CSC applies to loss of life or personal injury, loss of or damage to property, economic loss or damage arising from either of the above, costs of measures of reinstatement of impaired environment, 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, the costs of preventative measures and any other economic loss, other than any caused by the impairment of the environment, if permitted by the general law of civil liability of the competent court. By Articles XVIII.1 and XIX.1, the CSC provides that instruments of ratification, acceptance, approval or accession will only be accepted from a State, which is a Party to either the Vienna Convention or the Paris Convention, or a State that declares that its national law complies with the provisions of the Annex to the Convention, provided that, in the case of a State having on its territory a nuclear installation as defined in the Convention on Nuclear Safety of 17 June 1994, it is a Contracting State to that Convention. For parties who are not party to either the Paris Convention or the Vienna Convention, the Annex states that it 'shall ensure that its national legislation is consistent with the provisions laid down in this Annex'.<sup>4</sup> However, a contracting party having no nuclear installation on its territory is required to have only that legislation which is necessary to enable it to give effect to its obligations under the CSC.

The CSC is therefore a means by which States may align their national laws relating to civil liability for nuclear damage without necessarily joining either the Paris Convention or the Vienna Convention. A number of current members of the CSC, including Canada, India, Japan and the USA are not members of either these Conventions. This alignment impacts the scope of nuclear liability insurance cover required in these jurisdictions.

The CSC provides two levels of compensation: the national compensation amount (Article III.1(a)) and the supplementary compensation amount (Article III.1.(b)).<sup>5</sup> The national compensation amount of at least 300 million SDRs available for compensation is the obligation of the Installation State. The supplementary compensation amount is not a fixed amount and is a shared obligation of the Contracting Parties whose

4 Preamble to Annex.

5 The supplementary compensation amount is to be used only if the national compensation amount is exhausted.

contributions are assessed by reference to a treaty formula (Article IV), which is a function of the number of Contracting Parties and those with nuclear reactors.

Article III.2(a) provides that the first tier of compensation from the Installation State shall be 'distributed equitably without discrimination on the basis of nationality, domicile or residence'. Article III.2(a) provides that the second tier of compensation provided by the Contracting Parties shall be distributed in the same manner but subject to Articles V and XI. (b).

In relation to geographical territory, Article V provides that the second-tier funds apply to nuclear damage suffered in the territory of the Contracting Parties, in the maritime areas beyond the territorial sea of a Contracting Party and in or about the exclusive economic zone or on the continental shelf of a Contracting Party.

In relation to geographical allocation, Article XI (b) states that (i) 50% of the funds shall be available to compensate claims for nuclear damage suffered in or outside the Installation State and (ii) 50% of the funds shall be available to compensate claims for nuclear damage suffered outside the territory of the Installation State to the extent that such claims are uncompensated under (i). The result is that at least half of the second-tier compensation fund must be reserved for use for transnational damage.

The potential uncertainty as to the level of a Contracting Party's obligation to contribute to the supplementary compensation amount has been put forward by Paris Convention states as a reason not to join the CSC. However, for non-nuclear states with neighbouring nuclear states, the attractions of the CSC are plain. To take the example of a non-nuclear state such as Singapore situated near a nuclear state such as Indonesia, the attractions of the extended definition of Nuclear Damage and reservation of 50% of the second-tier compensation fund for transnational loss and damage are obvious.

By Article 2 of the Annex, the CSC requires a Party's national law to:

- provide for strict liability in the event of a nuclear incident where there is substantial nuclear damage off the site of the nuclear installation where the incident occurs
- require the indemnification of any person other than the operator liable for nuclear damage to the extent that person is legally liable to provide compensation and
- ensure the availability 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 for such indemnification.

Furthermore, by Article 3 of the Annex, the CSC requires that a Party's national law shall provide, amongst other things, that:

- where both nuclear damage and other damage have been caused by a nuclear incident, all damage shall be deemed to be nuclear damage to the extent that it is not reasonably separable from the nuclear damage
- no liability shall attach to an operator for nuclear damage caused by a nuclear incident directly owing to armed conflict, hostilities, civil war or insurrection
- except insofar as the Installation State may provide to the contrary, the operator shall not be liable for nuclear damage caused by a nuclear incident caused directly by a grave natural disaster of an exceptional character<sup>6</sup>
- the operator shall not be liable for the nuclear damage to the installation itself and any other nuclear installations and to property on the nuclear installation site which is used or to be used in connection with the installation

6 The exception for grave natural disasters of an exceptional character has been removed from the Revised Paris and Vienna Conventions: 1997 Revised Vienna Protocol, art 6; 2004 Protocol to Amend Paris Convention, art 1(J).

- the operator shall incur no liability for damage caused by a nuclear incident outside the provisions of national law in accordance with the CSC.

Furthermore, by Article 4 of the Annex, the CSC requires that a Party's national law shall provide that:

- the liability of the operator may be limited by the Installation State for any one nuclear incident to either (i) not less than 300 million SDRs or (ii) not less than 150 million SDRs provided that above that amount and up to 300 million SDRs public funds shall be made available to compensate for nuclear damage.
- an Installation State may alternatively 'having regard to the nature of the nuclear installation or the nuclear substances involved and to the likely consequences of an incident originating therefrom' limit the liability of the operator to 5 million SDRs provided that the provided that above that amount and up to 300 million SDRs public funds shall be made available to compensate for nuclear damage.

In relation to financial security, by Article 5 of the Annex, the CSC requires that the Party's national law shall provide that:

- the operator shall have and maintain insurance or other financial security for its liability for nuclear damage of such type and in such amount as the Installation State shall specify.
- the Installation State shall ensure the payment of proven claims against the operator for compensation for nuclear damage by providing public funds to extent that the limit of the insurance cover or other financial security is less than the limit of liability established pursuant to Article 4 of the CSC. Where an Installation State has not imposed a limit of liability on the operator, it may establish a limit on the amount of insurance or other financial security, provided that the limit is not less than 300 million SDRs. In this case, the Installation shall also ensure the payment of proven claims against the operator for compensation for nuclear damage by providing public funds but only subject to the amount of the insurance or financial security to be provided pursuant to this paragraph.

In relation to prescription periods, by Article 9 of the Annex, the CSC requires the Party's national law to provide, amongst other things, that:

- a right of compensation shall be extinguished if the action is not brought within 10 years of the date of the nuclear incident<sup>7</sup>
- if, however, under the law of the Installation State, the liability of the operator is covered by insurance or other financial security or by public funds for a period longer than 10 years, the Installation State may provide that the rights of compensation against the operator shall only be extinguished after a period longer than 10 years but not longer than the period of cover by insurance or other financial security.

In relation to right of recourse, by Article 10 of the Annex, the CSC permits the Party's national law to provide the operator with a right of recourse only where

<sup>7</sup> The Revised Paris and Vienna Conventions extend their statute of limitations to 30 years: 1997 Revised Vienna Protocol, art 8; 2004 Protocol to Amend Paris Convention, art 1(1).



- if this is expressly provided for by a contract in writing or
- the nuclear incident results from an act or omission by an individual done with intent to cause damage against that individual.

### Non-sovereign extra-legal initiatives

The purchasers and importers of nuclear power plants for new build programmes are sovereign states competent to join an international legal regime. Most countries developing nuclear new build programmes import nuclear power plant technology, construction and services from a limited number of vendors and exporters based in countries with developed nuclear programmes. Acting in concert, these vendor/exporters have the opportunity and commercial leverage to influence the national legal regime of installation states.

In 2011, under the auspices of the Carnegie Endowment for International Peace, the world major civilian nuclear power plant vendors<sup>8</sup> joined forces as a group entitled the Nuclear Power Plant and Reactor Exporters to issue a series of Principles of Conduct governing the sale and supply of civil nuclear infrastructure and services. The principles concerning Compensation for Nuclear Damage<sup>9</sup> set out a voluntary code of conduct to be followed before a group member enters a contract to supply a nuclear power plant to a purchaser. The code requires a vendor/exporter to satisfy itself that the purchaser has a national legal regime for compensation for nuclear liability complying with the Seven Basic Principles, including exclusive channelization, and membership of an international legal regime, being the Paris Convention, the Vienna Convention or the CSC.<sup>10</sup>

A country developing a nuclear new build programme requires a robust and internationally compliant legal regime to attract vendors and exporters of nuclear plant and services. The exclusion of an operator right of recourse is the clearest example of a commercial deal-breaker for a vendor/supplier. Concerted commercial pressure from major vendor stakeholders from countries with developed nuclear programmes, supported by countries such as the USA,<sup>11</sup> has an important part to play in the establishment of a global nuclear liability regime including those countries developing nuclear programmes.

### The advantages of a harmonized international legal regime

In procedural matters, an international legal regime avoids uncertainties relating to, amongst other things: a state operator relying on a defence of state immunity, disputes as to legal jurisdiction and applicable law and the recognition and enforcement of judgments. In substantive matters, the key legal principles of channelization, strict liability, limits of liability, non-discrimination, consistency in heads of recoverable damage, limited right of recourse and prescription periods operate to promote certainty and consistency explained earlier.

From a legal and an insurance perspective, a harmonized international legal regime would achieve the above and in addition promote certainty as to potential legal liabilities and, therefore, as to risks regardless of geography. The diversity of the global nuclear new programme evidences the need for harmonization. With the coming in force of the CSC binding nuclear countries such as the USA, Canada, India and Japan, and the legal principles required by the Annex of a Party's national laws, as set out earlier, this article concludes that the CSC is the most likely route towards a single global nuclear liability regime.

8 Including Russia (JSC Rusatom Overseas) but excluding India and China.

9 See <<http://nuclearprinciples.org/principle/compensation-for-nuclear-damage/>> accessed 24 November 2018.

10 The Principles of Conduct state in relation to the CSC that 'Such action would enable global treaty relations crucial to assure worldwide compensation and liability protection during plant operation and transnational transport.'

11 The US Energy Secretary greeted India's signature of the CSC saying the US was 'eager to work with India, and all CSC member countries, to facilitate the use of advanced nuclear technologies developed in the United States'.

#### 4. NUCLEAR NEW BUILD COUNTRIES—NATIONAL LEGAL REGIMES

##### The USA

The USA, being the pioneer of civil nuclear power, has operated under the national regime of the Price–Anderson Act of 1957. The Price–Anderson Act does not fully align with international conventions in that legal channelling is forbidden by state laws, so the Act allows only economic channelling, whereby the operator is economically liable but other entities may be held legally liable. The Act defines the liability of anyone liable for ‘public liability’, which is defined as ‘any legal liability arising out of or resulting from a nuclear incident or precautionary evacuation’.<sup>12</sup> This definition means that, in addition to the nuclear operator, other parties, such as suppliers, are still potentially liable for nuclear damage, but the liability is channelled to the operator because these other parties are indemnified by the nuclear operator under his insurance coverage. The Price–Anderson Act allows the US Nuclear Regulatory Commission (NRC) to issue regulations requiring nuclear operators to waive certain tort defences to liability and thereby to impose strict liability. The NRC has issued regulations that apply this provision through the contractual terms of the indemnity agreements which nuclear operators are required to conclude with the NRC.

Furthermore, under the Price–Anderson Act, unless there is an ‘extraordinary nuclear occurrence’ (ENO), nuclear operators are subject to the ordinary standards of liability.<sup>13</sup> In such cases, the operator will not be strictly liable, and a claimant will have to prove negligence, unless the relevant state law states otherwise. After the Three Mile Island incident, which was not declared to be an ENO, many states have imposed strict liability by statute.

The way US law channels liability and its high limits of liability have prevented it from joining either the Paris Convention or the Vienna Convention. In May 2008, the USA ratified the CSC and implemented it by the Energy Independence and Security Act of 2007. A provision was included in the CSC to permit the USA to join and preserve its form of channelization, and no major changes were required to the Act in order to implement the CSC.<sup>14</sup>

##### China

China is not party to any international liability convention. It does not have a single integrated national Act to regulate nuclear liability issues. The main rules relating to nuclear liabilities are set out in two Reply publications by the State Council, in 1986 and in 2007. However, the Replies do not make clear the legal position for a litigant. This is likely to be that general legal provisions of tort law are applicable. Article 70 of the 2009 Chinese Law on the General Principles of Civil Law provides an explicit legal basis for nuclear liability: ‘If a nuclear accident from a nuclear installation leads to third party damage, the nuclear operators shall be liable, unless he can prove the damage is caused by war or caused by the victims on purpose.’ This provision does not, however, address issues such as the scope of compensable damage, any limitation of liability and the identity of the nuclear operator.

Both State Council replies adopt the principles of strict liability and of channelling liability. The 1986 Reply does not contain a right to recourse provision, but the 2007 Reply allows recourse under certain conditions. If a written contract between an operator and another person provides for the right of recourse, the operator may exercise that right against the other person after compensating the victim. The operator may also have the right of recourse if the damage is caused by a third party’s wilful act or omission.

In China, in September 2007, the liability limit was increased to a figure approaching international levels at RMB 300 million (USD47 million). Where damage exceeds this amount, State indemnity up to RMB 800 million (USD125 million) is provided. Additional indemnity may be provided for an extraordinary nuclear

12 (2005) 42 USC § 2014(w).

13 (2005) 42 USC § 2014(hh).

14 CSC Annex art 2.

accident. Adoption by China of the CSC would require increases in the limit of liability for nuclear operators and, therefore, increase the amount of compensation available to potential victims. Operators are required to purchase insurance, but the legal requirements relating insurance and financial security are unclear. Under the 2007 Reply, operators are simply required to make appropriate financial arrangements to ensure timely and effective compensation in case of damage and do not state permissible financial security mechanisms.

### Russia

The Federation of Russia is a party to the Vienna Convention but not to the 1997 Revised Vienna Convention or the 1988 Joint Protocol relating to the application of the Vienna and Paris Conventions. However, the Russian Federation legislation provides for an unlimited liability limit.

### India

In August 2010, India passed the Civil Liability for Nuclear Damage Act. This Act brought India's national nuclear liability law into line with most of the key principles of the international convention regimes described earlier. It does, however, contain some different and specific provisions that merit reference. First, it applies only to nuclear installations owned or controlled by the central Government of India, either directly or indirectly.<sup>15</sup> Secondly, it excludes operator liability where damage is caused by a nuclear incident owing to 'a grave natural disaster of an exceptional character' or an act of 'armed conflict, hostility, civil war, insurrection or terrorism'.<sup>16</sup> Thirdly, by section 6 of the 2010 Act, the limit of liability is set at 300 million SDRs or such higher amount as Central Government may specify by notification.<sup>17</sup> However, importantly, the position on channelization is non-compliant. Section 17(b) of the 2010 Act (entitled Operator's right of recourse) states that, although the operator shall be primarily liable for any nuclear damage, it shall, after paying the compensation set out in Section 6, have a right of recourse against its supplier, to include latent and patent defects in equipment, materials and services.<sup>18</sup> The operator in India will be a state party, and it is said that the reluctance to exclude a claimant's right of action, and the operator's right of recourse, against other parties such as suppliers, who will likely be foreign companies, dates back to the circumstances of the Bhopal gas disaster in 1984.

Further uncertainty has been created by the terms of section 46 of the 2010 Act,<sup>19</sup> not least because, before the Act was passed, civil liability for nuclear damage was subject not to prior legislation but to judicially interpreted tort law.

The Government of India has endeavoured to reassure international stakeholders and supply chain contractors by stating that section 17(b) is 'not a mandatory but an enabling provision' and only applies where the operator includes a right of recourse in its contract with the supplier. This, however, is contrary to the natural reading of the section. It has also stated that section 46 applies only to operators and not to other parties. Again, this is not evident from the language of the section.

Although India ratified the CSC in February 2016, it remains unclear how it relates to the national law, in particular on the fundamental principle of channelization. A respected legal commentator on Indian nuclear law has described the 2010 Act as 'flawed legislation'.

15 s 3A. As the nuclear industry in India is presently configured, this provision creates no difference in practice.

16 s 5(1)

17 s 6(1)

18 s 17 (b): 'The operator of the nuclear installation, after paying the compensation for nuclear damage . . . shall have a right of recourse where (a) such right is expressly provided for in a contract in writing; (b) the nuclear incident has resulted as a consequence of an act of supplier or his employee, which includes supply of equipment or material with patent or latent defects of sub-standard services; (c) the nuclear incident has resulted from the act of commission or omission of an individual done with the intent to cause nuclear damage'.

19 Under the title 'Act to be in addition to any other law', s 46 states: 'The provisions of this Act shall be in addition to, and not in derogation of, any other law for the time being in force, and nothing contained herein shall exempt the operator from any proceeding which might, apart from this Act, be instituted against such operator'.

## UK

The UK is a signatory to the Paris Convention of 1960 and to later amendments, including the 2004 Protocol that is not yet in force. The national law is contained in the Nuclear Installations Act 1965 (as amended) ('NIA 1965'). The most recent and wide-ranging amendments will bring into force in English law the provisions of the 2004 Protocol to the Paris Convention. The UK's national legislation, therefore, fully reflects and implements the key legal principles of the Paris Convention, including: strict liability of the operator, channelization of liability to the operator, compulsory financial security, limitation of liability in time, limitation of liability in amount, jurisdiction and applicable law and non-discrimination. Of note are the new provisions in the draft amended NIA 1965, to implement the 2004 Protocol to the Paris Convention extending the period for liability in time from 10 years to up to 30 years for personal injury, in particular cancers, caused by a nuclear incident.<sup>20</sup> This limitation period overrides general limitation periods for latent personal injuries in English law, which depends for their duration on the date and extent of the claimant's knowledge.

In terms of future legal development, one aspect of BREXIT will be that the UK is able to negotiate new treaty obligations unilaterally and without EU authorization. This is likely to increase the prospect of the UK joining the CSC.

The UK's major nuclear new build and decommissioning programme, involving parties from CSC states (eg the USA, Canada, Japan) with whom the UK enjoys established relationships in nuclear, together with the UK's international nuclear transport activities, provides an economic driver for joinder to the CSC. Joining the CSC would obviate, or at least significantly reduce, the need for UK state-backed indemnities to the USA and other contracting parties in such projects. Joinder would also reduce forum shopping. In the absence of CSC treaties relations between the countries, a nuclear incident in the UK involving US personnel would, for example, engage (or have the potential to engage) the jurisdiction of the US courts; see by analogy, *Cooper v TEPCO*, US Court of Appeals for the Ninth Circuit 22nd June 2017, (US class action brought by US navy personnel arising from the Fukushima incident).

## UAE

The UAE is an imminent new entrant to the group of nuclear power countries with four new reactors under construction at the Barakah nuclear power plant. In contrast to a number of other prospective new entrants, including Turkey with a reactor under construction and Bangladesh with a reactor in planning, the UAE is not only a member of an international legal regime (the 1997 Revised Vienna Convention ratified in 2012 by Federal Decree No.32 of 2012) but also has national legislation in place before any of the new reactors become operable.

The UAE's nuclear liability law, Federal Law by Decree No.4 of 2012,<sup>21</sup> was drafted in consultation with the IAEA and was reviewed by the IAEA's legal team to ensure consistency with its guidance and the UAE's international obligations under the 1997 Revised Vienna Convention. The Articles of the Federal Law expressly incorporate the relevant Articles of the 1997 Revised Vienna Convention. Exclusive jurisdiction over liability claims is given to the Federal Courts of the Emirate of Abu Dhabi,<sup>22</sup> and it remains to be seen how the national law will be interpreted by the national court. By this national law, the UAE has not only implemented the key legal principles of the international legal regime but also set the operator's limit of liability at a figure of 450 million SDRs, being 50% greater than the required minimum in the 1997 Revised Vienna Convention.<sup>23</sup> The national law requires the operator to provide insurance or other financial security in that amount and provides that, if the operator is unable to obtain the required insurance cover, either nationally

20 This future extended liability period is problematic for the insurance market.

21 UAE Federal Authority for Nuclear Regulation website: <[www.fanr.gov.ae/en/Lists/LawOfNuclear/Attachments/3/Federal-Law-by-Decree-No-4-of-2012-Concerning-Civil-Liability-for-Nuclear-Damage-English.pdf](http://www.fanr.gov.ae/en/Lists/LawOfNuclear/Attachments/3/Federal-Law-by-Decree-No-4-of-2012-Concerning-Civil-Liability-for-Nuclear-Damage-English.pdf)>.

22 art 12(2).

23 art (5).

or internationally, the risks covered by the insurance shall be covered directly by the State up to the required limit of liability.<sup>24</sup>

### The disadvantages of disparate national legal regimes

It is readily apparent that many of the countries with significant nuclear new build programmes have different national legal regimes governing civil liability for nuclear damage. This may be because for historic reasons the country is not party to an international legal regime (China) or because until recently not party to an international legal regime (USA, India). In other cases, because they are, again for historical reasons, party to different international regimes (Russia, UK).

The new entrant UAE has demonstrated its commitment to incorporating the key legal principles established in international into its national law before completing its new build programme.

The most likely route by which inconsistencies created by disparate national law regimes may be harmonized is through joinder of CSC and by national laws complying with the legal requirements in the Annex. Given its prominence in global nuclear new build, the joinder of China to the CSC and compliance of its national law would be the most significant single step in that direction.

## 5. CONCLUSION

From a legal perspective, the various international regimes have resulted in a number of generally, but not universally, accepted legal principles. The scope for further harmonization has been increased by the accession of Japan and India to, and, therefore, the coming into force of, the IAEA CSC. However, there remain important differences between national legal regimes. From an insurance perspective, certainty of the potential legal liabilities is an essential part of the underwriting process and further harmonization, whether based on the development of the CSC or otherwise, is to be welcomed. From a political perspective, it should be remembered that no international or national legal regime has or is intended to have the capacity to provide full financial compensation following a nuclear catastrophe of the order of Fukushima. The insurer of last resort will remain the installation state—a point that will be acceptable in a developed nuclear power country such as Japan but will result in a compensation vacuum in a developing nuclear power country such as Bangladesh.

24 art 8(2).