8

Insurance and Compensation Funds

8.1 INTRODUCTION

Financial assurances, typically in the form of mandatory insurance or the creation of a compensation fund, have played a central role in international liability schemes since their inception. The presence of financial assurances responds to the overarching legal obligation to provide 'prompt and adequate compensation' for environmental harm by securing potential future liabilities,[1] since compensation is only adequate if it is available. Such arrangements address the concern that operators or other persons responsible for environmental harm may not have sufficient funds to cover the losses associated with an environmental incident. This concern has, of course, been borne out by the occurrence of major oil spills where there were insufficient funds to address the increasingly stringent demands for clean-up and compensation for economic losses associated with the incidents.[2]

[1] United Nations Convention on the Law of the Sea (adopted 10 December 1982, entered into force 16 November 1994) 1833 UNTS 397 (UNCLOS) art 235. See also International Legal Commission (ILC), 'Draft Principles on the Allocation of Loss in the Case of Transboundary Harm Arising Out of Hazardous Activities, with Commentaries' (2006) UN Doc A/61/10 (Draft Principles) principle 4, 76; for a general discussion, see René Lefeber, *Transboundary Environmental Interference and the Origin of State Liability* (Kluwer Law International 1996) ch 7.

[2] The *Torrey Canyon* incident in 1967 spurred the development of the International Convention on Civil Liability for Oil Pollution Damage (adopted 29 November 1969, entered into force 19 June 1975) 973 UNTS 3 (1969 Oil Pollution Liability Convention), amended by Protocol to Amend (adopted 27 November 1992, entered into force 30 May 1996) 1956 UNTS 255 (1992 Oil Pollution Liability Convention), followed by the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (adopted 18 December 1971, entered into force 16 October 1978) 1110 UNTS 57, amended by Protocol of 1992 to Amend (adopted 27 November 1992, entered into force 30 May 1996) 1953 UNTS 330 (1992 Fund Convention). Subsequent incidents, such as the *Erika* and *Prestige*, in 1999 and 2002, respectively, gave rise to new concerns over the adequacy of the 1992 Oil Pollution Liability Convention and the 1992 Fund Convention, resulting in the

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In order to provide a complete picture of the existing and emerging liability schemes for areas beyond national jurisdiction (ABNJ), this chapter details the legal and institutional frameworks associated with the provision of financial assurances as part of international civil liability schemes. The focus is on the requirements as they are set out in relation to ABNJ, with some focus on the yet to be implemented or proposed requirements of the Antarctic and deep seabed mining regimes, respectively. However, given the absence of experience in operational assurance schemes, this chapter also draws upon the existing practices of other international civil liability regimes to draw out some of the potential challenges with the implementation of financial assurances that respond to the unique legal and physical characteristics of areas beyond national jurisdiction.

8.2 THE PURPOSE OF FINANCIAL ASSURANCE

The primary purpose of financial assurances is to implement the more general obligation of ensuring 'prompt and adequate compensation', through the provision of security that is independent of the person responsible for providing compensation. Adequacy implies having accessible pools of funds available to satisfy successful claims.[3] The requirement that the compensation also be 'prompt' speaks to the need for claims to be assessed and, where eligible, paid out in a manner that avoids protracted and burdensome legal proceedings.[4] Financial assurances may be responsive to this objective by providing for more efficient processes for claims administration. For example, the International Oil Pollution Compensation Funds (IOPC Funds) set time frames for addressing claims and has processes to fast track certain claims to avoid undue delays.[5]

Securing compensation has direct and indirect effects on the ability of liability regimes to preserve and restore the environment, and much of the design of financial assurances is oriented towards meeting this objective. As a direct matter, financial assurances secure funds for post-incident preventive measures and for restoration of degraded environmental resources. The extent of coverage required through mandatory insurance is tied to the scope of damages and limitations on recovery amounts identified in the scheme, such that there is limited scope for

negotiation of the Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (adopted 16 May 2003, entered into force 3 March 2005) 92FUND/A.8/4 Annex I (2003 Supplementary Fund Convention). See also Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law* (4th edn, CUP 2018) ch 16.

[3] Draft Principles (n 1) principle 4, 76.

[4] ibid commentary to principle 4, 77, para 7 (noting the extensive length of time to resolve large-scale, often transnational, environmental litigation, such as the *Exxon Valdez*, *Amoco Cadiz*, the Bhopal Incident and *Trail Smelter Arbitration*).

[5] International Oil Pollution Compensation Funds (IOPC Funds), *Claims Manual* (IOPC Funds 2019) 21.

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unsecured liabilities under the recovery cap.[6] However, the willingness of assurance providers to accept certain risks may influence the outcome of coverage decisions. It has been observed that regulators are reluctant to define the extent of liability without 'first obtaining a commitment from the insurance industry to the effect that coverage commensurate to the intended new level of liability will be available'.[7] The extent of insurability has been an important concern in the negotiation of international liability conventions.[8] For example, in the Antarctic, the liability limits set out in the Liability Annex to the 1991 Protocol on Environmental Protection to the Antarctic Treaty (1991 Antarctic Protocol) were set to coincide with the levels identified in the Convention on Limitation of Liability for Maritime Claims (LLMC), which established baseline coverage amounts accepted by the insurance industry.[9] A central factor in assessing insurability is the ability of the insurer to accurately predict and quantify risks. This leads to a rejection of certain forms of damages that are contingent or abstract. For example, as discussed in Chapter 3, the IPOC Funds' refusal to entertain pure ecological damage relates to the open-ended nature of calculating damages not firmly rooted in actual costs.[10]

Indirectly, financial assurances, particularly insurance, contribute to the internalization of risk by providing a vehicle for pricing risk and having the operator bear

[6] For example, 1992 Oil Pollution Liability Convention (n 2) art VII(1); International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea (adopted 3 May 1996) 35 ILM 1415 (1996 HNS Convention) art 12(1).

[7] W Pfennigstorf, 'Policy Considerations for Insurers Engaging in Environmental Liability Insurance' in H Bocken and D Ryckbost (eds), *Insurance of Environmental Damage* (Story-Scientia 1991) 269, 273.

[8] This relationship between limitations and insurability lies at the centre of the Convention on Limitation of Liability for Maritime Claims (adopted 19 November 1976, entered into force 1 December 1986) 1456 UNTS 221 (1976 LLMC), and Protocol of 1996 to Amend the 1976 Convention on Limitation of Liability for Maritime Claims (adopted 2 May 1996, entered into force 13 May 2004) Can TS 2008 No 18 (1996 LLMC); see the Travaux Préparatoires of the LLMC Convention 1976 and of the Protocol of 1996 (CMI 2000) 124. See also ATCM, 'Liability – Report of the Group of Legal Experts' (1998) XXII ATCM/WP1, para 36 (noting the need to consult with insurance industry on fixing limits of insurance); CropLife International, 'Implementation Guide to the Nagoya-Kuala Lumpur Supplementary Protocol' (2013) 16 <https://croplife.org/wp-content/uploads/2014/04/Implementation-Guide-to-the-Nagoya-Kuala-Lumpur-Supplementary-Protocol-on-Liability-and-Redress-to-the-Cartagena-Protocol-on-Biosafety.pdf> accessed 29 August 2022.

[9] Protocol on Environmental Protection to the Antarctic Treaty (adopted 4 October 1991, entered into force 14 January 1998) (1991) 30 ILM 1461 (1991 Antarctic Protocol); Annex VI to the Protocol on Environmental Protection to the Antarctic Treaty on Liability Arising from Environmental Emergencies (adopted 17 June 2005) 45 ILM 5 (Liability Annex) art 9; discussed in ATCM, Final Report of the Fortieth Antarctic Treaty Consultative Meeting (vol I, ATCM 2017) paras 30 and 139 (referring to Informational Paper (IP) 87 'Liability Annex: Financial Security' submitted by the International Group of P&I Clubs).

[10] IOPC Funds 2019 (n 5) 14 (noting that 'compensation is not paid in respect of claims for environmental damages based on abstract quantification calculated in accordance with theoretical models').

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those costs through mandatory coverage requirements. Insurance, because it allocates risk amongst a class of insured entities, supports the polluter-pays principle by providing an efficient mechanism for risk internalization. Insurers, in order to control their own risk exposure, can encourage environmental risk reduction measures by requiring appropriate measures to be taken as a condition of insurance, through increasing premiums to reflect riskier behaviours or by withdrawing coverage altogether.[11] The deterrent effect of insurance may, however, cut in both directions, insofar as coverage shields operators from the catastrophic losses, and may thereby encourage risks that would not otherwise be undertaken – presenting what economists refer to as a 'moral hazard'.[12] The incentive for insurance to promote risk is moderated by the use of deductibles, premium adjustments and exclusions within the insurance contract.

It ought, however, to be recognized that encouraging certain kinds of risk is an intended and central objective of financial assurances. Where there are socially (economically) beneficial activities that present liability risks that could not otherwise be borne by the operator, financial assurances distribute that risk amongst other entities, creating conditions for the viability of the activity.[13] Risk distribution requires that there be a sufficient number of insured entities engaged in activities that present similar risks.[14] This requirement suggests that novel activities, such as deep seabed mining or marine bioprospecting, that have few initial participants, may raise insurability challenges.

Mandatory insurance addresses the competitive implications of internalizing risk-related costs by requiring all the participants in the activity to bear similar cost burdens. Uniformity discourages a 'race to the bottom' whereby some jurisdictions seek to attract participants through lower regulatory burdens, including the costs associated with liability coverage. The goal of uniformity is especially important in transnational activities, such as shipping dangerous goods, where the operators may have some freedom of choice in terms of the jurisdiction regulating their activity, and where the consequences of an accident are not contained to the overseeing jurisdiction.[15]

A final objective of financial assurances is that, where there are public concerns over the acceptability of risks associated with an activity, the presence of assurances

[11] Benjamin Richardson, *Environmental Regulation through Financial Organizations* (Kluwer Law International 2002) 330.

[12] See Joseph Stiglitz, 'Risk Incentives and Insurance: The Pure Theory of Moral Hazard' (1983) 8 GRIR 4.

[13] Draft Principles (n 1) commentary to principle 4, 81 para 30.

[14] Richardson (n 11) 329.

[15] Uniform rules respecting liability are expressly identified as a goal within the preambles of the various IMO civil liability conventions. See, for example, 1992 Oil Pollution Liability Convention (n 2); 1996 HNS Convention (n 6); and the International Convention on Civil Liability for Bunker Oil Pollution Damage (adopted 23 March 2001, entered into force 21 November 2008) UKTS No 47 (2001 Bunker Oil Convention).

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provides credibility to operator claims that it will be in a position to address any harms that arise, contributing to greater public and political acceptance (often referred to as a 'social license to operate') of the activity.[16] In this regard, it is not uncommon for risky industries to self-organize in order to create requirements and processes for liability coverage, even in the absence of regulatory requirements to do so. For example, the oil transport industry had several industry-led schemes prior to the implementation of the current international rules.[17] Similar initiatives have also arisen in relation to the offshore oil and gas industry and in relation to the transboundary movement of living modified organisms.[18]

8.3 FORMS OF ASSURANCE

There are four distinct forms of financial assurances that are identified in various civil liability regimes: insurance, bonds or financial guarantees, compensation funds and state guarantees. These are often combined to provide alternative or tiered forms of security within a single civil liability regime. Third party insurance is the default form of assurance, and typically provides the baseline coverage for the liabilities identified in the regime. Insurance in civil liability regimes is mandatory and the amount of insurance required is specified, and typically matches the caps on liability identified in the treaty.[19] International civil liability rules do not specify the provider of insurance but will usually require some form of certification demonstrating that the coverage is adequate. The certification structure is central to the ability of states to ensure compliance with the financial security requirements, particularly in the shipping context, as states typically require proof of coverage as a condition of entry into their ports.[20]

Typically, the insurer is a commercial entity or a form of mutualized insurance whereby the operators may create a form of pooled self-insurance, such as protection and indemnity (P&I) clubs, which play a prominent role in insuring shipping

[16] For a discussion of the social lisence to operate in the oceans context, see Michelle Voyer and Judith van Leeuwen, '"Social Licence to Operate" in the Blue Economy' (2019) 62 Resour Pol'y 102.

[17] Most notably in the context of oil transport are the Tanker Owners Voluntary Agreement Concerning Liability for Oil Pollution (TOVALOP) and Contract Regarding a Supplement to Tanker Liability for Oil Pollution (CRISTAL) arrangements.

[18] See Offshore Pollution Liability Agreement (OPOL), and second amended version of 'The Compact: A Contractual Mechanism for Response in the Event of Damage to Biological Diversity Caused by the Release of a Living Modified Organism' (2012) <www.isaaa.org/workshop/2012-01-10-bangkok/download/liability_and_redress/Compact.pdf> accessed 29 August 2022.

[19] With the exception of the Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety (adopted 15 October 2010, entered into force 5 March 2018) 50 ILM 105 (2010 Nagoya-Kuala Lumpur Supplementary Protocol) art 10.

[20] See, for example, Marine Liability Act, SC 2001, c 6, s 55 (Canada).

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activities.[21] Declarations of self-insurance are generally not permitted, except where the operator is a state or state enterprise.[22] Since there can be no guarantee of the availability of commercial, third party insurance, most civil liability treaties provide that operators may use bonds or other guarantees as an alternative to insurance. The financial burden of posting this type of security in amounts necessary to cover the liability caps is significant and may be unfeasible in many cases. As such, insurance has been the predominant form of assurance used in civil liability conventions.[23]

Compensation funds provide a further risk-pooling mechanism that can provide enhanced coverage and, depending on its contribution structure, spread the burden of securing liability obligations to other actors in the risk chain. As developed under the oil pollution regime, the oil pollution fund is primarily structured to provide further tiers of coverage in recognition that insurance coverage will not be sufficient in some instances to cover high-cost claims. Where claims are anticipated to exceed first tier coverage, the fund assesses contributions (usually on an *ex-post* basis) that are then used to settle claims. The use of funds to provide enhanced coverage recognizes the limited capacity of the insurance industry to bear catastrophic losses. The fund also provides coverage for claims not otherwise covered by insurance (for example, due to a policy exception, successfully raised defence or bankruptcy of the insurer).

In the case of oil pollution, shipowners are responsible for acquiring insurance, but the source of fund contributions comes from the oil receivers (generally large refining interests) in member states.[24] Such a structure requires the presence of another sufficiently uniform (in terms of risk) class of participants in the risk chain. Thus, funds can contribute to further risk spreading by providing for a wider base of contributors, but the presence of a fund complicates ratification, as it requires states to negotiate with domestic contributors (such as oil receivers) that will be subject to additional financial burdens. There is a third tier of coverage in the oil liability regime, which covers losses beyond those in the first two tiers.[25] Fund coverage is residual in nature, covering only those costs not addressed by the tier below.

Funds have been proposed in a number of other regimes beyond oil transport, including the 1996 International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea (1996 HNS Convention) (carriage of hazardous and noxious substances), the

[21] Charles Anderson and Colin de la Rue, 'The Role of the P&I Clubs in Maritime Pollution Incidents' (2011) 85 Tul L Rev 1257.

[22] See, for example, Liability Annex (n 9) art 11(3).

[23] But see discussion on potential uses of bonds in the deep seabed context in Sarah Hoyt, Cindy Van Dover, Samantha Smith and Linwood Pendleton, 'Closing the Liability Gap: A Review of Liability Alternatives for the Emerging Seafloor Mineral Extraction Industry' (2016) <https://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/11881/MP_FINAL.pdf?sequence=1> accessed 29 August 2022.

[24] 1992 Fund Convention (n 2) art 10.

[25] 2003 Supplementary Fund Convention (n 2).

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1999 Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movement of Hazardous Wastes and their Disposal (1999 Basel Liability Protocol) (transboundary movement of hazardous waste) and the Liability Annex to the 1991 Antarctic Protocol.[26] The 1996 HNS Convention adopts a similar structure to the 1992 Fund Convention, and is contemplated (upon coming into force) on being managed by the IOPC Funds, the international organization set up to manage the oil fund conventions.[27] Because the 1996 HNS Convention covers a variety of substances with different risk profiles, the fund is segregated by substance to avoid cross-subsidization across sectors.[28] The 1999 Basel Liability Protocol does not create a new fund, but rather extends the role of the existing Technical Co-operation Trust Fund to include taking 'additional and supplementary measures'.[29] There is no new funding mechanism to support this role; instead the Basel Convention Technical Co-operation Trust Fund relies on voluntary contributions.[30] The designation of the fund as a 'trust' fund speaks to the broader, but more ambiguous, role of the fund beyond providing compensation. The fund under the Antarctic Liability Annex, discussed below, is structured to collect funds from operators who fail to take required response actions, and use those funds to reimburse parties who undertake response actions in relation to other incidents.

A final form of assurance, found in the conventions addressing liability for damage arising from nuclear installations, takes the form of a state commitment to make public funds available to cover claims in excess of insurance coverage.[31] This approach is effectively a form of state guarantee, whereby installation states agree to cover the liabilities associated with operators within their jurisdiction. Unlike the oil pollution regime, the approach in the first instance is not tiered. Instead, the nuclear liability regime identifies overall liability limits, but leaves the amount to be covered by insurance in the hands of the installation state. The installation state must then agree to cover the uninsured portion through public funds. There is a further tier of compensation available under a separate treaty, the Convention on Supplementary Compensation for Nuclear Damage, which is financed collectively by the parties to

[26] 1996 HNS Convention (n 6); Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movement of Hazardous Wastes and their Disposal (adopted 10 December 1999) UNEP/CHW.1/WG/1/9/2 (1999 Basel Liability Protocol); Liability Annex (n 9).

[27] 1996 HNS Convention (n 6) art 13.

[28] ibid art 19.

[29] 1999 Basel Liability Protocol (n 26) art 15 (indicating the use of 'existing mechanisms' to provide supplemental compensation measures).

[30] See Jutta Brunnée, 'Of Sense and Sensibility: Reflections on Environmental Liability Regimes as Tools for Environmental Protection' (2004) 53 ICLQ 351, 361.

[31] Vienna Convention on Civil Liability for Nuclear Damage (adopted 21 May 1963, entered into force 12 November 1977) 1063 UNTS 265, amended by Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage (adopted 12 September 1997, entered into force 4 October 2003) 2241 UNTS 270 (1997 Vienna Convention) art VII.

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that treaty.[32] The contributions are based on a formula that accounts for the installed nuclear capacity of the state and its capacity to pay (using the UN rate of assessment). By providing a guarantee of compensation, participating states are providing a form of indirect subsidy to the nuclear sector. The acceptability of this subsidy reflects the unique conditions surrounding nuclear installations, in terms of their risk profile and the central role of the state in the industry.

8.4 FINANCIAL ASSURANCE OBLIGATIONS IN ABNJ

The inclusion of financial assurances as a fundamental element of most civil liability structures raises the question of whether the provision of financial assurances is a legal requirement or simply a matter of sound policy and political preference. As noted, the requirement to provide financial assurances is framed within civil liability regimes as an element of the requirement to provide 'prompt and adequate compensation'. In situating this requirement in the context of activities occurring in areas beyond national jurisdiction, the starting point is article 235 (2) of the 1982 UN Convention on the Law of the Sea (UNCLOS),[33] which provides a standard for the minimum measures that a state must enact, at least insofar as those measures are necessary to address damage caused by pollution to the marine environment. The obligation to ensure the availability of 'prompt and adequate compensation' is an emerging international legal standard, but its precise contents remain ambiguous. Amongst the outstanding questions is whether this standard includes a positive obligation to provide financial assurances within domestic legal systems or through international cooperation.

Lefeber notes that the requirement for prompt and adequate compensation has both procedural and substantive dimensions. The procedural dimensions require equal access to legal mechanisms and procedures for the recognition and enforcement of judgments, while the substantive dimensions speak to the rules and procedures governing recovery, including financial security.[34] Similarly, amongst the measures identified as necessary to ensure prompt and adequate compensation, the International Legal Commission (ILC) includes the requirement for financial security on the basis that security is necessary to ensure that sufficient funds are available to meet claims.[35] Both Lefeber and the ILC note that there is extensive treaty practice in support of the inclusion of financial security requirements in civil liability treaties. In and of itself, it may be hard to draw any firm conclusions on the presence of a generalized obligation to provide security from such a practice, given

[32] Convention on Supplementary Compensation for Nuclear Damage (adopted 12 September 1997, entered into force 15 April 2015) 36 ILM 1473 (1997 Nuclear Supplementary Fund Convention).

[33] UNCLOS (n 1) art 235.

[34] Lefeber (n 1) 270 et seq.

[35] Draft Principles (n 1) principle 4(3), 76.

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that the requirement has only been accepted in a relatively limited number of activities (nuclear installations, and oil and HNS transport).

The Seabed Disputes Chamber (SDC) in its 2011 Advisory Opinion on *Activities in the Area* identifies the requirement for 'prompt and adequate compensation' as a constituent element of a sponsoring state's due diligence obligations, specifically related to its obligation to ensure that a contractor meets its liability obligations under Annex III, article 22, but does not specify the content of that obligation.[36] In particular, the SDC does not speak to the requirement for assurances, except to note the utility of compensation funds, as contemplated in article 235(3).[37] However, understood as a matter of due diligence, the requirement for financial security comes down to the foreseeability of contractors having insufficient funds to cover potential liabilities and what might be understood to be the accepted practices of good governance in this context.[38] The consistent practice of states indicates the foreseeability of operators having insufficient funds (also identified as being foreseeable by the SDC in its Advisory Opinion), and points to the requirement of financial securities as an accepted practice to address those circumstances. Thus, where the provision of prompt and adequate compensation is required, including in marine areas beyond national jurisdiction, and adequacy is assessed on the basis of due diligence, there is support in favour of a standard that requires assurances. The recognition of compulsory insurance and compensation funds in article 235(3) strengthens the claim that securing compensation is an integral element of adequate compensation, whether implemented domestically or through international cooperation. However, the qualified wording of article 235(3) suggests a high degree of flexibility and discretion in implementing that requirement.

The situation in relation to the Antarctic is less clear. The 1991 Antarctic Protocol contains similar wording in article 15, where the parties agree to provide for 'prompt and effective response action' to environmental emergencies. However, the liability provision does not identify any particular standard for compensation.[39] In the Liability Annex, which includes a requirement for financial security, the issue of liability is linked directly to response measures, but there is little evidence that the content of the Liability Annex was driven by an understanding that the requirements for compensation, including assurances, had to satisfy minimum legal requirements,

[36] *Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area* (Advisory Opinion of 1 February 2011) ITLOS Reports 2011 (*Activities in the Area* Advisory Opinion) para 140.

[37] ibid para 205.

[38] ILC, 'Draft Articles on Prevention of Transboundary Harm from Hazardous Activities, with Commentaries' (2001) UN Doc A/56/10 (Draft Articles on Prevention of Transboundary Harm), commentary to art 3, 155, para 17 (noting 'the main elements of the obligation of due diligence involved in the duty of prevention could thus be stated: the degree of care in question is that expected of a good Government').

[39] 1991 Antarctic Protocol (n 9) art 16.

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as evidenced by the restrictive approach to coverage in the Liability Annex.[40] There was discussion amongst the parties concerning insurance in the lead-up to the adoption of the Liability Annex in 2005.[41] However, this discussion centred on the need to adjust the Annex in order for the requirements to align with insurability constraints, which suggests that the financial assurance provision was driven by practical concerns rather than a belief that there were minimum international requirements respecting assurances. The Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA) also addresses liability issues and provides a reference to the development of a fund to assure response actions and compensation obligations.[42]

8.5 FINANCIAL ASSURANCES IN LIABILITY STRUCTURES IN ABNJ

8.5.1 *Antarctic*

The Liability Annex adopts an insurance-based approach to assurance but includes provisions for the creation of a compensation fund that is funded through the recovery of amounts equal to the funds that ought to have been paid to address environmental emergencies. The more flexible application of compensation fund contributions provides a novel and administratively oriented approach to securing compensation. The other unique aspect of the Liability Annex is its differential treatment of state and private operators, discussed below, which illustrates some of the difficulties in imposing liability requirements on state actors, even under the limited and well-defined operating conditions in the Antarctic.

Because the liabilities to be secured under the Liability Annex are limited to the costs of 'response actions' to 'environmental emergencies',[43] the principal obligation is for the operator to undertake prevention and restoration actions in response to environmental emergencies, with liability flowing from their failure to do so.[44] In the event that the operator fails to undertake response actions in accordance with the requirements of the Annex (i.e. it is not 'prompt and effective'), a response action may be undertaken by the party of the operator or another party. In those instances,

[40] Liability Annex (n 9) art 6 (restricting liability to costs associated with response measures). There is overlap between article 235 and the Antarctic Liability regime, insofar as both address requirements for compensation in relation to Antarctic waters, but this does not appear to have been a factor in the development of the liability rules: see Patrizia Vigni, 'The Interaction between the Antarctic Treaty System and the Other Relevant Conventions Applicable to the Antarctic Area: A Practical Approach versus Theoretical Doctrines' in JA Frowein and Rüdiger Wolfrum (eds), *Max Planck Yearbook of United Nations Law* (Kluwer 2000) 481.

[41] ATCM, 'Liability – Report of the Group of Legal Experts' (n 8) para 36.

[42] Convention on the Regulation of Antarctic Mineral Resource Activities (adopted 2 June 1988) 27 ILM 868 (CRAMRA) art 8(7).

[43] Liability Annex (n 9) art 2.

[44] ibid art 5(1).

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the operator is liable for the costs of the response action undertaken by the party in question.[45] In the event that no response action was taken (by either the operator or a party), the operator shall be liable for the amount equal to the costs of the response action that should have been undertaken.[46] This second form of liability is unique in that it does not address a specific attributable loss, but rather recognizes a general loss to the Antarctic environment. This is a noteworthy innovation, as it decouples liability for environmental losses from restoration activities undertaken and, as discussed below, makes funds available for future uncovered losses.

Operators are required to maintain insurance cover in amounts equal to the liability limits identified in the Annex to address response actions undertaken.[47] However, insurance is not mandatory to cover liability flowing from the second circumstance where no response action was taken, but rather the question of insurance coverage is left to the state party with jurisdiction over the operator in question.[48] The insurance requirements lack the same level of detail seen in other civil liability regimes, which typically specify the requirements of certificates of insurance and provide for claims to be brought directly against the insurer. The absence of a requirement for certificates of insurance reflects the difficulties of enforcement where there is no port state jurisdiction.[49] Instead, the enforcement of the insurance requirements is again the responsibility of the party of the operator.[50] The inability under the Liability Annex to claim directly against insurers creates a potentially significant liability gap since direct claims against insurers prevent the frustration of compensation where the operator becomes bankrupt or is otherwise unable to be subject to an action. The defences available to the insurer are not specified, and could, therefore, include broader exemptions than those specified for operators under the Annex.[51] No attempt is made to impose insurance requirements on non-parties through requiring proof of insurance for entry into Antarctic waters in a manner analogous to port state entry requirements. This is not surprising given the interference that such a requirement would have on the right of free navigation.

The required coverage is identified with different caps being specified for accidents involving ships and those that do not.[52] Unlike the oil pollution liability

[45] ibid art 6(1).
[46] ibid art 6(2).
[47] ibid art 11(1).
[48] ibid art 11(2).
[49] See, for example, International Maritime Organization, Resolution A.1155(32), 'Procedures for Port State Control, 2021' (adopted 15 December 2021) para 2.2.3 and Annex 12 (listing various certificates of insurance required to be produced and examined by port state control officers).
[50] Liability Annex (n 9) art 11(1).
[51] ibid art 8 (setting out liability exemptions). Of particular note in relation to P&I insurers is the 'pay to be paid' clause, which relieves insurers of an obligation to pay claims unless, and until, the insured has first satisfied the claim. For general discussion of 'pay to be paid' clauses, see Jody Schisel-Meslin, 'Out of the Club? Out of Luck: Complexities Facing Injured Third Parties Seeking Recovery from P&I Clubs' (2019) 43 Tul Mar L J 319.
[52] Liability Annex (n 9) art 9.

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regime, the Annex does not displace other international conventions affecting shipowner liability, particularly the LLMC.[53] When the Annex was negotiated, the limits on liability identified in the Annex were set to match the 1996 LLMC but since that time, new limits have come into effect under further amendments to the LLMC,[54] leading to the possibility of different operators being subject to different limitations depending on the version of the LLMC, if any, to which the party with jurisdiction over the operator is bound.[55] For non-shipping operators, liability is capped at three million special drawing rights. It is less clear whether there is commercially available insurance for non-shipowners.[56] However, state operators are permitted to self-insure.[57]

Where no response action is taken, the amounts collected under article 6(2) are to be paid into a fund created under article 12 of the Annex. The purpose of the fund is to provide for the 'reimbursement of the reasonable and justified costs incurred by a party or parties in taking response actions pursuant to article 5(2)'.[58] Instead of contributions being directed towards addressing the incident that gives rise to the liability, they provide a source of funding to address future liabilities that arise and may otherwise go unaddressed. The contemplated circumstances under which the fund might provide reimbursement include where the identity of the operator is unknown or not subject to the Annex, the unforeseen failure of an insurer or exemptions relieving the operator of liability obligations.[59] Reimbursement proposals may be submitted by any party and will be subject to the approval of the Antarctic Treaty Consultative Meeting (ATCM).

The ability to collect funds that can then be applied to other incidents is unique but reflects the collective status of the Antarctic environment. Unlike losses to specific victims or states, where restitution requires that the compensation be directed to the victim of the loss suffered, in the Antarctic, the loss (where no response action is taken) is suffered collectively. Allowing for funds to be used in relation to a different incident maintains the underlying environmental purposes of the scheme. The Secretariat of the Antarctic Treaty is anticipated to administer the

[53] 1996 LLMC (n 8). Article 3 of the 1996 LLMC exempts claims under the 1992 Oil Pollution Liability Convention (n 2) from the limitations contained within the LLMC 1996.

[54] Amendments to the Protocol of 1996 to Amend the Convention on Limitation of Liability for Maritime Claims, 1976 (adopted 19 April 2012, entered into force 8 June 2015) IMO Resolution LEG.5(99).

[55] This has been the subject of several reports to the ATCM from the International Group of P&I Clubs; see ATCM (n 8) and ATCM, Final Report of the Forty-Second Antarctic Treaty Consultative Meeting (vol I, ATCM 2019) paras 167–168 (referencing IP 101 'Annex VI to the Protocol on Environmental Protection to the Antarctic Treaty: Financial Security' submitted by the International P&I Clubs).

[56] ibid.

[57] Liability Annex (n 9) art 11(3).

[58] ibid art 12(1).

[59] ibid art 12(3).

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fund created under the Liability Annex, with the ATCM providing the decision-making authority required.[60]

Unlike the fund created under the oil pollution regime, the Antarctic fund is not tiered and only indirectly provides supplemental coverage, insofar as the ATCM could approve reimbursements for response actions that exceed the coverage limitations provided under article 9. The structure of the Annex is such that insurers may be required to cover amounts sought to be recovered from operators and paid into the fund. Because recovery in these instances is based on the costs of a response action not actually undertaken, the calculation of damages differs slightly from the reinstatement coverage under other civil liability regimes, which is based on the costs of only those reinstatement actions that are actually undertaken, although the coverage is similarly restricted to 'reasonable measures'.[61]

8.5.2 *Deep Seabed*

At the time of writing, the International Seabed Authority (ISA) has enacted regulations governing the exploration phase of deep seabed mining, which include insurance requirements. The current practice, under the Exploration Regulations, provides a requirement that the contractor 'maintain appropriate insurance policies with internationally recognized carriers, in accordance with generally accepted international maritime practice'.[62] The requirement does not specify what coverage is 'appropriate', and the reference to 'generally accepted international maritime practice' is not further elaborated upon.[63] It is unclear what these standards might refer to, particularly in relation to the extent of liability coverage in areas beyond national jurisdiction. In addition, in the absence of operational extensions, maritime coverage would not address damage arising from non-shipping-related, operational accidents (i.e. during equipment testing). While exploration activities appear low-risk, the exploration regulations clearly foresee the potential for damage to the marine environment.

In relation to the exploitation phase, the 2019 Draft Exploitation Regulations (DER) include reference to both insurance requirements and the creation of a fund. The DER include an obligation on contractors to maintain appropriate insurance policies but have not specified any details.[64] The DER make reference to applicable 'international maritime practice, consistent with Good Industry Practice', as the basis for insurance requirements.[65] At the present time, there is no endemic

[60] ibid arts 12(1) and (2).
[61] ibid art 2(f).
[62] See, for example, International Seabed Authority (ISA), 'Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area' (2013) ISBA/19/C/17 (PMN), Annex IV, s 16.5.
[63] This wording does suggest that the limits contained in the 1996 LLMC (n 8) would apply.
[64] ISA, 'Draft Regulations on Exploitation of Mineral Resources in the Area' (2019) ISBA/25/C/WP.1 (DER) reg 36 (but the draft regulations anticipate that particulars will be addressed in a Guideline).
[65] ibid.

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insurance market for operational aspects of deep seabed mining, and the commercial availability of such insurance is an open question. Self-insurance is a possibility, particularly for contractors that are state agencies or state-owned entities, but this may raise competitiveness concerns, particularly in light of the attention given to non-discrimination in Part XI of UNCLOS.[66]

The application of financial assurance requirements to seabed mining ought to consider the specific liability provisions applicable to activities in the Area. The wording of Annex III, article 22, which indicates that 'liability in every case shall be for the actual amount of damage', could be interpreted as a constraint on the parties' ability to impose liability caps, which could potentially conflict with current maritime insurance practices that accept limitations as a necessary element of insurability. Much, of course, would depend upon how damages are defined in this context, but the wording raises the possibility of an uninsured portion of losses.

The DER also call for the creation of an 'Environmental Compensation Fund' (ECF), the main purposes of which include assuring 'necessary measures designed to prevent, limit or remediate any damage to the Area arising from activities in the Area', where the costs cannot otherwise be recovered from contractors or sponsoring states, but also providing funds for matters such as research, education and training and general restoration and rehabilitation of the Area.[67] The funding sources identified for the ECF reflect its mixed mandate, and include a percentage of fees and penalties, in addition to 'monies paid into the Fund at the Direction of the Council'. The latter source provides a potential basis for imposing contributions to the ECF on contractors, or other actors involved in deep seabed mining. There are jurisdictional limitations on the ability of the ISA to impose requirements on entities, such as mineral processors, operating outside the Area.[68] As a result, the likely contributors would be contractors and potentially sponsoring states, which may raise concerns about the ability of the ECF to accumulate sufficient funds in the early stages of mining, when only one or two contractors are operating.

The structure has some similarities to the fund created under the Antarctic Liability Annex insofar as the fund is not tied directly to compensating individual losses but provides potential coverage for general harm to the Area. The potential contours of the ECF have been explored in a technical study prepared under the direction of the ISA, which addresses a range of implementation issues associated with compensation funds.[69] Notably, the Study advises that pure environmental damage be excluded from the fund, citing considerations respecting financial

[66] UNCLOS (n 1) art 152. See also Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea (adopted 28 July 1994, entered into force 28 July 1996) 1836 UNTS 3 (1994 Implementation Agreement) Annex, s 6 (1)(c).

[67] DER (n 64) reg 55.

[68] *Activities in the Area* Advisory Opinion (n 36) para 95.

[69] ISA 'Study on an Environmental Compensation Fund for Activities in the Area' (2021) ISA Technical Study No. 27.

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viability. More broadly, liability caps can address viability concerns, although there is a significant challenge associated with establishing caps under the uncertain operational and environmental conditions that prevail in the Area. The operational modalities of the ECF, including identifying eligible claimants, claims procedures and fund administration, will need to be addressed.

8.6 FUTURE PROSPECTS FOR THE USE OF FINANCIAL ASSURANCE IN ABNJ

Given the central role that insurance and compensation funds have played in protecting and restoring the coastal marine environment from environmental harm, and the contemplated extension of financial assurances in the Antarctic and deep seabed mining contexts, it is reasonable to anticipate increased interest in broadening the coverage of financial assurances to address the evolving range of activities in areas beyond national jurisdiction, such as those contemplated under the negotiation process for a new instrument governing for marine biodiversity of areas beyond national jurisdiction.[70]

Understanding the insurability of risks arising in areas beyond national jurisdiction is complicated by the restricted application of civil liability regimes to only pollution damage that occurs in the territorial sea and exclusive economic zone of parties.[71] Since insurance requirements under liability regimes are tied to the scope of liability under the treaty in question, coverage for damage to the high seas is not required under most existing civil liability treaties. The one exception to this limitation is in relation to compensation for preventive measures, which may be undertaken on the high seas, but only in relation to the prevention or minimization of harm to the territorial sea or exclusive economic zone.[72] Where the attention on compensation focused primarily on the economic losses associated with incidents, treating areas beyond national jurisdiction differently was understandable. As the compensation and financial assurances in support of compensation increasingly address environmental damage, this different treatment is increasingly difficult to justify. P&I coverage and other forms of maritime insurance are not similarly restricted to territorial areas or exclusive economic zones, since liability risks (for

[70] The issue of developing some form of liability funding mechanism has been raised in the negotiations for an internationally binding legal instrument for marine biodiversity of areas beyond national jurisdiction, but the issue has not formed part of the negotiating drafts. See Earth Negotiations Bulletin, 'Summary of the Second Session of the Intergovernmental Conference on an International Legally Binding Instrument under the UN Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biodiversity of Areas Beyond National Jurisdiction: 25 March–5 April 2019' (2019) vol 25 no 195 (noting the discussion on responsibility and liability).

[71] See, for example, 1992 Oil Pollution Liability Convention (n 2) art II; 1996 HNS Convention (n 6) art 3; 1999 Basel Liability Protocol (n 26) art 3.

[72] See, 1992 Oil Pollution Liability Convention (n 2) art II(b).

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example, collisions at sea) exist in areas beyond national jurisdiction.[73] As a result, there is a demand for coverage in areas beyond national jurisdiction, which is addressed in existing insurance arrangements for shipping, but not in accordance with any uniform requirements.

There is no jurisdictional bar to the imposition of mandatory insurance in areas beyond national jurisdiction through an international agreement. However, it has been noted that the extension of existing mandatory insurance requirements of the various civil liability conventions to areas beyond national jurisdiction may likely be viewed by some states as an undesirable intrusion on high seas freedoms, and if enforced unilaterally (through port entry requirements), may result in opposition from non-signatories.[74] Nonetheless, there are clearly areas where the nature of the activity and its associated risks have given rise to demands for harmonized financial assurance requirements; for example, the extension to mandatory insurance to shipping (and other) activities in the Antarctic was accepted by the parties.

There are several practical challenges connected to the provision of insurance in areas beyond national jurisdiction. First, insurability requires that the insurer be able to calculate the risks subject to coverage.[75] Making this determination requires the development of an understanding of the operational risks, the environmental harm that may arise from those risks and the costs associated with addressing those harms. A number of the proposed activities that might be subject to liability rules in areas beyond national jurisdiction, such as deep seabed mining and marine bio-prospecting, are novel with unclear operational risks. There are also high levels of scientific uncertainty in relation to the potential environmental impacts of incidents in the high seas, deep seabed and Antarctic environments, which further weaken the ability of insurers to quantify risks. In the face of risk uncertainty, insurability can be enhanced using liability caps, which are a consistent feature of civil liability regimes, as well as limitations on recovery for certain types of damages.[76] However, the appropriateness of these limitations to ABNJ needs to be carefully considered. For example, the exclusion of using offsets or abstract calculations to assess pure ecological losses may be considered overly restrictive in environments where remediation requirements may be technically and economically challenging.[77]

[73] See, for example, the conditions for coverage relating to oil pollution in the Gard AS, *Gard Rule Book* (2020) <www.gard.no/Content/33063275/cache=20221803124344/Gard%20Rules%202022_web.pdf> accessed 4 September 2022. See also The Shipowner's Club, *Club Rules 2020* (2020) <www.shipownersclub.com/media/2020/01/Club_Rules_2020_Web.pdf> accessed 4 September 2022.

[74] Nicholas Gaskell, 'Liability and Compensation Regimes: Pollution of the High Seas' in Robert Beckman and others (eds), *High Seas Governance: Gaps and Challenges* (Brill Nijhoff 2019) 229, 246.

[75] Richardson (n 11) 329.

[76] The restrictions on recoverability of restoration costs to reimbursing only the 'reasonable' costs of actions actually undertaken. See, for example, 1992 Oil Pollution Liability Convention (n 2) art 1 (6); see also Liability Annex (n 9) art 2 (restricting response actions to reasonable measures).

[77] See discussion in Chapter 3.

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A second condition that facilitates insurance is the ability for risk spreading; that is, it is desirable for there to be a sufficiently large number of insureds to allow the insurer to allocate its risks across operators. This, in turn, promotes the economic feasibility of the insurance arrangement as the costs of accidents (reflected in premiums) are shared. In the case of mutual insurance (i.e. through P&I clubs), risk spreading is fundamental to the viability of the arrangement. In the case of shipping, the risks involved may be spread amongst large numbers of actors. As such, the provision of insurance for Antarctic shipping activities does not appear to present viability concerns. The same cannot be said (at this time) for deep seabed mining or other novel ocean-based industries, where there are only a small number of operators (some of which may be able to self-insure as state enterprises). The situation in deep seabed mining is further complicated by the presence of private corporations, state enterprises and state agencies as contractors.

Given the specificity of operational risks, liability rules and associated insurance requirements are typically sector-based, with key stakeholders (operators, insurers) being consulted in the shaping of the rules, as opposed to being geographically oriented. The Antarctic Liability Annex is the exception, where the liability rules address both terrestrial and maritime activities, but even here, the parties developed separate shipping requirements aligned with existing industry standards. In other areas where non-sectoral liability regimes have been developed, such as general environmental liability rules under the Lugano Convention or under regional seas conventions, the insurance (or other financial security) provisions have provided parties with near complete discretion to determine the requirements.[78] Thus, including insurance or other security requirements in a treaty of general application would not likely yield a uniform and harmonized result.

A condition for the implementation of compensation funds in the oil and HNS context has been the presence of other actors beyond the operator (shipowner) who are prepared to make contributions to the fund. In these cases, the justification for imposing contribution obligations on the receivers of oil or HNS flows from their role in driving the demand for the risky activity. The small number of receivers and the relatively low cost of the contribution in relation to the overall cost of the substance receiver, as well as the desire on the part of the receivers for a social licence to operate, facilitate the acceptability of the arrangement.[79] The extension of

[78] Lugano Convention on Civil Liability for Damage resulting from Activities Dangerous to the Environment (adopted 21 June 1993) 32 ILM 1228 art 12; UNEP, 'Guidelines for the Determination of Liability and Compensation for Damage Resulting from Pollution of the Marine Environment in the Mediterranean Sea' (2008) UNEP(DEPI)MED IG.17/10 Annex V, para 28.

[79] See Nicholas Gaskell, 'Compensation for Offshore Pollution: Ships and Platforms' in Malcolm Clarke (ed), *Maritime Law Evolving* (Hart Publishing 2013) 63, 67 (noting the low cost of the impost per tonne of oil). See also John Morrison, 'Global Approval Not Enough, Businesses Need Social License' (2014) YaleGlobal Online <https://archive-yaleglobal.yale.edu/content/government-approval-not-enough-businesses-need-social-license> accessed 4 September 2022.

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the fund coverage from the oil and HNS funds to areas beyond national jurisdiction is possible, but may face opposition from some states and receivers on both jurisdictional grounds (on the issue of interference with the freedom of navigation) and on the basis of concerns over increased exposure. There are parallels between receivers of seabed minerals and receivers of oil and HNS that suggest mineral processors as a potential source of contributions to deep seabed mining. The need for further risk spreading would depend upon whether the assurance demands exceeded the capacity of contractors to provide. Even if this step were desirable, such an arrangement would require the agreement of processor states who would need to impose the contribution requirements.[80]

The other potential sources of contributions to the fund would be the operators themselves or states. The creation of an operator-funded structure would effectively be a form of mutual insurance but could address types of compensation that commercial insurers are unwilling to cover. State contributions or guarantees could be sourced from states whose nationals are benefitting from a risky activity, such as sponsoring states in the deep seabed mining context, or even a broader constellation of states, on the basis that the fund would accrue to the benefit of all states insofar as the fund would be used to protect and preserve the marine environment. The willingness of states to become the effective insurers of activities in areas beyond national jurisdiction is doubtful, as the risks presented differ considerably from those relating to nuclear installations (the only example where states have agreed to make public funds available to address liability claims). In the nuclear context, the risks are both potentially catastrophic in scale and directly impact the core economic and human security interests of the states. In the global commons context, the risks are more remote and therefore less politically salient, making it more difficult to justify what amounts to a subsidy.

Determining the form of assurance, and in particular, the desirability of a compensation fund, depends very much on the adequacy of first tier financial assurances. Adequacy, in turn, is a function of whether the amount of compensation required will exceed the limits of insurance coverage, or if there is a (political) desire to address certain forms of harm for which insurance cover is unavailable. The precise driver of the need for second tier coverage will again be sector-specific. The high potential for damage from oil pollution or nuclear incidents clearly influenced the demand for financial assurances that supplement the limited capacity of insurance.

Based on the approach of the Antarctic and the emerging approach for deep seabed mining, there may be a need for greater flexibility in the design of fund mechanisms in areas beyond national jurisdiction, owing to the shared nature of the environmental resources and the diffuse nature of the activities posing risk of harm.

[80] As noted above, the ISA is constrained in its ability to impose obligations on activities outside the Area.

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The ability to use funds collected in relation to one incident in connection with another may facilitate a more environmentally responsive approach to compensation. For example, greater flexibility may allow for the use of offsets or other environment enhancing tools, where the focus is on the net environmental benefits, as opposed to compensating victims. These more diffuse approaches to fund coverage may also play a role in addressing cumulative and other forms of harm that are not easily attributable.

The challenge of hard to attribute losses may benefit from developments of innovative insurance and risk pooling products, such as parametric insurance, being developed under the Paris Agreement's loss and damage structures. The challenges that face climate-vulnerable states differ from the principal risks facing the environment in ABNJ, but both contexts involve moving away from the tight coupling of operator fault and compensable losses towards a more collectivist approach to addressing losses.[81]

Finally, the creation of a fund requires an institutional structure to manage the fund and claims against it, including determining the contributions required and assessing whether the claims made meet the requirements for payout under the liability rules in question. The IOPC Funds, which plays this role in relation to the oil pollution and HNS regimes, is an intergovernmental organization with a governing assembly and sophisticated secretariat, with an active role in negotiating and litigating settlements. The ATCM and the ISA can perform this role in relation to the Antarctic and deep seabed mining, respectively, although the extent of that role is not yet clear. The extension of assurances to address a broader set of claims in areas beyond national jurisdiction would require the creation of an institution with similar powers to manage claims on behalf of state and private interests: an act that would require significant political capital.[82]

8.7 CONCLUSIONS

It is premature to arrive at firm conclusions on the future direction of financial assurances in activities in areas beyond national jurisdiction beyond those covered

[81] In the climate context, parametric insurance is currently being developed as a risk pooling measure to protect against certain catastrophic impacts, which may be triggered by exceedances of predetermined thresholds (such as wind speed or precipitation associated with extreme weather events). While parametric insurance does not provide full indemnification of losses, the scheme provides greater certainty and prompt payouts, which may be critical in addressing catastrophic events. See Patricia Galvao Ferreira, 'Arrested Development: The Late and Inequitable Integration of Loss and Damage Finance into the UNFCCC' in Meinhard Doelle and Sara Seck (eds), *Research Handbook on Climate Law and Loss and Damage* (Edward Elgar 2021) 127.

[82] For example, the nature of any treaty institutions developed in connection with the BBNJ ILBI has been a source of contention amongst states. Discussed in Margaret Young and Andrew Friedman, 'Biodiversity beyond National Jurisdiction: Regimes and Their Interaction' (2018) 112 AJIL Unbound 123.

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by the Liability Annex, but some general observations may be made. First, states are under a due diligence obligation to take steps to ensure that adequate and prompt compensation is available in the event of pollution events. While the provision of financial assurances cannot be said to be a binding legal requirement, it is increasingly understood as a standard response to the very foreseeable circumstance of responsible parties being unable or unwilling to meet their liability obligations. As such, at a minimum, in the development of rules governing liability for new activities involving risk to the environment, there will be a strong normative expectation that some form of financial security arrangement be included.

Second, insurance will most likely form the centrepiece of financial assurance arrangements. Insurance is the default form of assurance across civil liability regimes and has proven to be an effective and sufficiently versatile product. Commercial availability may be an issue for novel activities, but insurers have adapted to provide cover for new risky activities, such as offshore oil and gas, in the past.[83] Past practice shows that there is a degree of collaboration amongst states, operators and the insurance industry, in developing rules that will facilitate insurance cover. The necessity for supplementary coverage depends on the adequacy of first tier assurance, and as was the case with the oil pollution regime may first require some demonstration of the inadequacy of insurance before being agreed to.

Third, there may be some reluctance to embrace an ambitious approach to liability cover in areas beyond national jurisdiction. The Antarctic Liability Annex adopts a cautious approach by carefully conscribing liability and by matching the limits of liability with existing industry standards, which has given a high priority to insurability. The Antarctic compensation fund is designed with similar constraint, offering some greater flexibility to the parties, but not increasing the amount of coverage available. The limited ambition has raised questions regarding whether the Liability Annex was a missed opportunity.[84] However, the slow pace of ratification suggests that a more ambitious approach was not likely to succeed. There was an indication that negotiations on extending the liability rules (beyond environmental emergencies) would be resumed at a further date, but there is no indication of when or whether such negotiations will occur.[85]

Finally, the Liability Annex points to a willingness by states to view compensation mechanisms as more than simply a means to achieve restitution to victims, but as part of the broader regulatory toolkit at their disposal. This reflects the shared nature

[83] Gaskell, 'Compensation for Offshore Pollution' (n 79).

[84] Rüdiger Wolfrum, 'Liability for Environmental Damage in Antarctica: Supplement to the Rules on State Responsibility or a Lost Opportunity?' in Isabelle Buffard (ed), *International Law between Universalism and Fragmentation: Festschrift in Honour of Gerhard Hafner* (Martinus Nijhoff 2008) 817.

[85] ATCM, Final Report of the Twenty-Eighth Antarctic Treaty Consultative Meeting (vol I, ATCM 2015) para 126. Discussed in Alan Hemmings, 'Liability Postponed: The Failure to Bring Annex VI of the Madrid Protocol into Force' (2018) 8 Polar J 315.

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of resources in areas beyond national jurisdiction, which allows for the more flexible application of compensation funds to achieve net environmental benefits. Such an approach opens up the use of financial assurances to providing compensation tied to liability but applying those funds in ways that can further the environmental purposes of the regime. This is an innovation with broader significance to liability in areas beyond national jurisdiction, as it decouples the availability of funding for harm to the environment from individualized losses. These approaches may be supplemented by innovative risk pooling measures, such as trust funds, which can distribute risk amongst a wider range of private and public actors with interests in ABNJ activities.

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