WHITE & CASE

Overview of the international nuclear liability conventions as applicable to transport of nuclear material

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Nuclear energy

SIGNIFICANT BENEFITS

- Low-carbon emissions
- Helps achieve energy independence
- Highest energy density
- Multiple civil use: electricity production, medical diagnosis and treatment, industrial and agricultural uses, forensics, archeology…

SPECIAL RISKS

To health, safety and security of people, property and the environment

Three main accidents:

- Three Mile Island (US, 1979) [NRC webpage]
- Chernobyl (USSR, 1986) [UNSCEAR report]
- Fukushima (Japan, 2011) [UNSCEAR report]

The dilemma

- To develop nuclear power, governments had to find a balance to ensure that
  - adequate compensation be available to potential victims in case of damage, ***while***
  - nuclear power plant (NPP) investors and suppliers would not suffer ruinous liability claims
- **SPECIAL LIABILITY/COMPENSATION REGIMES** were adopted at the national and international levels, as ordinary tort law is not well suited to deal with the particularities of the nuclear sector and risks
- A delicate balance of interests that was necessary
  - at the beginning, to develop a new source of energy
  - now, to allow a mature technology to contribute to the energy mix in order to provide a low-carbon source of power that can contribute to the energy independence of countries: need to maintain existing nuclear installations + build new ones

Nuclear liability basic principles

- **Operator's strict liability**: victims do not need to prove fault or negligence; but will have to prove the **causal link**
- **Operator's exclusive liability**:
  - all liability is **channeled** to the operator; no one else is liable (e.g. suppliers of services/goods)
  - no other law than nuclear liability law applies (e.g. tort law)
- **Operator's liability in amount**: usually limited to a specified amount, but few countries provide for unlimited liability (e.g. Germany, Japan, Switzerland)
- **Financial Security**: to ensure availability of funds; private insurance primarily but other means may be authorised by national law
- **Liability limited in time**:
  - 10 years from the accident (extended to 30 years for bodily injury)

Operator = licensee or other government recognised entity

Nuclear liability in case of transboundary damage

Following principles only apply between States that have treaty relations, i.e. have signed the same international nuclear liability convention(s)

- **Unity of Jurisdiction:**
  - Courts of State where incident occurred have jurisdiction; if place of incident not certain, courts of the State where the liable operator's installation is located have jurisdiction
  - Courts to apply relevant convention + national law to substantive and procedural matters
  - Judgments to be recognised by other States and be enforceable in their territories
- **Non-discrimination**: No victim discrimination based on nationality, domicile or residence

When do these principles apply?

- They are **exceptional regimes** that cover **risks of an exceptional character** for which common law rules and practice are not suitable
- Whenever risks associated with nuclear activities can properly be dealt with through existing legal processes, they are left outside the scope of the regimes
  - exclusions are based, among others, on radioprotection and insurance considerations
- The special regimes apply only to damage caused **off-site** by a **nuclear incident** occurring at a **nuclear installation**, or in the course of transport of **nuclear substances / material**
- States remain free to take additional measures outside the Convention

The definitions of the main criteria (1/3)

There must be a **“nuclear incident”**, i.e.

- any occurrence or succession of occurrences having the same origin which causes **nuclear damage**, provided that such occurrence or succession of occurrences, or any of the damage caused, arises out of or results either from the **radioactive properties**, or a combination of radioactive properties with toxic, explosive, or other hazardous properties of **nuclear fuel** or **radioactive products or waste** or with any of them, or from **ionizing radiations** emitted by any source of radiation inside a **nuclear installation** or **during transport of nuclear substances**

The definitions of the main criteria (2/3)

“nuclear fuel”

- Fissionable material (i.e. uranium, plutonium)
  - excludes natural uranium and depleted uranium

“radioactive products or waste”

- Any radioactive material produced in, or made radioactive by exposure to the radiation incidental to the process of producing or utilizing nuclear fuel
  - excludes “nuclear fuel” itself
  - excludes “radioisotopes” outside a nuclear installation usable for industrial, commercial, agricultural, medical, scientific or educational purpose

“nuclear substances” (PC) / “nuclear material” (VC/RVC/CSC)

- Nuclear fuel + radioactive products or waste

The definitions of the main criteria (3/3)

“nuclear installation”

- Nuclear power plants (whether LNPP or SMR), research reactors
- Installations in which there is nuclear fuel or radioactive products or waste
  - factories for manufacturing or processing nuclear substances (i.e. nuclear fuel + radioactive products or waste)
  - factories for separating nuclear fuel isotopes and reprocessing irradiated nuclear fuel
  - facilities for storing nuclear substances (not incidental to carriage)

Does not cover

- *reactors comprised in means of transport (i.e. nuclear submarines and icebreakers)*
- *research laboratories with very small amounts of fissionable materials*
- *fusion installations*

Why is transport of nuclear material concerned?

- World Nuclear Association: “Globally, about 15 million packages of radioactive material are transported each year on public roads, railways, and ships”
- Even though there has never been a “nuclear incident” during transport of nuclear material, you need to understand the regime that will apply in case it happens to assess your risks
- The nuclear liability regime applies in case a nuclear incident occurs during the carriage of nuclear substances and causes nuclear damage
- No transport of nuclear material will be authorised without the relevant insurance coverage, especially if it crosses borders

Why is it complicated?

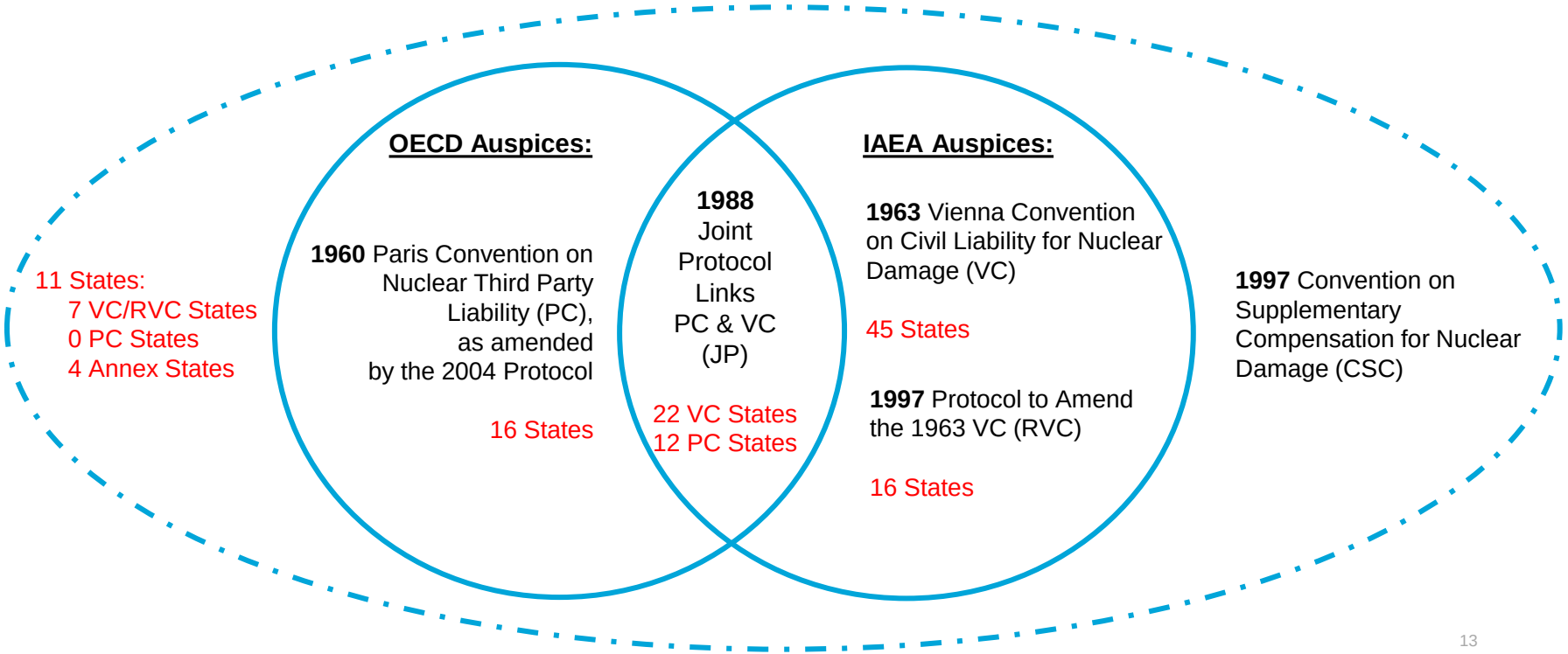
Historical perspective

- 1957 Price-Anderson Act (amendment to the 1954 Atomic Energy Act of the United States)
- 1960 Paris Convention on Nuclear Third Party Liability
- 1963 Vienna Convention on Civil Liability for Nuclear Damage

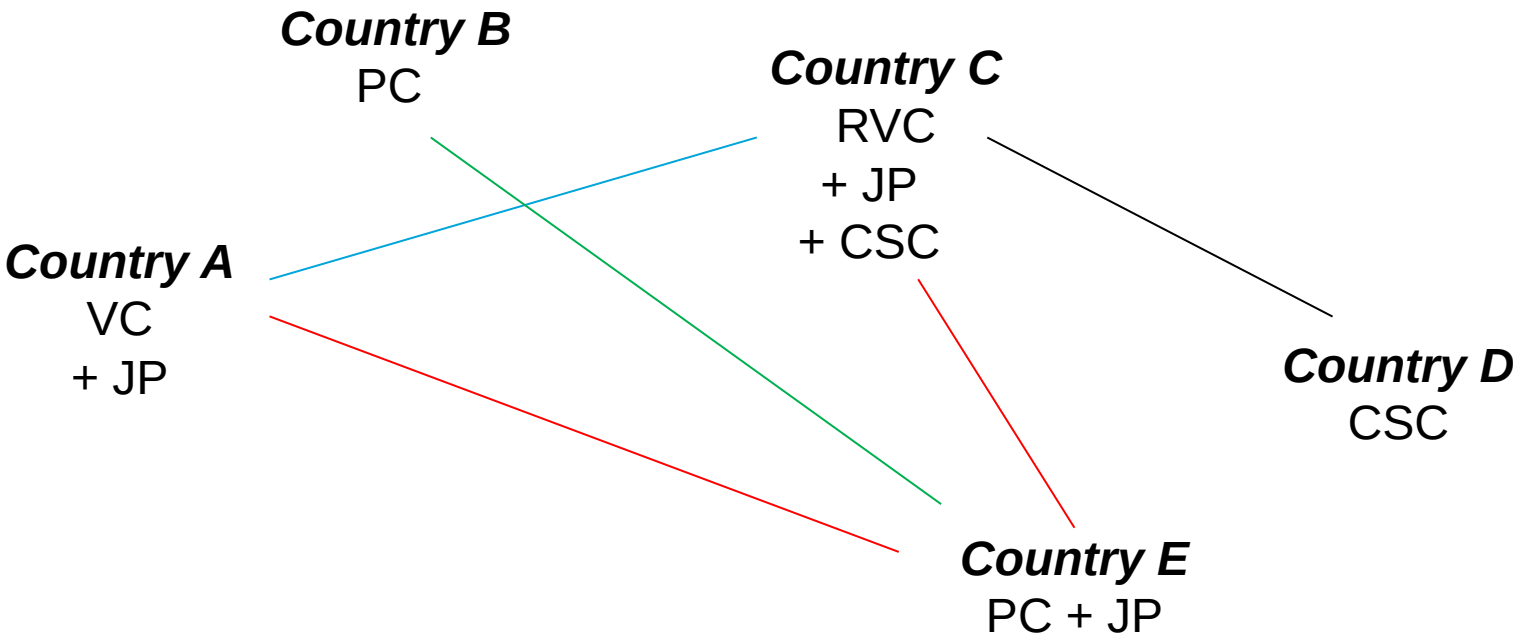
1986 Chernobyl

- 1988 Joint Protocol relation to the application of the Vienna Convention and the Paris Convention
- 1997 Protocol to amend the Vienna Convention (stand-alone instrument)
- 1997 Convention on Supplementary Compensation for Nuclear Damage
- 2004 Protocol to amend the Paris Convention (consolidated)

International Conventions for cross-border damage and legislative harmonisation



Illustration



- ***If there is no "treaty relation" between the countries (i.e. they are not parties to the same convention), the nuclear liability principles do not apply***

What are the minimum liability amounts provided in the Conventions?

1960 Paris Convention (PC) *16 Contracting Parties*	**EUR 700 million minimum** (USD 640 million)
1963 Vienna Convention (VC) *45 Contracting Parties*	**USD 5 million, based on USD gold value on 29 April 1963**
1997 Vienna Protocol (RVC) *16 Contracting Parties*	**SDR 300 million** (EUR 366 million / USD 399 million)
1997 Convention on Supplementary Compensation for Nuclear Damage (CSC) *11 Contracting Parties*	**SDR 300 million** (EUR 366 million / USD 399 million)

As of January 2024, 1 Special Drawing Right (SDR) = USD 1.33 or EUR 1.22
Source: International Monetary Fund
Nuclear interest and liability costs are not included in the above amounts

Nuclear liability amounts for transportation

PC, RVC, CSC

- Having regard to the nature of the nuclear substances involved and to the likely consequences of a nuclear incident originating therefrom, a State may establish a lower nuclear liability amount for the carriage of nuclear substances, provided that in no event shall any amount be less than

PC	VC	RVC	CSC
EUR 80 million (USD 87 million)	**/**	**SDR 5 million** (USD 6,65 million / EUR 6,1 million)	**SDR 5 million** (USD 6,65 million / EUR 6,1 million)

- If compensation amounts exceed the lower nuclear liability amount established by the State, the later will have to provide public funds up to the “normal” amount of nuclear liability

A variety of national nuclear liability amounts

Country/ Economy	International Liability Convention	Installations/Activities	Operator's Liability Amount	Funds Available			Last Updated by the NEA
				Financial Security Limit to Cover Operator's Liability Amount	Public Funds	International Funds (established under either the BSC or the CSC)	
Italy	PC, BSC, (RVC), JP, (CSC)	Nuclear installations	EUR 700 million	EUR 700 million	After depletion of the operator's liability amount and up to EUR 1.2 billion	EUR 300 million	January 2022
		Low risk nuclear installations	EUR 70 million minimum	EUR 70 million minimum			
		Transport activities	EUR 80 million minimum	EUR 80 million minimum			
Japan	CSC	Nuclear reactors above 10 000 kW and spent fuel reprocessing facilities	Unlimited	JPY 120 billion	After depletion of the operator's liability amount and as may be determined by the Diet	SDR 102.9 million	October 2020
		Other nuclear installations and transport activities where higher risk material is involved	Unlimited	JPY 24 billion			
		Other nuclear installations and transport activities where lower risk materials are involved	Unlimited	JPY 4 billion			
Jordan	VC, RVC		No information	No information			June 2014
Kazakhstan	VC, RVC		No information	No information			June 2014

In case of unlimited lability, the national legislation will provide for the amount to be covered by insurance / financial security

Nuclear liability amounts do not include interest, legal costs and indemnities provided to contractors/suppliers

- *Nuclear Operators' Third Party Liability Amounts and Financial Security Limits (OECD/NEA 2022)*

Geographical scope of the Conventions

RVC: nuclear damage wherever suffered; national legislation may exclude non-Contracting States that has nuclear installations and does not afford equivalent reciprocal benefits

VC: nuclear damage must occur in a VC State or on high seas

CSC: nuclear damage suffered in CSC States; others if PC/VC/RVC/Annex so provides

PC:

- PC States and high seas if ship/aircraft is registered with a PC State
- non-Contracting States if
  - party to VC/RVC and JP or
  - if non-nuclear State (i.e. has no nuclear installations) or
  - nuclear power State only if it provides equivalent reciprocal benefits
- A PC State in whose territory the nuclear installation of the operator liable is situated (Installation State) may provide for a broader scope of application of the PC under its legislation

➢ ***Risk of overlap***

What type of damage is compensated?

VC

- Damage to or loss of life
- Damage to or loss of property (other than on-site)
- Any other loss/damage if and to extent provided by the law of the court with jurisdiction to hear claims

PC / RVC / CSC

As above + to the extent determined by the law of the competent court:

- Economic loss from above
- Cost of measures of reinstatement of impaired environment
- Loss of income from **direct** economic interest in use of environment (**PC**)
- Cost of **preventive measures** + loss/damage caused thereby
- **RVC / CSC**: any other economic loss “permitted” by the applicable general law on civil liability (except economic loss caused by the impairment of the environment)

Prescription periods

VC / CSC

- 10 years from the date of the accident for **all** loss or damage claims (i.e. personal injury/loss of life and damage to/loss of property other than on-site)
- “Discovery” period of 2-3 years from the date at which the person suffering nuclear damage had knowledge, or ought reasonably to have known, of both the nuclear damage and the operator liable
- the date the damage or operator liable are known

PC / RVC

- 30 years from accident date: personal injury/loss of life
- 10 years from accident date: all other loss or damage (other than on-site)
- “Discovery” period of 3 years from knowledge of damage/operator liable

CSC

- Same as PC/RVC, except for personal injury/loss of life: 10 years from date of accident

➢ ***All Conventions: longer prescription periods possible if provided in national law and financial security is available***

Operator’s exonerations from liability

VC / CSC

- No liability for damage caused by nuclear incident
  - directly due to armed conflict, hostilities, civil war, insurrection: does not include “terrorism”
  - due to grave natural disaster of exceptional character (national law may provide otherwise)
  - resulting wholly/partly from gross negligence of, or intent to cause damage by, the person suffering damage, if provided by national law

PC / RVC

- As above but grave natural disaster exoneration revoked

Operator’s rights of recourse

All Conventions (PC, VC, RVC, CSC)

- If damage is caused by an incident resulting from an act/omission done with intent to cause damage, operator has a recourse against the individual acting with such intent
- **If and to the extent so provided expressly by contract**

How do these nuclear liability conventions apply to transport of nuclear material ?

Transport between Contracting States

Similar provisions for all conventions (PC, VC, RVC, CSC)

The **operator of a nuclear installation shall be liable for nuclear damage** upon proof that it was caused by a nuclear incident outside its installation and involving nuclear substances/material in the course of carriage therefrom / thereto, only if the incident occurs:

- before nuclear liability is transferred, **pursuant to the express written terms of a contract**, to another operator (**PC**: transfer only to an operator which has a **direct economic interest**);
- in the absence of such express terms, before the operator of another nuclear installation has taken charge of the nuclear substances/material (**PC**: transfer only to an operator which has a **direct economic interest**); or
- where the nuclear substances/material are intended to be used in a reactor comprised in a means of transport, before the person duly authorised to operate that reactor has taken charge of the nuclear substances/material

Transport to/from non-Contracting States

All conventions (PC, VC, RVC, CSC)

The operator of a nuclear installation shall be liable for nuclear damage upon proof that it was caused by a nuclear incident outside its installation and involving nuclear substances/material in the course of carriage therefrom / thereto, only if the incident occurs:

- **if nuclear substances are sent to a person within the territory of a non-Contracting State**: before they have been unloaded from the means of transport by which they have arrived in the territory of that non-Contracting State
- **if the nuclear substances are, with the written consent of the operator, been sent from a person within the territory of a non-Contracting State**: after they have been loaded on the means of transport by which they are to be carried from the territory of that State.

➢ ***Essential to provide for risk/liability transfer in transport contract***
➢ ***Potential overlap of Conventions***

Insurance & Transport

PC / VC / RVC

- The sending or receiving operator provides carrier with a certificate of financial security (CoF) issued by or on behalf of the insurer or other financial guarantor
- A State may exclude this obligation in relation to carriage which takes place wholly within its own territory (**PC/RVC**)
- CoF contains:
  - name, address of operator, amount, type, duration of financial security, nuclear substances, and the carriage
  - Statement by competent public authority that person named is an “operator” under the Convention
- No insurer or financial guarantor shall suspend or cancel the insurance or other financial security relating to the carriage during the period of the carriage in question

Some specific cases

All Conventions (PC, VC, RVC, CSC)

- **Carrier may be considered as the operator under strict conditions**: a carrier may, at his request if authorised by law and with the consent of an operator concerned and the competent authority, be designated or recognised as operator in place of that operator in respect of such nuclear material or radioactive waste it may be carrying, and will hold the CoF

- **Sharing a carriage**: where more than one operator is liable and it is difficult to distinguish who is liable for what damage, then liability is joint and several (**PC Recommendation**: a nuclear operator should not be held liable for damage caused by a nuclear incident to nuclear substances in course of carriage belonging to other operators, unless he has assumed third party liability pursuant to a contract in writing or of which he has taken charge)

- **Nuclear damage caused jointly by a nuclear incident and by another event**: when the nuclear damage caused by both events cannot be reasonably separated, it shall be considered to be nuclear damage caused by the nuclear incident

Some specific cases

All Conventions (PC, VC, RVC, CSC)

- Where, nuclear damage is caused by a nuclear incident occurring in a nuclear installation and involving only nuclear substances stored therein incidentally to their carriage, the operator of the nuclear installation shall not be liable where the sending or final recipient operator is liable.
- If the nuclear fuel or radioactive products or waste involved in a nuclear incident have been in more than one nuclear installation and are not in a nuclear installation at the time nuclear damage is caused, no operator other than the operator of the last nuclear installation in which they were before the nuclear damage was caused or an operator who has subsequently taken them in charge, or has assumed liability therefore pursuant to the express terms of a contract in writing shall be liable for the nuclear damage.

Transit

PC / CSC

- For carriage within its territory, a party may require that the foreign operator's liability be increased to its own operators' "normal" liability amounts
- Except:
  - **carriage by sea**: where, under international law, there is a right of entry in cases of urgent distress into the ports or a right of innocent passage through its territory; or
  - **carriage by air**: where, by agreement or under international law, there is a right to fly over or land on the territory

PC Recommendations

- The maximum total liability for a nuclear incident occurring in the territory of that country will be the higher amount required by the installation State
- Any wish to increase of the nuclear liability amounts during transit, should be examined either within the OECD Nuclear Energy Agency *Nuclear Law Committee*, or within the framework of bilateral discussions with the countries concerned

Damage to the means of transport

PC / RVC

- Compensation for nuclear damage caused to the means of transport on which the nuclear substances involved were at the time of the nuclear incident shall not have the effect of reducing the liability of the operator in respect of other nuclear damage to an amount less than:

  - **PC**: EUR 80 million
  - **RVC**: SDR 150 million

  or any higher amount established by the Installation State

VC / CSC

- The operator shall not be liable for nuclear damage to the means of transport upon which the nuclear material involved was at the time of the nuclear incident.
- The Installation State may provide otherwise, but in such a case, compensation for that damage shall not have the effect of reducing the liability of the operator in respect of other damage to an amount less than

  - **VC**: USD 5 million (USD 1963 gold value)
  - **CSC**: SDR 150 million

  or any higher amount established by the Installation State

Conclusion

Takeaways

- **The sending or receiving operator will bear the nuclear liability** if a nuclear incident occurs and causes nuclear damage; and will therefore need to organise the insurance or financial security to cover the transportation. The transfer of nuclear liability between the sending or receiving operator should be clearly set forth in a written contract.
- **A carrier will not bear the nuclear liability without its full knowledge**: it needs to be allowed under its national law; the carrier will have to require the transfer of nuclear liability, have the consent of the operator situated in its territory and the approval of the competent public authority
- **Nuclear operator must compensate nuclear damage to the means of transport**: however, such compensation cannot reduce the amounts available to compensate third parties for nuclear damage below the nuclear liability amount applicable to the transportation of nuclear substances

Interested in joining the INLA WG2 – Nuclear liability & Insurance ?

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