Chapter 7:
A Private Liability Scheme: The 'Biodiversity Compact'

As shown in the previous chapter, one of the Supplementary Protocol's major shortcomings is that it does not provide a basis for the transboundary enforcement of liability. This is particularly striking if one considers that the Supplementary Protocol only applies when a harmful LMO has been subject to a transboundary movement, but stipulates no rules on the recognition and enforcement of foreign administrative or judicial decisions. Consequently, whether it is possible to hold foreign operators liable for biodiversity damage caused by a noxious LMO will depend on the domestic legal systems of the states involved and their interaction.[1]

Besides the conclusion of international treaties between states, an alternative approach to addressing transboundary environmental concerns is through *self-regulation* undertaken by private actors whose activities are the cause of concern. The approach is based on the hypothesis that involving business and industry by means of voluntary undertakings and contractual arrangements might be more effective in implementing environmental policies than conventional instruments of international law such as treaties.[2] Self-regulation may also involve private compensation schemes for environmental damage. For instance, the *Offshore Pollution Liability Agreement* is a voluntary agreement of oil-producing companies establishing a liability scheme for pollution damage caused by incidents in the production of offshore oil.[3] A similar scheme, called the *Biodiversity Compact*, was established for damage to biological diversity caused by the release of LMOs into the environment.[4]

---

1 See chapter 6, section F.V.

2 See *Jürgen Friedrich*, Environment, Private Standard-Setting, in: Wolfrum/Peters (ed.), MPEPIL.

3 Oil Companies Offshore Pollution Liability Agreement (OPOL) (04 September 1974), 13 ILM 1409, as last amended effective 21 June 2017; see *Philippe Sands* et al., Principles of International Environmental Law (4th ed. 2018), 789.

4 The Compact: A Contractual Mechanism for Response in the Event of Damage to Biological Diversity Caused by the Release of a Living Modified Organism, Second

The Compact was concluded by six major biotechnology corporations in June 2010, only a few months before the Supplementary Protocol was adopted.[5] The corporations involved hoped that establishing a voluntary compensation scheme would weaken the demands for a legally binding international regime on civil liability.[6] At the same time, they wanted to demonstrate their confidence in the safety of their products by voluntarily assuming responsibility.[7] According to the Compact's preamble, the member corporations 'have tremendous confidence in the safety and their stewardship of the LMOs they develop and Place [sic[8]] on the Market'.[9]

Pursuant to the Compact, each member undertakes and agrees to respond to damage caused by any of its LMOs by taking restoration measures or paying financial compensation. Technically, the Compact is designed as a *third-party beneficiary contract*,[10] under which the signatories grant states an enforceable right to response action or compensation. Thus, states are the beneficiaries of the contract despite not being themselves parties to it.[11] The Compact can be signed by any legal person engaged with the release of LMOs, provided that it meets the membership criteria (A.).

The Compact's substantive provisions parallel those of the Supplementary Protocol to a certain degree. The Compact applies in the event that the release of an LMO by one of the signatories causes damage to biological diversity (B.). However, it specifies in much greater detail than the Supplementary Protocol under which circumstances damage to biodiversity gives rise to liability. It contains detailed provisions on the requirement

---

Amended Text (18 September 2012), available at: http://www.biodiversitycompact.org/wp-content/uploads/Compact-Second-Amended-Text-with-translation-reference-January-2014-2.pdf (last accessed 28 May 2022).

5 For more details on the historical background, see *Amandine Orsini*, Business as a Regulatory Leader for Risk Governance? The Compact Initiative for Liability and Redress Under the Cartagena Protocol on Biosafety, 21 (2012) Environmental Research 960; *J. T. Carrato* et al., The Industry's Compact and Its Implications for the Supplementary Protocol, in: Akiho Shibata (ed.), International Liability Regime for Biodiversity Damage (2014) 218.

6 *Stefan Jungcurt/Nicole Schabus*, Liability and Redress in the Context of the Cartagena Protocol on Biosafety, 19 (2010) RECIEL 197.

7 *Ibid.*, 205; *Orsini* (n. 5), 961.

8 In quotations from the text of the Compact, the capitalizations used therein (indicating terms for which a definition is given in Article 2.4) are reproduced unchanged in the present text.

9 Biodiversity Compact (n. 4), 10.

10 *Thijs F. Etty*, 7. Biotechnology, 22 (2011) YB Int'l Env. L. 318, 327.

11 Cf. *Carrato* et al. (n. 5), 223.

of causation, the identification of the party liable, and the standard of liability (C.). The Compact also provides for a number of defences that exclude liability, including that the damage resulted from a known risk (D.). With regard to potential remedies, the Compact follows a two-pronged approach, providing for both restoration and compensation (E.). Liability is limited by strict financial and time limits (F.). One of the Compact's main merits is a compulsory dispute settlement mechanism that is able to produce internationally enforceable awards (G.).

A. Membership

The signatories of the Compact, referred to as 'Members', currently comprise five major biotechnology companies.[12] Membership in the Compact is open to all entities with legal personality that are engaged in the release of LMOs,[13] provided that they meet the membership criteria.[14] Members must, *inter alia*, participate in stewardship programmes and perform rigorous assessments of their LMOs prior to any release. Moreover, members must demonstrate their capacity to meet their potential financial obligations in case they are held responsible under the terms of the Compact.[15] According to the bylaws to the Compact, this capacity shall be demonstrated by means of a third-party certificate of insurance, documentation of provision for self-insurance, or by other means that satisfy criteria determined by an *Executive Committee* established by the Compact.[16] At the same time, the Compact acknowledges that its membership goals are difficult to achieve as long as commercial insurance or financial support

12 The current members of the Compact are *BASF*, *Bayer CropScience*, *Dow Agrosciences*, *DuPont*, and *Syngenta*, see CropLife International, The Compact, available at: http://www.biodiversitycompact.org/ (last accessed 28 May 2022). *Monsanto Company*, which was the sixth founding member, ceased to exist as a separate legal entity in 2018 after being acquired by Bayer.

13 According to Article 2.4.xli, 'release' denotes 'any instance in which an LMO enters the environment'. This includes the 'placing on the market' of LMOs, which is defined in Article 2.4.xxxv as 'making an LMO available for any use in a State'.

14 Biodiversity Compact (n. 4), Article 3.1.

15 *Ibid.*, Article 3.5.

16 *Ibid.*, Appendix A, Article 4.2.c.

for potential obligations of small and medium enterprises is not available or affordable.[17]

B. Scope

The Compact applies when the release of an LMO by one of the signatories causes damage to biological diversity.[18] So-called 'traditional damage', such as personal injury, property damage, and loss of profits,[19] is expressly excluded from the Compact's scope.[20]

'Damage to biological diversity' is defined as either a 'Measurable, Significant and Adverse Change in a Species' or an ecosystem change 'that results in a loss of a natural resource service essential to sustain any Species'.[21] Such damage shall be determined by comparing the nature and quantum of change in the species or ecosystem from the baseline,[22] which refers to the state of a species or ecosystem prior to the changes alleged to constitute damage.[23] A measurable change is only deemed 'significant and adverse' when a particular species can no longer maintain itself on a long-term basis as a consequence of that change.[24] Both the determination of the baseline and its comparison with the conditions alleged to constitute damage shall be based on 'science-based evidence',[25] which means that such evidence must be obtained by the 'peer-reviewed, published and generally accepted scientific methodology used in the relevant scientific community of endeavour'.[26] If pre-existing inventories are not available,

17 *Ibid.*, Article 5.4; also see *Carrato* et al. (n. 5), 227, referring to an analysis of the CBD Executive Secretary, according to which the lack of insurance policies was a key reason why states did not ratify the Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and Their Disposal (10 December 1999; not yet in force), UNEP/CHW.5/29, p. 88, see CBD Secretariat, Status of Third-Party Liability Treaties and Analysis of Difficulties Facing Their Entry into Force: Note by the Executive Secretary, UN Doc. UNEP/CBD/BS/WG-L&R/1/INF/3 (2005).
18 Biodiversity Compact (n. 4), Article 1.2.
19 See chapter 2, section B.
20 Biodiversity Compact (n. 4), Articles 1.6 and 2.4.liii.
21 *Ibid.*, Article 6.2.
22 *Ibid.*, Article 7.1.
23 *Ibid.*, Article 2.4.vii.
24 *Ibid.*, Article 8.1.
25 *Ibid.*, Article 7.2.
26 *Ibid.*, Article 2.4.xliv.

data or evidence for establishing the baseline may be gathered during the investigation of the alleged damage.[27] The Compact provides that such data or evidence 'must be from twenty-five years immediately preceding the date when the alleged [… damage] occurred'.[28] The implications of this provision are controversial. While industry representatives claim that it reduced the burden of retrieving historical information on both parties,[29] representatives of environmental NGOs have criticized the period as being 'far too long'.[30]

C. Causation, Identification of the Party Liable and Standard of Liability

The Compact provides that each member is responsible for biodiversity damage 'Caused by the Release of an LMO by that Member'.[31] The term 'Release' denotes any instance in which an LMO enters the environment. Moreover, any 'Placing on the Market'[32] that results in an LMO entering the environment is also regarded as a release.[33]

For a member to be liable, there must be a causal link between the release of the LMO in question and the damage to biodiversity.[34] This means that the LMO must be the 'Cause-in-fact[35] and proximate Cause of Damage' to biodiversity.[36] There is no requirement of fault, which results in a form of strict liability.[37] Moreover, unlike the Supplementary Protocol, the Compact does not require a transboundary movement and

27 *Ibid.*, Article 2.4.vii.
28 *Ibid.*
29 *Carrato* et al. (n. 5), 231.
30 Cf. *Orsini* (n. 5), 970.
31 Biodiversity Compact (n. 4), Article 6.1.
32 'Placing on the Market' is defined as the 'action of intentionally making available an LMO for any use in a State' (*ibid.*, Article 2.4.xxx).
33 *Ibid.*, Article 2.4.xli.
34 This can be derived from Article 6.1, which refers to 'Damage to Biological Diversity *Caused* by the Release of an LMO by that Member'.
35 'Cause in fact' refers to the cause without which the event could not have occurred, i.e. the *conditio sine qua non*; cf. 'but-for cause', in: *Bryan A. Garner* (ed.), Black's Law Dictionary (11th ed. 2019), 273.
36 Biodiversity Compact (n. 4), Article 2.4.x; see *Carrato* et al. (n. 5), 232.
37 *Ibid.*; on strict liability for environmental harm, see *Hanqin Xue*, Transboundary Damage in International Law (2003), 299–312; *Julio Barboza*, The Environment, Risk and Liability in International Law (2011), 25.

applies to the release of any LMO, whether moved internationally or used only domestically.[38]

A member is not liable to the extent that the damage was caused by 'misuse' of the LMO by a third party. A case of misuse is assumed when a third party has violated a relevant law, safety measure or standard governing the LMO and thereby caused the damage.[39] In this case, the member who has released the LMO shall only be liable to the extent of its proportional responsibility under the terms of the Compact.[40] If the third party responsible for the misuse is also a Compact member, the response obligations shall be apportioned among them according to each member's proportional responsibility, but *joint and several liability*[41] among members is expressly ruled out.[42] Moreover, if the third party is not a member, it cannot be held responsible under the Compact unless it has elected to participate in the adjudication of the claim.[43]

The Compact's provisions on the attribution of responsibility are complex. In essence, the member who placed an LMO on the market is strictly liable for any damage resulting from that LMO, save to the extent to which third parties are responsible for the damage under principles of fault-based liability.[44] In other words, it is legally presumed that the damage was caused by the inherent characteristics of the LMO (and thus by the member who placed the LMO on the market) unless it can be proven that it was caused culpably by a third party.[45]

---

38 *Carrato* et al. (n. 5), 237.

39 Biodiversity Compact (n. 4), Article 10.4; cf. *Carrato* et al. (n. 5), 233–234; the concept of misuse is misunderstood by *Caroline E. Foster*, Diminished Ambitions? Public International Legal Authority in the Transnational Economic Era, 17 (2014) J. Int. Econ. L. 355, 370, who assumes that the misuse of an LMO is a prerequisite for liability under the Compact.

40 Biodiversity Compact (n. 4), Article 12.2 and 12.3.

41 Under joint and several liability, each liable party is individually responsible for the entire obligation, which benefits victims insofar as they only need to address one solvent tortfeasor to collect the entirety of the damages; a tortfeasor held liable may seek redress from other liable parties which were not directly addressed by the victim according to each of the parties' proportional responsibility, see 'joint and several liability', in: Black's Law Dictionary (n. 35), 1098.

42 Biodiversity Compact (n. 4), Article 12.4.

43 *Ibid.*, Article 10.1.

44 See chapter 2, section E.

45 This is in line with the allocation of responsibility suggested for the Supplementary Protocol in chapter 6, section C.II.

D. Defences

Article 10 of the Compact provides for an exhaustive catalogue of six defences that preclude or reduce the liability of the responsible member. Besides acts of God and acts of war, terrorism or civil unrest, defences include the misuse of the LMO by a third party, as discussed above.[46] Moreover, liability is excluded when damage is caused by compliance with compulsory measures imposed by the state other than necessary and appropriate preventive or remedial measures related to the LMO.[47] Comparable defence clauses can also be found in the *Offshore Pollution Liability Agreement* mentioned above.[48]

However, under the Biodiversity Compact, a member shall also not be liable when damage results from the realization of a risk which was specifically assessed and accepted as part of the state's authorization process.[49] This includes risks for which risk management measures were proposed in the assessment, regardless of whether such measures were actually imposed by the state when granting the authorization.[50] This defence is a substantial limitation since it essentially restricts the Compact's scope to risks that were not identified before the LMO was placed on the market. Any risks that were known but deemed acceptable, be it for their low probability or because the potential effects were considered negligible, are excluded from the scope of the Compact. However, the defence is limited to damage that is 'consistent with the type, magnitude and probability of harm' identified in the risk assessment, which means that it does not apply to any damage that was not objectively foreseen.[51] According to authors involved in the development of the Compact, this requires that the state was 'fully and accurately warned that such damage may occur'.[52] Consequently, it is argued here that an operator cannot evade liability by 'inflating' the risk assessment with purely hypothetical risks that remain unspecified in terms of the type, magnitude and probability of potential harm.

Finally, a defence can be raised when damage is caused by the 'realization of a risk posed by an activity specifically authorized or specifically

46 Biodiversity Compact (n. 4), Article 10.3(a)-(c); see *supra* section C.
47 *Ibid.*, Article 10.3(d).
48 Oil Companies Offshore Pollution Liability Agreement (OPOL) (n. 3), Clause IV(B).
49 Biodiversity Compact (n. 4), Article 10.3(e).
50 *Ibid.*
51 *Ibid.*, Article 10.3(e)(ii).
52 *Carrato* et al. (n. 5), 231.

permitted by applicable law or regulations of the State'.[53] If construed literally, this would be a far-reaching exemption since releases of LMOs (insofar as they are regulated by domestic laws[54]) are virtually always subject to a specific authorization. As a result, it would be questionable whether the Compact had any scope of application. Therefore, the present defence must be seen in the context of the defences mentioned above, which refer to risks explicitly accepted by the state[55] or even created by it by imposing additional compulsory measures.[56] Consequently, the defence does not apply to every authorized release, but only to activities exceeding the normal use of the LMO, which create additional risks and are therefore 'specifically' authorized by the state in consideration of these risks.[57]

E. Response

Under the Compact, each member undertakes and agrees to 'respond' to biodiversity damage caused by their LMOs.[58] The types of responses envisaged by the Compact are 'restoration' and 'compensation'.[59]

Although not clearly defined, *restoration* seems to denote practical measures to recover the affected species or ecosystem,[60] in line with the terms of the Supplementary Protocol. The objective of restoration is to restore the condition that existed before the damage occurred, which is satisfied when the affected species is again able to maintain itself on a long-term basis.[61] Restoration measures shall be implemented in accordance with a 'restoration plan', which is either agreed between the affected state and the responsible member or determined by way of arbitration.[62]

Compensation, on the other hand, means financial payments determined by valuing the loss of function, value, use and natural resource services

53 Biodiversity Compact (n. 4), Article 10.3(f).
54 See chapter 3, sections A.I.1 and A.IV.
55 Biodiversity Compact (n. 4), Article 10.3(e).
56 *Ibid.*, Article 10.3(d).
57 This interpretation seems to be shared by *Carrato* et al. (n. 5), 233.
58 Biodiversity Compact (n. 4), Article 6.1.
59 *Ibid.*, Article 9.1.
60 Cf. *ibid.*, Article 9.2.
61 *Ibid.*, Article 2.4.xlii; see *Carrato* et al. (n. 5), 234.
62 Biodiversity Compact (n. 4), Article 9.2; see *infra* section G.

incurred from the damage.[63] This contrasts sharply with the Supplementary Protocol, which does not provide for financial compensation at all, but stipulates that elements of biodiversity that cannot be *restored* shall be *replaced* with other components of biological diversity at the same or an alternative location.[64]

The Compact lists a number of factors that should be taken into account when determining the appropriate response. These factors include, *inter alia*, the characteristics of the affected ecosystem,[65] the benefits brought by the release of the LMO despite the damage, and whether natural restorative processes would reverse the loss without human intervention.[66] Moreover, the restoration plan or valuation of damage shall take into account any negative impacts on 'Public Health'.[67] It has been argued that this allows a response order to include measures to address imminent and substantial endangerments to human health arising from the biodiversity damage.[68] In this respect, the Compact is broader than the Supplementary Protocol, which refers to risks to human health in the definition of biodiversity damage, but does not mention measures to address such risks in the substantive provisions on liability.[69]

F. Financial Caps and Time Limits

Article 13 of the Compact provides for financial limits on the liability of Compact members. The limits for expenses for restoration measures are 30 million *Special Drawing Rights* (SDR)[70] for a single incident and 150 mil-

63 *Ibid.*, Article 9.3 and 9.4. The Compact expressly refers to CBD Secretariat, An Exploration of Tools and Methodologies for Valuation of Biodiversity and Biodiversity Resources and Functions, CBD Technical Series No. 28 (2007). Under the Antarctic Liability Annex, the amount of financial liability shall reflect the costs of response action that should have been taken; cf. Article 6(2)(b) Annex VI to the Protocol on Environmental Protection to the Antarctic Treaty: Liability Arising from Environmental Emergencies (14 June 2005; not yet in force), ATCM Measure 1 (2005). Also see chapter 11.

64 See Article 2(2)(d)(ii)(b) SP and chapter 6, section C.I.

65 Biodiversity Compact (n. 4), Article 9.2.b.

66 *Ibid.*, Article 9.5.

67 *Ibid.*, Article 9.2.c and 9.4.d.

68 *Carrato* et al. (n. 5), 235.

69 Cf. Supplementary Protocol, Article 2(2)(b); see chapter 6, section B.II.4.

70 Special Drawing Rights are a unit of monetary account used by the International Monetary Fund. The currency value of SDR is calculated daily on the basis of

lion SDR for all incidents caused by a particular LMO. For compensation, the corresponding limits are 15 million SDR per incident and 75 million SDR per LMO. The stated reason for the lower limits on compensation is to encourage restoration as the preferred form of response. When both restoration and compensation are owed because of the same incident, the higher amount shall be apportioned among both forms of response.[71] The total limits apply across all claims and affected states, which means that when multiple claims are pending, the financial limits will be apportioned among the respective claims, and once the limit has been reached, no further claims may be brought under the Compact.[72]

The limits have been justified as required for persuading members to voluntarily sign the Compact and make the Compact accessible to smaller companies and research facilities.[73] As mentioned in the previous chapter, financial limits are also an essential prerequisite for coverage by commercial insurers.[74] The Compact expressly acknowledges that the unavailability of insurance coverage poses an obstacle to achieving a broad membership to the Compact and ensuring that members demonstrate their capacity to meet their financial obligations potentially arising from the Compact.[75]

Only time will tell whether the financial limits stipulated in the Compact are adequate to address actual cases of damage. Notably, the limits apply regardless of the global spread of an LMO, i.e. the number of states into which the LMO has been imported and placed on the market. Thus, the Compact does not take into account that the potential damage caused by a globally marketed LMO may be significantly greater than the damage caused by an LMO that is spread less widely. As the financial limits shall be reviewed every five years,[76] the members could rectify these shortcomings. Yet, the last publicly available revision of the Compact is from 2012.[77]

---

a basket of major currencies. As of May 2022, 1 SDR equals 1.349150 USD. See IMF, SDR Valuation (27 May 2022), available at: https://www.imf.org/external/np/fin/data/rms_sdrv.aspx (last accessed 28 May 2022).

71 Biodiversity Compact (n. 4), Article 13.2.

72 *Ibid.*, Article 13.3.

73 *Carrato* et al. (n. 5), 236.

74 See chapter 6, section E.I.

75 See Biodiversity Compact (n. 4), Article 5.4 in connection with Article 3.1 and 3.5.

76 *Ibid.*, Article 13.5.

77 See CropLife International (n. 12).

Besides financial limits, the Compact also provides for time limits. Claims must be brought no later than three years after the state knew or should have known of the damage, and only within 20 years of the first approval or release of the LMO.[78] Again, time will tell whether the absolute time limit is sufficient or rules out claims for slow-onset damage to biodiversity. In any event, the limit only applies to the Compact and states retain any other available means of redress under applicable domestic or international law.[79]

G. Claims Process, Arbitration and Enforcement

Only states may submit claims for damage that has occurred within the limits of their respective national jurisdiction.[80] Private actors and NGOs have to avail themselves of domestic remedies or ask the state concerned to file a claim.[81] No claim may be made under the Compact when the same incident is already subject to domestic judicial or administrative action,[82] and a claimant state has to agree not to seek double recovery or to initiate parallel proceedings.[83]

The Compact provides that any claim shall be addressed in several steps. After a state has filed a claim, it will first be reviewed by a *Commissioner*, which shall be appointed by the *Permanent Court of Arbitration* (PCA) from a roster of neutrals.[84] The Commissioner shall verify that the formal requirements are met and that the claim is supported by 'Plausible Evidence',[85] which is defined as 'facts that support the reasonable interference' that a claim may result in a finding that the member concerned is indeed responsible under the Compact.[86] Industry representatives have defended the plausibility standard as a reasonable 'minimal threshold' to ensure that

78 Biodiversity Compact (n. 4), Article 11.
79 *Carrato* et al. (n. 5), 229.
80 Biodiversity Compact (n. 4), Article 14.1.
81 *Carrato* et al. (n. 5), 229. On the exercise of *diplomatic protection* on behalf of nationals, see chapter 9, section C.II.
82 Biodiversity Compact (n. 4), Article 14.2.
83 This is provided in Article 12 of the Arbitration Agreement, which can be found in Appendix B to the Compact and to which a state must agree in order to bring claims under the Compact (cf. Article 14.3.a of the Compact's main text).
84 Biodiversity Compact (n. 4), Article 14.5.
85 *Ibid.*, Article 14.6.
86 *Ibid.*, Article 2.4.xxxvi.

a tribunal is only convened for reasonable claims.[87] Others warned that the 'plausibility' criterion could, in fact, lead to the exclusion of valid claims and should thus be read in a way not to preclude an assessment by a full tribunal.[88] Moreover, it has been argued that the 'gateway' to claims created by the prior inquiry process could have the effect of time-barring claims that are not initially pursued at the time damage begins to materialize because they are still difficult to substantiate scientifically.[89]

If the Commissioner concludes that a claim is properly submitted, a conciliation period of 90 days is set in motion during which parties shall seek to resolve the claim through settlement or conciliation.[90] If no settlement can be reached, the claim proceeds to binding arbitration under the auspices of the PCA. The General Secretary of the PCA shall appoint a three-person tribunal to adjudicate the claim in accordance with the PCA's *Environmental Arbitration Rules*[91] as modified by the bylaws to the Compact.[92]

The standard of proof for each element of the claim and all defences shall be 'clear and convincing evidence',[93] which is the standard of proof formulated by the arbitral tribunal in the *Trail Smelter* case.[94] According to the Compact, 'clear and convincing evidence' means a 'degree of proof that will produce in the mind of the decision maker [sic] a firm belief or conviction as to the truth of the allegations sought to be established'.[95] However, it has been pointed out that this evidentiary threshold may be too high to be met by plaintiffs in environmental cases.[96] Consequently, tribunals under the Compact should rather rely on the 'preponderance of

87 *Carrato* et al. (n. 5), 229.
88 *Foster* (n. 39), 371–372.
89 *Ibid.*, 371.
90 Biodiversity Compact (n. 4), Article 15.
91 Cf. PCA, Optional Rules for Arbitration of Disputes Relating to Natural Resources and/or the Environment (2001); see chapter 6, section D.VI.
92 Biodiversity Compact (n. 4), Article 16.
93 *Ibid.*, Article 16.5.a.
94 See Trail Smelter Case (United States v. Canada), Decision of 11 March 1941, III RIAA 1938, 1965; see *Carrato* et al. (n. 5), 230. The Trail Smelter arbitration is expressly referred to in the Biodiversity Compact (n. 4), Article 2.4.xlix, n. 4.
95 *Ibid.*, Article 2.4.xlix.
96 *Foster* (n. 39), 372–373, referring to *Patricia W. Birnie* et al., International Law and the Environment (3rd ed. 2009), 154; ICJ, Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment of 20 April 2010, ICJ Rep. 14, Separate Opinion of Judge Greenwood, para. 26; see chapter 6, section C.III.

the evidence' test usually applied in adjudication and arbitration under public international law.[97]

All decisions rendered by the arbitral tribunal are final and cannot be appealed.[98] Arbitral awards rendered under the Compact shall be enforceable pursuant to the rules of the *New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards*.[99] As noted earlier, the New York Convention makes arbitration more attractive than litigation in domestic courts because there is no comparable instrument providing for the transnational recognition and enforcement of foreign court judgments.[100] However, many states apply the New York Convention only to awards concerning commercial disputes.[101] To overcome this problem, the Compact and the included draft of an *Arbitration Agreement* provide that an award rendered under the Compact shall be deemed as addressing 'differences arising out of legal relationships which are commercial'.[102]

H. Conclusions

The *Biodiversity Compact* is a voluntary private compensation scheme under which its members – currently six agricultural biotechnology corporations – assume liability for biodiversity damage caused by any of their LMOs. The Compact adopts the 'administrative approach' to liability used in the Supplementary Protocol but specifies the modalities of liability in much greater detail, particularly concerning the determination of damage and the required response. Together with bylaws and annexes, the Compact covers about 135 pages, while the text of the Supplementary Protocol is about ten pages long. The Compact's greater precision can be seen as an advantage over the Supplementary Protocol which, as shown in the

97 *Foster* (n. 39), 372–373.
98 Biodiversity Compact (n. 4), Article 16.6.
99 Convention on the Recognition and Enforcement of Foreign Arbitral Awards (10 June 1958; effective 07 June 1959), 330 UNTS 3; see *Jan Kleinheisterkamp*, Recognition and Enforcement of Foreign Arbitral Awards, in: Wolfrum/Peters (ed.), MPEPIL, MN. 14–15.
100 See chapter 2, section F, and chapter 6, section D.VI.
101 Cf. Article 3 of the New York Convention; see UN OLA, Overview of Declarations and Reservations to the New York Convention, available at: https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXII-1&chapter=22&clang=_en (last accessed 28 May 2022).
102 Article 19.2 and Appendix B, Article 12.2; also see *Carrato* et al. (n. 5), 236.

preceding chapter, remains ambiguous on a number of issues and leaves considerable leeway to states for domestic implementation.

The Compact channels liability to a clearly identifiable actor, namely to the developer or producer who has placed an LMO on the market. Its binding arbitration mechanism provides a state with the means to enforce liability even when the responsible member is situated outside of the state's jurisdiction.[103] In this regard, the Compact avoids one of the most significant shortcomings of the Supplementary Protocol which, as shown above, does not provide any means for enforcing the liability of operators situated abroad.[104] Furthermore, due to its nature as a third-party beneficiary contract, the Compact also benefits those states which have not ratified the Supplementary Protocol or do not have in place adequate liability rules in their domestic law.[105] While this is certainly one of the Compact's greatest advantages, it has been asserted that it might also discourage states from ratifying the Supplementary Protocol.[106]

Despite its merits, the Compact has several substantial limitations. Like the Supplementary Protocol, it suffers from limited participation and representativeness.[107] The shortcomings in participation are likely to become more pronounced, seen as the emergence of genome editing techniques has led to a substantial increase in bio-enterprise investment. Many new companies have emerged and have begun to commercialize these techniques.[108] Furthermore, the main proponents of self-spreading techniques such as engineered gene drives are currently not the biotechnology industry but rather research institutions and philanthropic organizations.[109] It currently seems unlikely that these actors will feel compelled to sign the Compact.

However, the Compact's most significant weakness is its exclusion of damage resulting from risks that were specifically assessed in a risk assess-

103 *Ibid.*, 237; see *supra* section G.

104 Cf. *René Lefeber*, The Legal Significance of the Supplementary Protocol: The Result of a Paradigm Evolution, in: Akiho Shibata (ed.), International Liability Regime for Biodiversity Damage (2014) 73, 88–89; see chapter 6, section F.V.

105 *Carrato* et al. (n. 5), 237.

106 Cf. *Orsini* (n. 5), 974–975.

107 Cf. *ibid.*, 974.

108 *Katelyn Brinegar* et al., The Commercialization of Genome-Editing Technologies, 37 (2017) Critical Reviews in Biotechnology 924; see chapter 1, section B.III.

109 See chapter 1, section C.III.1.c); also see *Florian Rabitz*, The International Governance of Gene Drive Organisms (2021) Environmental Politics 1, 12.

ment during the authorization procedure.[110] As a result, an LMO producer is not liable for the realization of any risks already known when the LMO was authorized for marketing or release. Consequently, these risks are shifted from the producer to the state that has authorized the use of a particular LMO. Such a one-sided risk allocation is uncommon for liability regimes addressing hazardous activities or substances, even when these activities or substances bring social benefits that are deemed to outweigh the (residual) risks.[111] It might also motivate operators to include every conceivable risk in the risk assessment, even if it is merely theoretical, to minimize their liability. It is doubtful that this helps to increase the thoroughness and overall quality of risk assessments for LMOs.

Moreover, the Compact's definition of damage, its provisions for determining the adequate response, and the claims process are highly complex. For instance, the requirement that data for establishing damage to biodiversity must cover a period of 25 years preceding the occurrence of the damage will likely be a major obstacle to successful claims. Although biodiversity inventories and baseline studies are becoming more common,[112] they will often not cover such long periods, or perhaps not cover the affected species, or not allow to prove complex ecosystem effects. Additionally, the requirement that claims must be brought within three years after a state has become aware of the damage severely limits the time available to gather the necessary data.[113]

Like the Supplementary Protocol, the Compact makes it difficult to anticipate how potential response measures might look. When the immediate damage cannot be restored, the Compact provides for financial compensation.[114] However, there is no guarantee that the state will use those funds to mitigate the consequences of the damage or to improve other elements of the environment.[115] In this regard, the Supplementary Protocol uses a better approach by providing that unrestorable damage shall be compensated by improving other components of biodiversity.[116]

Since the Compact, unlike the Supplementary Protocol, was exclusively developed by potentially liable parties and creates directly enforceable

110 Cf. Article 10.3(e); see *Etty* (n. 10), 327.
111 The same limitation can be found in CropLife International's Implementation Guide to the Supplementary Protocol, see chapter 6, section G.II.
112 See chapter 6, section B.II.3.
113 Cf. Article 11; see *Foster* (n. 39), 371.
114 Biodiversity Compact (n. 4), Article 9.3 and 9.4.
115 See *supra* section E.
116 Supplementary Protocol, Article 2(2)(d)(ii); see chapter 6, section C.I.

rights of states, the aforementioned limitations are arguably not surprising. However, considering that the Compact was meant to be a confidence-building measure,[117] one wonders whether it accomplishes this objective. At the same time, the considerable complexity of the Compact's text demonstrates the challenges involved in implementing the Supplementary Protocol into specific legislation at the domestic level. It has been suggested that the Compact's terms and processes could serve as a model in this regard,[118] although, considering the said limitations, legislators should be cautious about rashly incorporating the Compact's language into domestic law.

In conclusion, the Compact must rather be seen as a (failed) attempt to avert the adoption of a legally binding international regime on liability for damage caused by LMOs.[119] During the negotiations of both the Cartagena Protocol and the Supplementary Protocol, representatives of the biotechnology industry participated as observers. Considering the difficulties of states to reach an agreement on liability, it has been observed that the involvement of the industry demonstrated a 'relative vacuum in public international law', which 'invited industry to take control, both of dispute resolution processes, and of setting the substantive conditions on which foreign industry will be liable for transboundary harm'.[120] This vacuum was filled at least partially when the Supplementary Protocol entered into force in 2018.

117 Cf. *Jungcurt/Schabus* (n. 6), 205; *Carrato* et al. (n. 5), 223.
118 *Carrato* et al. (n. 5), 238.
119 *Jungcurt/Schabus* (n. 6), 205; *Orsini* (n. 5), 968.
120 *Foster* (n. 39), 373.